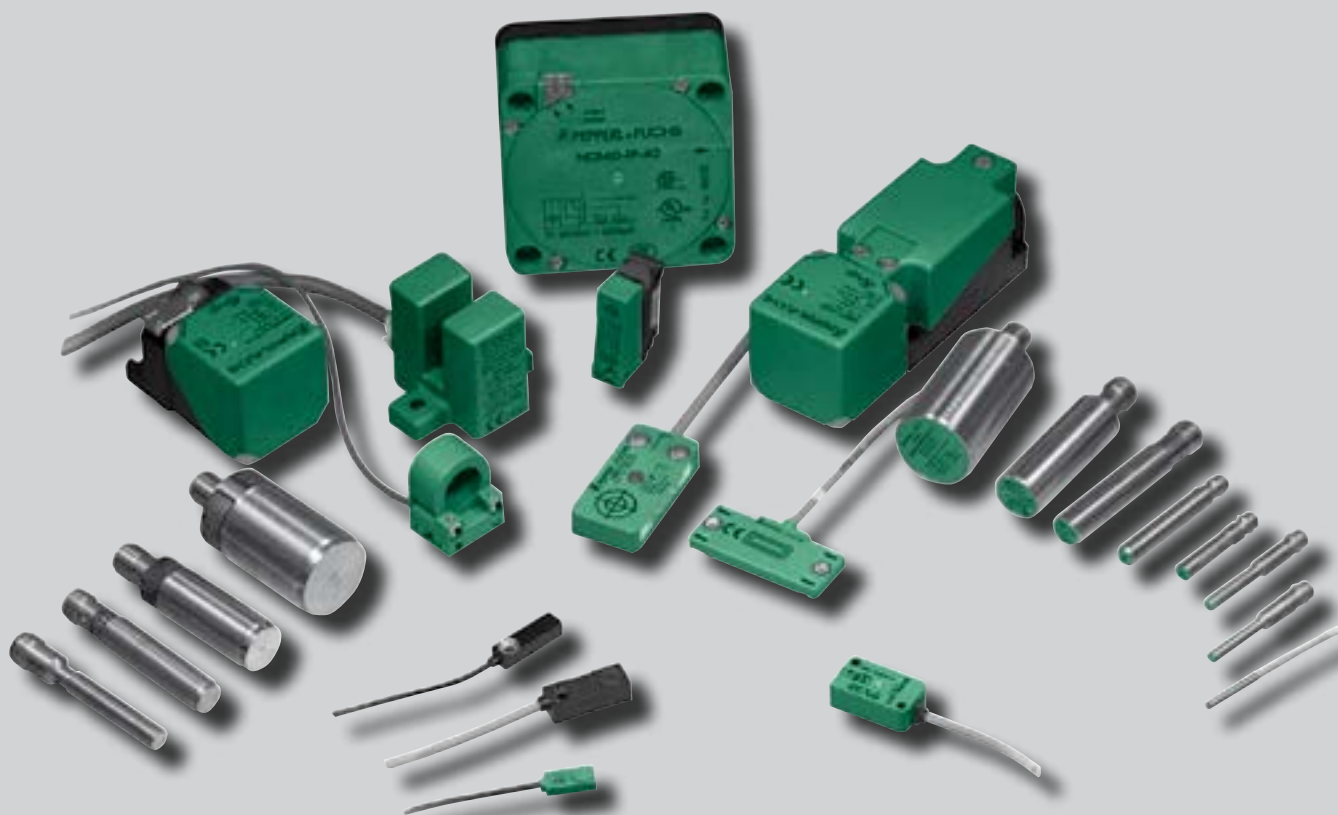


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1 Proximity Switches

1.1 Inductive Sensors

Overview of Inductive Sensors/Selection Tables

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Double Sensors for Valve Actuators (Accessories)	282
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Cylindrical Sensors



Series

3 mm

- Smallest housing design
- Smooth housing
- High switching frequency
- Stainless steel

4 mm

- Smooth housing
- High switching frequency
- Stainless steel

4.5 mm

- Intrinsically safe
- Smooth housing
- Short housing design
- Stainless steel

5 mm

- Threaded housing
- Short housing design

Operating distance

Flush

0.6 mm/1 mm

0.6 mm to 1.5 mm

0.8 mm

0.8 mm/1.5 mm

Non-flush

Connection

Cable



Male cordset



Plug connector



Terminal compartment

Output

Two-wire DC

Three-wire DC

Page 36

Page 37, 38

Page 39

Four-wire DC

Two-wire AC

Three-wire AC

Two-wire AC/DC

Analog output

NAMUR

Page 152

Page 152

NAMUR with safety function

AS-Interface

Special features

Weld-immune

Reduction factor 1

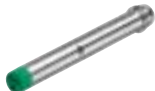
Metal face

With e1 certification

Extended temperature range

Pressure-resistant

Hazardous applications approval (3G,3D)

					Cylindrical Sensors
	6.5 mm	8 mm	11 mm	12 mm	Series
	- Smooth housing - PNP, NPN, and NAMUR types	- Threaded housing - Plug and cable versions	- Intrinsically safe - Smooth housing or with M14 metal thread	Large selection of analog outputs, housing lengths, and materials	
Operating distance					
	1.5 mm to 3 mm	1.5 mm to 4 mm	2 mm	2 mm to 6 mm	Flush
	3 mm/6 mm	2 mm to 6 mm	5 mm	4 mm to 10 mm	Non-flush
Connection					
					Cable
					Male cordset
					Plug connector
					Terminal compartment
Output					
		Page 46 ff		Page 59 ff	Two-wire DC
	Page 40 ff	Page 48 ff		Page 61 ff	Three-wire DC
		Page 49 ff		Page 65 ff	Four-wire DC
				Page 76 ff	Two-wire AC
					Three-wire AC
				Page 78	Two-wire AC/DC
				Page 79	Analog output
	Page 152	Page 153	Page 154	Page 155 ff	NAMUR
			Page 165	Page 166	NAMUR with safety function
				Page 170	AS-Interface
Special features					
		Page 124, 129 ff		Page 125, 129 ff	Weld-immune
	Page 119	Page 120, 129		Page 121, 129	Reduction factor 1
		Page 130 ff		Page 130, 132	Metal face
				Page 135 ff	With e1 certification
		Page 50		Page 65, 67, 70	Extended temperature range
				Page 142	Pressure-resistant
		Page 145		Page 146 ff	Hazardous applications approval (3G,3D)

Cylindrical Sensors



Series

14 mm

18 mm

22 mm

30 mm

- Pressure-resistant to 500 bar
- Stainless steel

- Vast selection
- Wide detection ranges
- Types for all applications

- Intrinsically safe
- Smooth housing or with PG21 metal thread

- Vast selection
- Very wide detection ranges
- Types for all applications

Operating distance

Flush	3 mm	5 mm to 12 mm	6 mm	10 mm to 22 mm
Non-flush		8 mm to 20 mm	10 mm	15 mm to 40 mm

Connection

Cable		●	●	●
Male cordset				
Plug connector	●	●		●
Terminal compartment				

Output

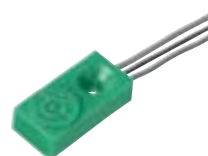
Two-wire DC		Page 80 ff		Page 96 ff
Three-wire DC	Page 143	Page 84 ff		Page 100 ff
Four-wire DC		Page 85 ff		Page 101 ff
Two-wire AC		Page 92 ff		Page 113 ff
Three-wire AC				
Two-wire AC/DC		Page 94		Page 116 ff
Analog output		Page 95		Page 118
NAMUR		Page 157 ff	Page 160	Page 161 ff
NAMUR with safety function		Page 167	Page 168	Page 169
AS-Interface		Page 170		Page 170

Special features

Weld-immune		Page 126 ff, 129 ff		Page 128 ff
Reduction factor 1		Page 122, 129		Page 123
Metal face		Page 130, 133		Page 130, 134
With e1 certification		Page 137 ff		Page 139
Extended temperature range		Page 85, 88, 140		Page 108, 141
Pressure-resistant	Page 143	Page 144, 159		
Hazardous applications approval (3G,3D)		Page 148 ff		Page 150 ff

			Cylindrical Sensors
30 mm	40 mm	50 mm	Series
- Plastic housing - Terminal compartment	- Intrinsically safe - Smooth housing - Terminal compartment	- Intrinsically safe - Cylindrical plastic installation housing	
Operating distance			
10 mm			Flush
15 mm	20	25 mm	Non-flush
Connection			
		●	Cable
			Male cordset
			Plug connector
●	●		Terminal compartment
Output			
			Two-wire DC
			Three-wire DC
Page 103, 109			Four-wire DC
Page 115			Two-wire AC
			Three-wire AC
			Two-wire AC/DC
			Analog output
Page 163	Page 163	Page 164	NAMUR
			NAMUR with safety function
			AS-Interface
Special features			
			Weld-immune
			Reduction factor 1
			Metal face
			With e1 certification
			Extended temperature range
			Pressure-resistant
			Hazardous applications approval (3G,3D)

Rectangular Sensors



Series

F76
F29
F79
V3

- Plastic housing 25 x 8 x 5.5 mm

- Plastic housing 27 x 10 x 6 mm

- Plastic housing 16 x 8 x 4 mm

- NAMUR versions, can be used to SIL2

Operating distance

Flush	2 mm	2 mm	1.5 mm	2 mm to 3 mm
Non-flush		4 mm		4 mm

Connection

Cable	●	●	●	●
Male cordset			●	
Plug connector				●
Terminal compartment				

Output

Two-wire DC				Page 174
Three-wire DC	Page 171	Page 172	Page 173	Page 175 ff
Four-wire DC		Page 172		
Two-wire AC				
Three-wire AC				
Two-wire AC/DC				
Analog output				
NAMUR				Page 242
NAMUR with safety function				
AS-Interface				

Special features

Weld-immune		Page 219		
Reduction factor 1				
With e1 certification				
Extended temperature range				
Hazardous applications approval (3G,3D)				Page 237 ff

			Rectangular Sensors
F141/F41/F41A	F1	F2	Series
Miniature metal housing 25 x 5 x 5 mm (F141) 40 x 8 x 8 mm (F41..)	- Plastic housing 26 x 12 x 40 mm - Can be connected in series	Sensors for stop screws	
Operating distance			
0.8 mm to 3 mm	2 mm to 4 mm	1.5 mm	Flush
	8 mm		Non-flush
Connection			
●	●	●	Cable
			Male cordset
●	●	●	Plug connector
			Terminal compartment
Output			
			Two-wire DC
Page 177 ff	Page 180, 182	Page 185	Three-wire DC
	Page 181, 183		Four-wire DC
			Two-wire AC
			Three-wire AC
	Page 184		Two-wire AC/DC
			Analog output
			NAMUR
			NAMUR with safety function
			AS-Interface
			Weld-immune
			Reduction factor 1
			With e1 certification
			Extended temperature range
			Hazardous applications approval (3G,3D)

Rectangular Sensors



Series

F7
F9
F10
F11

- Plastic housing
28 x 17 x 17 mm

- Plastic housing
38.5 x 16 x 16.5 mm

- Plastic housing
38.5 x 25 x 25 mm

- Plastic housing
52.5 x 30 x 30.5 mm

Operating distance

Flush		5 mm	7 mm		
Non-flush	5 mm		7 mm to 10 mm	15 mm	

Connection

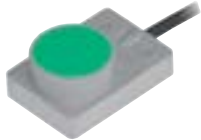
Cable	●	●	●	●	
Male cordset					
Plug connector		●	●	●	
Terminal compartment					

Output

Two-wire DC					
Three-wire DC	Page 186	Page 187	Page 188 ff	Page 190	
Four-wire DC					
DC, relay					
Two-wire AC					
Three-wire AC					
Two-wire AC/DC					
Analog output					
NAMUR					
NAMUR with safety function					
AS-Interface					

Special features

Weld-immune					
Reduction factor 1					
With e1 certification					
Extended temperature range					
Hazardous applications approval (3G,3D)					

				Rectangular Sensors
F104M	F33/F33M	F148	F35	Series
Compact metal housing 32 x 20 x 8 mm	Plastic or metal housing available	Robust metal housing	- Sensor head can be used up to 250 °C - Suitable for drag chains	
Operating distance				
7 mm	5 mm to 8 mm	8 mm to 15 mm	20 mm to 25 mm	Flush
	10 mm			Non-flush
Connection				
●	●	●		Cable
●	●	●		Male cordset
			●	Plug connector
				Terminal compartment
Output				
				Two-wire DC
	Page 192 ff	Page 232		Three-wire DC
Page 191	Page 192 ff		Page 236	Four-wire DC
		Page 232		DC, relay
				Two-wire AC
				Three-wire AC
				Two-wire AC/DC
				Analog output
				NAMUR
				NAMUR with safety function
				AS-Interface
Special features				
				Weld-immune
				Reduction factor 1
	Page 231	Page 232		With e1 certification
			Page 236	Extended temperature range
				Hazardous applications approval (3G,3D)

Rectangular Sensors



Series

M1K
**L2/L3
VariKont-L**
**U1/U4
VariKont**

- Terminal compartment
- Adjustable sensor head

- Quick-mount lock
- 4 LED indication

- Terminal compartment
- 4 LED indication
- Plastic or metal sensor base

Operating distance

Flush		20 mm	20 mm	
Non-flush	15 mm	40 mm	40 mm	

Connection

Cable				
Male cordset				
Plug connector		●	●	
Terminal compartment	●		●	

Output

Two-wire DC	Page 194	Page 197	Page 201	
Three-wire DC	Page 195	Page 198 ff	Page 202 ff	
Four-wire DC	Page 195	Page 198 ff	Page 203 ff	
Two-wire AC	Page 196		Page 206	
Three-wire AC			Page 207	
Two-wire AC/DC		Page 200	Page 208	
Analog output				
NAMUR	Page 243	Page 244	Page 245	
NAMUR with safety function			Page 247	
AS-Interface		Page 249	Page 250	

Special features

Weld-immune		Page 220 ff, 228	Page 202,225	
Reduction factor 1		Page 227 ff	Page 229	
With e1 certification		Page 233 ff	Page 235	
Extended temperature range		Page 198 ff	Page 203 ff	
Hazardous applications approval (3G,3D)		Page 239	Page 240	

			Rectangular Sensors
FP	FPS	F23	Series
- Terminal compartment in sensor base - Plastic or metal sensor base	- Terminal compartment in sensor base - Plastic housing 77 x 60 x 41 mm	100 mm operating distance - Plastic housing 117 x 117 x 60.5 mm	
Operating distance			
50 mm	25 mm		Flush
50 mm	30 mm	100 mm	Non-flush
Connection			
			Cable
			Male cordset
●		●	Plug connector
●	●		Terminal compartment
Output			
Page 209			Two-wire DC
Page 210	Page 215	Page 217	Three-wire DC
Page 210 ff	Page 215		Four-wire DC
Page 212 ff			Two-wire AC
			Three-wire AC
	Page 216	Page 218	Two-wire AC/DC
Page 214			Analog output
Page 246			NAMUR
Page 248			NAMUR with safety function
			AS-Interface
Special features			
Page 226, 230			Weld-immune
Page 230			Reduction factor 1
			With e1 certification
			Extended temperature range
Page 241			Hazardous applications approval (3G,3D)

Slot Sensors



Slot width	2 mm	3.5 mm	5 mm	10 mm	15 mm	30 mm
	• LED • Can be used up to SIL2/SIL3	• LED • Can be used up to SIL2/SIL3	• Can be used up to SIL2	• Can be used up to SIL2	• Wide slot width	• Very wide slot width

Connection

Cable	●	●	●	●	●	●
Male cordset						
Plug connector					●	●
Terminal compartment						

Output

Two-wire DC						
Three-wire DC		Page 251		Page 252	Page 253	
Four-wire DC		Page 251			Page 253	Page 254
Two-wire AC					Page 255	
Three-wire AC						
Two-wire AC/DC						
Analog output						
NAMUR	Page 256	Page 257	Page 258	Page 259	Page 259	Page 259
NAMUR with safety function	Page 260	Page 261				
AS-Interface						

Special features

Weld-immune						
Reduction factor 1						
With e1 certification						
Extended temperature range						
Hazardous applications approval (3G,3D)						

Ring Sensors



10 mm / 20 mm	10 mm	15 mm	21 mm / 43 mm	Ring width
- Special design for welding clamp monitoring - Easy configuration by Teach-In	- Bistable function for rotation direction monitoring - NAMUR versions	- Bistable function for rotation direction monitoring - NAMUR versions	Wide ring diameter	
Connection				
				Cable
				Male cordset
				Plug connector
				Terminal compartment
Output				
				Two-wire DC
Page 262			Page 263	Three-wire DC
				Four-wire DC
				Two-wire AC
				Three-wire AC
				Two-wire AC/DC
				Analog output
	Page 265 ff	Page 264 ff	Page 264	NAMUR
				NAMUR with safety function
				AS-Interface
Special features				
				Weld-immune
				Reduction factor 1
				With e1 certification
				Extended temperature range
				Hazardous applications approval (3G,3D)

Double sensors for valve actuators



Series

F25

F31/F31K

F31K2

- Direct mounting on standard drives
- NAMUR versions can be used up to SIL3

- Direct mounting on standard drives
- Valve connection

- Direct mounting on standard drives
- Valve connection
- Best protection for use under harsh environmental conditions

Operating distance

Flush mountable	3 mm	3 mm	3 mm
Non-flush			

Connection

Cable	●	●	
Male cordset			
Plug connector	●	●	
Terminal compartment		●	●

Output

Two-wire DC	Page 267	Page 269, 272	
Three-wire DC	Page 268	Page 270, 273	Page 274
Four-wire DC			
Two-wire AC			
Three-wire AC			
Two-wire AC/DC		Page 271	
Analog output			
NAMUR	Page 277	Page 278 ff	
NAMUR with safety function	Page 280		
AS-Interface		Page 275 ff	



Position sensors for clamping systems

F58

Series

- 2 independent oscillators
- Very bright display LEDs
- 90° adjustable connector

Operating distance

2 mm

Non-flush

Connection



Plug connector

Output

Page 284

Three-wire DC
2 x PNP, NO contact

Page 284

Three-wire DC
2 x NPN, NO contact

Special features



Weld-immune



Rotational speed monitors

U1
VariKont

Series

- Adjustable rotational speed limits
- Start-up override time approx. 30 s
- Display LEDs for switching state and attenuation

Operating distance

15 mm

Flush

Non-flush

Connection



Terminal compartment

Output

Page 285

Three-wire DC
PNP, NO contact

Page 286

Three-wire AC
NO contact

Choosing the Right Sensor in Five Steps

First of all, decide which sensor principle is suitable. This depends on the material of the object to be detected.

If the object is metal, we recommend an inductive sensor.

If the object is plastic, paper or fluid (oil or water-based), granular or powder, we recommend a capacitive sensor.

If the object contains a magnet, a magnetic field sensor is suitable.

You can find more background information on the physical effect of the different types of proximity switches at the start of each relevant chapter.

Find the ideal sensor for your application in five steps:

- *Step 1: Housing design*
- *Step 2: Operating distance*
- *Step 3: Mounting conditions*
- *Step 4: Electric data and connections*
- *Step 5: General specification and special features*

Step 1: Housing design

Rectangular sensors



This housing design introduced by Pepperl+Fuchs GmbH under the brand names VariKont and VariKont M has the mounting hole arrangement (housing designs IC30 and IC40) defined in European standard EN 60947. This arrangement is the same as for mechanical position limit switches. The VariKont comprises a stable basic housing (PBT or metal) that is screwed to the mounting surface and contains the terminals. The PBT add-on part is sealed against the basic housing with a neoprene seal and contains the encoded connector. The add-on part contains the switch amplifier. The sensor head can be adjusted in five directions, i.e., the active area can be aligned forwards, to the right, to the left, upwards, or downwards.

The main difference between the VariKont and VariKont M types is their dimensions, and this product can also be supplied with V1 connectors in addition to terminals.

The *VariKont L* type does not have a terminal compartment, making it extremely compact so that it can be mounted using only a screwdriver. The active area can be adjusted in increments of 15° within two planes and is connected via cable or a V1 connector.

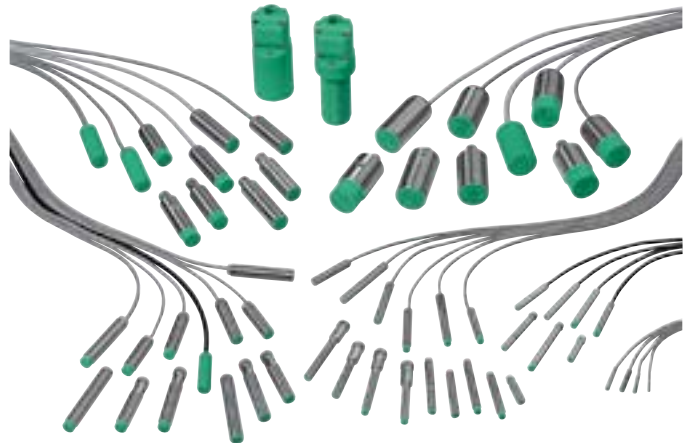
Type	Dimensions (front) mm	Settings (head)
<i>VariKont</i>	40 x 40 or 55 x 55	Adjustable by 90°
<i>VariKont M</i>	30 x 30	Adjustable by 90° and in increments of 15°
<i>VariKont L</i>	40 x 40	Adjustable by 90° and in increments of 15°

Area switches (FP)



These block-shaped sensors have a large front area (80 mm x 80 mm) and therefore a long operating distance. They are comprised of two parts. The lower part contains the terminal compartment and the top contains the male pin and the sensor element along with the electronics, which are vacuum encapsulated in casting resin. The top is always made from PBT and the bottom can be made from either PBT or cast metal. They conform with the mounting hole arrangement (housing design ID80) defined in European standard EN 60947.

Cylindrical sensors



Their active area is on the front face in the axial direction. They are available in diameters from 3 mm (no thread) or 4 mm (with thread) to 30 mm (with thread) or 40 mm smooth (with terminal housing).

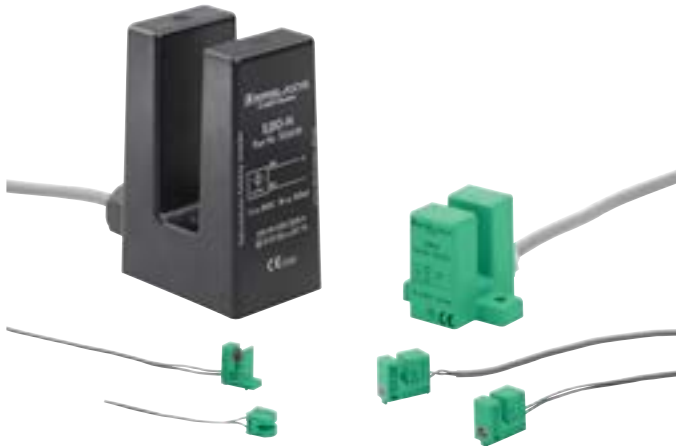
Surface mount proximity switches



These small proximity switches are mounted to the required surface. Different versions are available with the active zone aligned upwards or forwards.

The housing is usually made of PBT.

Slot-shaped inductive proximity switches



These have a U-shaped housing made out of PBT. The electromagnetic AC field is generated between two coils that are positioned opposite each other in the sides of the U. The switching element function is triggered when the object (metallic switching target) appears in the area between the coils.

Ring-shaped inductive proximity switches



These proximity switches are designed as a ring. The electromagnetic AC field is concentrated inside the ring. The switching element function is triggered when a metallic object moves into the ring. The housing is made of PBT.

Inductive PMI positioning systems



Based on the very precise evaluation of multiple coil systems, inductive positioning systems F90, F110, and F112 are able to determine exact positions along linear travel ranges. The PMI360D inductive positioning system is optimized for continual angle determination on valve actuators and valves. Inductive positioning systems are included in Section 5 from page 758.

Step 2: Operating distance

The operating distance is the most important parameter for a proximity switch. It primarily depends on the sensor diameter (coil or capacitor). The dimensions and material composition of the actuator as well as the ambient temperature are also influencing factors. For magnetic proximity switches, the alignment and field strength of the magnets used must also be taken into account.

Definition of the operating distance

Standard EN 60947-5-2 defines the operating distance for all types of proximity switch other than slot and ring-shaped housing designs.

There are two options for actuating a proximity switch:

- Through an axial approach
- Through a radial approach

The following definitions apply first of all to axial actuation.

Rated operating distance s_n

The rated operating distance (according to EN 60947-2-5 "Rated Sensing Range") is a conventional size for defining the operating distance. It neither takes into account production tolerances nor changes through external influences such as voltage and temperature.

Standard measuring plate

The following operating distances are determined using a standard measuring plate. This plate is square with a thickness of 1 mm and is made of steel, e.g., type FE 360 (ST37) with a smooth surface.

Its side lengths are either

- 1 x inner circle diameter of the active area or
- $3 \times s_n$.

The greater value applies in each case. The standard measuring plate must be grounded for capacitive proximity switches.

Example 1:

M18 proximity switch
5 mm operating distance
 $3 \times \text{operating distance} = 15 \text{ mm} < \text{diameter}$

Therefore, the actuator dimensions must be $18 \times 18 \times 1 \text{ mm}$

Example 2:

M18 proximity switch
8 mm operating distance
 $3 \times \text{operating distance} = 24 \text{ mm}$

Therefore, the actuator dimensions must be $24 \times 24 \times 1 \text{ mm}$

This standard measuring plate is the optimal actuator for the operation.

A reduction in the dimensions or change in material composition reduces the operating distance.

Actual operating distance s_r

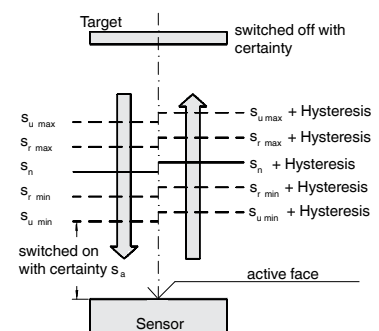
The operating distance of an individual proximity switch measured at ambient temperature of $23 \pm 5^\circ\text{C}$, at a voltage within the operating voltage range and the defined mounting conditions:

$$0.9 \cdot s_n \leq s_r \leq 1.1 \cdot s_n$$

Usable operating distance s_u

The operating distance of an individual proximity switch, measured at an ambient temperature range between -25°C and $+70^\circ\text{C}$, with a supply voltage between 85% and 110% of the rated operational voltage:

$$0.9 \cdot s_r \leq s_u \leq 1.1 \cdot s_r$$



Assured operating distance s_a

Distance from the active area where actuation of the proximity switch is assured under defined conditions:

$$0 < s_a \leq 0.81 \cdot s_n$$

Repeatability R

Change in the actual operating distance s_r , measured over a period of eight hours at a housing temperature of $23 \pm 5^\circ\text{C}$, any level of relative humidity and a supply voltage of $U_e \pm 5\%$ or any voltage within the rated operational voltage range $\pm 5\%$:

$$R \leq 0.1 \cdot s_r$$

Hysteresis H

Distance between the trip points when the measuring plate approaches and moves away from the proximity switch. It is specified relative to the actual operating distance s_r , measured at an ambient temperature of $23 \pm 5^\circ\text{C}$ and rated operational voltage:

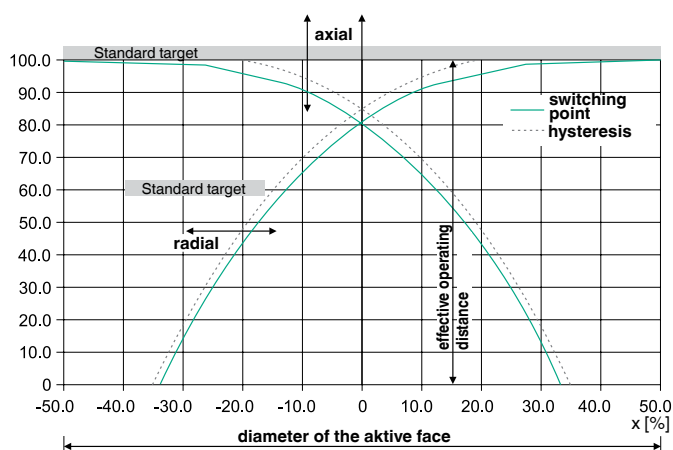
$$H \leq 0.2 \cdot s_r$$

Safely switched off

A proximity switch is switched off safely when the distance between the measuring plate and the active area is at least three times the rated operating distance s_n .

Sideways approach

Above, the focus is on an axial approach to the standard measuring plate. However, if you move the plate sideways into the active zone, you obtain another operating distance s depending on the axial offset. This correlation characterizes the response curve.



Different actuator sizes

Inductive sensors are used to check machine parts in many cases. These very rarely have the same size and shape as the standard measuring plate to which the sensor's technical data applies. The operating distance in particular depends on the size of the metal used to attenuate the sensor.

Generally the operating distance increases only marginally with a larger object surface, but reduces significantly for smaller objects.

If the object being checked is different in size to the standard measuring plate, it is recommended that you verify the operating distance of the selected sensor.

Different actuator materials

In addition to the actuator's dimensions, the material property of the actuator is also of considerable importance. This is characterized by the reduction factor. The reduction factor specifies by what factor the operating distance reduces as a result of different materials versus steel FE 360 (St37) for inductive proximity switches and against a grounded plate for capacitive proximity switches. The lower the reduction factor, the shorter the operating distance for the material in question. Since the reduction factor for inductive proximity switches depends upon the housing and shielding material, this factor varies from type to type. Please use the value in the respective data sheet.

In the case of inductive proximity switches, the conductivity/permeability ratio of the actuator is the parameter for the reduction factor. Some typical reduction factor values are provided below:

Material	Reduction factor
Construction steel	1
Aluminum foil	1
Stainless steel	0.85
Aluminum	0.4
Brass	0.4
Copper	0.3

Step 3: Mounting conditions

Inductive and capacitive sensors can be flush mounted or non-flush mounted.

Sensors that cannot be flush mounted

The largest possible operating distance (in reference to the diameter D of the active area) is reached by sensors that cannot be flush mounted.

In the case of an inductive sensor, coils are used to generate electromagnetic fields. To achieve a forwards or backwards field alignment, the coils are embedded in a pot core. Despite this measure, part of this field is emitted laterally and is affected by the surrounding metal. This lateral effect is also observed with capacitive sensors.

To prevent sensors with a wide detection range from being attenuated by the surrounding metal, clearance must be created around the sensor element.

The size of the clearance can also be determined from the technical data for the respective sensors.

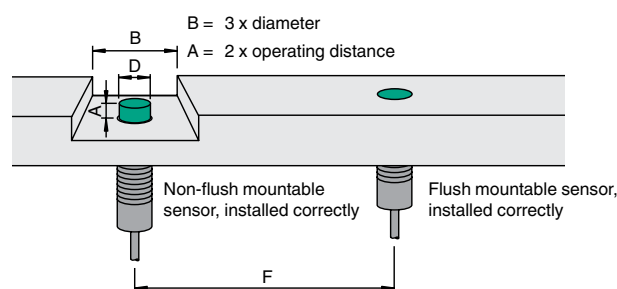
Sensors that can be flush mounted

Sensors that can be flush mounted do not require any clearance. ($A=0$). The advantage of these sensors over ones that cannot be flush mounted is that

they are better mechanically protected and are less sensitive to interference. However, one disadvantage is the shorter operating distance as the active area

of the sensor is already surrounded by metal. The sideways interference from the surrounding metal is reduced by a special internal shield,

but this happens at the detriment of the detection range. These sensors achieve only approx. 60% of the operating distance of non-flush designs.

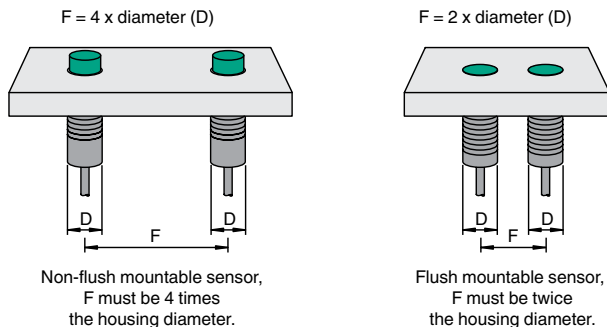


Further details on the mounting conditions are included in the technical data for the sensors.

Mutual interference

To be able to detect metal, inductive sensors use a sensor coil to generate an electromagnetic AC field. This AC field evaluates the smallest of changes in the immediate vicinity of the sensor element. A change can, for example, result from a metal plate approaching the sensor.

Even an external magnetic AC field, e.g., that of an adjacent sensor, can affect the switching characteristics. Therefore, a minimum distance must be maintained between two adjacent sensors. The minimum distance between two sensors can be determined as follows.



If the application does not allow a minimum distance to be maintained, sensors with offset oscillation frequencies are available upon request. These sensors can then be mounted directly beside each other.

Step 4: Electric data and connections

In addition to the operating distance, other important criteria include sensor parameters such as the type and level of supply voltage. An overview of the output circuits for our sensors is included in this catalog from page 8.

In terms of supply voltage, our wide product range includes DC, AC, and AC/DC sensors.

For each of our sensor series, the available supply voltage types and output types are outlined briefly and clearly in the product selection tables starting from page 14.

Step 5: General specification

The **no-load current** I_0 specifies the individual power consumption of the proximity switch. It is measured without load.

The **operating current** I_L (rated operating current I_e according to EN 60947-5-2) specifies the maximum load current for continuous operation.

The **short-time current** I_K is the current that may occur for a short time when switching on, without damaging the proximity switch.

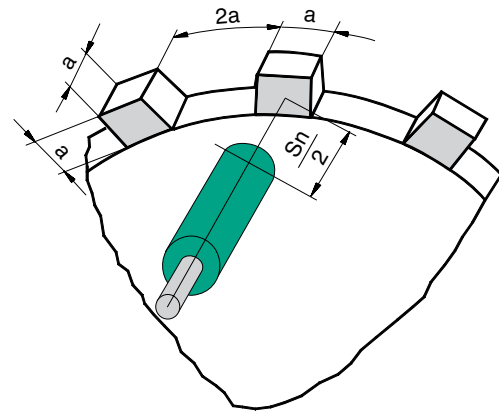
The **leakage current** I_R is the current that flows via the load when the proximity switch is locked.

The **operating voltage** U_B is specified with the maximum and minimum values for the supply voltage. The proximity switch can be operated safely in this area. The rated voltage is specified for NAMUR proximity sensors.

The **voltage drop** U_d is measured via the controlled proximity switch or output.

The **switching frequency** f is the maximum number of changes from attenuated to non-attenuated state in Hertz (Hz), see also the figure in accordance with EN 60947-5-2.

Measurement a is the greater value of either the diameter or the edge length and the three-fold rated operating distance (see „Standard measuring plate“ on page 29).



Actuator to determine the maximum switching frequency.

The **harmonic voltage**, also referred to as ripple or residual ripple, is the AC voltage (peak-to-peak) that is superimposed over the operating voltage and specified as a percentage of the arithmetic average value. Pepperl+Fuchs GmbH sensors feature max. 10% of the residual ripple and comply with standard DIN EN 60947-5-2.

Permissible interference voltage

Short-term voltage peaks on the supply lines can damage unprotected proximity switches. Transient protection on all sensors by Pepperl+Fuchs GmbH suppresses noise pulses in accordance with EN 60947-5-2.

The **time delay before availability** t_V is the time taken until a proximity switch is ready for operation once the operating voltage has been switched on.

Pepperl+Fuchs GmbH proximity switches feature max. 300 ms and comply with EN 60947-5-2.

Switch-on pulse suppression

All proximity switches are equipped with this feature, which suppresses a fault signal at the output when the operating voltage is switched on during time t_V .

Short circuit current limitation

In the case of short circuit current limitation, which is included in most proximity switches by Pepperl+Fuchs GmbH, if the current trip value is exceeded the output is periodically locked and re-released until the short-circuit is fixed.

The permissible ambient temperature is the temperature range within which the proximity switch operates properly. The following apply to the Pepperl+Fuchs GmbH standard series:

-25 °C ... +70 °C or 248 K ... 343 K.

Degree of protection

Depending on the requirements, proximity switches by Pepperl+Fuchs GmbH are IP65, IP67, or IP68 (EN 60529) protected (see page 1092).

Permissible shock and vibration load

The shock resistance test is carried out at 30 times ground acceleration and 11 ms duration. The vibration resistance test is conducted at a resonance frequency between 10 and 55 Hz and 1 mm amplitude (IEC 60068-2-6).

Permissible tightening torque [Nm]

	Stainless steel	Brass	PBT	PPS
M5 x 0.5	3.0	-	-	-
M8 x 1	10.0	3.0	-	-
M12 x 1	15.0	10.0	0.75	-
M18 x 1	30.0	30.0	1.5	5
M30 x 1.5	30.0	30.0	3.0	10

Special Sensor Features for Special Applications

Reduction factor 1

The perfect sensor is one that is equally suited to all types of applications and this is the case with reduction factor 1 sensors. They detect all types of metal with almost the same operating distance. Compared with common inductive sensors, they offer considerable benefits, in particular for applications where a sensor must detect different metals.



Benefits:

- Same operating distance for all metals
- Maximum operating distance from 2 mm to 75 mm
- Electric magnetic field immunity
- Mechanical welding immunity (optional)
- Complete portfolio of cylindrical and cubic housing designs

Weld-immune sensors

Proximity switches used in welding systems are characterized by their high immunity to strong magnetic fields and an increased mechanical robustness suitable for the rough ambient conditions.

They are fitted with a cross-linked PPS front face to provide protection against spattering weld sparks during welding, and their housing is made from PTFE-coated brass.



Sensors with a metal face

Metal Face sensors from Pepperl+Fuchs are made of stainless steel for applications that have particularly high requirements in terms of sensor robustness. For example, sensors that are used in machine tools are exposed to high forces, abrasion, and aggressive media.

To ensure a long service life, sensors with an active face made from stainless steel are used in these applications.



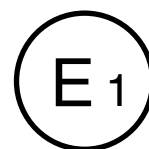
Sensors with e1 and E1 certification

Commercial vehicles represent an important application area for sensor technology. Special setups or add-on systems often result in "rolling machines." Sensors for diggers, cranes, agricultural machinery, refuse, or fire trucks are some of the many applications for industrial sensor technology. Specially adapted products may be required for use in ships or fork lift trucks.

Here, different and conflicting requirements must all be taken into consideration in the applied components. This includes the various application-specific boundary conditions that we are familiar with from many applications in traditional mechanical engineering. In addition to the basic sensor function, optimal mechanical integration into the overall system is also required, as well as application-specific sealing of the devices and resistance to temperature and environment influences. In some cases, special connectors usually found in vehicles may be integrated into the sensors.

Furthermore, the pertinent standards for the vehicles must be taken into consideration. This includes vehicle or ship-building requirements such as more stringent EMC requirements. Over recent years, Pepperl+Fuchs has worked on many customer-specific developments where it has demonstrated its ability to integrate both these requirements into sensors, both efficiently and cost effectively for high volumes. Many reputable companies within this sector choose our products.

Due to their robustness, inductive proximity switches in cylindrical housings are often used for this market. Pepperl+Fuchs also offer inductive sensors for analog position measurement as well as inclination sensors.



Pressure-resistant sensors

Pressure-resistant proximity switches are suitable for use in hydraulic actuators. They are suitable for operating pressures up to 500 bar and peak pressures up to 800 bar on the active area.

The pressure resistance is achieved by means of a ceramic front face that is an integral part of the stainless steel housing. A groove is also incorporated into the housing (O-ring).



Sensors for Position Feedback to Valve Actuators

Sensors for Box Installation

The term "box solution" refers to the integration of sensor technology in an accessory box that generates the mechanical coupling of the sensors on adjustment drives of different dimensions.

This solution was developed to prevent the sensors from being directly exposed to the environment and therefore allows the use of standard sensors.

Most reputable drive manufacturers offer standard boxes that are fitted with Pepperl+Fuchs sensors, either with or without optical display.

Features:

- *Versatile* – as the box offers individual connection options
- *Reliable* – as the installation is integrated into the box such that it is resistant to manipulation and prevents dust build-up
- *Safe* – as the box complies with the accident prevention regulations
- *Simple* – as it is mounted using preadjusted sensors
- *Compliant* – as the connection identification of MSR devices complies with standard DIN 45140 T.1 and the mechanical mounting complies with VDI/VDE 3845

Standard sensors

For box installation, Pepperl+Fuchs offers cylindrical standard sensors with short housing lengths up to 40 mm and slot sensors with a slot width of 3.5 mm, along with sensors from the V3 series. These are square-shaped sensors in standard dimensions for mechanical micro switches. Standard DC versions and NAMUR versions are available with an extended temperature range (up to -50 °C to +100 °C).



Position feedback sensors for box installation

The F25 sensor series by Pepperl+Fuchs offers an effective alternative for position feedback on valve actuators.

They combine two devices as "double sensors" in one housing, significantly reducing the mounting and maintenance effort.

Backed by decades of experience, Pepperl+Fuchs offers a wide range of sensors and actuators for the F25 Series that are suitable for both the box solution and for direct mounting on the adjustment drive.



Features:

- *Double sensor* – as the sensor has two active zones
- *Safe* – as it is not possible to insert a finger between the actuator and the sensor, in compliance with the accident prevention regulations
- *Variable* – as it can be mounted directly to the drive or the valve, via a bracket or in a box
- *Simple* – as mounting requires no adjustments or additional settings
- *Practical* – as several sensors can be stacked for more than two trip points if necessary



Slot-shaped



V3 series

Cylindrical



Sensors for "Open Mounting"

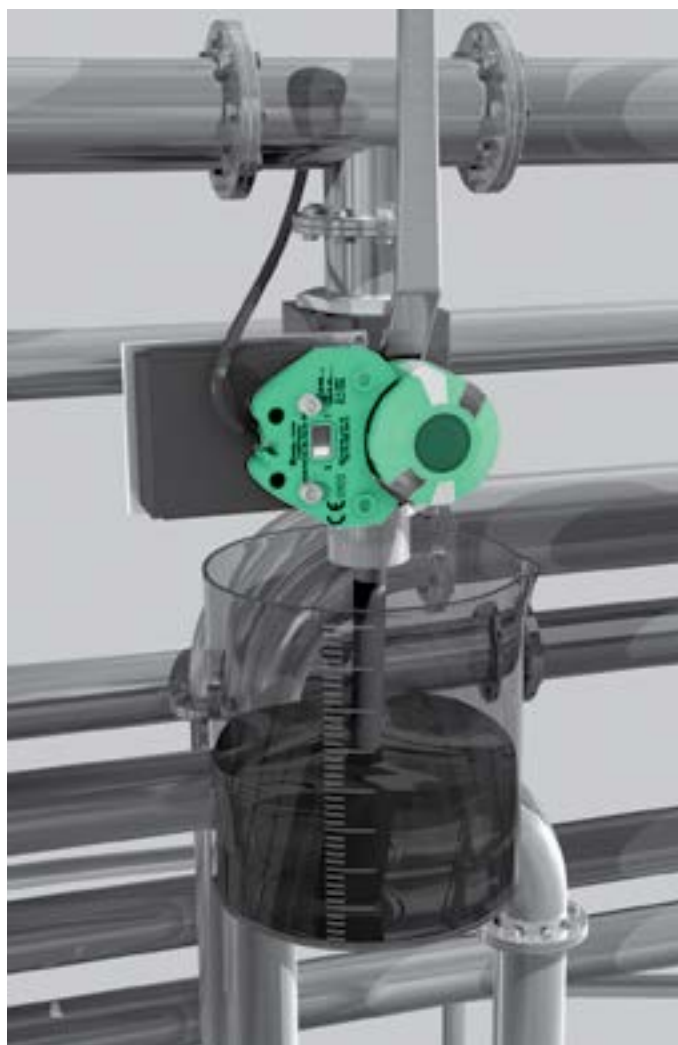
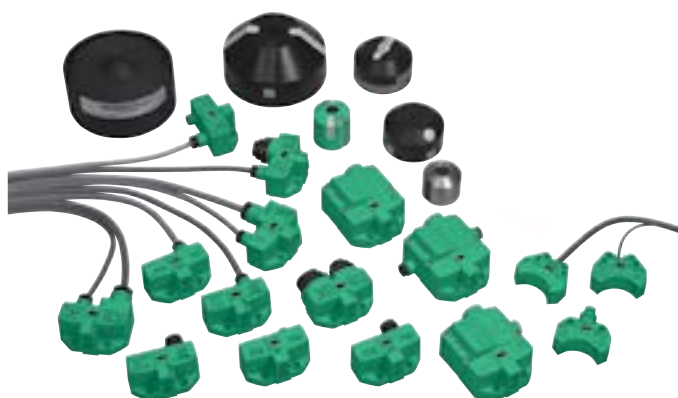
Are you looking for a stable and robust, open-construction position feedback solution that enables the sensor and actuator to be directly mounted?

The F31, F31K, and F31K2 Series by Pepperl+Fuchs are ideally suited for direct mounting to drives without the need for additional mounting materials. Using just two actuators, you can determine the position of all standard drives regardless of their size and make.

The F31K(2) Series has a terminal compartment with caged spring technology or screw terminals for the system and valve connection.

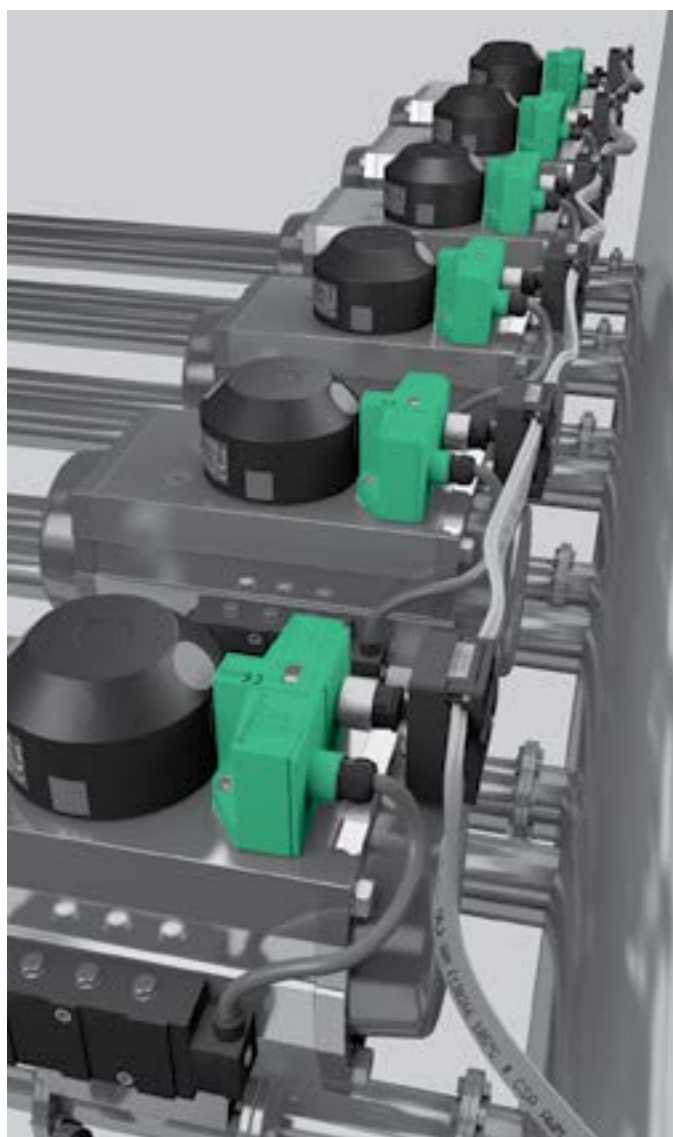
Versions without valve connections and versions with one or two valve connections are also available. The valve can be controlled directly via the sensor connection if necessary, reducing the mounting effort and cabling costs.

Pepperl+Fuchs also offers an attractive open solution – the F25 sensor series – for position feedback of manually operated ball valves and flaps.



Features:

- *Safe* – as the dimensions of the sensor and the distances between sensors and actuators are selected to prevent risk of injury during operation (certified by TÜV)
- *Variable* – as the sensors are suitable for all standard drives regardless of size and make
- *Fixed* – as the adjustment is retained thanks to mounting holes in the sensor housing for easy sensor replacement
- *Universal* – as both left- and right-rotating drives can be read
- *Clear* – as the assignment of the actuator to the hole pattern for the drive is clear and the drive position is clearly visible
- *Versatile* – as you can choose between a cable connection, plug connection (V1, V16, or V18), and terminals
- *Transparent* – as the switching states, supply voltage, and valve control can be displayed clearly using LEDs



Type code, inductive standard sensors

N B B 10¹⁾ - 30 G M 50 - E2 - C - V1 -FA } Food & Beverage
-FB }

N	Inductive standard sensor
IA	Inductive analog sensor
S	Inductive slot sensor
R	Inductive ring sensor
B	Basis line
C	Comfort line
E	Extended operating range
M	Metal face
R	Reduction factor 1
10¹⁾	Operating distance 0.6 mm ... 100 mm
30	Diameter in mm
G	Threading
M	Metal (brass, nickel plated)
K	Plastic
KK	Plastic terminal block
H	Stainless steel 1.4435/AISI 316L
S	Stainless steel 1.4305/AISI 303
50	Cylindrical usable threaded length (mm)
E2	Electrical Output
A, A0	4-wire, DC, NPN, antivalent
A2	4-wire, DC, PNP, antivalent
B3	AS-Interface Spec. 2.0
B3B	AS-Interface Spec. 2.1
E, E0	3-wire, DC, NPN, NO
E1	3-wire, DC, NPN, NC
E2	3-wire, DC, PNP, NO
E2B	3-wire, DC, PNP, NO, bistable
E3	3-wire, DC, PNP, NC
E4	3-wire, DC, NPN, NO or NC
E5	3-wire, DC, PNP, NO or NC
E8	4-wire, DC, PNP, dual, NO
I3	3-wire, DC, PNP, analog
N, N0	NAMUR, NC
N3	NAMUR, bistable
N4	NAMUR, dual, NC
1N, N1	NAMUR, NO
U	2-wire, AC/DC, programm. wiring
U8	2-wire, AC/DC, dual, NO
UÖ	2-wire, AC/DC, NC
US	2-wire, AC/DC, NO
W	2-wire, AC, programm. wiring
W4	2-wire, AC, programm. wiring
WÖ	2-wire, AC, NC
WS	2-wire, AC, NO
Z0	2-wire, DC, NO
Z1	2-wire, DC, NC
Z2	2-wire, DC, NC or NO
Z3	2-wire, DC, NO
Z4	2-wire, DC, NO
Z5	2-wire, DC, NC
FP/FPS	Surface switch
L2	VariKont L [®]
M	VariKont M [®] (M1, M1A, M1K)
U	VariKont [®]
FP/FPS	Surface switch
B	flush
N	non-flush
Special Features	
C	Welding field resistant
DW	Rotation speed monitoring
D	Pressure-proof
FE	Iron
NE/FE	Iron/nonferrous
P or NFE	nonferrous
SN	Safety function
T	Higher temperatures up to 100 °C
150, 200, 250	Maximum applicable temperature
Connection Elements	
V1	M12 x 1 device connector for DC proximity switches
V3	M8 device connector for DC proximity switches
V5	Faston connector
V13	M12 x 1 device connector for AC proximity switches
V16	Rd24 x 1/8 device connector for dual sensors in F31 housing
V18	M18 x 1 device connector for valve connection (F31 housing)

¹⁾ The switching interval followed by a P (eg. 20P) indicates a selective switching behavior of the sensor.
The nominal distance refers to aluminum..

1
.1.1

Properties

- Ø3 mm housing
- Up to 1 mm, flush mountable
- DC, 3-wire switching output
- Cable and pigtail versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 10 mA
Installation	flush mountable
Reverse polarity protection	✓
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Housing material	Stainless steel 1.4305 / AISI 303

Model Number

		green = preferred type							
Rated operating distance	0.6 mm	●	●	●	●	●	●	●	●
	1 mm								
Switching element function	NPN NC		●						
	NPN NO	●							
	PNP NC			●					
	PNP NO				●				
Switching frequency	0 ... 700 Hz					●	●		
	0 ... 1300 Hz		●						
	0 ... 1400 Hz	●		●				●	●
Connection type	cabl PUR , 2 m	●	●	●	●	●	●		
	cabl PVC , 2 m			●		●			
	Cable connector M8 x 1 , 3-pin with PVC cable 300 mm							●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.								

Dimensions

Length L [mm]	22
Diameter D [mm]	3
Thread length l _t [mm]	0
Cap length l ₁ [mm]	0
Connector area l _c [mm]	0
LED position	Pos. A

Accessories

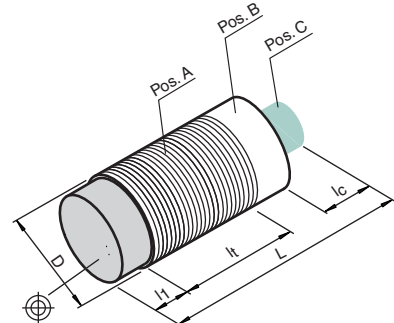
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 4

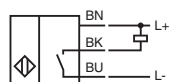
Mounting flange, 4 mm



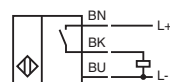
Electrical Connection



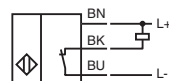
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NBB1-3M22-E0



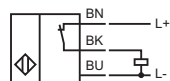
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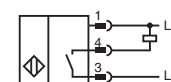
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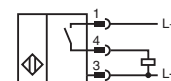
NBB0,6-3M22-E3



NBB0,6-3M22-E0-0,3M-V3
NBB1-3M22-E0-0,3M-V3



NBB0,6-3M22-E2-0,3M-V3
NBB1-3M22-E2-0,3M-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Date of issue: 04/08/2015



Properties

- Ø4 mm housing
- 0.8 mm and 1.5 mm, flush mountable versions
- DC, 3-wire switching output
- Cable, pigtail and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	0.8 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✓
Switching frequency	0 ... 3000 Hz
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Housing material	Stainless steel 1.4305 / AISI 303

Model Number

green = preferred type

Switching element function	NPN NO	NPN NC	PNP NO	PNP NC
No-load supply current	≤ 10 mA	≤ 12 mA	≤ 10 mA	≤ 12 mA
Operating current	0 ... 100 mA	0 ... 200 mA	0 ... 100 mA	0 ... 200 mA
Connection type	Device connector M8 x 1, 3-pin	cable PVC, 2 m	Cable connector M8 x 1, 3-pin with PVC cable 300 mm	

Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

Dimensions

Length L [mm]	25	25	40	45
Diameter D [mm]	4	4	4 / 8	
Thread length l _t [mm]	0	0		
Cap length l ₁ [mm]	0	0		
Connector area l _c [mm]	0	0	5	
LED position	Pos. A	Pos. A	Pos. B	

Accessories

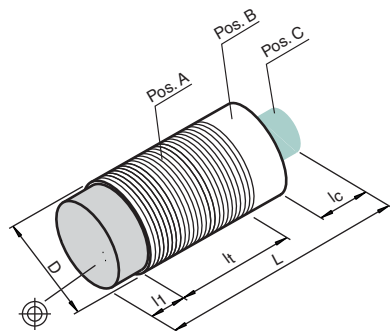
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

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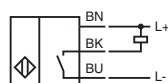
Mounting flange, 4 mm



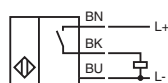
Electrical Connection



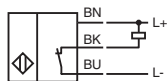
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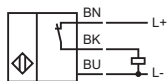
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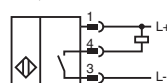
NBB0,8-4M25-E1



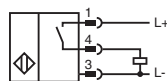
NBB0,8-4M25-E3



NBB0,8-4M25-E0-0,3M-V3
NBB0,8-4M25-E0-V3
NBB1,5-4M25-E0-V3



NBB0,8-4M25-E2-0,3M-V3
NBB0,8-4M25-E2-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Properties

- Ø4 mm housing
- Up to 1 mm, flush mountable
- DC, 3-wire switching output
- Cable and pigtail versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Housing material	Stainless steel 1.4305 / AISI 303

Model Number

Rated operating distance green = preferred type

Switching element function	NPN	NC
	NPN	NO
	PNP	NC
	PNP	NO
Switching frequency	0 ... 700 Hz	
	0 ... 1300 Hz	
	0 ... 1400 Hz	
Connection type	cable PUR , 2 m	
	Cable connector M8 x 1 , 3-pin with PVC cable 300 mm	

NBB0,6-4GM22-E0	NBB0,6-4GM22-E1	NBB0,6-4GM22-E2	NBB0,6-4GM22-E3	NBB1-4GM22-E0	NBB1-4GM22-E2	NBB0,6-4GM22-E2-0,3M-V3	NBB1-4GM22-E0-0,3M-V3	NBB1-4GM22-E2-0,3M-V3
•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•
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•	•	•	•	•	•	•	•	•

Approvals and Certificates

UL approval	cULus Listed, General Purpose	•	•	•	•	•	•	•
CSA approval	cCSAus Listed, General Purpose	•	•	•	•	•	•	•
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	•	•	•	•	•	•	•

Dimensions

Length L [mm]	22
Diameter D [mm]	4
Thread length l _t [mm]	22
Cap length l ₁ [mm]	0
Connector area l _c [mm]	0
LED position	Pos. A

Accessories

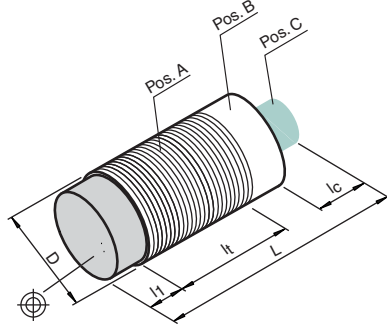
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

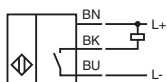
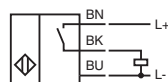
See pages 1068 ... for mounting aids

BF 4

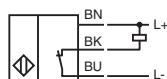
Mounting flange, 4 mm



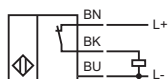
Electrical Connection

NBB0,6-4GM22-E0
NBB1-4GM22-E0NBB0,6-4GM22-E2
NBB1-4GM22-E2

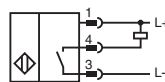
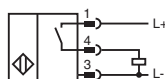
NBB0,6-4GM22-E1



NBB0,6-4GM22-E3



NBB1-4GM22-E0-0,3M-V3

NBB0,6-4GM22-E2-0,3M-V3
NBB1-4GM22-E2-0,3M-V3

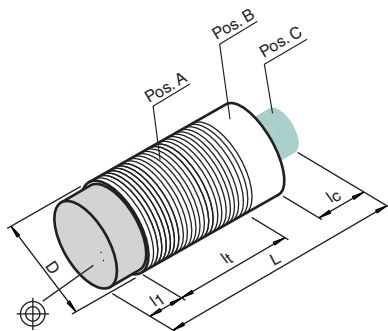
Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Properties

- Ø5 mm housing
- Up to 1.5 mm, flush mountable
- DC, 3-wire switching output
- Cable, pigtail and connector versions



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

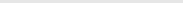
General Data

Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	
Switching frequency	0 ... 3000 Hz
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67

Model Number

		green = preferred type	NB	NB	NB	NB	NB	NB	NB	NB	NB
Rated operating distance	0.8 mm		●	●	●	●	●	●	●	●	●
	1.5 mm									●	●
Switching element function	NPN	NC		●							
	NPN	NO	●				●		●		
	PNP	NC				●					●
	PNP	NO			●		●		●	●	
No-load supply current	≤ 10 mA				●	●		●		●	●
	≤ 12 mA		●	●			●	●	●		
	≤ 15 mA									●	
Operating current	0 ... 100 mA		●	●			●				
	0 ... 200 mA				●	●		●		●	●
	0.1 ... 100 mA								●	●	
Housing material	Stainless steel 1.4305 / AISI 303		●	●	●	●	●	●	●	●	
Connection type	Device connector M8 x 1, 3-pin		●	●	●	●			●	●	●
	cable PVC, 2 m		●	●	●	●					
	Cable connector M8 x 1, 3-pin with PVC cable 300 mm						●	●			
											

Approvals and Certificates

UL approval	cULus Listed, General Purpose	
CSA approval	cCSAus Listed, General Purpose	
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.	

Dimensions

Length L [mm]	25	35	32
Diameter D [mm]	5	5 / 8	5 / 8
Thread length l _t [mm]	25	21	20
Cap length l ₁ [mm]	0	0	0
Connector area l _c [mm]	0	10	6
LED position	Pos. A	Pos. B	Pos. A

Accessories

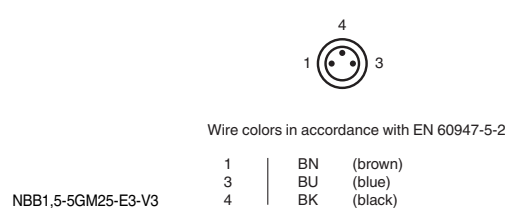
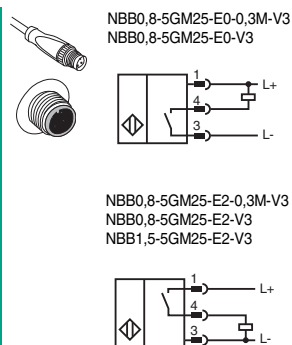
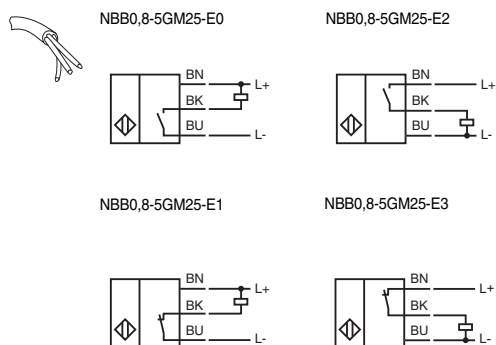
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 5	Mounting flange, 5 mm
V3-WM	Female connector, M8, 3-pin, field attachable
V3-GM	Female connector, M8, 3-pin, field attachable
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable

Electrical Connection





Properties

- Ø6.5 mm housing
- 1.5 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	1.5 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 60 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67

Model Number

			NJ1,5-6,5-40-E0	NJ1,5-6,5-40-E2	NJ1,5-6,5-40-E0-V3	NJ1,5-6,5-40-E2-V3
Switching element function	NPN	NO	●		●	
	PNP	NO		●		●
Switching frequency	0 ... 2500 Hz		●		●	
	0 ... 500 Hz			●		●
Indication of the switching state	LED, yellow		●	●	●	
Connection type	Device connector M8 x 1, 3-pin				●	●
	cable PUR, 2 m		●	●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)				

Dimensions

Length L [mm]		40		44
Diameter D [mm]		6.5		6.5 / 8
Thread length l _t [mm]			0	
Cap length l ₁ [mm]			0	
Connector area l _c [mm]		0		6
LED position	Pos.	C	A	B

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 6,5

Mounting flange, 6.5 mm

V3-WM-2M-PUR

Cable socket, M8, 3-pin, PUR cable

V3-GM

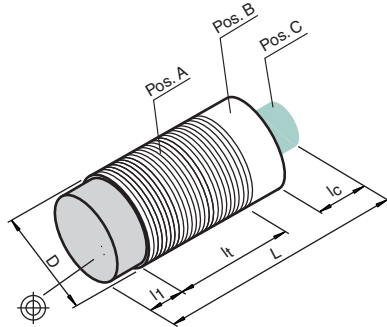
Female connector, M8, 3-pin, field attachable

V3-GM-2M-PUR

Cable socket, M8, 3-pin, PUR cable

V3-WM

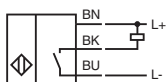
Female connector, M8, 3-pin, field attachable



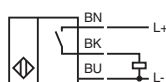
Electrical Connection



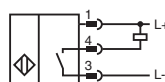
NJ1,5-6,5-40-E0



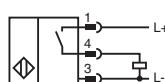
NJ1,5-6,5-40-E2



NJ1,5-6,5-40-E0-V3



NJ1,5-6,5-40-E2-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



CE

Properties

- Ø6.5 mm housing
- 1.5 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	1.5 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	✓
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number

			NBB1,5-6,5S16-E2	NBB1,5-6,5S30-E0	NBB1,5-6,5S30-E2	NBB1,5-6,5S20-E2-V3	NBB1,5-6,5S20-E3-V3	NBB1,5-6,5S40-E0-V3	NBB1,5-6,5S40-E1-V3	NBB1,5-6,5S40-E2-V3	NBB1,5-6,5S40-E3-V3
Switching element function	NPN	NO		•				•			
	NPN	NC									
	PNP	NO	•		•	•				•	
	PNP	NC					•				•
No-load supply current	≤ 10 mA		•			•					
	≤ 11 mA						•				
	≤ 2 mA								•		
	≤ 7 mA			•	•			•	•	•	•
Switching frequency	0 ... 1500 Hz			•	•			•	•	•	•
	0 ... 2000 Hz										•
	0 ... 5000 Hz						•				
	0 ... 6000 Hz		•			•					
Connection type	connector (M8 x 1), 3-pin					•	•	•	•	•	•
	cable PUR, 2 m		•	•	•						

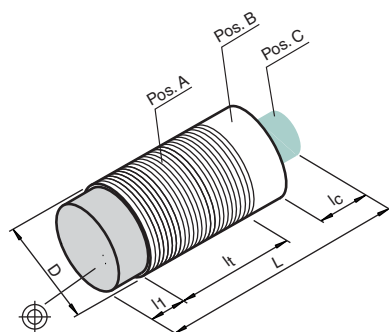


Approvals and Certificates

CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.
--------------	--

Dimensions

Length L [mm]	16	35	35	20	20	40	40	40	40
Diameter D [mm]		6.5				6.5	8		
Thread length l _t [mm]				0					
Cap length l ₁ [mm]				0					
Connector area l _c [mm]		0		9		5			
LED position	Pos.:	C	C	C	B	B	B	B	A



Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 6,5

Mounting flange, 6.5 mm

V3-GM

Female connector, M8, 3-pin, field attachable

V3-WM

Female connector, M8, 3-pin, field attachable

V3-GM-2M-PUR

Cable socket, M8, 3-pin, PUR cable

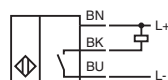
V3-WM-2M-PUR

Cable socket, M8, 3-pin, PUR cable

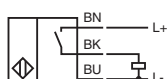
Electrical Connection



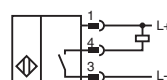
NBB1,5-6,5S30-E0



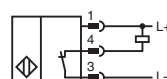
NBB1,5-6,5S16-E2
NBB1,5-6,5S30-E2



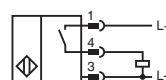
NBB1,5-6,5S40-E0-V3



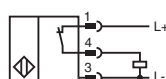
NBB1,5-6,5S40-E1-V3



NBB1,5-6,5S20-E2-V3
NBB1,5-6,5S40-E2-V3



NBB1,5-6,5S20-E3-V3
NBB1,5-6,5S40-E3-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Properties

- Ø6.5 mm housing
- 2 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	2 mm
Installation	flush
Type of voltage	DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 3000 Hz
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

		green = preferred type							
Switching element function	NPN	NO							
	NPN	NC							
	PNP	NO							
	PNP	NC							
Operating voltage	10 ... 30 V								
	5 ... 30 V								
Connection type	Device connector M8 x 1, 3-pin								
	cable PVC, 2 m								

Approvals and Certificates

UL approval	cULus Listed, General Purpose								
CSA approval	cCSAus Listed, General Purpose								
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.								

Dimensions

Length L [mm]	30	35
Diameter D [mm]	6,5	6,5 / 8
Thread length l _t [mm]		0
Cap length l ₁ [mm]		0
Connector area l _c [mm]	0	6
LED position	Pos.	Pos. C

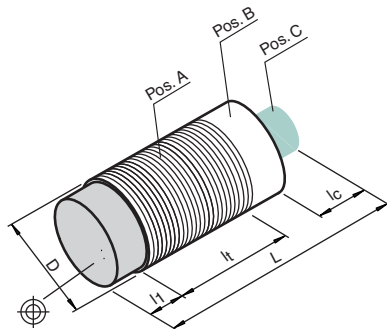
Accessories

This and more accessories can be found in chapter 10

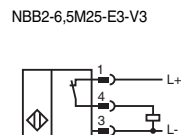
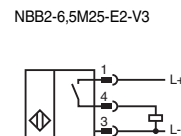
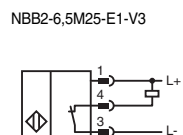
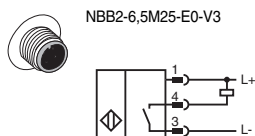
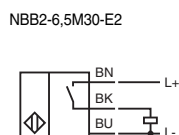
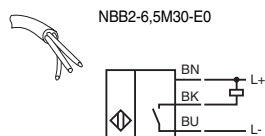
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 6,5	Mounting flange, 6.5 mm
V3-GM	Female connector, M8, 3-pin, field attachable
V3-WM	Female connector, M8, 3-pin, field attachable
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable



Electrical Connection



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Properties

- Ø6.5 mm housing
- 3 mm, virtually flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Installation	virtually flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1500 Hz
Operating current	0 ... 200 mA, above 50°C ≤ 150 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

Switching element function	NPN	NO	NEB3-6,5M45-E0	NEB3-6,5M45-E1	NEB3-6,5M45-E2	NEB3-6,5M45-E3	NEB3-6,5M45-E0-V1	NEB3-6,5M45-E1-V1	NEB3-6,5M45-E2-V1	NEB3-6,5M45-E3-V1	NEB3-6,5M50-E0-V3	NEB3-6,5M50-E1-V3	NEB3-6,5M50-E2-V3	NEB3-6,5M50-E3-V3
	NPN	NC	●	●			●	●	●		●	●	●	●
	PNP	NO			●				●				●	
	PNP	NC				●				●				●
Connection type	Device connector M12 x 1, 4-pin													
	Device connector M8 x 1, 3-pin													
	cable PUR, 2 m		●	●	●	●	●	●	●	●	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	●

Dimensions

Length L [mm]	45	65	60
Diameter D [mm]	6.5	6.5 / 12	6.5 / 8
Thread length l _t [mm]		0	
Cap length l ₁ [mm]		0	
Connector area l _c [mm]	0	8	7
LED position		Pos. A	

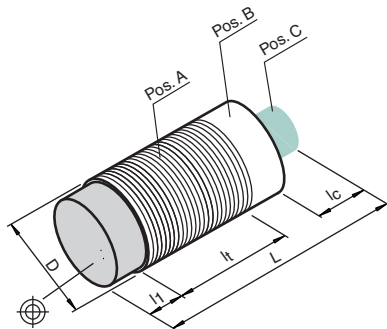
Accessories

This and more accessories can be found in chapter 10

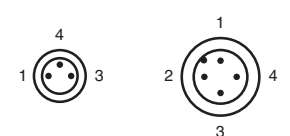
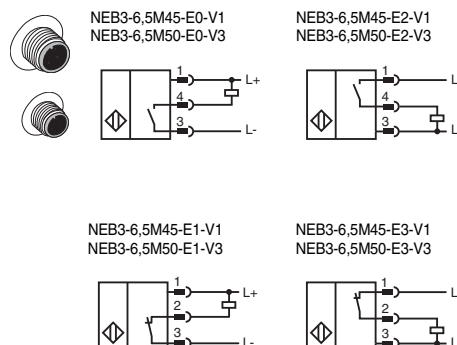
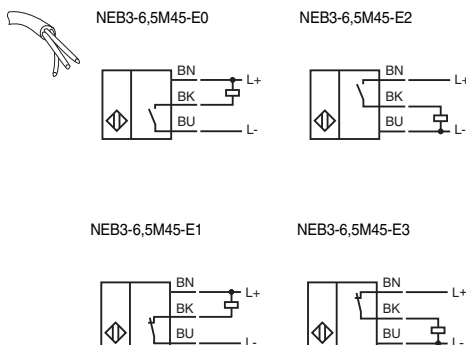
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 6,5	Mounting flange, 6.5 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V3-GM	Female connector, M8, 3-pin, field attachable
V3-WM	Female connector, M8, 3-pin, field attachable
V1-W-BK	4-pin, M12 female field-attachable connector
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable

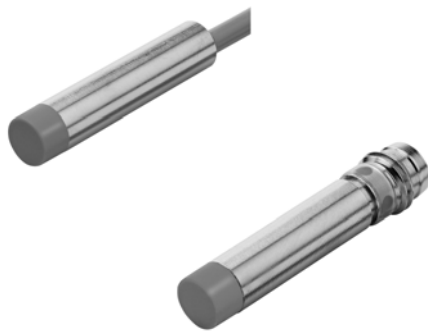


Electrical Connection



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø6.5 mm housing
- 3 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Installation	non-flush
Type of voltage	DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 2000 Hz
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

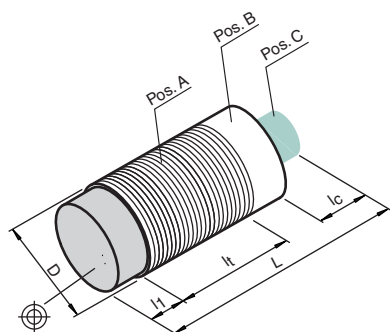
			green = preferred type						
Switching element function	NPN	NO							
	NPN	NC							
	PNP	NO							
Operating voltage	10 ... 30 V								
	5 ... 30 V								
Connection type	Device connector M8 x 1, 3-pin								
	cable PVC, 2 m								

Approvals and Certificates

UL approval	cULus Listed, General Purpose								
CSA approval	cCSAus Listed, General Purpose								
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.								

Dimensions

Length L [mm]	30	29
Diameter D [mm]	6.5	6.5 / 8
Thread length l _t [mm]		0
Cap length l ₁ [mm]		4
Connector area l _c [mm]	0	6
LED position	Pos. C	Pos. B



Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

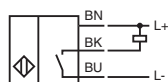
See pages 1068 ... for mounting aids

BF 6,5	Mounting flange, 6.5 mm
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V3-WM	Female connector, M8, 3-pin, field attachable
V3-GM	Female connector, M8, 3-pin, field attachable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable

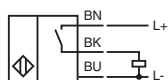
Electrical Connection



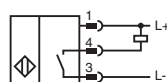
NBN3-6,5M30-E0



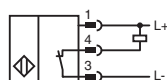
NBN3-6,5M30-E2



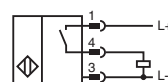
NBN3-6,5M25-E0-V3



NBN3-6,5M25-E1-V3



NBN3-6,5M25-E2-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Properties

- Ø6.5 mm housing
- 6 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	6 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 750 Hz
Operating current	0 ... 200 mA , above 50 °C ≤ 150 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

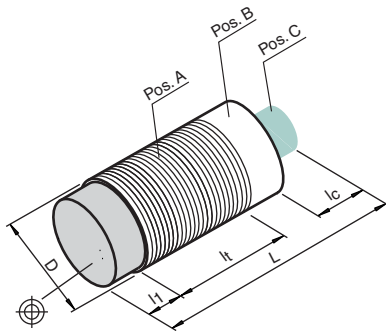
Switching element function		NPN	NO	NPN	NC	PNP	NO	PNP	NC
Connection type		Device connector M12 x 1, 4-pin		Device connector M8 x 1, 3-pin		cable PUR, 2 m			

Approvals and Certificates

UL approval	cULus Listed, General Purpose	
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.	

Dimensions

Length L [mm]	45	60	65
Diameter D [mm]	6.5	6.5 / 8	6.5 / 12
Thread length l _t [mm]	0		
Cap length l ₁ [mm]	4		
Connector area l _c [mm]	0	6	8
LED position	Pos. A		



Accessories

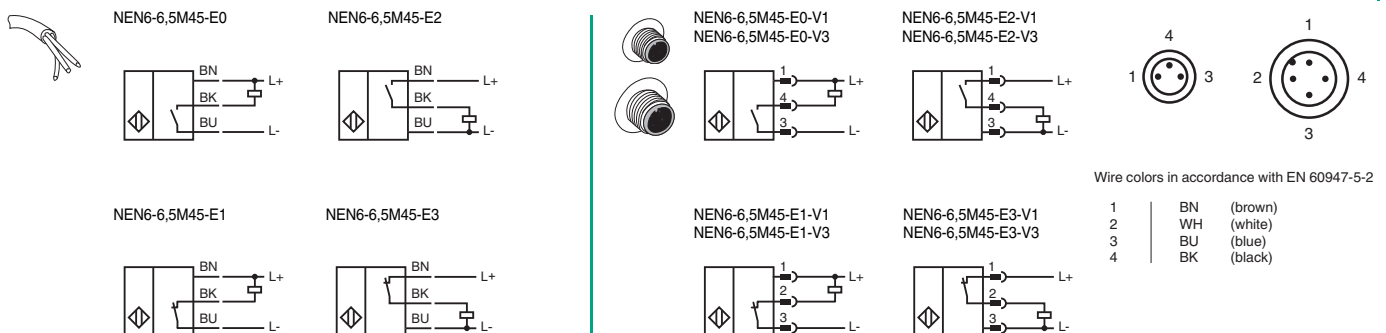
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 6,5	Mounting flange, 6.5 mm
V3-GM	Female connector, M8, 3-pin, field attachable
V3-WM	Female connector, M8, 3-pin, field attachable
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable

Electrical Connection





Properties

- Ø8 mm housing
- 1.5 mm, flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Further Products

In this series, we offer additionally:

NBB1-8GS50-Z0-T

Rated operating distance: 1 mm
 Installation: flush
 Switching element function: DC, NO
 Operating voltage: 15 ... 34 V
 Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)
 Housing material: Stainless steel 1.4305 / AISI 303
 Connection type: cable PUR, 2 m

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	1.5 mm
Installation	flush
Type of voltage	DC
Operating voltage	5 ... 60 V
Reverse polarity protection	tolerant
Switching frequency	0 ... 1200 Hz
Operating current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number

	green = preferred type
Switching element function	DC NO DC NC
Connection type	Device connector M8 x 1, 3-pin cable PUR, 2 m

NBB1,5-8GM40-Z0

NCB1,5-8GM40-Z0

NCB1,5-8GM40-Z1

NCB1,5-8GM50-Z0-V3

NCB1,5-8GM50-Z1-V3



Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Certified by China Compulsory Certification (CCC)

Dimensions

Length L [mm]	40	51
Diameter D [mm]	8	
Thread length l _t [mm]	40	48
Cap length l ₁ [mm]	0	
Connector area l _c [mm]	0	6
LED position	Pos. C	

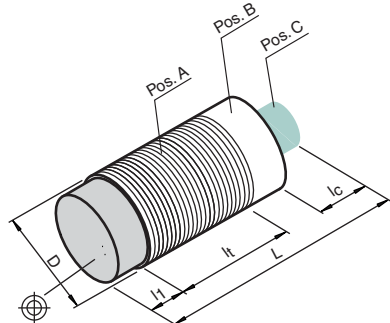
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

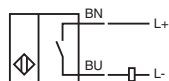
BF 8	Mounting flange, 8 mm
EXG-08	Quick mounting bracket with dead stop
V3-GM	Female connector, M8, 3-pin, field attachable
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable



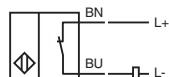
Electrical Connection



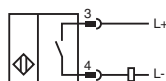
NBB1,5-8GM40-Z0
 NCB1,5-8GM40-Z0
 NBB1-8GS50-Z0-T



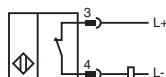
NCB1,5-8GM40-Z1



NCB1,5-8GM50-Z0-V3



NCB1,5-8GM50-Z1-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Properties

- Ø8 mm housing
- 2 mm, non-flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	2 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	5 ... 60 V
Reverse polarity protection	tolerant
Switching frequency	0 ... 1200 Hz
Operating current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number

			NCN2-8GM40-Z0	NBN2-8GM40-Z1	NCN2-8GM40-Z1	NCN2-8GM50-Z0-V3	NCN2-8GM50-Z1-V3
Switching element function	DC	NO	●			●	
	DC	NC		●	●		●
Connection type	Device connector M8 x 1, 3-pin		●		●	●	●
	cable PUR, 2 m		●		●		
	cable PVC, 2 m			●			

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●

Dimensions

Length L [mm]	40	51
Diameter D [mm]	8	
Thread length l _t [mm]	36	44
Cap length l ₁ [mm]	4	
Connector area l _c [mm]	0	6
LED position	Pos. C	

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V3-WM-2M-PUR

Cable socket, M8, 3-pin, PUR cable

BF 8

Mounting flange, 8 mm

EXG-08

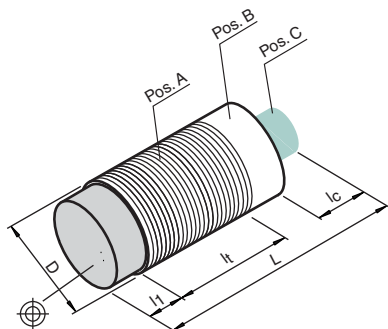
Quick mounting bracket with dead stop

V3-GM-2M-PUR

Cable socket, M8, 3-pin, PUR cable

V3-GM

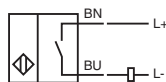
Female connector, M8, 3-pin, field attachable



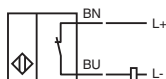
Electrical Connection



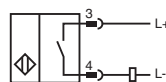
NCN2-8GM40-Z0



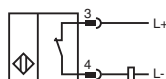
NCN2-8GM40-Z1
NBN2-8GM40-Z1



NCN2-8GM50-Z0-V3



NCN2-8GM50-Z1-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Properties

- Ø8 mm housing
- 1.5 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	1.5 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 60 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67

Model Number

			NJ1,5-8GM40-E0	NJ1,5-8GM40-E2	NJ1,5-8GM40-E0-V1	NJ1,5-8GM40-E2-V1
Switching element function	NPN NO	PNP NO	●	●	●	●
Switching frequency	0 ... 2500 Hz	0 ... 500 Hz	●	●	●	●
Housing material	Stainless steel 1.4305 / AISI 303				●	●
Connection type	Device connector M12 x 1, 4-pin	cable PUR, 2 m	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●

Dimensions

Length L [mm]	40		54	
Diameter D [mm]	8		8 / 12	
Thread length l _t [mm]	40	36	35	40
Cap length l ₁ [mm]	0	4	0	0
Connector area l _c [mm]	0		6	
LED position	Pos.:			
	A	C	B	A

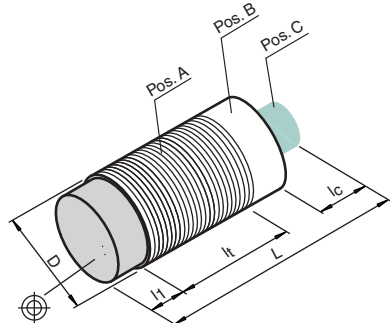
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

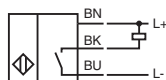
BF 8	Mounting flange, 8 mm
EXG-08	Quick mounting bracket with dead stop
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



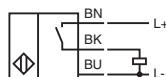
Electrical Connection



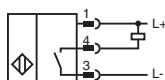
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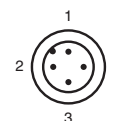
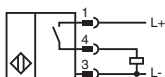
NJ1,5-8GM40-E2



NJ1,5-8GM40-E0-V1



NJ1,5-8GM40-E2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø8 mm housing
- 1.5 mm, flush mountable
- DC, 3-wire and 4-wire switching output versions
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	1.5 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✓
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Protection degree	IP67

Model Number

			NBB1,5-8GM16-E2	NBB1,5-8GM60-A0	NBB1,5-8GM60-A2	NBB1,5-8GM40-E0-V1	NBB1,5-8GM50-A0-V1	NBB1,5-8GM50-A2-V1
Switching element function	NPN	NO/NC		●				
	NPN	NO				●		
	PNP	NO/NC			●			●
	PNP	NO	●					
No-load supply current	≤ 10 mA		●					
	≤ 15 mA					●		
	≤ 20 mA						●	●
Switching frequency	0 ... 1500 Hz			●	●	●	●	●
	0 ... 6000 Hz		●					
Operating current	0 ... 100 mA			●		●	●	●
	0 ... 200 mA		●					
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)			●	●	●	●	●
	-25 ... 85 °C (-13 ... 185 °F)		●					
Housing material	Stainless steel 1.4305 / AISI 303		●					
Connection type	brass, nickel-plated			●	●	●	●	●
	Device connector M12 x 1, 4-pin					●	●	●
	cable PUR, 2 m		●					
	cable PVC, 2 m			●	●			



Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.					

Dimensions

Length L [mm]	16	60	60	65	64	64
Diameter D [mm]		8			8 / 12	
Thread length l _t [mm]	16	60	60	40	50	50
Cap length l ₁ [mm]				0		
Connector area l _c [mm]		0			6	
LED position		Pos. C				Pos. A

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 8

Mounting flange, 8 mm

V1-G-BK

4-pin, M12 female field-attachable connector

EXG-08

Quick mounting bracket with dead stop

V1-W-BK

4-pin, M12 female field-attachable connector

V1-G-2M-PUR

Cable socket, M12, 4-pin, PUR cable

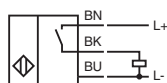
V1-W-2M-PUR

Cable socket, M12, 4-pin, PUR cable

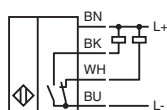
Electrical Connection



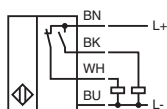
NBB1,5-8GM16-E2



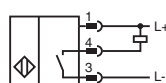
NBB1,5-8GM60-A0



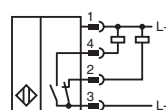
NBB1,5-8GM60-A2



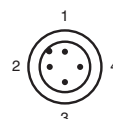
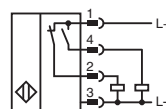
NBB1,5-8GM40-E0-V1
NBB1,5-8GM40-E0-V1



NBB1,5-8GM50-A0-V1



NBB1,5-8GM50-A2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø8 mm housing
- 1.5 mm and 2 mm, flush mountable versions
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	✓
Indication of the switching state	LED, yellow
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number

		NBB1,5-8GS30-E2-T	NBB2-8GS30-E0	NBB2-8GS30-E1	NBB2-8GS30-E2	NBB2-8GS30-E3	NBB1,5-8GS40-E2-T-V3	NBB2-8GS40-E1-V3	NBB2-8GS40-E3-V3	NBB2-8GS30-E2-V1
Rated operating distance	1.5 mm	●					●			
	2 mm		●	●	●	●		●	●	●
Switching element function	NPN NO		●							
	NPN NC			●				●		
	PNP NO	●			●		●			●
	PNP NC					●			●	
No-load supply current	≤ 1 mA		●	●				●		
	≤ 5 mA					●				
	≤ 7 mA	●			●		●	●	●	
Switching frequency	0 ... 1500 Hz	●					●			
	0 ... 2000 Hz									●
	0 ... 2500 Hz					●			●	
	0 ... 3500 Hz				●					
	0 ... 600 Hz		●	●				●		
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)	●					●			
	-25 ... 85 °C (-13 ... 185 °F)		●	●	●	●		●	●	●
Connection type	connector (M8 x 1), 3-pin							●	●	
	Device connector M12 x 1, 4-pin									●
	Device connector M8 x 1, 3-pin						●			
	cable PUR, 2 m	●	●	●	●	●				

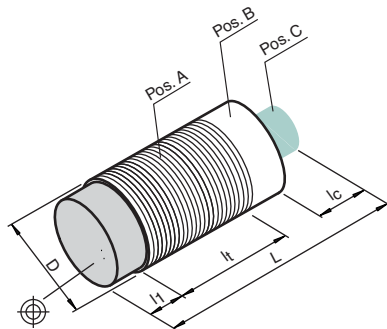


Approvals and Certificates

CCC approval Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

Dimensions

Length L [mm]	30	35	35	35	35	44	45	45	49
Diameter D [mm]					8				8/12
Thread length l _t [mm]	30	35	35	35	35	44	42	42	30
Cap length l ₁ [mm]					0				
Connector area l _c [mm]	0	0	0	0	0	6	0	0	6
LED position						Pos. C		Pos. A	



Accessories

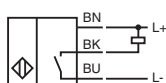
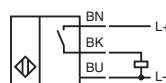
This and more accessories can be found in chapter 10
See pages from 972 ... for cordsets See pages 1068 ... for mounting aids

BF 8	Mounting flange, 8 mm
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V1-G-BK	4-pin, M12 female field-attachable connector
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V3-GM	Female connector, M8, 3-pin, field attachable

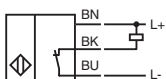
Electrical Connection



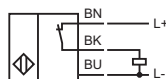
NBB2-8GS30-E0

NBB1,5-8GS30-E2-T
NBB2-8GS30-E2

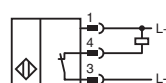
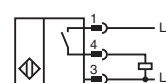
NBB2-8GS30-E1



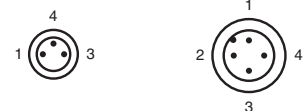
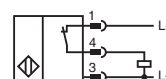
NBB2-8GS30-E3



NBB2-8GS40-E1-V3

NBB1,5-8GS40-E2-T-V3
NBB2-8GS30-E2-V1

NBB2-8GS40-E3-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	2 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1500 Hz
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	Multihole-LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4435 / AISI 316L
Protection degree	IP67
Connection type	M8 x 1 connector, 3-pin



Properties

- Ø8 mm housing
- 2 mm, flush mountable
- DC, 3-wire switching output
- Connector version

Model Number

Switching element function	green = preferred type	
	NPN	NO
	PNP	NO

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.						

Dimensions

Length L [mm]	24	29	44
Diameter D [mm]		8	
Thread length l _t [mm]	20	25	40
Cap length l ₁ [mm]		0	
Connector area l _c [mm]		6	
LED position		Pos. B	

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

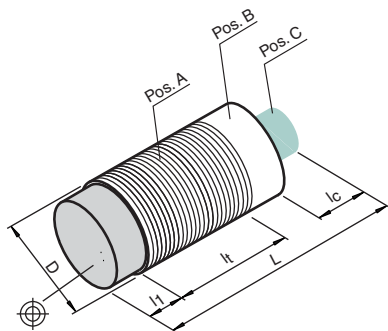
See pages 1068 ... for mounting aids

BF 8

Befestigungsflansch, 8 mm

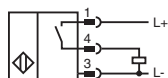
V3-GMV4A-5M-PUR

V3-WMV4A-5M-PUR

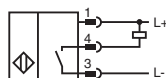


Electrical Connection

NBB2-8GH20-E2-V3
NBB2-8GH25-E2-V3
NBB2-8GH40-E2-V3

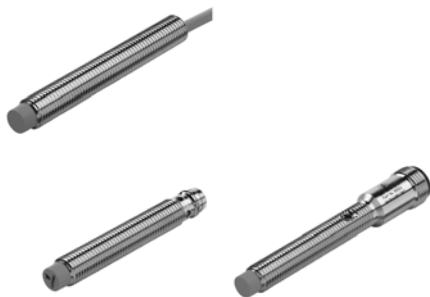


NBB2-8GH20-E0-V3
NBB2-8GH25-E0-V3
NBB2-8GH40-E0-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Properties

- Ø8 mm housing
- 2 mm, non-flush mountable
- DC, 3-wire and 4-wire switching output versions
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	2 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✓
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NBN2-8GM50-E0	NBN2-8GM50-E2	NBN2-8GM60-A0	NBN2-8GM60-A2	NBN2-8GM40-E2-V3	NBN2-8GM40-E2-V1	NBN2-8GM50-A0-V1	NBN2-8GM50-A2-V1
Switching element function	NPN	NO/NC	•		•				•	
	NPN	NO								
	PNP	NO/NC				•	•	•		•
	PNP	NO		•						
No-load supply current	≤ 15 mA		•	•			•	•		
	≤ 20 mA				•	•			•	•
Switching frequency	0 ... 1500 Hz		•	•	•	•			•	•
	0 ... 2000 Hz						•			
Connection type	Device connector M12 x 1, 4-pin								•	•
	Device connector M8 x 1, 3-pin cable PVC, 2 m		•	•	•	•				

Approvals and Certificates

UL approval	cULus Listed, General Purpose	•	•	•	•	•	•	•	•	•
CSA approval	cCSAus Listed, General Purpose	•	•	•	•	•	•	•	•	•
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.									

Dimensions

Length L [mm]	50	60	50	65	64
Diameter D [mm]		8			8 / 12
Thread length l _t [mm]	45	60	35		50
Cap length l ₁ [mm]			4		
Connector area l _c [mm]		0		6	
LED position		Pos. C			Pos. A

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-W-BK

4-pin, M12 female field-attachable connector

BF 8

Mounting flange, 8 mm

V1-G-BK

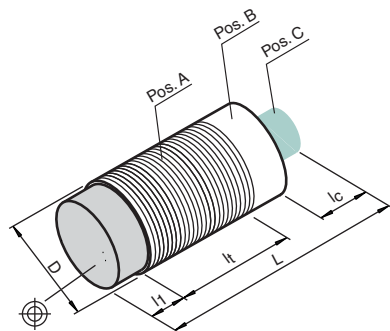
4-pin, M12 female field-attachable connector

V1-G-2M-PUR

Cable socket, M12, 4-pin, PUR cable

V1-W-2M-PUR

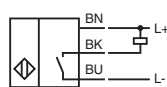
Cable socket, M12, 4-pin, PUR cable



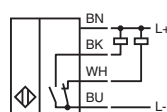
Electrical Connection



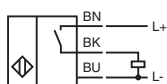
NBN2-8GM50-E0



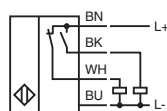
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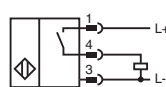
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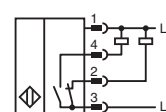
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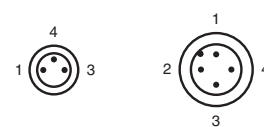
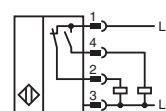
NBN2-8GM40-E2-V1
NBN2-8GM40-E2-V3



NBN2-8GM50-A0-V1



NBN2-8GM50-A2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø8 mm housing
- 3 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Installation	non-flush
Type of voltage	DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

		green = preferred type	NBN3-8GM30-E0	NBN3-8GM30-E2	NBN3-8GM50-E0	NBN3-8GM25-E0-V3	NBN3-8GM25-E1-V3	NBN3-8GM25-E2-V3	NBN3-8GM25-E3-V3	NBN3-8GM45-E2-V3	NBN3-8GM30-E0-V1	NBN3-8GM30-E2-V1
Switching element function	NPN	NO	●	●	●	●	●	●	●	●	●	●
	NPN	NC										
	PNP	NO		●				●	●	●	●	●
	PNP	NC										
Operating voltage	10 ... 30 V		●	●	●			●	●	●	●	●
	5 ... 30 V					●	●					
Switching frequency	0 ... 1500 Hz				●							
	0 ... 2000 Hz		●	●				●	●	●	●	●
Connection type	Device connector M12 x 1, 4-pin										●	●
	Device connector M8 x 1, 3-pin					●	●	●	●	●		
	cable PVC, 2 m		●	●	●							

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.											

Dimensions

Length L [mm]	30	30	50	29	29	29	55	49	49
Diameter D [mm]				8	8	8	8	8	8
Thread length l _t [mm]	30	30	45	21	21	21	21	40	26
Cap length l ₁ [mm]							4		
Connector area l _c [mm]		0					6		
LED position		Pos. C					Pos. B		

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

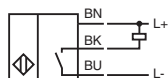
See pages 1068 ... for mounting aids

BF 8	Mounting flange, 8 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V3-WM	Female connector, M8, 3-pin, field attachable
V3-GM	Female connector, M8, 3-pin, field attachable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-BK	4-pin, M12 female field-attachable connector

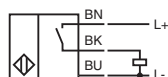
Electrical Connection



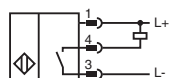
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NBN3-8GM50-E0



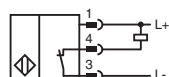
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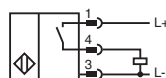
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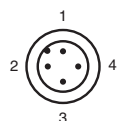
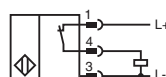
NBN3-8GM25-E1-V3



NBN3-8GM25-E2-V3
NBN3-8GM30-E2-V1
NBN3-8GM45-E2-V3



NBN3-8GM25-E3-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø8 mm housing
- 3 mm virtually flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Installation	virtually flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Switching frequency	0 ... 1500 Hz
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Protection degree	IP67
Housing material	brass, nickel-plated

Model Number

		green = preferred type												
Switching element function	NPN	NO	●			●			●			●		
	NPN	NC		●			●			●			●	
	PNP	NO			●			●					●	
	PNP	NC				●					●			●
Connection type	Device connector M12 x 1 , 4-pin													
	Device connector M8 x 1 , 3-pin						● ● ● ●							
	cable PUR , 2 m		● ● ● ●											
														

Approvals and Certificates

UL approval	cULus Listed, General Purpose	
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.	

Dimensions

Dimensions			
Length L [mm]	45	60	66
Diameter D [mm]	8		8 / 12
Thread length l_t [mm]	45		44
Cap length l_1 [mm]	0		
Connector area l_c [mm]	0	6	10
LED position	Pos. A		

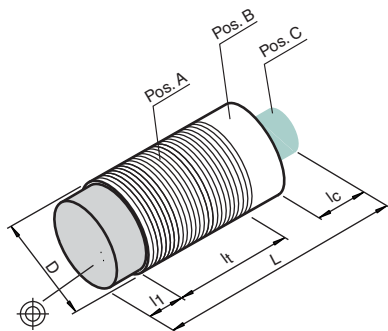
Accessories

This and more accessories can be found in chapter 10

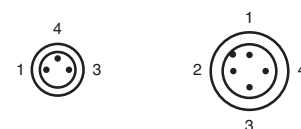
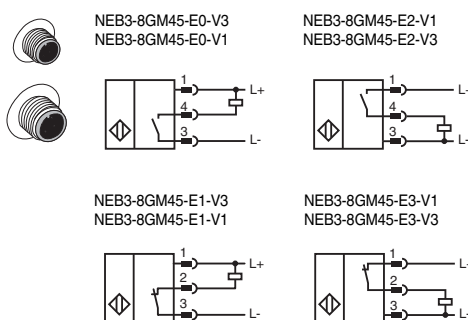
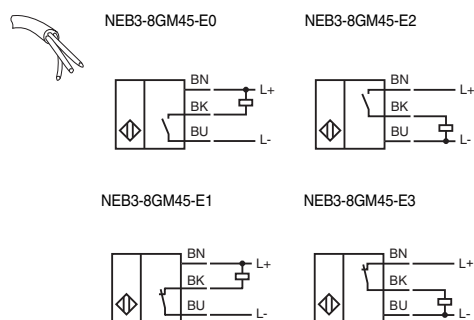
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 8	Mounting flange, 8 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V3-GM	Female connector, M8, 3-pin, field attachable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable



Electrical Connection



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø8 mm housing
- 4 mm, virtually flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	4 mm
Installation	virtually flush
Switching element function	PNP NO
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Switching frequency	0 ... 500 Hz
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Housing material	chromium plated brass

Model Number

Connection type	Device connector M8 x 1 , 3-pin cable PUR , 2 m
-----------------	--

NEB4-8GM45-E2



NEB4-8GM50-E2-V3



Approvals and Certificates

UL approval	cULus Listed, General Purpose	•	•
CSA approval	cCSAus Listed, General Purpose	•	•
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

Length L [mm]	45	60
Diameter D [mm]	8	
Thread length l_t [mm]	45	
Cap length l_1 [mm]	0	
Connector area l_c [mm]	0	6
LED position	Pos. A	

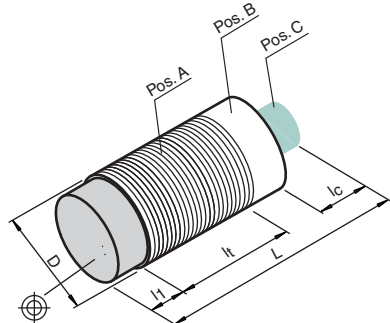
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

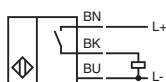
BF 8	Mounting flange, 8 mm
V3-GM	Female connector, M8, 3-pin, field attachable
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable



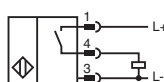
Electrical Connection



NEB4-8GM45-E2



NEB4-8GM50-E2-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø8 mm housing
- 6 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	6 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 750 Hz
Operating current	0 ... 200 mA , above 50°C ≤ 150 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NEN6-8GM45-E0	NEN6-8GM45-E1	NEN6-8GM45-E2	NEN6-8GM45-E3	NEN6-8GM45-E0-V3	NEN6-8GM45-E1-V3	NEN6-8GM45-E2-V3	NEN6-8GM45-E3-V3
Switching element function	NPN	NO	●				●			
	NPN	NC		●				●		
	PNP	NO			●				●	
	PNP	NC				●				●
Connection type	Device connector M8 x 1 , 3-pin		●	●	●	●	●	●	●	●
	cable PUR , 2 m		●	●	●	●				

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.									

Dimensions

Length L [mm]	45	60
Diameter D [mm]	8	
Thread length l _t [mm]	44	40
Cap length l ₁ [mm]	4	
Connector area l _c [mm]	0	6
LED position	Pos. A	

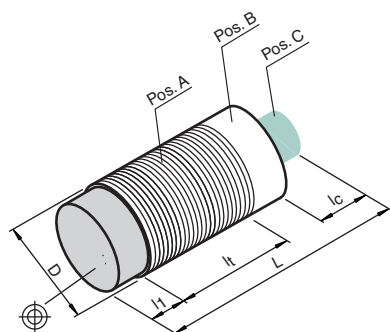
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

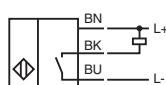
BF 8	Mounting flange, 8 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V3-GM	Female connector, M8, 3-pin, field attachable
V1-W-BK	4-pin, M12 female field-attachable connector
V3-WM	Female connector, M8, 3-pin, field attachable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable



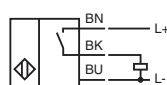
Electrical Connection



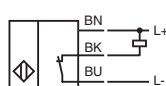
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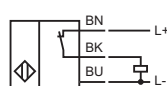
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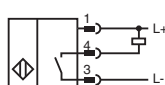
NEN6-8GM45-E1



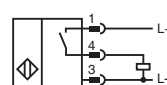
NEN6-8GM45-E3



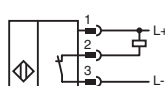
NEN6-8GM45-E0-V3



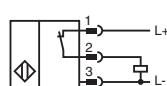
NEN6-8GM45-E2-V3



NEN6-8GM45-E1-V3



NEN6-8GM45-E3-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø8 mm housing
- 6 mm, non-flush mountable
- DC, 3-wire switching output
- Connector version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	6 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 750 Hz
Operating current	0 ... 200 mA, above 50 °C ≤ 150 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67
Connection type	Device connector M12 x 1, 4-pin



Model Number

green = preferred type

Switching element function		NEN6-8GM45-E0-V1	NEN6-8GM45-E1-V1	NEN6-8GM45-E2-V1	NEN6-8GM45-E3-V1
NPN	NO	●			
NPN	NC		●		
PNP	NO			●	
PNP	NC				●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	66
Diameter D [mm]	8 / 12
Thread length l _t [mm]	40
Cap length l ₁ [mm]	4
Connector area l _c [mm]	8
LED position	Pos. A

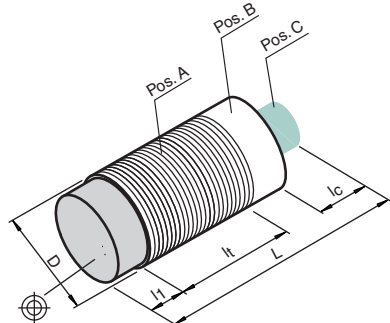
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

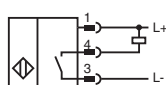
BF 8	Mounting flange, 8 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V3-GM	Female connector, M8, 3-pin, field attachable
V1-W-BK	4-pin, M12 female field-attachable connector
V3-WM	Female connector, M8, 3-pin, field attachable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable



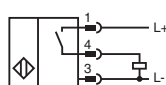
Electrical Connection



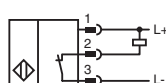
NEN6-8GM45-E0-V1



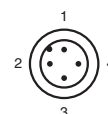
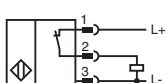
NEN6-8GM45-E2-V1



NEN6-8GM45-E1-V1

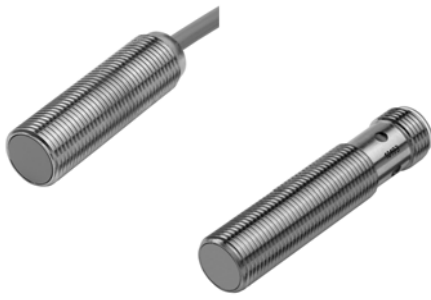


NEN6-8GM45-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø12 mm housing
- 2 mm and 4 mm, flush mountable versions
- DC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	flush
Type of voltage	DC
Operating current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Protection degree	IP67

Model Number

green = preferred type

		NBB2-12GM40-Z0	NCB2-12GM40-Z0	NCB2-12GM40-Z1	NCB4-12GM35-Z4	NCB4-12GM35-Z5	NBB2-12GM40-Z0-V1	NCB2-12GM40-Z0-V1	NCB2-12GM40-Z1-V1	NCB4-12GM40-Z4-V1	NCB4-12GM40-Z5-V1
Rated operating distance	2 mm	●	●	●	●	●	●	●	●	●	●
	4 mm	●	●	●	●	●	●	●	●	●	●
Switching element function	DC NO	●	●	●	●	●	●	●	●	●	●
	DC NC	●	●	●	●	●	●	●	●	●	●
Operating voltage	3.5 ... 30 V	●	●	●	●	●	●	●	●	●	●
	5 ... 60 V	●	●	●	●	●	●	●	●	●	●
Reverse polarity protection	conducting tolerant	●	●	●	●	●	●	●	●	●	●
Switching frequency	0 ... 800 Hz	●	●	●	●	●	●	●	●	●	●
	0 ... 1000 Hz	●	●	●	●	●	●	●	●	●	●
Pre-fault indication	LED, red	●	●	●	●	●	●	●	●	●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	●	●	●	●	●	●	●	●	●	●
	-40 ... 70 °C (-40 ... 158 °F)	●	●	●	●	●	●	●	●	●	●
Housing material	Stainless steel 1.4305 / AISI 303	●	●	●	●	●	●	●	●	●	●
	brass, nickel-plated	●	●	●	●	●	●	●	●	●	●
Connection type	Device connector M12 x 1, 4-pin	●	●	●	●	●	●	●	●	●	●
	cable PUR, 2 m	●	●	●	●	●	●	●	●	●	●
	cable PVC, 2 m	●	●	●	●	●	●	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●	●	●	●	●

Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

Dimensions

Length L [mm]	40	35	55
Diameter D [mm]		12	
Thread length l _t [mm]	37	32	39
Cap length l ₁ [mm]		0	
Connector area l _c [mm]	0		6
LED position		Pos. C	

Accessories

See pages from 972 ... for cordsets

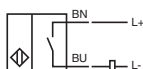
See pages 1068 ... for mounting aids

BF 12	Mounting flange, 12 mm
EXG-12	Quick mounting bracket with dead stop
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable

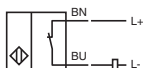
Electrical Connection



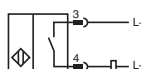
NBB2-12GM40-Z0
NCB2-12GM40-Z0
NCB4-12GM35-Z4



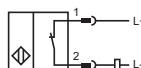
NCB2-12GM40-Z1
NCB4-12GM35-Z5



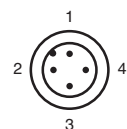
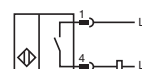
NBB2-12GM40-Z0-V1
NCB2-12GM40-Z0-V1



NCB2-12GM40-Z1-V1
NCB4-12GM40-Z5-V1



NCB4-12GM40-Z4-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø12 mm housing
- 2 mm, flush and 4 mm, non-flush mountable versions
- DC, 3-wire switching output
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 17 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP68 / IP69K
Connection type	cable PVC, 2 m



Model Number

		NBB2-12GK50-E0	NBB2-12GK50-E2	NBN4-12GK50-E0	NBN4-12GK50-E2
Rated operating distance	2 mm	●	●		
	4 mm			●	●
Installation	flush	●	●		
	non-flush			●	●
Switching element function	NPN NO	●		●	
	PNP NO		●		●
Switching frequency	0 ... 1200 Hz			●	●
	0 ... 1500 Hz	●	●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	50
Diameter D [mm]	12
Thread length l _t [mm]	40
Cap length l ₁ [mm]	1
Connector area l _c [mm]	0
LED position	Pos. C

Accessories

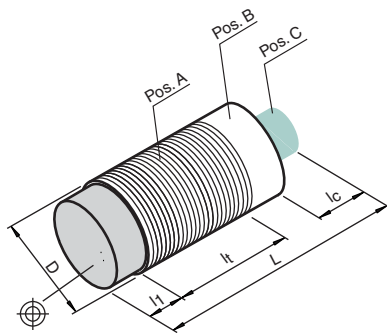
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

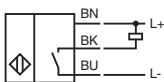
BF 12

Mounting flange, 12 mm

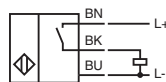


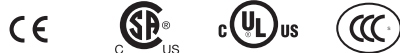
Electrical Connection

NBB2-12GK50-E0
NBN4-12GK50-E0



NBB2-12GK50-E2
NBN4-12GK50-E2



1
.1.1

Properties

- Ø12 mm plastic housing
- 2 mm, flush and 4 mm, non-flush mountable versions
- DC, 3-wire switching output
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Type of voltage	DC
Operating voltage	10 ... 60 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP68
Connection type	cable PUR , 2 m



Model Number

		NJ2-12GK40-E	NJ2-12GK40-E1	NJ2-12GK40-E2	NJ2-12GK40-E3	NJ4-12GK40-E	NJ4-12GK40-E1	NJ4-12GK40-E2	NJ4-12GK40-E3
Rated operating distance	2 mm	●	●	●	●				
	4 mm					●	●	●	●
Installation	flush	●	●	●	●				
	non-flush					●	●	●	●
Switching element function	NPN NO	●				●			
	NPN NC		●				●		
	PNP NO			●				●	
	PNP NC				●				●
Switching frequency	0 ... 2000 Hz	●	●	●	●	●	●	●	●
	0 ... 3000 Hz	●	●	●	●				

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●	●	●

Dimensions

Length L [mm]	40	40
Diameter D [mm]	12	
Thread length l _t [mm]	35	35
Cap length l ₁ [mm]	1	
Connector area l _c [mm]	0	

Accessories

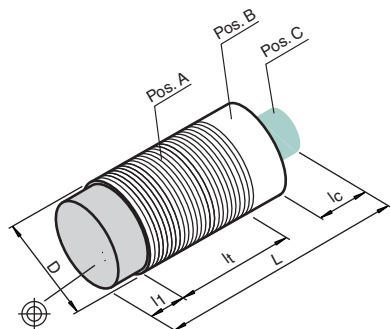
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 12

Mounting flange, 12 mm



Electrical Connection

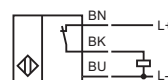
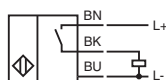
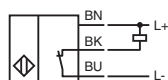
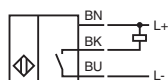


NJ2-12GK40-E
NJ4-12GK40-E

NJ2-12GK40-E1
NJ4-12GK40-E1

NJ2-12GK40-E2
NJ4-12GK40-E2

NJ2-12GK40-E3
NJ4-12GK40-E3





Properties

- Ø12 mm housing
- 2 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	2 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 60 V
Reverse polarity protection	✓
Switching frequency	0 ... 3000 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number

			NJ2-12GM40-E	NJ2-12GM40-E2	NJ2-12GM40-E3	NJ2-12GM40-E-V1
Switching element function	NPN	NO	●			●
	PNP	NO		●		
	PNP	NC			●	
No-load supply current	≤ 11 mA		●	●		●
	≤ 15 mA				●	
Connection type	Device connector M12 x 1, 4-pin		●	●		●
	cable PUR, 2 m				●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●

Dimensions

Length L [mm]	40	50
Diameter D [mm]	12	
Thread length l _t [mm]	40	50
Cap length l ₁ [mm]	0	
Connector area l _c [mm]	0	
LED position	Pos. A	

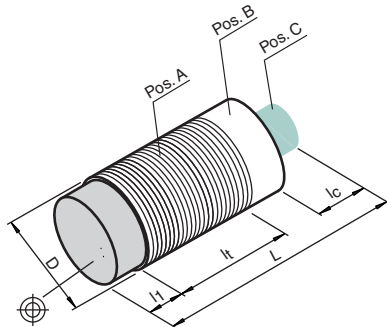
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

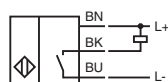
BF 12	Mounting flange, 12 mm
EXG-12	Quick mounting bracket with dead stop
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



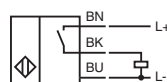
Electrical Connection



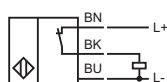
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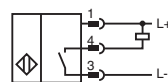
NJ2-12GM40-E2



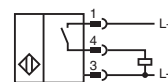
NJ2-12GM40-E3



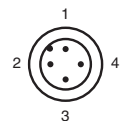
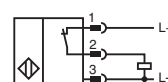
NJ2-12GM40-E-V1



NJ2-12GM40-E2-V1



NJ2-12GM40-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø12 mm housing
- 2 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	2 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NBB2-12GM30-E2	NBB2-12GM40-E0	NBB2-12GM40-E1	NBB2-12GM40-E2	NBB2-12GM40-E3	NBB2-12GM30-E2-V1	NBB2-12GM40-E0-V1	NBB2-12GM40-E2-V1
Switching element function	NPN	NO		●					●	
	NPN	NC			●					
	PNP	NO	●			●		●		●
	PNP	NC					●			
Switching frequency	0 ... 1000 Hz			●	●	●	●		●	●
	0 ... 800 Hz		●					●		
Operating current	0 ... 100 mA			●	●	●	●		●	●
	0 ... 200 mA		●					●	●	●
Connection type	Device connector M12 x 1, 4-pin							●	●	●
	cable PVC, 2 m		●	●	●	●	●			

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.									

Dimensions

Length L [mm]	30	40	45	50
Diameter D [mm]		12		
Thread length l _t [mm]	27	37	30	50
Cap length l ₁ [mm]		0		
Connector area l _c [mm]		0		6
LED position			Pos. C	

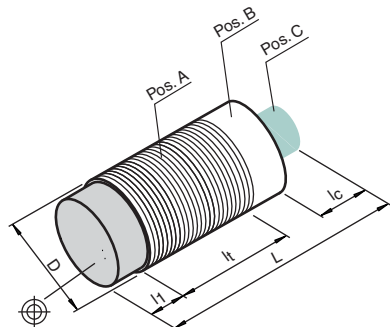
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

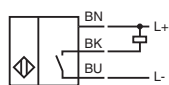
BF 12	Mounting flange, 12 mm
EXG-12	Quick mounting bracket with dead stop
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



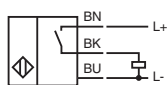
Electrical Connection



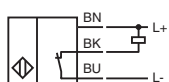
NBB2-12GM40-E0



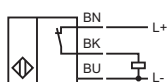
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NBB2-12GM40-E2



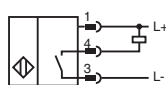
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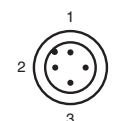
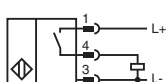
NBB2-12GM40-E3



NBB2-12GM40-E0-V1



NBB2-12GM30-E2-V1
NBB2-12GM40-E2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø12 mm housing
- 2 mm, flush mountable
- DC, 3-wire and 4-wire switching output versions
- Cable and connector versions

Further Products

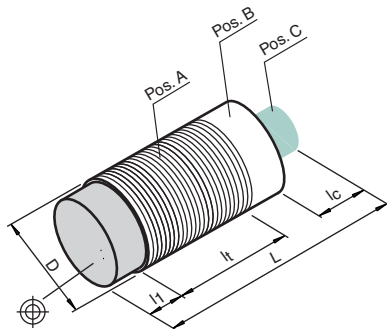
In this series, we offer additionally:

NBB2-12GM60-E2-T

Technical data similar to NBB2-12GM50-E2 but:
 Operating voltage: 10 ... 65 V
 No-load supply current: ≤ 10 mA
 Operating current: 0 ... 300 mA
 Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)

NBB2-12GM50-E2-T-V1

Technical data similar to NBB2-12GM50-E2-V1 but:
 Operating voltage: 10 ... 65 V
 No-load supply current: ≤ 10 mA
 Operating current: 0 ... 300 mA
 Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	2 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NBB2-12GM50-E0	NBB2-12GM50-E1	NBB2-12GM50-E2	NBB2-12GM60-A0	NBB2-12GM60-A2	NBB2-12GM50-E0-V1	NBB2-12GM50-E1-V1	NBB2-12GM50-E2-V1	NBB2-12GM60-E2-V1	NBB2-12GM60-A0-V1	NBB2-12GM60-A2-V1
Switching element function	NPN	NO/NC											
	NPN	NO	•					•					
	NPN	NC		•					•				
	PNP	NO/NC					•						•
	PNP	NO										•	
No-load supply current	≤ 15 mA												
	≤ 20 mA		•	•	•	•	•	•	•	•	•	•	•
Switching frequency	0 ... 1000 Hz												
	0 ... 1500 Hz		•	•	•	•	•	•	•	•	•	•	•
Indication of the switching state	LED, yellow		•	•	•	•	•	•	•	•	•	•	•
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		•	•	•	•	•	•	•	•	•	•	•
	-40 ... 70 °C (-40 ... 158 °F)									•			
Connection type	Device connector M12 x 1, 4-pin												
	cable PVC, 2 m		•	•	•	•	•						

Approvals and Certificates

UL approval	cULus Listed, General Purpose	•	•	•	•	•	•	•	•	•	•	•	•
CSA approval	cCSAus Listed, General Purpose	•	•	•	•	•	•	•	•	•	•	•	•
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.												

Dimensions

Length L [mm]	50 50 50 60 60 65 65 65 70 70 70											
Diameter D [mm]	12											
Thread length l _t [mm]	50 50 50 60 60 50 50 50 40 70 70											
Cap length l ₁ [mm]	0											
Connector area l _c [mm]	0											

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 12

Mounting flange, 12 mm

EXG-12

Quick mounting bracket with dead stop

V1-G-BK

4-pin, M12 female field-attachable connector

V1-W-BK

4-pin, M12 female field-attachable connector

V1-G-2M-PUR

Cable socket, M12, 4-pin, PUR cable

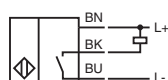
V1-W-2M-PUR

Cable socket, M12, 4-pin, PUR cable

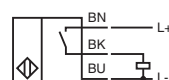
Electrical Connection



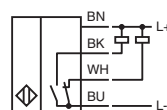
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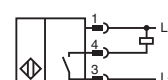
NBB2-12GM50-E2
NBB2-12GM60-E2-T



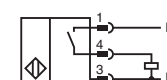
NBB2-12GM60-A0



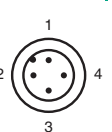
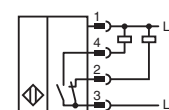
NBB2-12GM50-E0-V1



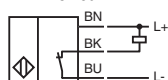
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NBB2-12GM50-E2-T-V1
NBB2-12GM50-E2-V1



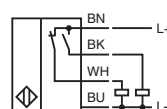
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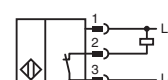
NBB2-12GM50-E1



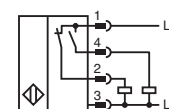
NBB2-12GM60-A2



NBB2-12GM50-E1-V1



NBB2-12GM60-A2-V1





Properties

- Ø12 mm housing
- 4 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	4 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 60 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 2000 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number

			NJ4-12GM40-E	NJ4-12GM40-E1	NJ4-12GM40-E2	NJ4-12GM40-E3	NJ4-12GM40-E-V1	NJ4-12GM40-E2-V1	NJ4-12GM40-E3-V1
Switching element function	NPN	NO	●				●		
	NPN	NC		●					
	PNP	NO			●			●	
	PNP	NC				●			●
Connection type	Device connector M12 x 1, 4-pin						●	●	●
	cable PUR, 2 m		●	●	●	●			

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●	●	●

Dimensions

Length L [mm]	40	50
Diameter D [mm]	12	
Thread length l _t [mm]	35	45
Cap length l ₁ [mm]	5	
Connector area l _c [mm]	0	
LED position	Pos. A	

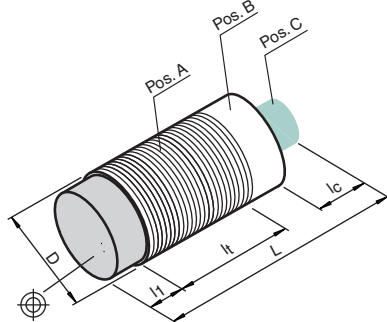
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

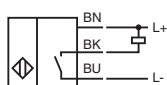
BF 12	Mounting flange, 12 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



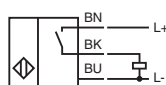
Electrical Connection



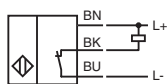
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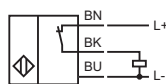
NJ4-12GM40-E2



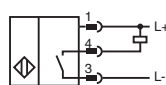
NJ4-12GM40-E1



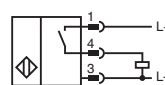
NJ4-12GM40-E3



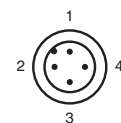
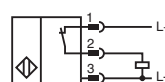
NJ4-12GM40-E-V1



NJ4-12GM40-E2-V1



NJ4-12GM40-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø12 mm housing
- 4 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Further Products

In this series, we offer additionally:

NBB4-12GM30-E2-T-V1

Technical data similar to NBB4-12GM30-E2-V1 but:
Operating current: 0 ... 100 mA
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	4 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✓
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

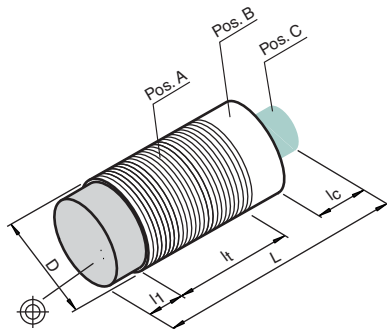
	green = preferred type	NBB4-12GM30-E2	NBB4-12GM30-E3	NBB4-12GM40-E0	NBB4-12GM40-E2	NBB4-12GM30-E2-V3	NBB4-12GM30-E2-V1	NBB4-12GM30-E3-V1
Switching element function	NPN NO PNP NO PNP NC	•	•	•	•	•	•	•
No-load supply current	≤ 15 mA ≤ 20 mA	•	•	•	•	•	•	•
Switching frequency	0 ... 1000 Hz 0 ... 800 Hz	•	•	•	•	•	•	•
Operating current	0 ... 150 mA 0 ... 200 mA	•	•	•	•	•	•	•
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F) -40 ... 80 °C (-40 ... 176 °F) -40 ... 85 °C (-40 ... 185 °F)	•	•	•	•	•	•	•
Connection type	Device connector M12 x 1, 4-pin Device connector M8 x 1, 3-pin cable PVC, 2 m	•	•	•	•	•	•	•

Approvals and Certificates

UL approval	cULus Listed, General Purpose	•	•	•	•	•	•	•
CSA approval	cCSAus Listed, General Purpose	•	•	•	•	•	•	•
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	•	•	•	•	•	•	•

Dimensions

Length L [mm]	30	40	44	45
Diameter D [mm]		12		
Thread length l _t [mm]	27	37	35	30
Cap length l ₁ [mm]		0		
Connector area l _c [mm]		0	9	6
LED position			Pos. C	



Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

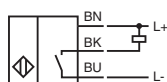
See pages 1068 ... for mounting aids

BF 12	Mounting flange, 12 mm
EXG-12	Quick mounting bracket with dead stop
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V1-G-2M-PUR H/S	Female cordset, M12, 4-pin, irradiated PUR cable
V1-G-BK	4-pin, M12 female field-attachable connector
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable

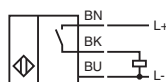
Electrical Connection



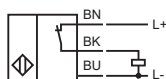
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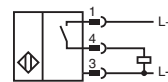
NBB4-12GM40-E2
NBB4-12GM30-E2



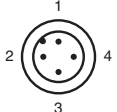
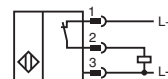
NBB4-12GM30-E3



NBB4-12GM30-E2-T-V1
NBB4-12GM30-E2-V1
NBB4-12GM30-E2-V3



NBB4-12GM30-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø12 mm housing
- 4 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	4 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 800 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Protection degree	IP67

Model Number

		green	blue	red	yellow	grey	white
Switching element function	NPN NO	●				●	
	NPN NC		●				●
	PNP NO			●			
	PNP NC				●		
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	●	●	●	●	●	●
	-40 ... 70 °C (-40 ... 158 °F)					●	
Housing material	Stainless steel 1.4305 / AISI 303						●
	brass, nickel-plated	●	●	●	●	●	●
Connection type	Device connector M12 x 1, 4-pin					●	●
	cable PVC, 2 m	●	●	●	●		




Approvals and Certificates

UL approval	cULus Listed, General Purpose	        
CSA approval	cCSAus Listed, General Purpose	        
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.	

Dimensions

Length L [mm]	50	65
Diameter D [mm]		12
Thread length l_t [mm]	47	49
Cap length l_1 [mm]		0
Connector area l_c [mm]	0	6
LED position		Pos. C

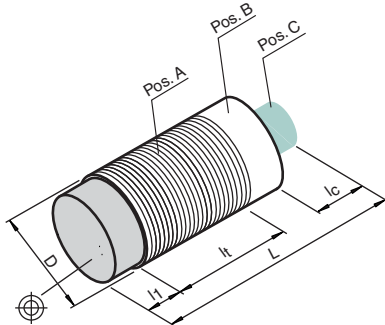
Accessories

This and more accessories can be found in chapter 10

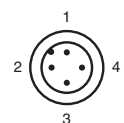
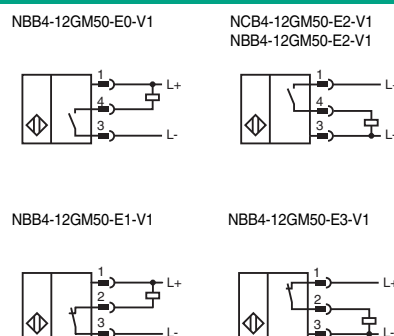
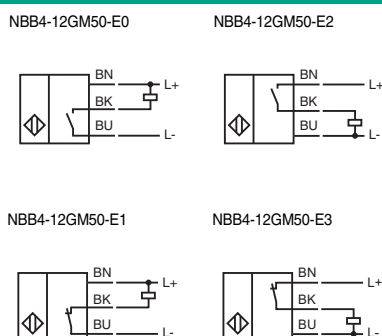
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
BF 12	Mounting flange, 12 mm
V1-W-BK	4-pin, M12 female field-attachable connector
EXG-12	Quick mounting bracket with dead stop
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



Electrical Connection



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

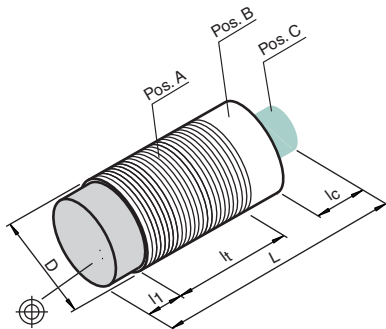
- Ø12 mm housing
- 4 mm, flush mountable
- DC, 3-wire and 4-wire switching output
- Cable and connector versions

Further Products

In this series, we offer additionally:

NBB4-12GM30-E2-V3

Technical data like NBB4-12GM30-E2-V1 but:
Connection type: Device connector M8 x 1 , 3-pin



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

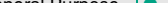
General Data

Rated operating distance	4 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✓
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

[illegible]

Approvals and Certificates

UL approval	cULus Listed, General Purpose	
CSA approval	cCSAus Listed, General Purpose	
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.	

Dimensions

Length L [mm]	30	50	45	65
Diameter D [mm]	12			
Thread length l_t [mm]	27	47	30	49
Cap length l_1 [mm]	0			
Connector area l_c [mm]	0		6	
LED position	Pos. C			

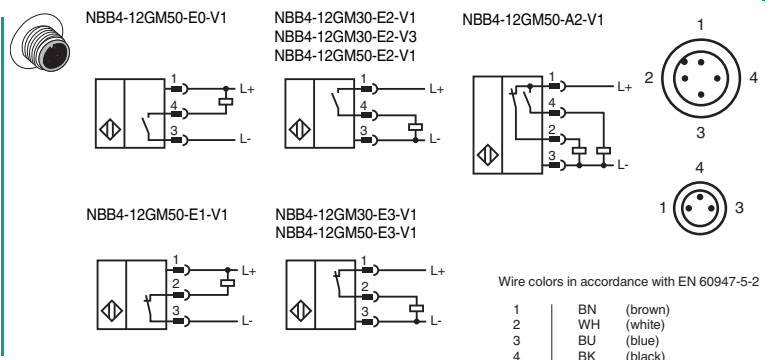
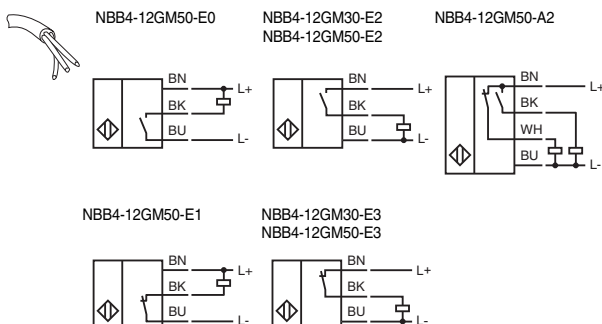
Accessories This and more accessories can be found in chapter 10
See pages from 972 for cords, See pages 1068 for

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 12	Mounting flange, 12 mm
EXG-12	Quick mounting bracket with dead stop
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable

Electrical Connection





Properties

- Ø12 mm housing
- 4 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Further Products

In this series, we offer additionally:

NBN4-12GM40-E2-T-V1
NBN4-12GM60-E2-T-V1

Technical data:
PNP NO
-25 ... 100 °C (-13 ... 212 °F)
Device connector M12 x 1, 3-pin

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	4 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 17 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1200 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

Switching element function	NPN	NO
	NPN	NC
	PNP	NO
	PNP	NC
Connection type	Device connector M12 x 1, 4-pin	
	cable PVC, 2 m	

NBN4-12GM50-E0	NBN4-12GM50-E1	NBN4-12GM50-E2	NBN4-12GM50-E3	NBN4-12GM50-E0-V1	NBN4-12GM50-E1-V1	NBN4-12GM50-E2-V1	NBN4-12GM50-E3-V1
●				●			
	●				●		
		●				●	
			●				●
●	●	●	●	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.								

Dimensions

Length L [mm]	50	65
Diameter D [mm]	12	
Thread length l _t [mm]	42	45
Cap length l ₁ [mm]	5	
Connector area l _c [mm]	0	6
LED position	Pos. C	

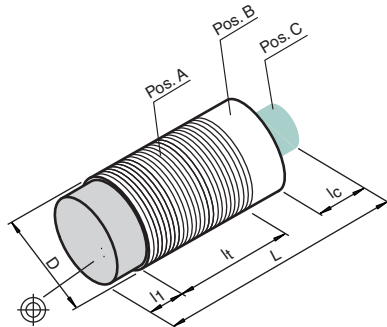
Accessories

This and more accessories can be found in chapter 10

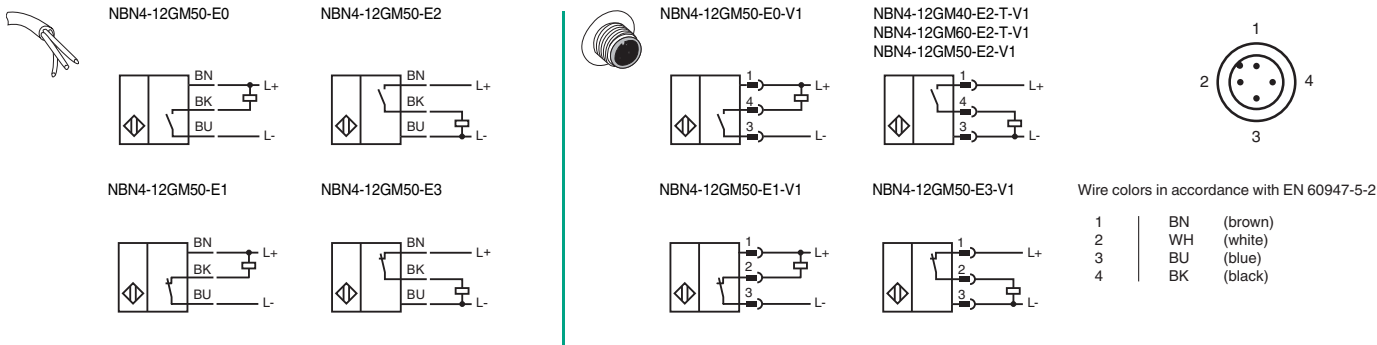
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 12	Mounting flange, 12 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable

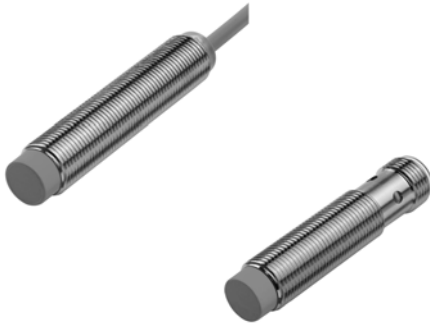


Electrical Connection



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø12 mm housing
- 4 mm, non-flush mountable
- DC, 4-wire switching outputs
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	4 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NBN4-12GM60-A0	NBN4-12GM60-A2	NBN4-12GM35-A0-V1	NBN4-12GM35-A2-V1	NBN4-12GM60-A0-V1	NBN4-12GM60-A2-V1
Switching element function	NPN	NO/NC	●		●		●	
	PNP	NO/NC		●		●		●
No-load supply current	≤ 15 mA		●	●	●	●	●	●
	≤ 20 mA		●	●	●	●	●	●
Switching frequency	0 ... 1000 Hz		●	●				
	0 ... 1200 Hz						●	●
	0 ... 800 Hz				●	●		
Connection type	Device connector M12 x 1, 4-pin				●	●	●	●
	cable PVC, 2 m		●	●				

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.							

Dimensions

Length L [mm]	60	50	70
Diameter D [mm]		12	
Thread length l _t [mm]	55	30	65
Cap length l ₁ [mm]		5	
Connector area l _c [mm]	0	6	0
LED position	Pos. C		Pos. B

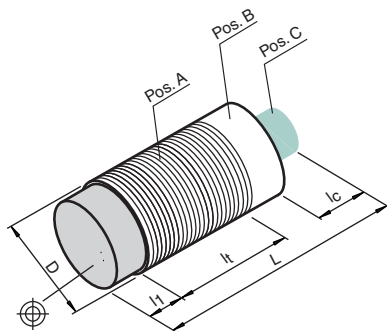
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

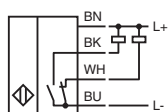
V1-G-BK	4-pin, M12 female field-attachable connector
BF 12	Mounting flange, 12 mm
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



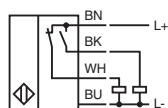
Electrical Connection



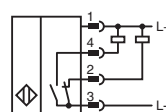
NBN4-12GM60-A0



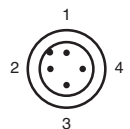
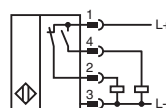
NBN4-12GM60-A2



NBN4-12GM35-A0-V1
NBN4-12GM60-A0-V1

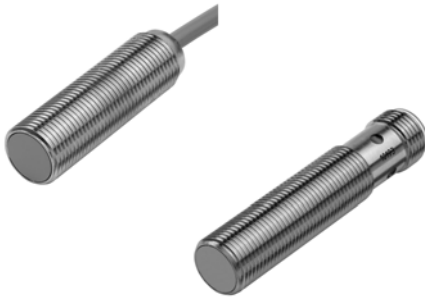


NBN4-12GM35-A2-V1
NBN4-12GM60-A2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø12 mm housing
- 6 mm, virtually flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	6 mm
Installation	virtually flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 800 Hz
Operating current	0 ... 200 mA , above 70°C ≤ 150 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

		NE	NE	NE	NE	NE	NE	NE	NE
Switching element function	green = preferred type								
	NPN NO	●							
	NPN NC		●					●	
	PNP NO			●				●	
Connection type	PNP NC				●				●
	Device connector M12 x 1, 4-pin cable PUR, 2 m	●	●	●	●		●	●	●
									

Approvals and Certificates

UL approval	cULus Listed, General Purpose							
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.							

Dimensions

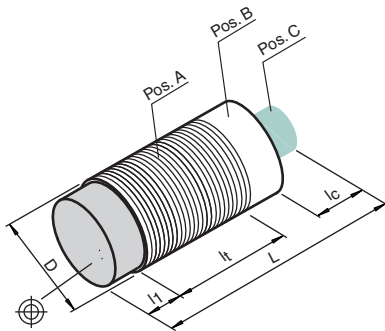
Length L [mm]	50	60
Diameter D [mm]	12	
Thread length l_t [mm]	49	40
Cap length l_1 [mm]	0	
Connector area l_c [mm]	0	6
LED position	Pos. A	

Accessories This and more accessories can be found in chapter 10
See pages 972–973 for cordsets See pages 1068–1069 for

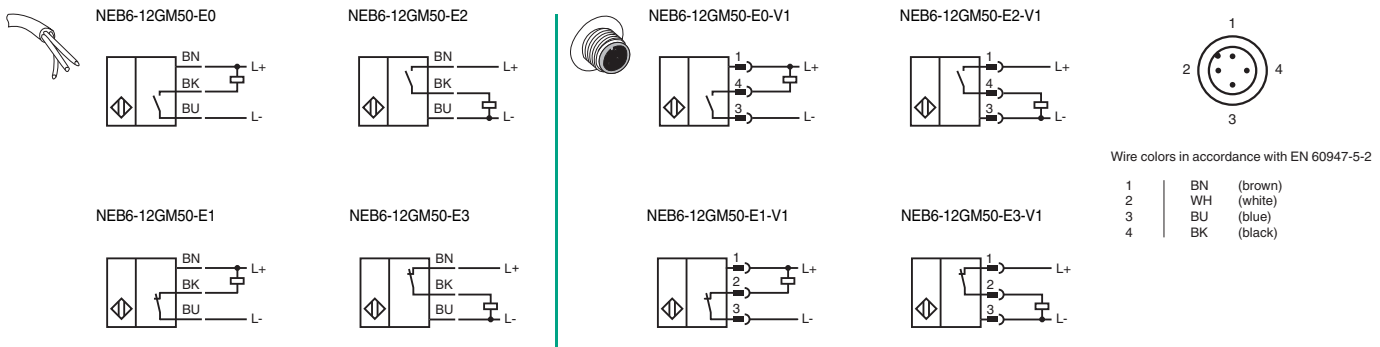
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 12	Mounting flange, 12 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



Electrical Connection





Properties

- Ø12 mm housing
- 7 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	7 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 300 Hz
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	all direction LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

		green = preferred type	
Switching element function	PNP NO	●	●
	PNP NC		●
Connection type	Device connector M12 x 1, 4-pin	●	●
	cable PVC, 2 m	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.			

Dimensions

Length L [mm]	35	50
Diameter D [mm]		12
Thread length l _t [mm]	27	30
Cap length l ₁ [mm]		5
Connector area l _c [mm]	0	6
LED position	Pos. C	Pos. B

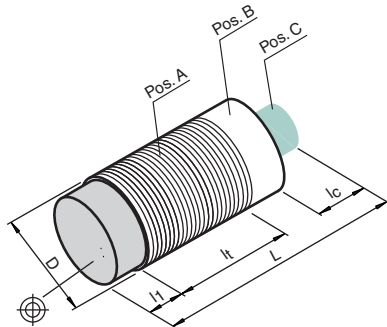
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

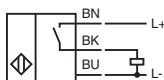
BF 12	Mounting flange, 12 mm
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



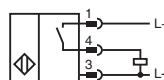
Electrical Connection



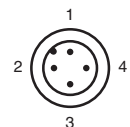
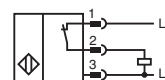
NBN7-12GM35-E2



NBN7-12GM35-E2-V1



NBN7-12GM35-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø12 mm housing
- 8 mm, non-flush mountable
- DC, 3-wire and 4-wire switching output versions
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	8 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 16 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1500 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

	green = preferred type	NB	NB	NB	NB	NB	NB	NB	NB
Switching element function	NPN NO/NC NPN NO PNP NO/NC PNP NO								
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F) -40 ... 70 °C (-40 ... 158 °F)								
Connection type	Device connector M12 x 1 , 4-pin cable PVC , 2 m								

Approvals and Certificates

UL approval	cULus Listed, General Purpose								
CSA approval	cCSAus Listed, General Purpose								
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.								

Dimensions

Length L [mm]	50	65
Diameter D [mm]	12	
Thread length l_t [mm]	39	41
Cap length l_1 [mm]	8	
Connector area l_c [mm]	0	6
LED position	Pos. C	

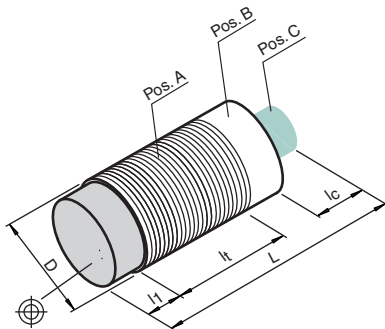
Accessories

This and more accessories can be found in chapter 10

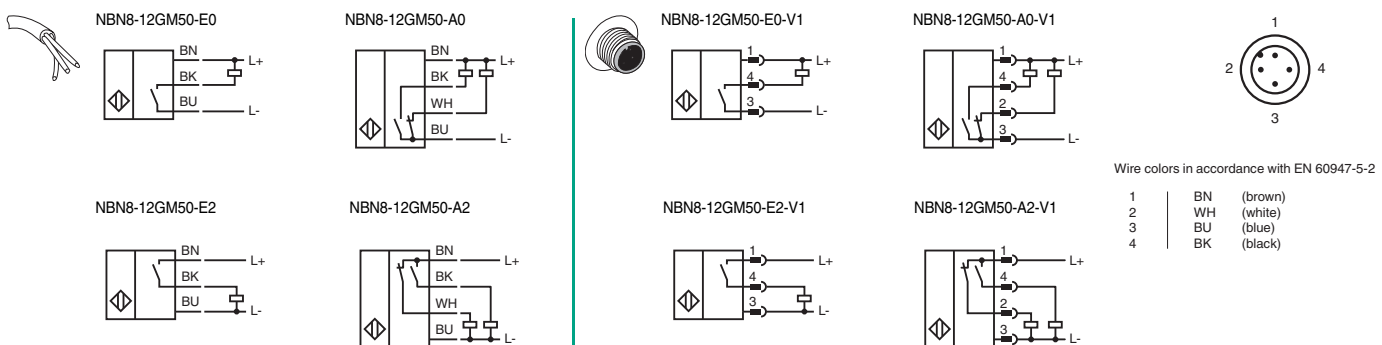
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 12	Mounting flange, 12 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



Electrical Connection





Properties

- Ø12 mm housing
- 10 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	10 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 600 Hz
Operating current	0 ... 200 mA, above 70°C ≤ 150 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

green = preferred type

Switching element function	NPN	NO	PNP	NO	PNP	NC
Connection type	Device connector M12 x 1, 4-pin cable PUR, 2 m					

Approvals and Certificates

UL approval	cULus Listed, General Purpose
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

Dimensions

Length L [mm]	50	60
Diameter D [mm]	12	
Thread length l _t [mm]	44	34
Cap length l ₁ [mm]	5,7	
Connector area l _c [mm]	0	6
LED position	Pos. A	

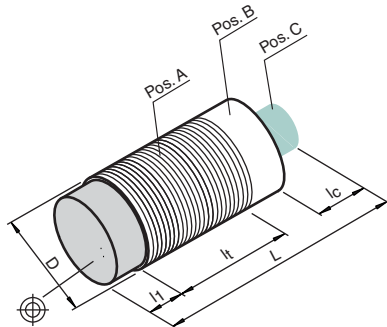
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

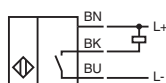
BF 18	Mounting flange, 18 mm
EXG-12	Quick mounting bracket with dead stop
BF 12	Mounting flange, 12 mm
EXG-18	Quick mounting bracket with dead stop
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



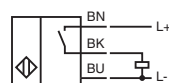
Electrical Connection



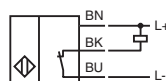
NEN10-12GM50-E0



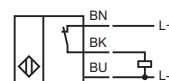
NEN10-12GM50-E2



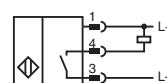
NEN10-12GM50-E1



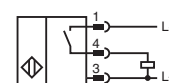
NEN10-12GM50-E3



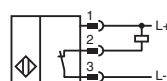
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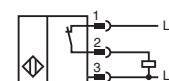
NEN10-12GM50-E2-V1



NEN10-12GM50-E1-V1

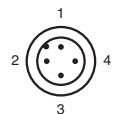


NEN10-12GM50-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)





Properties

- Ø12 mm housing
- 2 mm, flush and 4 mm, non-flush mountable versions
- AC, 2-wire switching output
- Cable version

Further Products

In this series, we offer additionally:

NBB2-12GM60-WS

Technical data like NJ2-12GM50-WS but:
 Operating voltage: 20 ... 150 V AC
 Switching frequency: 0 ... 25 Hz
 Operating voltage indicator: LED, green
 Housing material: Brass, nickel plated
 Length L: 60 mm
 Thread length l_t : 60 mm

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Type of voltage	AC
Operating voltage	20 ... 253 V
Reverse polarity protection	tolerant
Switching frequency	0 ... 20 Hz
Operating current	5 ... 200 mA
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67
Connection type	cable PVC, 2 m

Model Number

		NJ2-12GM50-WS	NJ2-12GM50-WO	NJ4-12GM50-WS	NJ4-12GM50-WO
Rated operating distance	2 mm	●	●		
	4 mm				
Installation	flush	●	●		
	non-flush			●	●
Switching element function	AC NO	●		●	
	AC NC		●		●



Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●

Dimensions

Length L [mm]	50
Diameter D [mm]	12
Thread length l_t [mm]	50 45
Cap length l_1 [mm]	0 5
Connector area l_c [mm]	0
LED position	Pos. A

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

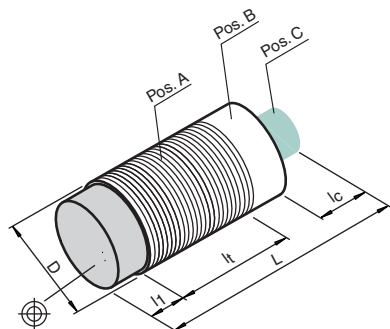
See pages 1068 ... for mounting aids

BF 12

Mounting flange, 12 mm

EXG-12

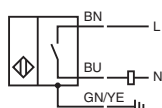
Quick mounting bracket with dead stop



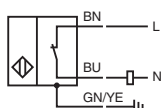
Electrical Connection

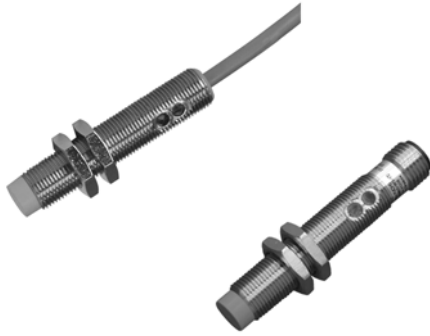


NJ4-12GM50-WS
 NJ2-12GM50-WS
 NBB2-12GM60-WS



NJ4-12GM50-WO
 NJ2-12GM50-WO





Properties

- Ø12 mm housing
- 4 mm, non-flush mountable
- AC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	4 mm
Installation	non-flush
Type of voltage	AC
Operating voltage	20 ... 150 V
Reverse polarity protection	tolerant
Switching frequency	0 ... 25 Hz
Operating current	5 ... 200 mA
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NBN4-12GM60-WO	NBN4-12GM60-WS	NBN4-12GM60-WO-V12	NBN4-12GM60-WS-V11	NBN4-12GM60-WS-V12
Switching element function	AC	NO					
	AC	NC					
Connection type	Device connector 1/2"-20 UN , 3-pin						
	Device connector M12, 3-pin						
cable PVC , 2 m							

Approvals and Certificates

UL approval	cULus Listed, General Purpose						
CSA approval	cCSAus Listed, General Purpose						
CCC approval	Certified by China Compulsory Certification (CCC)						

Dimensions

Length L [mm]	60	70		
Diameter D [mm]		12		
Thread length l _t [mm]	55	50	65	50
Cap length l ₁ [mm]		5		
Connector area l _c [mm]	0	12		
LED position		Pos. A		

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

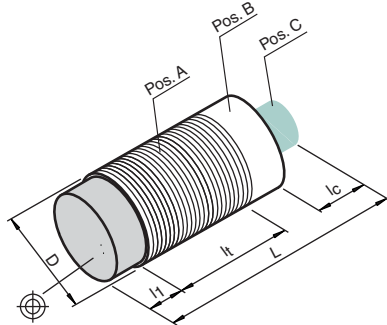
See pages 1068 ... for mounting aids

BF 12

Mounting flange, 12 mm

EXG-12

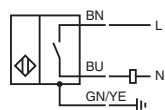
Quick mounting bracket with dead stop



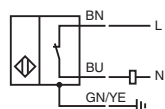
Electrical Connection



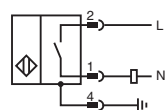
NBN4-12GM60-WS



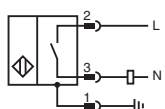
NBN4-12GM60-WO



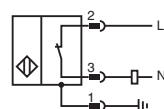
NBN4-12GM60-WS-V11



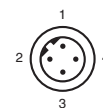
NBN4-12GM60-WS-V12



NBN4-12GM60-WO-V12



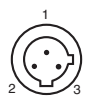
V11



Wire colors

1	BU	(blue)
2	BN	(brown)
4	GN/YE	(green/yellow)

V12



Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)



Properties

- Ø12 mm housing
- 4 mm, flush and 8 mm, non-flush mountable versions
- AC/DC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	AC/DC	NO
Type of voltage	AC/DC	
Operating voltage	20 ... 250 V AC/20 ... 300 V DC	
Reverse polarity protection	tolerant	
Switching frequency	30 Hz	
Operating current	8 ... 200 mA AC/DC	
Short-circuit protection	✓	
Operating voltage display	LED, green	
Indication of the switching state	LED, yellow	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	
Housing material	brass, nickel-plated	
Protection degree	IP67	

Model Number

		NBB4-12GM75-US	NBN8-12GM75-US	NBB4-12GM65-US-V12	NBN8-12GM65-US-V12
Rated operating distance	4 mm	●		●	
	8 mm		●		●
Installation	flush	●		●	
	non-flush		●		●
Connection type	Device connector 1/2"-20 UN , 3-pin			●	●
	cable PUR , 2 m	●	●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●

Dimensions

Length L [mm]	75		82	
Diameter D [mm]	12			
Thread length l _t [mm]	72	64	65	64
Cap length l ₁ [mm]	0	8	0	8
Connector area l _c [mm]	0		8	
LED position	Pos. B			

Accessories

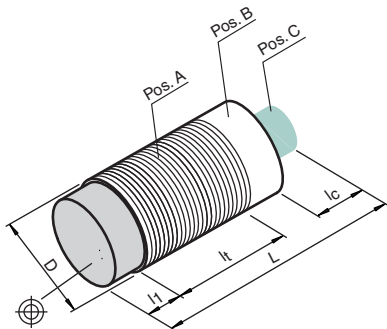
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

EXG-12

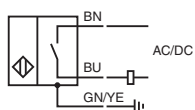
Quick mounting bracket with dead stop



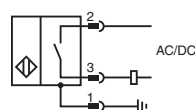
Electrical Connection



NBB4-12GM75-US
NBN8-12GM75-US



NBB4-12GM65-US-V12
NBN8-12GM65-US-V12



Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Measurement range	0 ... 6 mm
Installation	virtually flush
Type of voltage	DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Limit frequency (3dB)	1000 Hz
Short-circuit protection	✓
Adjustment tolerance zero point	≤ ± 10 % of full-scale value
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	chromium plated brass
Protection degree	IP67
Connection type	Device connector M12 x 1, 4-pin



Properties

- Ø12 mm housing
- 6 mm, virtually flush mountable
- DC, 3-wire analog output
- Connector version

Your Benefit

- Inductive position measurement
- Distance proportional analog value
- Suitable for positioning tasks

Model Number

		IA6-12GM35-U-V1	IA6-12GM50-IU-V1
Switching element function	green = preferred type analog voltage output analog, current or voltage output	●	●
Operating voltage	10 ... 30 V 15 ... 30 V, residual ripple 20 % U _B	●	●
Output type	0 ... 5 V 0 ... 10 V / 4 ... 20 mA	●	●
Load resistor	≥ 500 Ω voltage output: ≥ 500 Ω current output: ≤ 500 Ω	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

Length L [mm]	45	60
Diameter D [mm]	12	
Thread length l _t [mm]	29	44
Cap length l ₁ [mm]	0	
Connector area l _c [mm]	8	
LED position	45	60

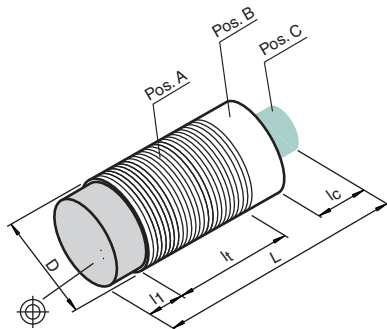
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

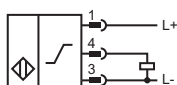
BF 12	Mounting flange, 12 mm
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



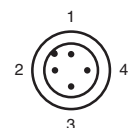
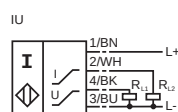
Electrical Connection



IA6-12GM35-U-V1



IA6-12GM50-IU-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm housing
- 5 mm, flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	5 mm
Installation	flush
Type of voltage	DC
Operating voltage	5 ... 60 V
Reverse polarity protection	tolerant
Operating current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Protection degree	IP67

Model Number

	green = preferred type					
Switching element function	DC NO	●	●	●	●	●
	DC NC					
Switching frequency	0 ... 350 Hz		●	●		
	0 ... 500 Hz	●			●	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	●	●	●	●	●
	-40 ... 70 °C (-40 ... 158 °F)			●		
Housing material	Stainless steel 1.4305 / AISI 303		●	●	●	●
	brass, nickel-plated	●		●		
Connection type	Device connector M12 x 1, 4-pin			●	●	●
	cable PUR, 2 m		●	●		
	cable PVC, 2 m	●				



Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●

Dimensions

Length L [mm]	40	55
Diameter D [mm]		18
Thread length l _t [mm]	37	40
Cap length l ₁ [mm]		0
Connector area l _c [mm]	0	15
LED position		Pos. C

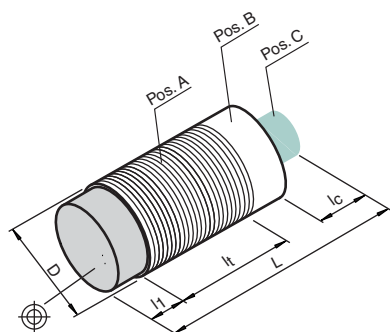
Accessories

This and more accessories can be found in chapter 10

See pages 972 ... for cordsets

See pages 1068 ... for mounting aids

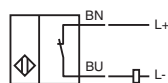
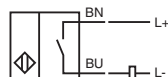
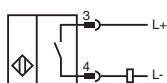
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
BF 18	Mounting flange, 18 mm
EXG-18	Quick mounting bracket with dead stop
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable



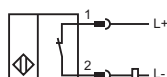
Electrical Connection



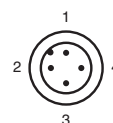
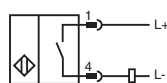
NCB5-18GM40-Z1

NBB5-18GM40-Z0
NCB5-18GM40-Z0NBB5-18GM40-Z0-V1
NCB5-18GM40-Z0-V1

NCB5-18GM40-Z1-V1

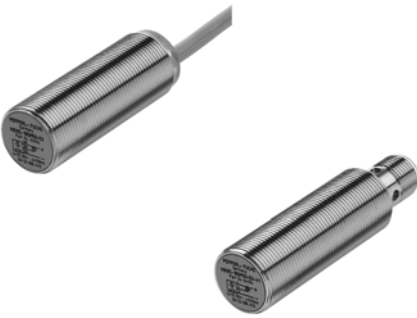


NCB5-18GM40-Z3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm housing
- 8 mm, flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	8 mm
Installation	flush
Type of voltage	DC
Operating voltage	3.5 ... 30 V
Reverse polarity protection	✓
Switching frequency	0 ... 1000 Hz
Operating current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NCB8-18GM50-Z4	NCB8-18GM50-Z5	NCB8-18GM50-Z4-V1	NCB8-18GM50-Z5-V1
Switching element function	DC	NO	●		●	
	DC	NC		●		●
Pre-fault indication	LED, red		●	●	●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●
	-40 ... 70 °C (-40 ... 158 °F)				●	●
Connection type	Device connector M12 x 1, 4-pin				●	●
	cable PVC, 2 m		●	●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	48	65
Diameter D [mm]	18	
Thread length l _t [mm]	45	50
Cap length l ₁ [mm]	0	
Connector area l _c [mm]	0	15
LED position		Pos. C

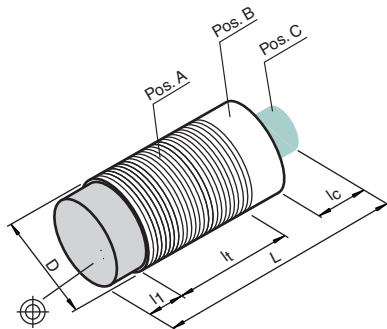
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

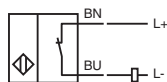
BF 18	Mounting flange, 18 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
EXG-18	Quick mounting bracket with dead stop
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



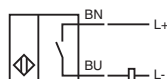
Electrical Connection



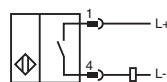
NCB8-18GM50-Z5



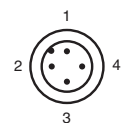
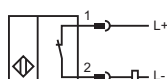
NCB8-18GM50-Z4



NCB8-18GM50-Z4-V1



NCB8-18GM50-Z5-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm housing
- 8 mm, non-flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	8 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	5 ... 60 V
Reverse polarity protection	tolerant
Operating current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67

Model Number

Switching element function	DC NO					
	DC NC					
Switching frequency	0 ... 300 Hz					
	0 ... 450 Hz					
	0 ... 500 Hz					
Housing material	Stainless steel 1.4305 / AISI 303					
	brass, nickel-plated					
Connection type	Device connector M12 x 1, 4-pin					
	cable PUR, 2 m					
	cable PVC, 2 m					

Approvals and Certificates

UL approval	cULus Listed, General Purpose					
CSA approval	cCSAus Listed, General Purpose					
CCC approval	Certified by China Compulsory Certification (CCC)					

Dimensions

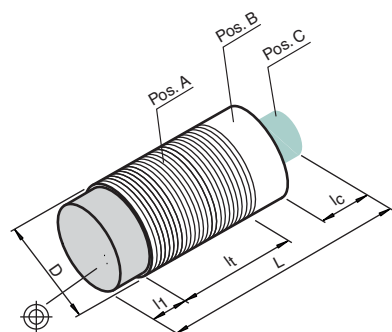
Length L [mm]	40	55
Diameter D [mm]	18	
Thread length l _t [mm]	37	30
Cap length l ₁ [mm]	10	
Connector area l _c [mm]	0	15
LED position	Pos. C	

Accessories

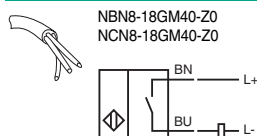
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets See pages 1068 ... for mounting aids

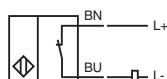
V1-G-BK	4-pin, M12 female field-attachable connector
BF 18-F	Mounting flange with dead stop, 18 mm
BF 18	Mounting flange, 18 mm
V1-W-BK	4-pin, M12 female field-attachable connector
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
EXG-18	Quick mounting bracket with dead stop
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable



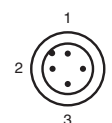
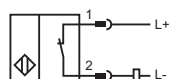
Electrical Connection



NCN8-18GM40-Z1



NCN8-18GM40-Z1-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm housing
- 12 mm, non-flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	12 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	3.5 ... 30 V
Reverse polarity protection	reverse polarity-conductive
Switching frequency	0 ... 1000 Hz
Operating current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NCN12-18GM50-Z4	NCN12-18GM50-Z5	NCN12-18GM50-Z4-V1	NCN12-18GM50-Z5-V1
Switching element function	DC	NO	●		●	
	DC	NC		●		●
Pre-fault indication	LED, red		●		●	
Connection type	Device connector M12 x 1, 4-pin				●	●
	cable PVC, 2 m		●	●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	48	65
Diameter D [mm]	18	
Thread length l _t [mm]	35	40
Cap length l ₁ [mm]	10	
Connector area l _c [mm]	0	15
LED position	Pos. C	

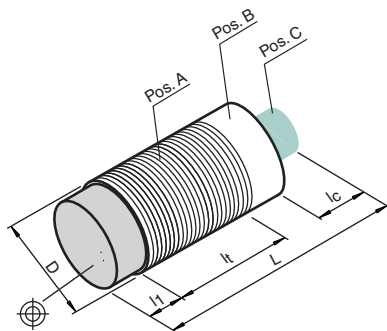
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

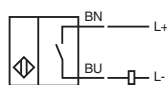
BF 18	Mounting flange, 18 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



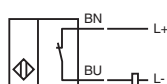
Electrical Connection



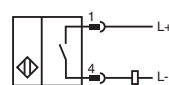
NCN12-18GM50-Z4



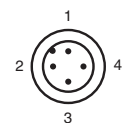
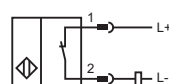
NCN12-18GM50-Z5



NCN12-18GM50-Z4-V1



NCN12-18GM50-Z5-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm housing
- 5 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	5 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✓
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NBB5-18GM20-E2	NBB5-18GM40-E1	NBB5-18GM40-E2	NBB5-18GM20-E2-V1	NBB5-18GM40-E0-V1	NBB5-18GM40-E2-V1	NBB5-18GM40-E3-V1
Switching element function	NPN	NO							
	NPN	NC		●			●		
	PNP	NO	●		●	●		●	
	PNP	NC							●
No-load supply current	≤ 15 mA			●			●	●	
	≤ 20 mA		●		●	●		●	●
Switching frequency	0 ... 800 Hz								●
	0 ... 1000 Hz		●	●	●	●	●	●	
Operating current	0 ... 100 mA		●	●	●	●	●	●	
	0 ... 200 mA								●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●		●	●	●
	-40 ... 70 °C (-40 ... 158 °F)					●			
Connection type	Device connector M12 x 1, 4-pin						●	●	●
	cable PVC, 2 m		●	●	●				



Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.								

Dimensions

Length L [mm]	20	40	40	35	50	50	50
Diameter D [mm]				18			
Thread length l _t [mm]	17	37	37	20	39	39	39
Cap length l ₁ [mm]				0			
Connector area l _c [mm]		0		15		11	
LED position		Pos. C				Pos. A	

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-G-2M-PUR

Cable socket, M12, 4-pin, PUR cable

BF 18

Mounting flange, 18 mm

V1-W-BK

4-pin, M12 female field-attachable connector

V1-G-BK

4-pin, M12 female field-attachable connector

EXG-18

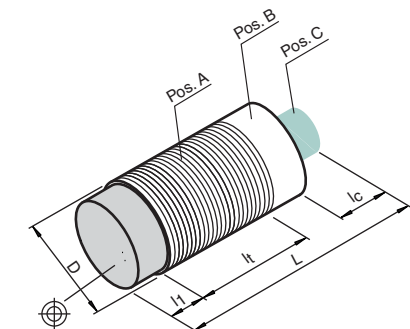
Quick mounting bracket with dead stop

V1-W-2M-PUR

Cable socket, M12, 4-pin, PUR cable

BF 18-F

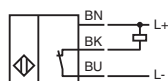
Mounting flange with dead stop, 18 mm



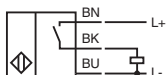
Electrical Connection



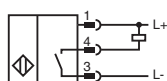
NBB5-18GM40-E1



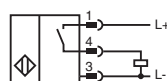
NBB5-18GM40-E2
NBB5-18GM20-E2



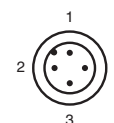
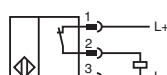
NBB5-18GM40-E0-V1



NBB5-18GM40-E2-V1
NBB5-18GM20-E2-V1

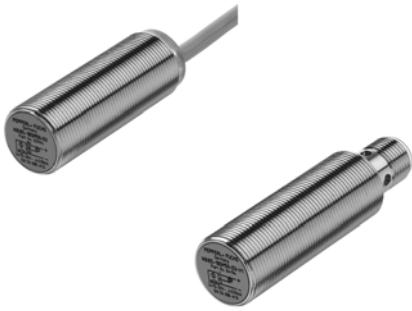


NBB5-18GM40-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	5 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 800 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Properties

- Ø18 mm housing
- 5 mm, flush mountable
- DC, 3-wire and 4-wire switching output versions
- Cable and connector versions

Further Products

In this series, we offer additionally:

NBB5-18GM50-E2-T-V1

Technical data like NBB5-18GM50-E2-V1 but:
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)
Connection type: Device connector M12 x 1, 3-pin

Model Number

			NBB5-18GM50-E0	NBB5-18GM50-E2	NBB5-18GM50-E3	NBB5-18GM60-A0	NBB5-18GM60-A2	NBB5-18GM50-E0-V1	NBB5-18GM50-E2-V1	NBB5-18GM50-E3-V1	NBB5-18GM60-A0-V1	NBB5-18GM60-A2-V1
Switching element function	NPN	NO/NC	•					•				
	NPN	NO										
	PNP	NO/NC										
	PNP	NO										
Ambient temperature	PNP	NC		•					•			
Connection type	-25 ... 70 °C (-13 ... 158 °F)		•	•	•	•	•	•	•	•	•	•
	-40 ... 70 °C (-40 ... 158 °F)											
Connection type	Device connector M12 x 1, 4-pin											
	cable PVC, 2 m		•	•	•	•	•	•	•	•	•	•

Approvals and Certificates

Protection class	II	
UL approval	cULus Listed, General Purpose	•
CSA approval	cCSAus Listed, General Purpose	•
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	•

Dimensions

Length L [mm]	50	60	65	70
Diameter D [mm]		18		
Thread length l _t [mm]	47	60	50	60
Cap length l ₁ [mm]		0		
Connector area l _c [mm]	0		15	10
LED position			Pos. C	

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

EXG-18

Quick mounting bracket with dead stop

V1-G-BK

4-pin, M12 female field-attachable connector

BF 18

Mounting flange, 18 mm

V1-W-BK

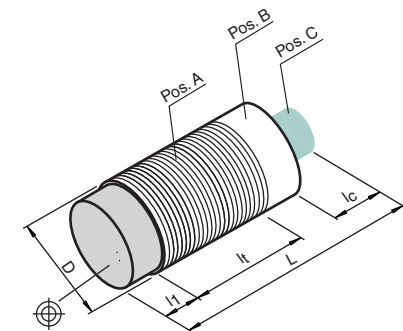
4-pin, M12 female field-attachable connector

V1-G-2M-PUR

Cable socket, M12, 4-pin, PUR cable

V1-W-2M-PUR

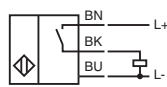
Cable socket, M12, 4-pin, PUR cable



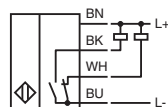
Electrical Connection



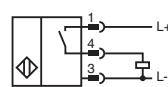
NBB5-18GM50-E2



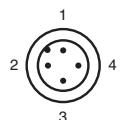
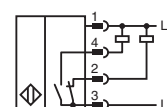
NBB5-18GM60-A0



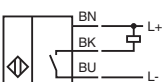
NBB5-18GM50-E2-T-V1
NBB5-18GM50-E2-V1



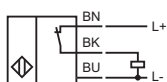
NBB5-18GM60-A0-V1



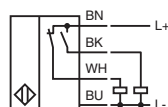
NBB5-18GM50-E0



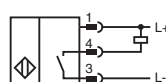
NBB5-18GM50-E3



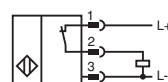
NBB5-18GM60-A2



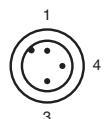
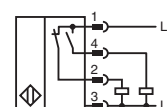
NBB5-18GM50-E0-V1



NBB5-18GM50-E3-V1



NBB5-18GM60-A2-V1





Properties

- Ø18 mm housing
- Up to 8 mm, flush and non-flush mountable versions
- DC, 3-wire and 4-wire switching output versions
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP68 / IP69K
Connection type	cabl PVC , 2 m



Model Number

		NBB5-18GK50-E0	NBB5-18GK50-E2	NBN8-18GK50-A2
Rated operating distance	5 mm	●	●	
	8 mm			●
Installation	flush	●	●	
	non-flush			●
Switching element function	NPN NO	●		
	PNP NO/NC			●
	PNP NO		●	
No-load supply current	≤ 15 mA	●	●	
	≤ 25 mA			●
Switching frequency	0 ... 500 Hz			●
	0 ... 1000 Hz	●	●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.			

Dimensions

Length L [mm]	52	52	53
Diameter D [mm]		18	
Thread length l _t [mm]		49	
Cap length l ₁ [mm]		1	
Connector area l _c [mm]		0	
LED position		Pos. C	

Accessories

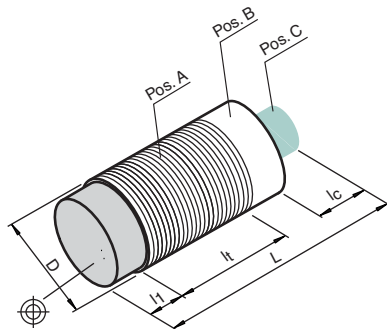
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 18

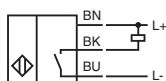
Mounting flange, 18 mm



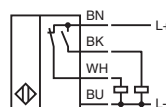
Electrical Connection



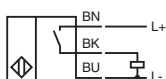
NBB5-18GK50-E0



NBN8-18GK50-A2



NBB5-18GK50-E2





Properties

- Ø18 mm housing
- 8 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Further Products

In this series, we offer additionally:

NBN8-18GM50-E2-T

Technical data like NBN8-18GM50-E2 but:
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)

NBN8-18GM50-E2-T-V1

Technical data like NBN8-18GM50-E2-V1 but:
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	8 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✓
Switching frequency	0 ... 500 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow

Model Number

		NBN8-18GK50-E0	NBN8-18GK50-E2	NBN8-18GM50-E0	NBN8-18GM50-E2	NBN8-18GM50-E0-V1	NBN8-18GM50-E2-V1
Switching element function	NPN NO	●		●		●	
	PNP NO		●		●		●
No-load supply current	≤ 15 mA	●	●			●	●
	≤ 18 mA			●	●	●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	●	●	●	●	●	●
	-40 ... 70 °C (-40 ... 158 °F)						●
Housing material	brass, nickel-plated			●	●	●	●
	PBT	●	●				
Protection degree	IP67			●	●	●	●
	IP68 / IP69K	●	●				
Connection type	Device connector M12 x 1, 4-pin					●	●
	cable PVC, 2 m	●	●	●	●		



Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.						

Dimensions

Length L [mm]	52	52	50	50	65	65
Diameter D [mm]				18		
Thread length l _t [mm]	49	49	37	37	40	40
Cap length l ₁ [mm]		1			10	
Connector area l _c [mm]			0			15
LED position					Pos. C	

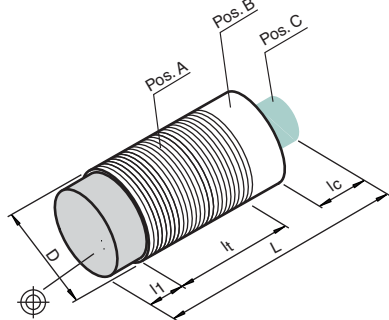
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

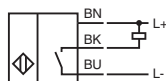
V1-W-BK	4-pin, M12 female field-attachable connector
BF 18	Mounting flange, 18 mm
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



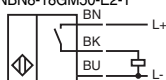
Electrical Connection



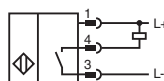
NBN8-18GK50-E0
NBN8-18GM50-E0



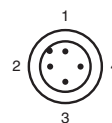
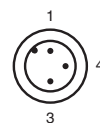
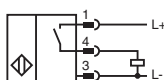
NBN8-18GK50-E2
NBN8-18GM50-E2
NBN8-18GM50-E2-T



NBN8-18GM50-E0-V1



NBN8-18GM50-E2-T-V1
NBN8-18GM50-E2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm housing
- 12 mm, non-flush mountable
- DC, 3-wire and 4-wire switching output versions
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	12 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✓
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

		green	green	green	green	green	green	green	green
Switching element function	NPN NO/NC								
	PNP NO/NC								
	PNP NO								
No-load supply current	≤ 12 mA								
	≤ 20 mA								
Switching frequency	0 ... 200 Hz								
	0 ... 300 Hz								
	0 ... 1000 Hz								
Operating current	0 ... 100 mA								
	0 ... 200 mA								
Connection type	Device connector M12 x 1, 4-pin cable PVC, 2 m								

Approvals and Certificates

UL approval	cULus Listed, General Purpose							
CSA approval	cCSAus Listed, General Purpose							
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.							

Dimensions

Length L [mm]	35.5	50	65
Diameter D [mm]		18	
Thread length l _t [mm]	22.5	37	25
Cap length l ₁ [mm]		10	40
Connector area l _c [mm]		0	15
LED position		Pos. C	

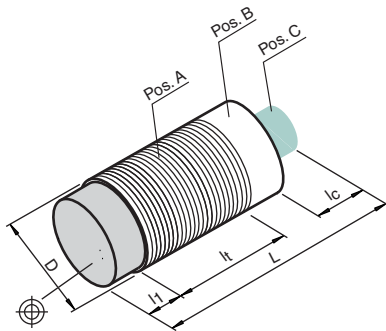
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 18	Mounting flange, 18 mm
V1-W-BK	4-pin, M12 female field-attachable connector
BF 18-F	Mounting flange with dead stop, 18 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



Electrical Connection



NBN12-18GM35-E2

NBN12-18GM50-E2

BN

BK

BU

L+

L-

NBN12-18GM50-A0

BN

BK

WH

BU

L+

L-

NBN12-18GM50-A2

BN

BK

WH

BU

L+

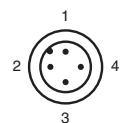
L-



NBN12-18GM35-E2-V1
NBN12-18GM50-E2-V1

NBN12-18GM50-A0-V1

NBN12-18GM50-A2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm housing
- 12 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	12 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Switching frequency	0 ... 500 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

	green = preferred type			
Switching element function	PNP NO	●	●	●
	PNP NC			
Connection type	Device connector M12 x 1, 4-pin cable PUR, 2 m	●	●	●

Approvals and Certificates

CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.
--------------	--

Dimensions

Length L [mm]	53	69	
Diameter D [mm]		18	
Thread length l _t [mm]	53	53	53
Cap length l ₁ [mm]		0	
Connector area l _c [mm]	0	14	
LED position		Pos. C	

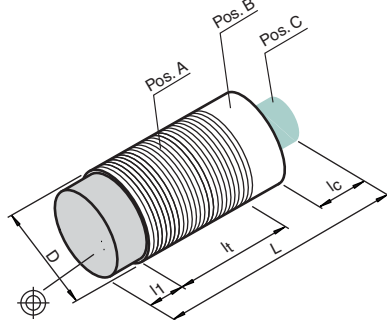
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

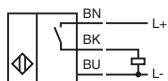
BF 18	Mounting flange, 18 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
EXG-18	Quick mounting bracket with dead stop



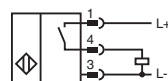
Electrical Connection



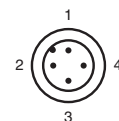
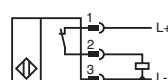
NEB12-18GM50-E2



NEB12-18GM50-E2-V1



NEB12-18GM50-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



CE

Properties

- Ø18 mm housing
- 20 mm, non-flush mountable
- DC, 3-wire switching output
- Connector version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	20 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Switching frequency	0 ... 200 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67
Connection type	Device connector M12 x 1, 4-pin



Model Number

Switching element function	green = preferred type		NEN20-18GM50-E2-V1	NEN20-18GM50-E3-V1
	PNP	NO		
	PNP	NC		

Approvals and Certificates

CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.
--------------	--

Dimensions

Length L [mm]	69
Diameter D [mm]	18
Thread length l _t [mm]	43
Cap length l ₁ [mm]	10
Connector area l _c [mm]	14
LED position	Pos. C

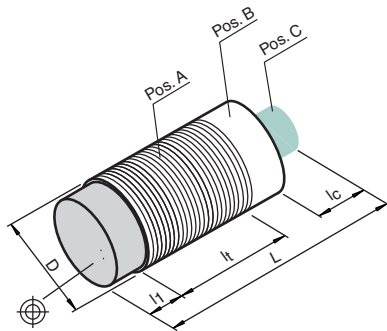
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

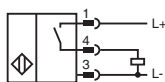
BF 18	Mounting flange, 18 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
EXG-18	Quick mounting bracket with dead stop



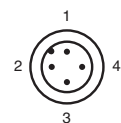
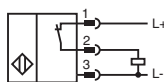
Electrical Connection



NEN20-18GM50-E2-V1



NEN20-18GM50-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm housing
- Up to 8 mm, flush and non-flush mountable versions
- AC, 2-wire switching output
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Type of voltage	AC
Operating voltage	20 ... 253 V
Reverse polarity protection	tolerant
Switching frequency	0 ... 20 Hz
Operating current	5 ... 200 mA
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67
Connection type	cable PVC, 2 m



Model Number

green = preferred type

		NBB5-18GM60-WS	NBB5-18GM60-WO	NBN8-18GM60-WS	NBN8-18GM60-WO
Rated operating distance	5 mm	●	●		
	8 mm			●	●
Installation	flush	●	●		
	non-flush			●	●
Switching element function	AC NO	●		●	
	AC NC		●		●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●

Dimensions

Length L [mm]		60	
Diameter D [mm]		18	
Thread length l _t [mm]	60		50
Cap length l ₁ [mm]	0		10
Connector area l _c [mm]		0	
LED position		Pos. C	

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

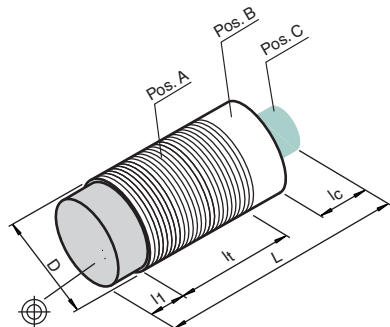
See pages 1068 ... for mounting aids

BF 18

Mounting flange, 18 mm

EXG-18

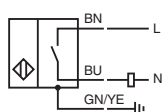
Quick mounting bracket with dead stop



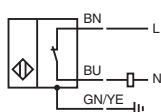
Electrical Connection



NBN8-18GM60-WS
NBB5-18GM60-WS



NBN8-18GM60-WO
NBB5-18GM60-WO





Properties

- Ø18 mm housing
- Up to 8 mm, flush and non-flush mountable versions
- AC, 2-wire switching output
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Type of voltage	AC
Operating voltage	20 ... 253 V
No-load supply current	≤ 1.5 mA
Switching frequency	0 ... 25 Hz
Operating current	5 ... 200 mA
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP68
Connection type	cable PVC , 2 m



Model Number

		NBB5-18GK-WS	NBB5-18GK-WO	NBN8-18GK-WS	NBN8-18GK-WO
Rated operating distance	5 mm	●	●		
	8 mm				
Installation	flush	●	●		
	non-flush			●	●
Switching element function	AC NO	●		●	
	AC NC		●		●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●

Dimensions

Length L [mm]	79	80
Diameter D [mm]	18	
Thread length l _t [mm]	61	60
Cap length l ₁ [mm]	0	0.5
Connector area l _c [mm]		0
LED position		-

Accessories

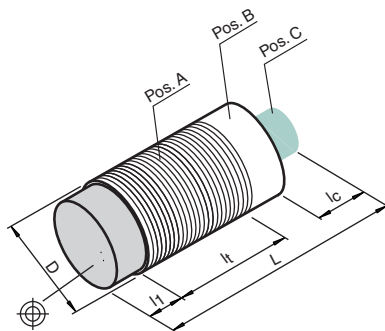
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 18

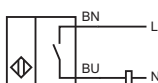
Mounting flange, 18 mm



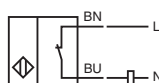
Electrical Connection



NBB5-18GK-WS
NBN8-18GK-WS



NBB5-18GK-WO
NBN8-18GK-WO





Properties

- Ø18 mm housing
- 1 ... 5 mm, flush mountable
- DC, 3-wire analog output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Measurement range	1 ... 5 mm
Installation	flush
Switching element function	Analog current output
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 12 mA
Linearity error	≤ ± 4 % of full-scale value
Load resistor	≤ 1000 Ω
Adjustment tolerance zero point	≤ ± 10 % of full-scale value
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

	green = preferred type	NBB5-18GM60-I	NBB5-18GM60-I3	NBB5-18GM60-I-V1	NBB5-18GM60-I3-V1
Output type	0 ... 20 mA	●	●	●	●
	4 ... 20 mA	●	●	●	●
Slope of output characteristic	4 mA / mm	●	●	●	●
	5 mA / mm	●	●	●	●
Connection type	Device connector M12 x 1, 4-pin cable PVC, 2 m	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	●	●	●	●

Dimensions

Length L [mm]	60	70
Diameter D [mm]	18	
Thread length l _t [mm]	57	60
Cap length l ₁ [mm]	0	
Connector area l _c [mm]	0	10
LED position	Pos. C	Pos. B

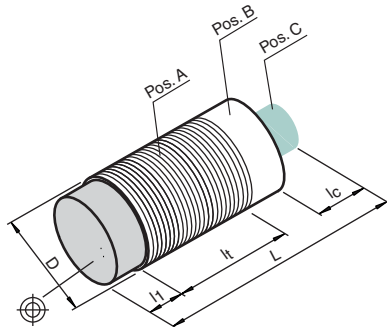
Accessories

This and more accessories can be found in chapter 10

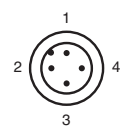
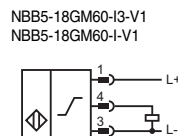
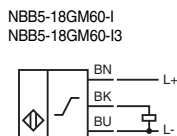
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 18	Mounting flange, 18 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable

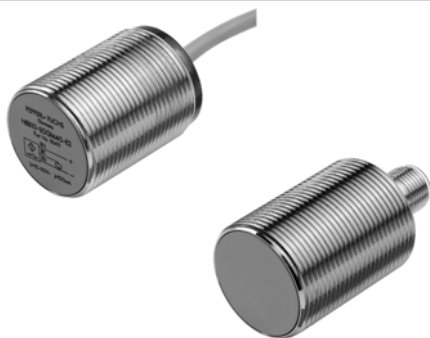


Electrical Connection



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm housing
- 10 mm, flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	10 mm
Installation	flush
Type of voltage	DC
Operating voltage	5 ... 60 V
Reverse polarity protection	tolerant
Switching frequency	0 ... 150 Hz
Operating current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Protection degree	IP67

Model Number

		green = preferred type	NBB10-30GM40-Z0	NCB10-30GM40-Z0	NCB10-30GM40-Z1	NBB10-30GM40-Z0-V1	NCB10-30GM40-Z0-V1	NBB10-30GM40-Z3-V1	NCB10-30GM40-Z3-V1	NCB10-30GM40-Z1-V1
Switching element function	DC NO		●	●		●	●	●	●	
	DC NC				●					●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●	●	●	●	●
	-40 ... 70 °C (-40 ... 158 °F)					●				
Housing material	Stainless steel 1.4305 / AISI 303			●	●		●		●	●
	brass, nickel-plated		●			●		●		
Connection type	Device connector M12 x 1, 4-pin					●	●	●	●	●
	cable PUR, 2 m			●	●					
	cable PVC, 2 m		●							

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●	●	●	●

Dimensions

Length L [mm]	40	55
Diameter D [mm]		30
Thread length l _t [mm]	37	40
Cap length l ₁ [mm]		0
Connector area l _c [mm]	0	15
LED position		Pos. C

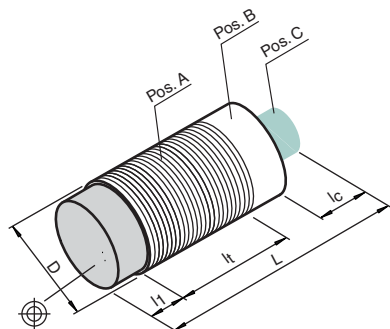
Accessories

This and more accessories can be found in chapter 10

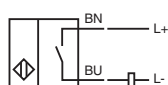
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

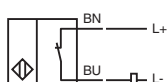
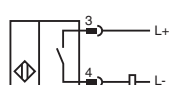
BF 30	Mounting flange, 30 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
EXG-30	Quick mounting bracket with dead stop
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



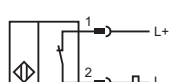
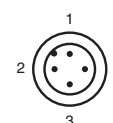
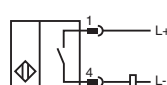
Electrical Connection

NCB10-30GM40-Z0
NBB10-30GM40-Z0

NCB10-30GM40-Z1

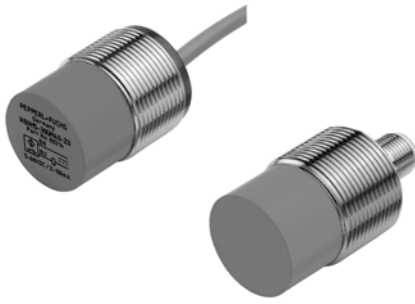
NCB10-30GM40-Z0-V1
NBB10-30GM40-Z0-V1

NCB10-30GM40-Z1-V1

NBB10-30GM40-Z3-V1
NCB10-30GM40-Z3-V1

Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm housing
- 15 mm, non-flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	5 ... 60 V
Reverse polarity protection	tolerant
Operating current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Protection degree	IP67

Model Number

		green = preferred type	NBN15-30GM40-Z0	NCN15-30GM40-Z0	NCN15-30GM40-Z1	NBN15-30GM40-Z0-V1	NCN15-30GM40-Z0-V1	NBN15-30GM40-Z3-V1	NCN15-30GM40-Z3-V1	NCN15-30GM40-Z1-V1
Switching element function	DC NO	●	●	●	●	●	●	●	●	●
	DC NC									
Switching frequency	0 ... 100 Hz		●	●	●	●	●	●	●	●
	0 ... 150 Hz		●	●	●	●	●	●	●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●	●	●	●	●
	-40 ... 70 °C (-40 ... 158 °F)		●	●	●	●	●	●	●	●
Housing material	Stainless steel 1.4305 / AISI 303		●	●	●	●	●	●	●	●
	brass, nickel-plated		●	●	●	●	●	●	●	●
Connection type	Device connector M12 x 1, 4-pin		●	●	●	●	●	●	●	●
	cable PUR, 2 m		●	●	●	●	●	●	●	●
	cable PVC, 2 m		●	●	●	●	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●	●	●	●

Dimensions

Length L [mm]	40	55
Diameter D [mm]	30	
Thread length l _t [mm]	19	22
Cap length l ₁ [mm]		18
Connector area l _c [mm]	0	15
LED position		Pos. C

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 30

Mounting flange, 30 mm

V1-G-BK

4-pin, M12 female field-attachable connector

V1-W-BK

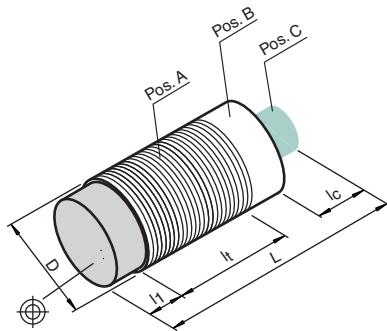
4-pin, M12 female field-attachable connector

V1-G-2M-PUR

Cable socket, M12, 4-pin, PUR cable

V1-W-2M-PUR

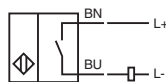
Cable socket, M12, 4-pin, PUR cable



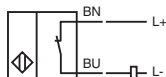
Electrical Connection



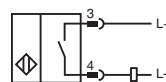
NBN15-30GM40-Z0
NCN15-30GM40-Z0



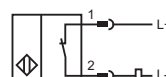
NCN15-30GM40-Z1



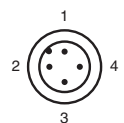
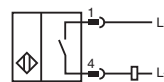
NBN15-30GM40-Z0-V1
NCN15-30GM40-Z0-V1



NCN15-30GM40-Z1-V1



NBN15-30GM40-Z3-V1
NCN15-30GM40-Z3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm housing
- 15 mm, flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	flush
Type of voltage	DC
Operating voltage	3.5 ... 30 V
Switching frequency	500 Hz
Operating current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NCB15-30GM50-Z4	NCB15-30GM50-Z5	NCB15-30GM50-Z4-V1	NCB15-30GM50-Z5-V1
Switching element function	DC	NO	●		●	
	DC	NC		●		●
Reverse polarity protection	✓		●		●	
		reverse polarity-conductive		●		●
Connection type	Device connector M12 x 1, 4-pin				●	●
	cable PVC, 2 m		●	●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	50	65
Diameter D [mm]	30	
Thread length l_t [mm]	47	50
Cap length l_1 [mm]	0	
Connector area l_c [mm]	0	15
LED position	Pos. C	

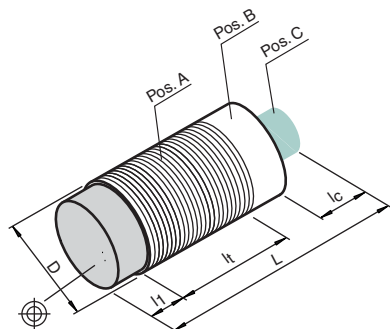
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

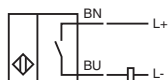
BF 30	Mounting flange, 30 mm
EXG-30	Quick mounting bracket with dead stop
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



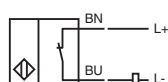
Electrical Connection



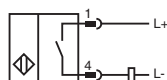
NCB15-30GM50-Z4



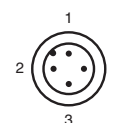
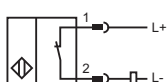
NCB15-30GM50-Z5



NCB15-30GM50-Z4-V1



NCB15-30GM50-Z5-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm housing
- 25 mm, non-flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	25 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	3.5 ... 30 V
Switching frequency	500 Hz
Operating current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

Switching element function	DC NO	DC NC	NCN25-30GM50-Z4	NCN25-30GM50-Z5	NCN25-30GM50-Z4-V1	NCN25-30GM50-Z5-V1	NCN25-30GM50-Z7-V1
Reverse polarity protection	reverse polarity-conductive tolerant		●	●	●	●	●
Connection type	Device connector M12 x 1, 4-pin cable PVC, 2 m		●	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.					

Dimensions

Length L [mm]	50	65
Diameter D [mm]		30
Thread length l _t [mm]		32
Cap length l ₁ [mm]		18
Connector area l _c [mm]	0	15
LED position		Pos. C

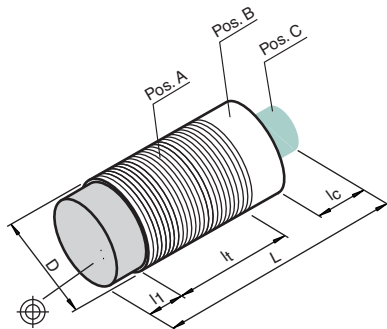
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

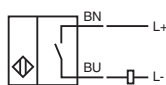
BF 30	Mounting flange, 30 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable



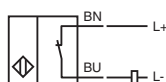
Electrical Connection



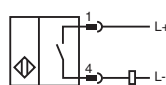
NCN25-30GM50-Z4



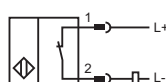
NCN25-30GM50-Z5



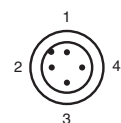
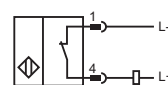
NCN25-30GM50-Z4-V1



NCN25-30GM50-Z5-V1



NCN25-30GM50-Z7-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm housing
- 10 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	10 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 200 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NBB10-30GM50-E0	NBB10-30GM50-E2	NBB10-30GM50-E0-V1	NBB10-30GM50-E2-V1	NBB10-30GM50-E3-V1
Switching element function	NPN	NO	●		●		
	PNP	NO		●		●	
	PNP	NC					●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●		●
	-40 ... 70 °C (-40 ... 158 °F)					●	
Connection type	Device connector M12 x 1, 4-pin				●	●	●
	cable PVC, 2 m		●	●			

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.					

Dimensions

Length L [mm]	50	65
Diameter D [mm]		30
Thread length l _t [mm]		50
Cap length l ₁ [mm]		0
Connector area l _c [mm]	0	15
LED position		Pos. C

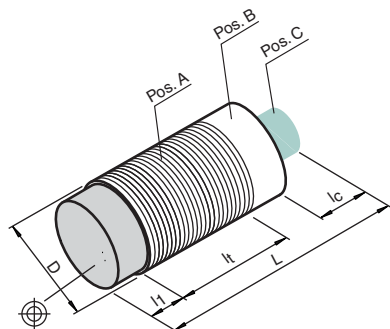
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

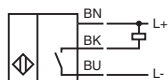
BF 30	Mounting flange, 30 mm
EXG-30	Quick mounting bracket with dead stop
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



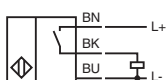
Electrical Connection



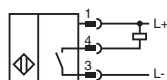
NBB10-30GM50-E0



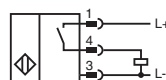
NBB10-30GM50-E2



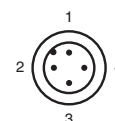
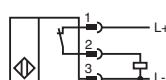
NBB10-30GM50-E0-V1



NBB10-30GM50-E2-V1



NBB10-30GM50-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm housing
- 10 mm, flush mountable
- DC, 4-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	10 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 200 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NBB10-30GM60-A0	NBB10-30GM60-A2	NBB10-30GM60-A0-V1	NBB10-30GM60-A2-V1
Switching element function	NPN	NO/NC	●		●	
	PNP	NO/NC		●		●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	
	-40 ... 70 °C (-40 ... 158 °F)					●
Connection type	Device connector M12 x 1, 4-pin				●	●
	cable PVC, 2 m		●	●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	60	70
Diameter D [mm]	30	
Thread length l _t [mm]	60	
Cap length l ₁ [mm]	0	10
Connector area l _c [mm]	0	10
LED position	Pos. C	Pos. A

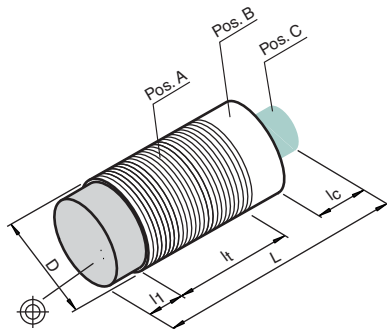
Accessories

This and more accessories can be found in chapter 10

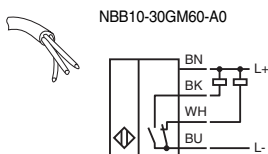
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

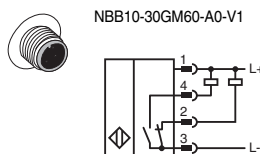
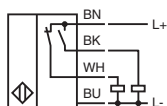
BF 30	Mounting flange, 30 mm
EXG-30	Quick mounting bracket with dead stop
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



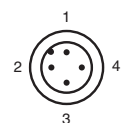
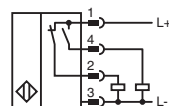
Electrical Connection



NBB10-30GM60-A2

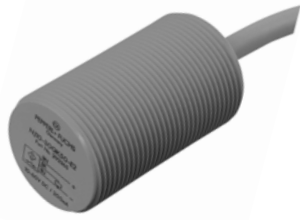


NBB10-30GM60-A2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm housing
- 10 mm, flush mountable
- DC, 3-wire switching output
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	10 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 200 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP68 / IP69K
Connection type	cable PVC , 2 m 

Model Number

Switching element function	NPN	NO
	PNP	NO

NBB10-30GK50-E0

NBB10-30GK50-E2

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

Length L [mm]	52
Diameter D [mm]	30
Thread length l_t [mm]	48
Cap length l_1 [mm]	1
Connector area l_c [mm]	0
LED position	Pos. C

Accessories

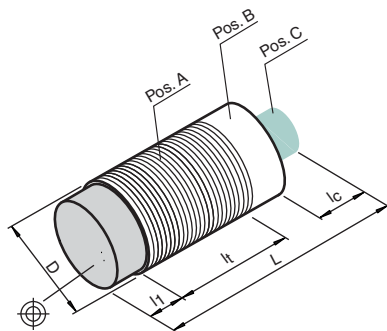
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 30

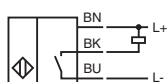
Mounting flange, 30 mm



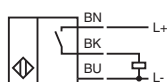
Electrical Connection



NBB10-30GK50-E0



NBB10-30GK50-E2





Properties

- Ø30 mm housing
- 10 mm, flush mountable
- DC, 4-wire switching output
- Terminal compartment

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	10 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 300 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	terminal compartment



Model Number	NJ10-30GKK-A	NJ10-30GKK-A2
Switching element function	NPN PNP	NO/NC NO/NC

Approvals and Certificates

UL approval	cULus Listed, General Purpose	•	•
CSA approval	cCSAus Listed, General Purpose	•	•
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

Length L [mm]	115
Diameter D [mm]	30
Thread length l _t [mm]	58
Cap length l _f [mm]	2
Connector area l _c [mm]	0

Accessories

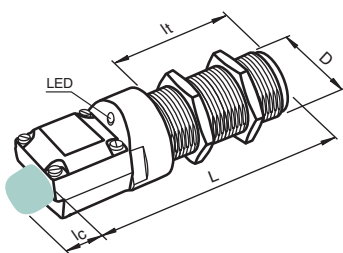
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 30

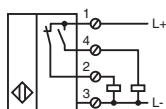
Mounting flange, 30 mm



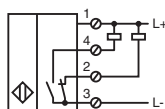
Electrical Connection



NJ10-30GKK-A2



NJ10-30GKK-A





Properties

- Ø30 mm housing
- 15 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 200 Hz
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

green = preferred type

Switching element function	NPN	NO	PNP	NO	PNP	NC
Operating current	0 ... 100 mA	0 ... 200 mA	0 ... 100 mA	0 ... 200 mA	0 ... 100 mA	0 ... 200 mA
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	-40 ... 70 °C (-40 ... 158 °F)	-25 ... 70 °C (-13 ... 158 °F)	-40 ... 70 °C (-40 ... 158 °F)	-25 ... 70 °C (-13 ... 158 °F)	-40 ... 70 °C (-40 ... 158 °F)
Connection type	Device connector M12 x 1, 4-pin	cable PVC, 2 m	Device connector M12 x 1, 4-pin	cable PVC, 2 m	Device connector M12 x 1, 4-pin	cable PVC, 2 m

NBB15-30GM30-E2	NBB15-30GM30-E3	NBB15-30GM50-E0	NBB15-30GM50-E2	NBB15-30GM30-E2-V1	NBB15-30GM30-E3-V1	NBB15-30GM50-E0-V1	NBB15-30GM50-E2-V1
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	●	●	●	●	●	●	●

Dimensions

Length L [mm]	30	50	45	65
Diameter D [mm]	30	30	30	30
Thread length l _t [mm]	27	47	30	50
Cap length l ₁ [mm]	0	0	0	0
Connector area l _c [mm]	0	0	15	15
LED position	Pos. C	Pos. C	Pos. C	Pos. C

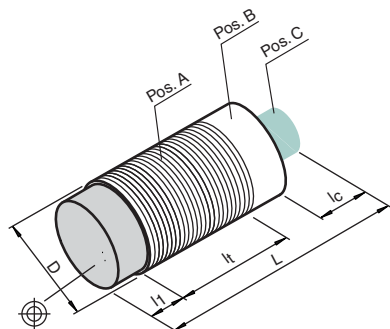
Accessories

This and more accessories can be found in chapter 10

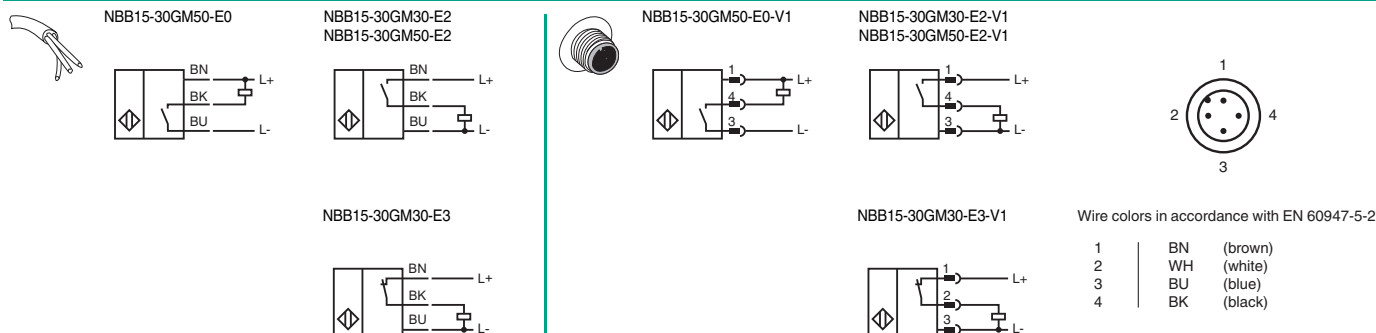
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 30	Mounting flange, 30 mm
EXG-30	Quick mounting bracket with dead stop
V1-G-BK	4-pin, M12 female field-attachable connector
BF 30-F	Mounting flange with dead stop, 30 mm
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



Electrical Connection





Properties

- Ø30 mm housing
- 15 mm, flush mountable
- DC, 4-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 25 mA
Reverse polarity protection	✓
Switching frequency	0 ... 200 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NBB15-30GM60-A0	NBB15-30GM60-A2	NBB15-30GM60-A0-V1	NBB15-30GM60-A2-V1
Switching element function	green = preferred type	NPN NO/NC	●	●	●	●
		PNP NO/NC		●		●
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)	●	●	●	●
		-40 ... 70 °C (-40 ... 158 °F)				●
Connection type		Device connector M12 x 1, 4-pin cable PVC, 2 m	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	60	70
Diameter D [mm]	30	
Thread length l _t [mm]	57	60
Cap length l ₁ [mm]	0	
Connector area l _c [mm]	0	10
LED position	Pos. C	Pos. A

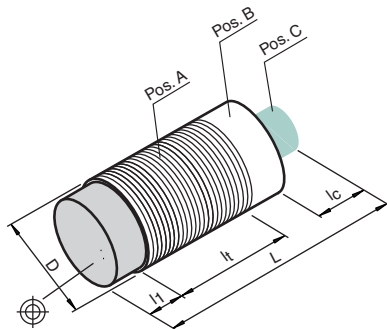
Accessories

This and more accessories can be found in chapter 10

See pages 972 ... for cordsets

See pages 1068 ... for mounting aids

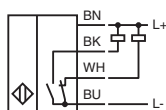
BF 30	Mounting flange, 30 mm
EXG-30	Quick mounting bracket with dead stop
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



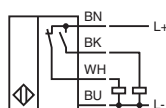
Electrical Connection



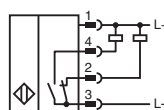
NBB15-30GM60-A0



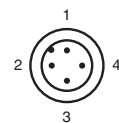
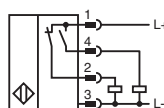
NBB15-30GM60-A2



NBB15-30GM60-A0-V1

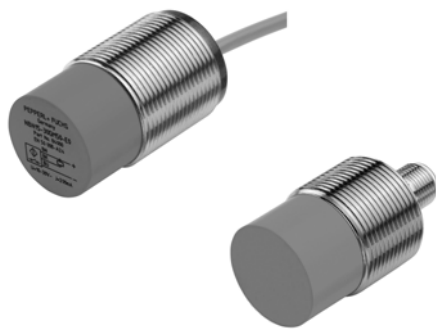


NBB15-30GM60-A2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm housing
- 15 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✓
Switching frequency	0 ... 200 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NBN15-30GM50-E0	NBN15-30GM50-E2	NBN15-30GM50-E0-V1	NBN15-30GM50-E2-V1
Switching element function	NPN	NO	●	●	●	●
	PNP	NO				
No-load supply current	≤ 15 mA		●	●	●	●
	≤ 20 mA					
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●
	-40 ... 70 °C (-40 ... 158 °F)					●
Connection type	Device connector M12 x 1, 4-pin		●	●	●	●
	cable PVC, 2 m		●	●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	50	65
Diameter D [mm]		30
Thread length l _t [mm]		32
Cap length l ₁ [mm]		18
Connector area l _c [mm]	0	15
LED position		Pos. C

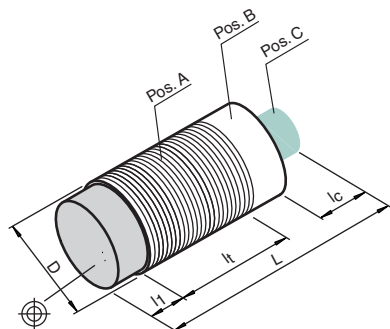
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

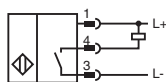
BF 30	Mounting flange, 30 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



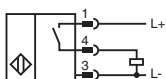
Electrical Connection



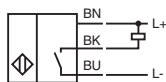
NBN15-30GM50-E0-V1



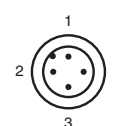
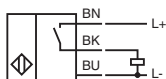
NBN15-30GM50-E2-V1



NBN15-30GM50-E0



NBN15-30GM50-E2



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm housing
- 15 mm, non-flush mountable
- DC, 4-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 200 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NBN15-30GM60-A0	NBN15-30GM60-A2	NBN15-30GM60-A0-V1	NBN15-30GM60-A2-V1
Switching element function	NPN	NO/NC	●	●	●	●
	PNP	NO/NC				
Connection type	Device connector M12 x 1, 4-pin		●	●	●	●
	cable PVC, 2 m		●	●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	60	70
Diameter D [mm]	30	
Thread length l _t [mm]	42	
Cap length l ₁ [mm]	18	
Connector area l _c [mm]	0	10
LED position	Pos. C	Pos. A

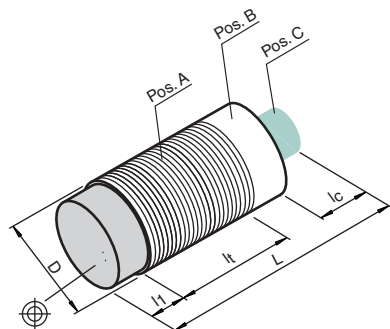
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

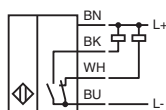
V1-G-BK	4-pin, M12 female field-attachable connector
BF 30	Mounting flange, 30 mm
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



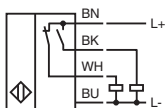
Electrical Connection



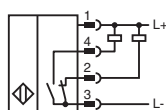
NBN15-30GM60-A0



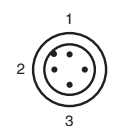
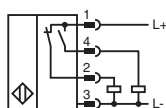
NBN15-30GM60-A2



NBN15-30GM60-A0-V1



NBN15-30GM60-A2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm housing
- 15 mm, non-flush mountable
- DC, 3-wire switching output
- Cable version

Further Products

In this series, we offer additionally:

NJ15-30GK-E2-T

Technical data comparable to NBN15-30GK50-E2 but:
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 200 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP68 / IP69K
Connection type	cable PVC , 2 m 

Model Number

Switching element function	NPN	NO
	PNP	NO

NBN15-30GK50-E0

NBN15-30GK50-E2

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

Length L [mm]	52
Diameter D [mm]	30
Thread length l_t [mm]	48
Cap length l_1 [mm]	1
Connector area l_c [mm]	0
LED position	Pos. C

Accessories

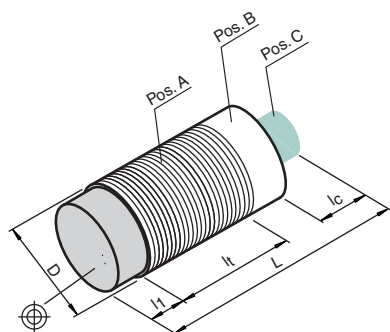
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 30

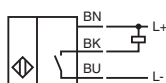
Mounting flange, 30 mm



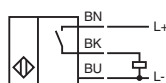
Electrical Connection



NBN15-30GK50-E0



NBN15-30GK50-E2
NJ15-30GK-E2-T





Properties

- Ø30 mm housing
- 15 mm, non-flush mountable
- DC, 4-wire switching output
- Terminal compartment

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 300 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	terminal compartment



Model Number

			NJ15-30GKK-A	NJ15-30GKK-A2
Switching element function	NPN	NO/NC	●	
	PNP	NO/NC		●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

Length L [mm]	115
Diameter D [mm]	30
Thread length l _t [mm]	58
Cap length l ₁ [mm]	2
Connector area l _c [mm]	0

Accessories

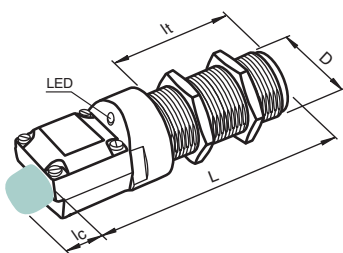
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 30

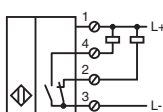
Mounting flange, 30 mm



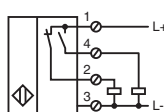
Electrical Connection



NJ15-30GKK-A



NJ15-30GKK-A2





Properties

- Ø30 mm housing
- 22 mm, virtually flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	22 mm
Installation	virtually flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Switching frequency	0 ... 150 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	chromium plated brass
Protection degree	IP67

Model Number

		green = preferred type				
Switching element function	NPN	NO	NEB22-30GM60-E0	NEB22-30GM60-E2	NEB22-30GM60-E0-V1	NEB22-30GM60-E2-V1
	PNP	NO				
	PNP	NC				
Connection type	Device connector M12 x 1, 4-pin					
	cable PVC, 2 m					

Approvals and Certificates

UL approval	cULus Listed, General Purpose	
CSA approval	cCSAus Listed, General Purpose	
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	

Dimensions

Length L [mm]	60	73.5
Diameter D [mm]		30
Thread length l _t [mm]	60	52
Cap length l ₁ [mm]		0
Connector area l _c [mm]	0	13.5
LED position	C	C

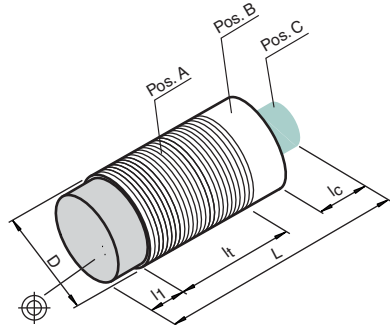
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

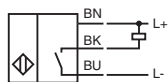
BF 30	Mounting flange, 30 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



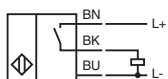
Electrical Connection



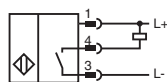
NEB22-30GM60-E0



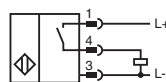
NEB22-30GM60-E2



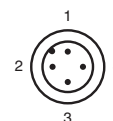
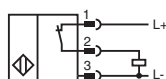
NEB22-30GM60-E0-V1



NEB22-30GM60-E2-V1



NEB22-30GM60-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm housing
- 22 mm and 25 mm versions, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✓
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

		NBN22-30GM35-E2	NBN25-30GM50-E0	NBN25-30GM50-E2	NBN22-30GM35-E2-V1	NBN25-30GM50-E0-V1	NBN25-30GM50-E2-V1
Rated operating distance	22 mm 25 mm	●	●	●	●	●	●
Switching element function	NPN NO PNP NO	●	●	●	●	●	●
No-load supply current	≤ 10 mA ≤ 12 mA	●	●	●	●	●	●
Switching frequency	0 ... 200 Hz 0 ... 80 Hz	●	●	●	●	●	●
Operating current	0 ... 100 mA 0 ... 200 mA	●	●	●	●	●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F) -40 ... 70 °C (-40 ... 158 °F)	●	●	●	●	●	●
Connection type	Device connector M12 x 1, 4-pin cable PVC, 2 m	●	●	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	●	●	●	●	●	●

Dimensions

Length L [mm]	35	50	50	50	65	65
Diameter D [mm]				30		
Thread length l _t [mm]	15	32	32	17	32	32
Cap length l ₁ [mm]				18		
Connector area l _c [mm]		0			15	
LED position				Pos. C		

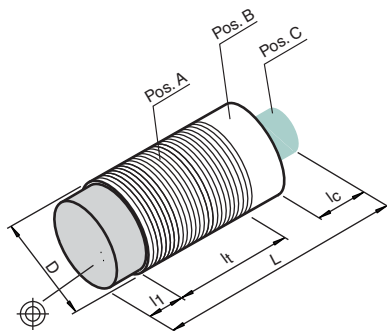
Accessories

This and more accessories can be found in chapter 10

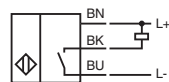
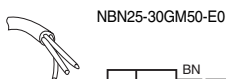
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

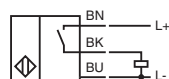
BF 30	Mounting flange, 30 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



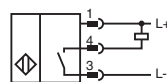
Electrical Connection



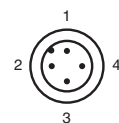
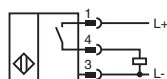
NBN22-30GM35-E2
NBN25-30GM50-E2



NBN25-30GM50-E0-V1



NBN22-30GM35-E2-V1
NBN25-30GM50-E2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm housing
- 40 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	40 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Switching frequency	0 ... 100 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	chromium plated brass
Protection degree	IP67

Model Number

Switching element function	green = preferred type	
	NPN	NO
	PNP	NO
	PNP	NC
Connection type	Device connector M12 x 1, 4-pin	
	cable PVC, 2 m	

NEN40-30GM60-E0

NEN40-30GM60-E2

NEN40-30GM60-E0-V1

NEN40-30GM60-E2-V1

NEN40-30GM60-E3-V1



Approvals and Certificates

UL approval	cULus Listed, General Purpose	•
CSA approval	cCSAus Listed, General Purpose	•
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	

Dimensions

Length L [mm]	60		73.5		
Diameter D [mm]			30		
Thread length l _t [mm]	50	50	42	51.5	42
Cap length l ₁ [mm]			10		
Connector area l _c [mm]	0	0	13.5	12.5	13.5
LED position	C	C	C	A	C

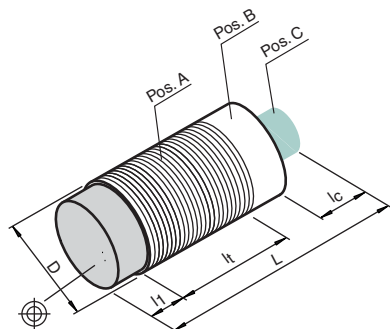
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

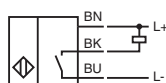
BF 30	Mounting flange, 30 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



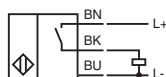
Electrical Connection



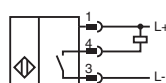
NEN40-30GM60-E0



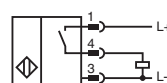
NEN40-30GM60-E2



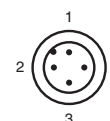
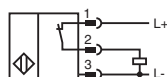
NEN40-30GM60-E0-V1



NEN40-30GM60-E2-V1



NEN40-30GM60-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm housing
- 10 mm, flush mountable and 15 mm, virtually flush mountable
- AC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Type of voltage	AC
Operating voltage	20 ... 253 V
Reverse polarity protection	tolerant
Switching frequency	0 ... 20 Hz
Operating current	5 ... 200 mA
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

		green	NB	NB	NB	NB	NB	NB	NB
Rated operating distance	10 mm								
	15 mm								
Installation	flush								
	virtually flush								
Switching element function	AC NO								
	AC NC								
Connection type	Device connector 1/2"-20 UN , 3-pin								
	Device connector 7/8"-16 UN , 3-pin								
	cable PVC . 2 m								

Approvals and Certificates

UL approval	cULus Listed, General Purpose							
CSA approval	cCSAus Listed, General Purpose							
CCC approval	Certified by China Compulsory Certification (CCC)							

Dimensions

Dimensions			
Length L [mm]	50	60	65
Diameter D [mm]	30		
Thread length l_t [mm]	47	50	
Cap length l_1 [mm]	0		
Connector area l_c [mm]	0	10	15
LED position	Pos. C	Pos. B	

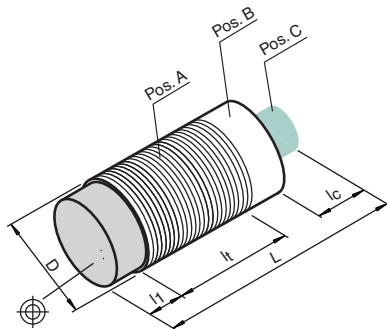
Accessories

This and more accessories can be found in chapter 10

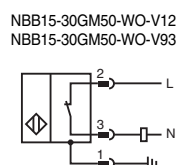
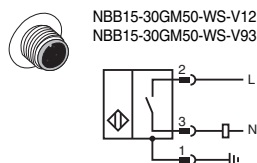
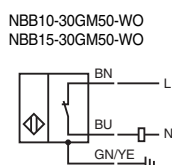
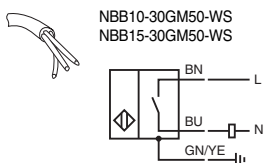
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 30	Mounting flange, 30 mm
EXG-30	Quick mounting bracket with dead stop



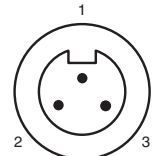
Electrical Connection



V12



V93

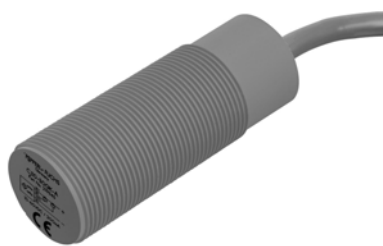


Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)

Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)



Properties

- Ø30 mm housing
- 15 mm, virtually flush mountable
- AC, 2-wire switching output
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	virtually flush
Type of voltage	AC
Operating voltage	20 ... 250 V
Switching frequency	0 ... 25 Hz
Operating current	1.5 ... 200 mA
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP68
Connection type	cable PVC , 2 m

Model Number

Switching element function	AC	NO
	AC	NC

NBB15-30GK-WS

NBB15-30GK-WO

Approvals and Certificates

UL approval	cULus Listed, General Purpose		
CSA approval	cCSAus Listed, General Purpose		
CCC approval	Certified by China Compulsory Certification (CCC)		

Dimensions

Length L [mm]	80
Diameter D [mm]	30
Thread length l_t [mm]	60
Cap length l_1 [mm]	0
Connector area l_c [mm]	0
LED position	-

Accessories

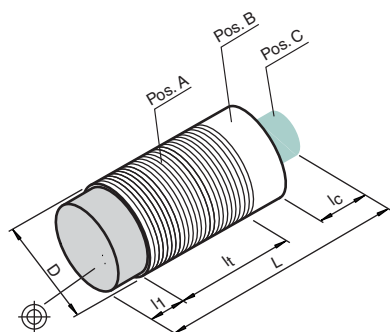
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 30

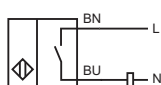
Mounting flange, 30 mm



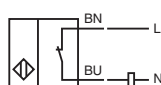
Electrical Connection



NBB15-30GK-WS



NBB15-30GK-WO





Properties

- Ø30 mm housing
- 10 mm and 15 mm , flush mountable versions
- AC, 2-wire switching output
- Terminal compartment

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	flush
Type of voltage	AC
Operating voltage	20 ... 250 V
No-load supply current	≤ 1.7 mA
Switching frequency	0 ... 20 Hz
Operating current	1.5 ... 200 mA
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	terminal compartment



Model Number

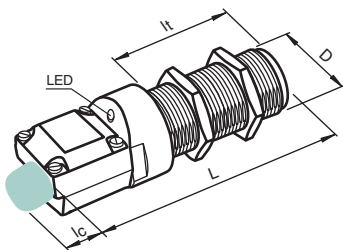
		NBB10-30GKK-WO	NBB10-30GKK-WS	NBB15-30GKK-WO	NBB15-30GKK-WS
Rated operating distance	10 mm	●	●		
	15 mm			●	●
Switching element function	AC NO		●		●
	AC NC	●		●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●

Dimensions

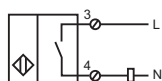
Length L [mm]	115
Diameter D [mm]	30
Thread length l _t [mm]	58
Cap length l ₁ [mm]	2
Connector area l _c [mm]	0



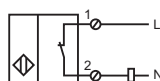
Electrical Connection



NBB15-30GKK-WS
NBB10-30GKK-WS



NBB15-30GKK-WO
NBB10-30GKK-WO





Properties

- Ø30 mm housing
- 15 mm, flush mountable
- AC/DC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	flush
Operating voltage	20 ... 250 V AC/20 ... 300 V DC
Reverse polarity protection	tolerant
Switching frequency	30 Hz
Operating current	4 ... 500 mA AC/DC
Short-circuit protection	✓
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NBB15-30GM50-US	NBB15-30GM50-UO	NBB15-30GM50-US-V12	NBB15-30GM50-UO-V12	NBB15-30GM50-US-V93	NBB15-30GM50-UO-V93
Switching element function	AC/DC	NO	●	●	●	●	●	●
	NC			●		●		●
Type of voltage	UC		●					
Connection type	Device connector 1/2"-20 UN , 3-pin				●			
	Device connector 7/8"-16 UN , 3-pin						●	●
	Device connector M12 x 1 , 3-pin					●		
	cable PUR , 2 m		●	●				

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●	●

Dimensions

Length L [mm]	51	60	65
Diameter D [mm]		30	
Thread length l _t [mm]		50	
Cap length l ₁ [mm]		0	
Connector area l _c [mm]		10	15
LED position		Pos. B	

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

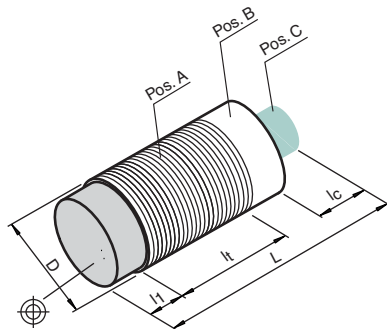
See pages 1068 ... for mounting aids

BF 30

Mounting flange, 30 mm

EXG-30

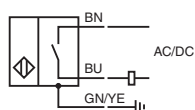
Quick mounting bracket with dead stop



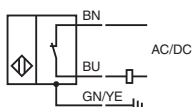
Electrical Connection



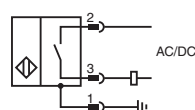
NBB15-30GM50-US



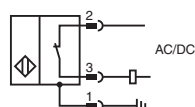
NBB15-30GM50-UO



NBB15-30GM50-US-V93
NBB15-30GM50-US-V12



NBB15-30GM50-UO-V93
NBB15-30GM50-UO-V12



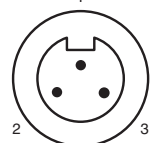
V12



Wire colors

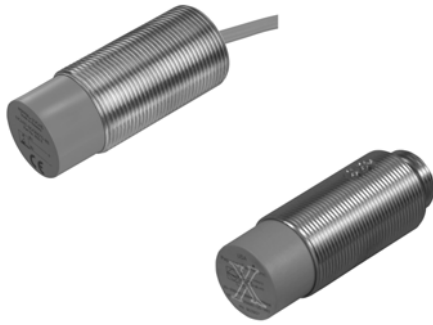
1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)

V93



Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)



Properties

- Ø30 mm housing
- 25 mm, non-flush mountable
- AC/DC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	25 mm
Installation	non-flush
Operating voltage	20 ... 250 V AC/20 ... 300 V DC
Reverse polarity protection	tolerant
Switching frequency	30 Hz
Operating current	4 ... 500 mA AC/DC
Short-circuit protection	✓
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

		green = preferred type							
Switching element function	AC/DC	NO							
	NC								
Type of voltage	UC								
Connection type	Device connector 1/2"-20 UN , 3-pin								
	Device connector 7/8"-16 UN , 3-pin								
	Device connector M12 x 1 , 3-pin								
	cable PUR , 2 m								

Approvals and Certificates

UL approval	cULus Listed, General Purpose								
CSA approval	cCSAus Listed, General Purpose								
CCC approval	Certified by China Compulsory Certification (CCC)								

Dimensions

Length L [mm]	51	60	65
Diameter D [mm]		30	
Thread length l _t [mm]		32	
Cap length l ₁ [mm]		18	
Connector area l _c [mm]	0	10	15
LED position		Pos. B	

Accessories

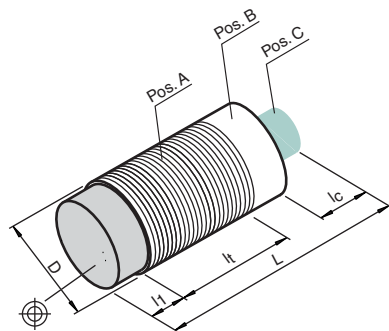
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 30

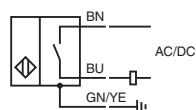
Mounting flange, 30 mm



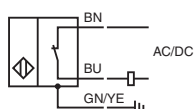
Electrical Connection



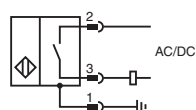
NBN25-30GM50-US



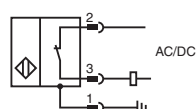
NBN25-30GM50-UO



NBN25-30GM50-US-V93
NBN25-30GM50-US-V12



NBN25-30GM50-UO-V93
NBN25-30GM50-UO-V12



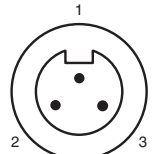
V12



Wire colors

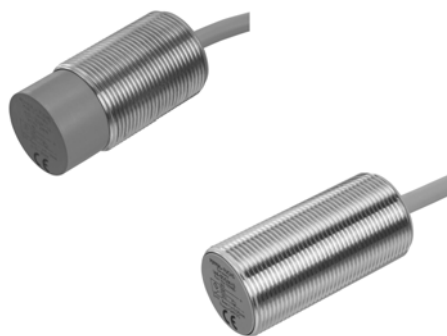
1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)

V93



Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	Analog current output
Type of voltage	DC
Operating voltage	15 ... 30 V
No-load supply current	≤ 10 mA
Output type	0 ... 20 mA
Linearity error	≤ ± 10 % of full-scale value
Load resistor	≤ 500 Ω
Adjustment tolerance zero point	≤ ± 10 % of full-scale value
Ambient temperature	-10 ... 70 °C (14 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67
Connection type	cable PVC , 2 m



Properties

- Ø30 mm housing
- 3 ... 8 mm, flush mountable and 5 ... 15 mm non-flush mountable
- DC, 3-wire analog output
- Cable version

Model Number

green = preferred type

Model Number	IA8-30GM-I3	IA15-30GM-I3
Measurement range	3 ... 8 mm	5 ... 15 mm
Installation	flush	non-flush

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

Length L [mm]	60	
Diameter D [mm]	30	
Thread length l_t [mm]	60	42
Cap length l_1 [mm]	0	18
Connector area l_c [mm]	0	
LED position	-	

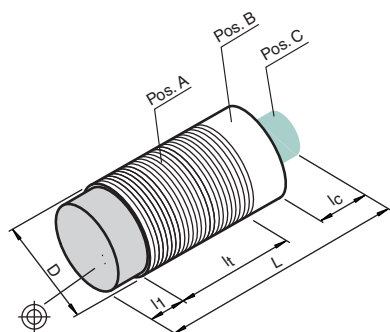
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

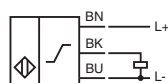
BF 30	Mounting flange, 30 mm
DA5-IU-C	Digital display unit



Electrical Connection



IA15-30GM-I3
IA8-30GM-I3





Properties

- Ø6.5 mm housing
- 2 mm, flush mountable and 6 mm, non-flush mountable
- DC, 3-wire switching output
- Connector version

Your Benefit

- Same sensing range for all metals

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	PNP	NO
Type of voltage	DC	
Operating voltage	10 ... 30 V	
No-load supply current	≤ 15 mA	
Reverse polarity protection	✓	
Operating current	0 ... 100 mA	
Short-circuit protection	pulsing	
Indication of the switching state	Multihole-LED, yellow	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	
Housing material	Stainless steel 1.4305 / AISI 303	
Protection degree	IP67	
Connection type	Device connector M8 x 1, 3-pin	



Model Number	NRB2-6,5S50-E2-V3	NRN6-6,5S50-E2-V3
Rated operating distance	2 mm	
	6 mm	
Installation	flush	
	non-flush	
Switching frequency	0 ... 1000 Hz	
	0 ... 400 Hz	

Approvals and Certificates

UL approval	cULus Listed, General Purpose		
CSA approval	cCSAus Listed, General Purpose		
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

Length L [mm]	59
Diameter D [mm]	6.5 / 8
Thread length l _t [mm]	0
Cap length l ₁ [mm]	0
Connector area l _c [mm]	6
LED position	Pos. C

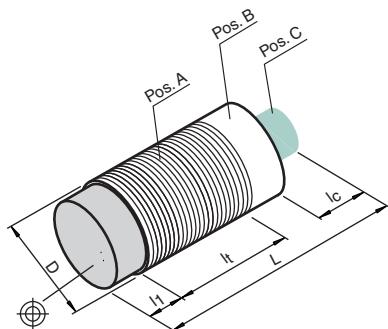
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

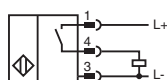
BF 6,5	Mounting flange, 6.5 mm
V3-WM	Female connector, M8, 3-pin, field attachable
V3-GM	Female connector, M8, 3-pin, field attachable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable



Electrical Connection



NRB2-6,5S50-E2-V3
NRN6-6,5S50-E2-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Properties

- Ø8 mm housing
- 2 mm, flush mountable and 6 mm, non-flush mountable
- DC, 3-wire switching output
- Connector versions

Your Benefit

- Same sensing range for all metals

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	PNP	NO
Type of voltage	DC	
Operating voltage	10 ... 30 V	
No-load supply current	≤ 15 mA	
Reverse polarity protection	✓	
Short-circuit protection	pulsing	
Indication of the switching state	Multihole-LED, yellow	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	
Housing material	Stainless steel 1.4305 / AISI 303	
Protection degree	IP67	

Model Number

		NRB2-8GS50-E2-V3	NRN6-8GS50-E2-V3	NRB2-8GS40-E2-V1	NRN6-8GS40-E2-V1
Rated operating distance	2 mm	●		●	
	6 mm		●		●
Installation	flush	●		●	
	non-flush		●		●
Operating current	0 ... 100 mA	●	●		
	0 ... 200 mA			●	●
Switching frequency	0 ... 4000 Hz			●	
	0 ... 2500 Hz				●
	0 ... 1000 Hz	●			
	0 ... 400 Hz		●		●
Connection type	Device connector M12 x 1, 4-pin			●	●
	Device connector M8 x 1, 3-pin	●	●		



Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	59	65
Diameter D [mm]	8	8 / 12
Thread length l _t [mm]	50	45
Cap length l ₁ [mm]	0	5
Connector area l _c [mm]	6	
LED position	Pos. C	

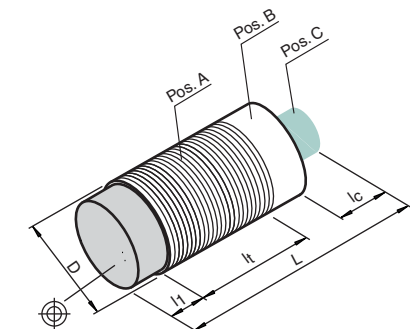
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

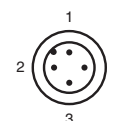
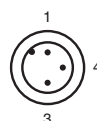
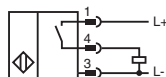
BF 8	Mounting flange, 8 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V3-WM	Female connector, M8, 3-pin, field attachable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V3-GM	Female connector, M8, 3-pin, field attachable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable



Electrical Connection



NRB2-8GS40-E2-V1
NRB2-8GS50-E2-V3
NRN6-8GS40-E2-V1
NRN6-8GS50-E2-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø12 mm housing
- 4 mm, flush and 10 mm, non-flush mountable versions
- DC, 3-wire and 4-wire switching output versions
- Connector version

Your Benefit

- Same sensing range for all metals

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Type of voltage	DC
Operating voltage	10 ... 30 V
Operating current	0 ... 200 mA
Reverse polarity protection	✓
Short-circuit protection	pulsing
Indication of the switching state	Multihole-LED, yellow
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67
Connection type	Device connector M12 x 1, 4-pin



Model Number

		NRB4-12GS40-E2-V1	NRB4-12GS40-A2-V1	NRN10-12GS40-E2-V1	NRN10-12GS40-A2-V1
Rated operating distance	4 mm	●	●	●	●
	10 mm	●	●	●	●
Installation	flush	●	●	●	●
	non-flush	●	●	●	●
Switching element function	PNP NO/NC	●	●	●	●
	PNP NO	●	●	●	●
No-load supply current	≤ 13 mA	●	●	●	●
	≤ 15 mA	●	●	●	●
Switching frequency	0 ... 1000 Hz	●	●	●	●
	0 ... 2000 Hz	●	●	●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	●	●	●	●
	-25 ... 85 °C (-13 ... 185 °F)	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	●	●	●	●

Dimensions

Length L [mm]	55		
Diameter D [mm]	12		
Thread length l _t [mm]	39		29
Cap length l ₁ [mm]	0		8
Connector area l _c [mm]	15		
LED position	Pos. C		

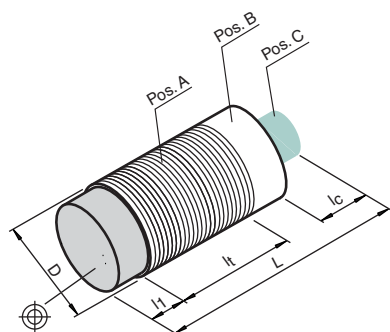
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

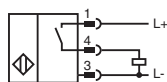
BF 12	Mounting flange, 12 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



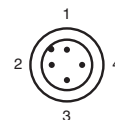
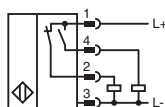
Electrical Connection



NRB4-12GS40-E2-V1
NRN10-12GS40-E2-V1



NRB4-12GS40-A2-V1
NRN10-12GS40-A2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm housing
- 8 mm flush, 12 mm virtually flush, and 15 mm non-flush mountable versions
- DC, 3-wire switching output
- Connector version

Your Benefit

- Same sensing range for all metals

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✓
Short-circuit protection	pulsing
Indication of the switching state	Multihole-LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67
Connection type	Device connector M12 x 1, 4-pin



Model Number

		NRB8-18GS40-E2-V1	NRB8-18GS50-E2-V1	NRB12-18GS40-E2-V1	NRN15-18GS40-E2-V1	NRN15-18GS50-E2-V1	NRN15-18GS50-E3-V1
Rated operating distance	8 mm	●	●				
	12 mm			●			
	15 mm				●	●	●
Installation	flush	●	●				
	non-flush				●	●	●
	virtually flush			●			
Switching element function	PNP NO	●	●	●	●	●	
	PNP NC						●
No-load supply current	≤ 15 mA	●	●		●	●	●
	≤ 28 mA			●			
Switching frequency	0 ... 500 Hz				●	●	●
	0 ... 600 Hz	●	●	●			
Operating current	0 ... 100 mA				●		
	0 ... 200 mA	●	●	●		●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.						

Dimensions

Length L [mm]	55	65	55	55	65	65
Diameter D [mm]	18					
Thread length l _t [mm]	40	50	40	30	40	40
Cap length l ₁ [mm]	0					
Connector area l _c [mm]	15					
LED position	Pos. C					

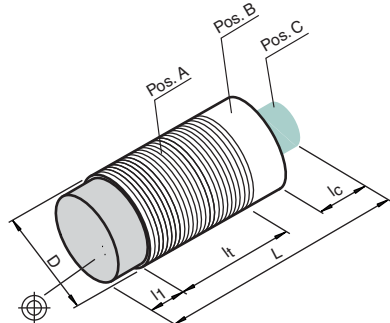
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 18	Mounting flange, 18 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable

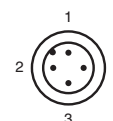
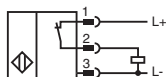
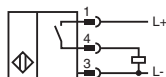


Electrical Connection



NRB12-18GS40-E2-V1
NRB8-18GS40-E2-V1
NRN15-18GS40-E2-V1
NRN15-18GS50-E2-V1
NRB8-18GS50-E2-V1

NRN15-18GS50-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	Multihole-LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Connection type	Device connector M12 x 1, 4-pin



Properties

- Ø30 mm housing
- 15 mm flush and 30 mm non-flush mountable versions
- DC, 3-wire switching output
- Connector version

Your Benefit

- Same sensing range for all metals

Model Number

		NRB15-30GS50-E2-V1	NRB15-30GS50-E3-V1	NRN30-30GS50-E2-V1	NRN30-30GS50-E3-V1
Rated operating distance	15 mm	●	●		
	30 mm			●	●
Installation	flush	●	●		
	non-flush			●	●
Switching element function	PNP NO	●		●	
	PNP NC		●		●
Switching frequency	0 ... 300 Hz			●	●
	0 ... 750 Hz	●	●		
Housing material	stainless steel 1.4301			●	
	Stainless steel 1.4305 / AISI 303	●	●		●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	65
Diameter D [mm]	30
Thread length l _t [mm]	50
Cap length l ₁ [mm]	0
Connector area l _c [mm]	15
LED position	Pos. C

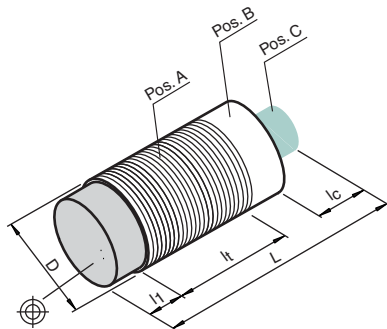
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

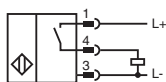
BF 30	Mounting flange, 30 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable



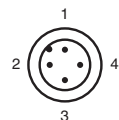
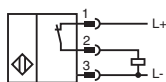
Electrical Connection



NRB15-30GS50-E2-V1
NRN30-30GS50-E2-V1



NRB15-30GS50-E3-V1
NRN30-30GS50-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø8 mm housing
- 1.5 mm, flush and 3 mm non-flush mountable versions
- DC, 3-wire switching output
- Connector version

Your Benefit

- Specially optimized for welding applications

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	PNP	NO
Operating voltage	10 ... 30 V DC	
Reverse polarity protection	✓	
Operating current	0 ... 100 mA	
Short-circuit protection	pulsing	
Indication of the switching state	LED, yellow	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	
Housing material	brass, PTFE coated	
Protection degree	IP67	

Model Number

		NBB1,5-8GM40-E2-C-V3	NBB1,5-8GM30-E2-C-V1	NBN3-8GM30-E2-C-V1
Rated operating distance	1.5 mm	●	●	●
	3 mm			●
Installation	flush	●	●	
	non-flush			●
Switching frequency	0 ... 1800 Hz	●	●	●
	0 ... 50 Hz			●
Connection type	Device connector M12 x 1, 4-pin		●	●
	Device connector M8 x 1, 3-pin	●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.			

Dimensions

Length L [mm]		50	60	60
Diameter D [mm]		8	8/12	8/12
Thread length l _t [mm]		47	30	31
Cap length l ₁ [mm]		0	0	4
Connector area l _c [mm]		3	6	6
LED position	Pos.	A	B	B

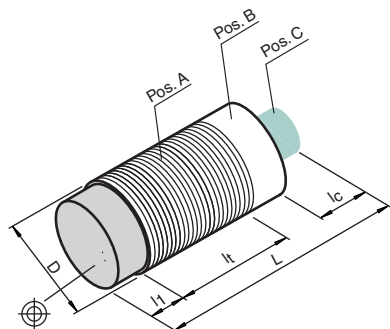
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

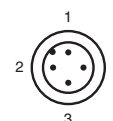
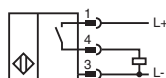
V3-WM	Female connector, M8, 3-pin, field attachable
BF 8	Mounting flange, 8 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V1-W-BK	4-pin, M12 female field-attachable connector
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V3-GM	Female connector, M8, 3-pin, field attachable
EXG-08	Quick mounting bracket with dead stop



Electrical Connection



NBB1,5-8GM30-E2-C-V1
NBB1,5-8GM40-E2-C-V3
NBN3-8GM30-E2-C-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø12 mm housing
- 2 mm, flush and 4 mm non-flush mountable versions
- DC, 3-wire switching output
- Cable and connector versions

Your Benefit

- Specially optimized for welding applications

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	PNP	NO
Operating voltage	10 ... 30 V DC	
Reverse polarity protection	✓	
Operating current	0 ... 200 mA	
Short-circuit protection	pulsing	
Indication of the switching state	LED, yellow	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	
Housing material	brass, PTFE coated	
Protection degree	IP67	

Model Number

		NBN4-12GM50-E2-C	NBB2-12GM50-E2-C-V1	NBB2-12GM50-E2-C3-V1	NBN4-12GM50-E2-C-V1
Rated operating distance	2 mm	•	•	•	•
	4 mm	•	•	•	•
Installation	flush	•	•	•	•
	non-flush	•	•	•	•
Switching frequency	0 ... 1200 Hz	•	•	•	•
	0 ... 1500 Hz	•	•	•	•
Connection type	Device connector M12 x 1, 4-pin	•	•	•	•
	cable PVC, 2 m	•	•	•	•

Approvals and Certificates

UL approval	cULus Listed, General Purpose	•	•	•	•
CSA approval	cCSAus Listed, General Purpose	•	•	•	•
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	•	•	•	•

Dimensions

Length L [mm]	50	65		
Diameter D [mm]		12		
Thread length l _t [mm]	42	49	49	41
Cap length l ₁ [mm]	5	0	0	5
Connector area l _c [mm]	0	15	15	19
LED position		Pos. C		

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-G-OR2M-POC

Female cordset, M12, 4-pin, TPE cable, welding-bead resistant

BF 12

Mounting flange, 12 mm

V1-G-BK

4-pin, M12 female field-attachable connector

V1-W-BK

4-pin, M12 female field-attachable connector

V1-G-2M-PUR

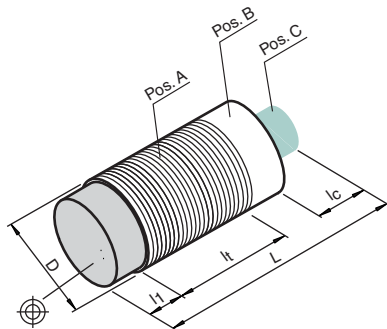
Cable socket, M12, 4-pin, PUR cable

V1-W-2M-PUR

Cable socket, M12, 4-pin, PUR cable

EXG-12

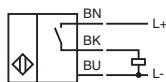
Quick mounting bracket with dead stop



Electrical Connection



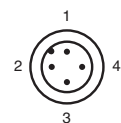
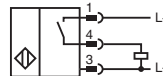
NBN4-12GM50-E2-C



NBB2-12GM50-E2-C-V1

NBN4-12GM50-E2-C-V1

NBB2-12GM50-E2-C3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm housing
- 5 mm, flush and 8 mm non-flush mountable versions
- DC, 3-wire switching output
- Connector version

Your Benefit

- Specially optimized for welding applications

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 30 V DC
Reverse polarity protection	✓
Short-circuit protection	pulsing
Indication of the switching state	Multihole-LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, PTFE coated
Protection degree	IP67
Connection type	Device connector M12 x 1, 4-pin



Model Number

		NBB5-18GM50-E2-C-V1	NBB5-18GM50-E0-C-V1	NBB5-18GM50-E2-C3-V1	NBN8-18GM50-E2-C-V1
Rated operating distance	5 mm	●	●	●	●
	8 mm				●
Installation	flush	●	●	●	
	non-flush				●
Switching element function	NPN NO		●		
	PNP NO	●		●	●
Switching frequency	0 ... 500 Hz				●
	0 ... 800 Hz	●	●	●	
Operating current	0 ... 200 mA	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	65	
Diameter D [mm]	18	
Thread length l _t [mm]	50	40
Cap length l ₁ [mm]	0	10
Connector area l _c [mm]	15	
LED position	Pos. C	

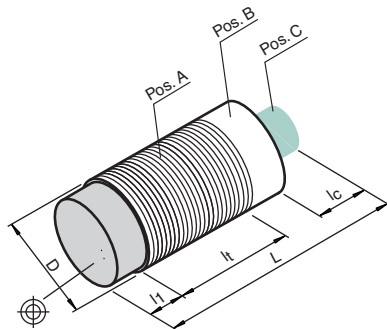
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

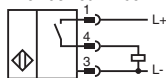
V1-G-BK	4-pin, M12 female field-attachable connector
BF 18	Mounting flange, 18 mm
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
EXG-18	Quick mounting bracket with dead stop



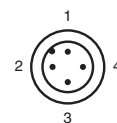
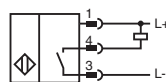
Electrical Connection



NBB5-18GM50-E2-C-V1
NBN8-18GM50-E2-C-V1
NBB5-18GM50-E2-C3-V1



NBB5-18GM50-E0-C-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm housing
- Up to 15 mm, flush and non-flush mountable versions
- DC, 3-wire switching output
- Connector versions

Your Benefit

- Specially optimized for welding applications

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	non-flush
Switching element function	PNP NO
Type of voltage	DC
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	Multihole-LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, PTFE coated
Protection degree	IP67
Connection type	Device connector M12 x 1, 4-pin



Model Number

	NBN8-18GM50-E2-C-V1	NRN8-18GM50-E2-C-V1	NRN12-18GM50-E2-C-V1	NRN15-18GM50-E2-C-V1
Reduction factor 1		●	●	●
Rated operating distance	8 mm	●		
	12 mm		●	
	15 mm			●
Switching frequency	0 ... 500 Hz	●		●
	0 ... 600 Hz		●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	65
Diameter D [mm]	18
Thread length l _t [mm]	40
Cap length l ₁ [mm]	10
Connector area l _c [mm]	15
LED position	Pos. C

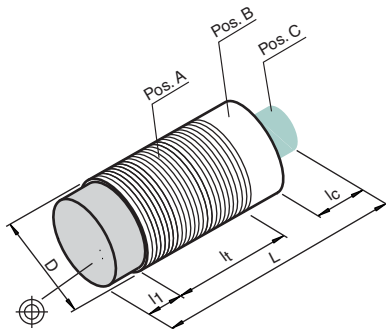
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

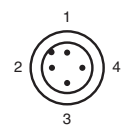
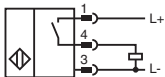
See pages 1068 ... for mounting aids

BF 18	Mounting flange, 18 mm
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



Electrical Connection

NBN8-18GM50-E2-C-V1
NRN12-18GM50-E2-C-V1
NRN15-18GM50-E2-C-V1
NRN8-18GM50-E2-C-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm housing
- 10 mm, flush and 15 mm non-flush mountable versions
- DC, 3-wire switching output
- Connector version

Your Benefit

- Specially optimized for welding applications

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 30 V DC
Reverse polarity protection	✓
Switching frequency	0 ... 10 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	Multihole-LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, PTFE coated
Protection degree	IP67
Connection type	Device connector M12 x 1, 4-pin



Model Number

		NBB10-30GM50-E0-C-V1	NBB10-30GM50-E2-C-V1	NBB10-30GM50-E2-C3-V1	NBN15-30GM50-E2-C-V1
Rated operating distance	10 mm	●	●	●	
	15 mm				●
Installation	flush	●	●	●	
	non-flush				●
Switching element function	NPN	●			
	NO		●	●	
	PNP				●
	NO				

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	65		
Diameter D [mm]	30		
Thread length l _t [mm]	50		32
Cap length l ₁ [mm]	0		18
Connector area l _c [mm]	15		
LED position	Pos. C		

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-G-2M-PUR

Cable socket, M12, 4-pin, PUR cable

V1-G-2M-PVC

Cable socket, M12, 4-pin, PVC cable

V1-W-2M-PUR

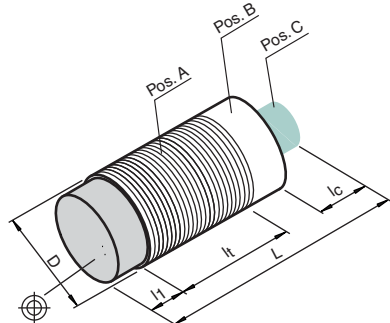
Cable socket, M12, 4-pin, PUR cable

V1-G-OR2M-POC

Female cordset, M12, 4-pin, TPE cable, welding-bead resistant

EXG-30

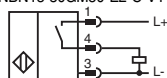
Quick mounting bracket with dead stop



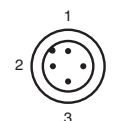
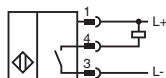
Electrical Connection



NBB10-30GM50-E2-C3-V1
NBB10-30GM50-E2-C-V1
NBN15-30GM50-E2-C-V1



NBB10-30GM50-E0-C-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø8 - 30 mm housing versions
- Up to 30 mm, flush, non-flush and virtually flush mountable versions
- DC, 3-wire switching output
- Connector version

Your Benefit

- Same sensing range for all metals
- Specially optimized for welding applications

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Reduction factor 1	✓
Switching element function	PNP NO
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	Multihole-LED, yellow
Housing material	brass, PTFE coated
Protection degree	IP67
Connection type	Device connector M12 x 1, 4-pin



Model Number

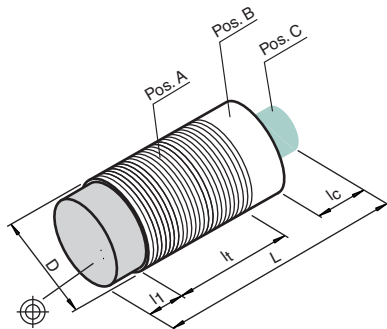
		NRB2-8GM40-E2-C-V1	NRN6-8GM40-E2-C-V1	NRB4-12GM40-E2-C-V1	NRN10-12GM40-E2-C-V1	NRB8-18GM40-E2-C-V1	NRB8-18GM50-E2-C-V1	NRB12-18GM40-E2-C-V1	NRN15-18GM50-E2-C-V1	NRB15-30GM50-E2-C-V1	NRN30-30GM50-E2-C-V1
Rated operating distance [mm]		2	6	4	10	8	8	12	15	15	30
Installation	flush	●		●		●	●			●	
	non-flush		●		●				●		●
	virtually flush							●			
Switching frequency	0 ... 300 Hz										●
	0 ... 400 Hz										
	0 ... 500 Hz								●		
	0 ... 600 Hz					●	●	●			
	0 ... 750 Hz									●	
	0 ... 1000 Hz				●						
	0 ... 2000 Hz			●							
	0 ... 2500 Hz		●								
	0 ... 4000 Hz	●									
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	●	●	●		●	●	●	●	●	●
	-25 ... 85 °C (-13 ... 185 °F)				●						

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.										

Dimensions

Length L [mm]	65	65	55	55	55	65	55	65	65	65
Diameter D [mm]	8/12		12			18				30
Thread length l _t [mm]	40	35	39	31	40	50	40	40	50	32
Cap length l ₁ [mm]	0	5	0	8	0	0	0	10	0	18
Connector area l _c [mm]		6				15				
LED position		Pos. B				Pos. C				



Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

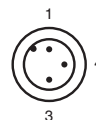
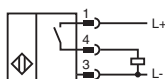
See pages 1068 ... for mounting aids

BF 8	Mounting flange, 8 mm
V1-G-BK	4-pin, M12 female field-attachable connector
BF 12	Mounting flange, 12 mm
BF 18	Mounting flange, 18 mm
BF 30	Mounting flange, 30 mm
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable

Electrical Connection

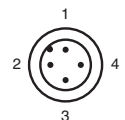


NRB2-8GM40-E2-C-V1
NRN6-8GM40-E2-C-V1
NRB4-12GM40-E2-C-V1
NRN10-12GM40-E2-C-V1
NRB12-18GM40-E2-C-V1
NRB8-18GM40-E2-C-V1
NRB8-18GM50-E2-C-V1
NRN15-18GM50-E2-C-V1
NRB15-30GM50-E2-C-V1
NRN30-30GM50-E2-C-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

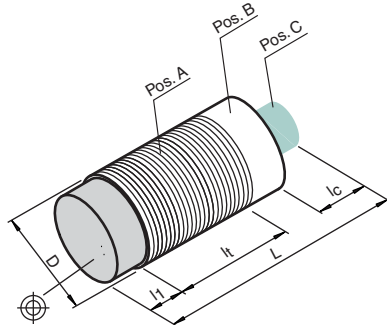


Properties

- Ø8 - 30 mm housing versions
- Up to 15 mm, flush mountable versions
- DC, 3-wire switching output
- Connector versions

Your Benefit

- Increased resistance to environmental influences due to self-contained metal sleeve
- Specially optimized for welding applications



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

metal face	✓
Installation	flush
Switching element function	PNP NO
Type of voltage	DC
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✓
Switching frequency	0 ... 5 Hz
Short-circuit protection	pulsing
Housing material	Xylan coated - Stainless steel 1.4305 / AISI 303
Connection type	Device connector M12 x 1, 4-pin



Model Number

		NMB3-8GM50-E2-C-V1	NMB5-12GM65-E2-C-V1	NMB10-18GM65-E2-C-V1	NMB15-30GM65-E2-C-V1
Rated operating distance	3 mm	●			
	5 mm		●		
	10 mm			●	
	15 mm				●
Operating current	0 ... 100 mA	●			
	0 ... 200 mA		●	●	●
Operating voltage display	LED, green		●	●	●
Indication of the switching state	LED, red	●			
	Multihole-LED, yellow		●	●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●
	-25 ... 75 °C (-13 ... 167 °F)	●			
Protection degree	IP67	●			
	IP67 / IP68 / IP69K - cordset dependent according to cable Standard		●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	50	65	65	65
Diameter D [mm]	8 / 12	12	18	30
Thread length l _t [mm]	25	42	39.5	37.5
Cap length l ₁ [mm]	0	2	2.5	2.5
Connector area l _c [mm]	6	19	15	15
LED position	Pos.: A	C	C	C

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

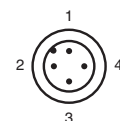
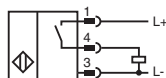
See pages 1068 ... for mounting aids

V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant
AB-12	Mounting aid
AB-18	Mounting aid
EXG-08	Quick mounting bracket with dead stop

Electrical Connection



NMB3-8GM50-E2-C-V1
NMB5-12GM65-E2-C-V1
NMB10-18GM65-E2-C-V1
NMB15-30GM65-E2-C-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø12 mm metal face housing
- 5 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Your Benefit

- Increased resistance to environmental influences due to self-contained metal sleeve

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	5 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Switching frequency	0 ... 360 Hz
Operating current	≤ 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303

Model Number

green = preferred type

Switching element function	NPN	NO	NPN	NO	NPN	NO	NPN	NO	NPN	NO
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard									
Connection type	Device connector M12 x 1, 4-pin									
cable PUR, 2 m										

Approvals and Certificates

UL approval	cULus Listed, General Purpose									
CSA approval	cCSAus Listed, General Purpose									
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.									

Dimensions

Length L [mm]	55	65
Diameter D [mm]		12
Thread length l _t [mm]	45	42
Cap length l ₁ [mm]		2
Connector area l _c [mm]	0	15
LED position		Pos. C

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-G-2M-PUR

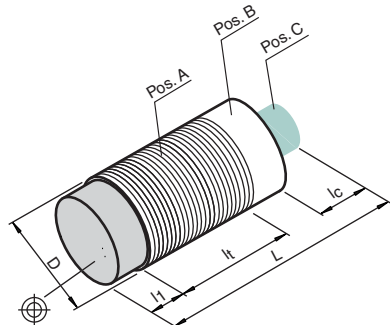
Cable socket, M12, 4-pin, PUR cable

V1-W-2M-PUR

Cable socket, M12, 4-pin, PUR cable

AB-12

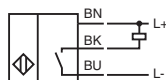
Mounting aid



Electrical Connection



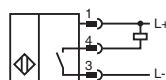
NMB5-12GM55-E0



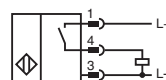
NMB5-12GM55-E2



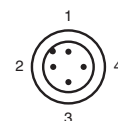
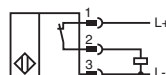
NMB5-12GM65-E0-V1



NMB5-12GM65-E2-V1



NMB5-12GM65-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm metal face housing
- 10 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Your Benefit

- Increased resistance to environmental influences due to self-contained metal sleeve

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	10 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Switching frequency	0 ... 240 Hz
Operating current	≤ 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303

Model Number

			green = preferred type					
Switching element function	NPN	NO						
	PNP	NO						
	PNP	NC						
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard							
Connection type	Device connector M12 x 1, 4-pin							
	cable PUR, 2 m							

Approvals and Certificates

UL approval	cULus Listed, General Purpose							
CSA approval	cCSAus Listed, General Purpose							
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.							

Dimensions

Length L [mm]	55	65
Diameter D [mm]		18
Thread length l _t [mm]	44	40
Cap length l ₁ [mm]		2.5
Connector area l _c [mm]	0	15
LED position		Pos. C

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-G-2M-PUR

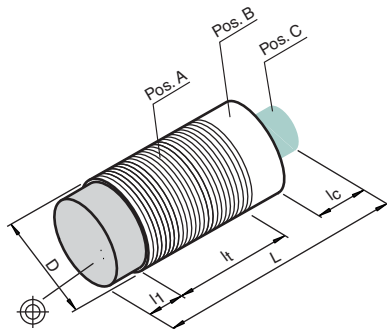
Cable socket, M12, 4-pin, PUR cable

V1-W-2M-PUR

Cable socket, M12, 4-pin, PUR cable

AB-18

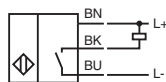
Mounting aid



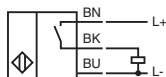
Electrical Connection



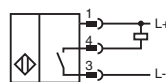
NMB10-18GM55-E0



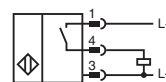
NMB10-18GM55-E2



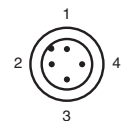
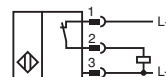
NMB10-18GM65-E0-V1



NMB10-18GM65-E2-V1



NMB10-18GM65-E3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm metal face housing
- 15 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Your Benefit

- Increased resistance to environmental influences due to self-contained metal sleeve

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Switching frequency	0 ... 150 Hz
Operating current	≤ 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303

Model Number

			NMB15-30GM55-E0	NMB15-30GM55-E2	NMB15-30GM65-E0-V1	NMB15-30GM65-E2-V1
Switching element function	green = preferred type NPN NO PNP NO		●	●	●	●
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard IP69K		●	●	●	●
Connection type	Device connector M12 x 1, 4-pin cable PUR, 2 m		●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	55	65
Diameter D [mm]	30	
Thread length l _t [mm]	42	37
Cap length l ₁ [mm]	2.5	
Connector area l _c [mm]	0	15
LED position	Pos. C	

Accessories

This and more accessories can be found in chapter 10
See pages from 972 ... for cordsets See pages 1068 ... for mounting aids

V1-G-2M-PUR

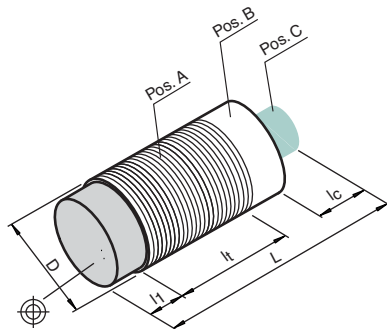
Cable socket, M12, 4-pin, PUR cable

AB-30

Mounting aid

V1-W-2M-PUR

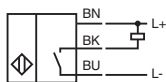
Cable socket, M12, 4-pin, PUR cable



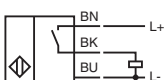
Electrical Connection



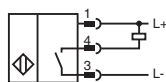
NMB15-30GM55-E0



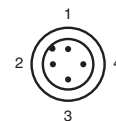
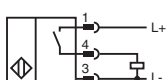
NMB15-30GM55-E2



NMB15-30GM65-E0-V1



NMB15-30GM65-E2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø12 mm housing
- 4 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Your Benefit

- e1 Type approval
- Increased immunity 100 V/m
- Conducted noise immunity acc. to ISO 7637-2: pulse 1...4

Further Products

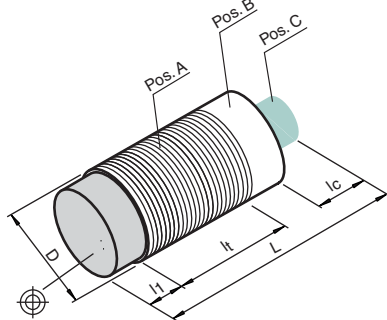
In this series, we offer additionally:

NBN4-12GK50-E2-M

Technical data comparable to NCB4-12GM70-E2-M but:
Installation: non-flush
Operating voltage: 10 ... 65 VDC
Operating current: 0 ... 300 mA
Housing material: PPS
Protection degree: IP68

NBB4-12GM45-E2-M-150MM-3DT04

Technical data like NBB4-12GM45-E2-V1-M but:
Connection type: Cable connector Deutsch DT04, 3-pin with PUR cable 150 mm



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	4 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 60 V
Operating current	0 ... 200 mA
Reverse polarity protection	✓
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)

Model Number

green = preferred type

Switching element function	NPN	NO	PNP	NO
No-load supply current	≤ 10 mA	≤ 15 mA		
Switching frequency	0 ... 1000 Hz	0 ... 800 Hz		
Housing material	Stainless steel 1.4305 / AISI 303	brass, nickel-plated		
Protection degree	IP68 / IP69K	IP69K		
Connection type	Device connector M12 x 1, 4-pin	cable PUR, 2 m		



Approvals and Certificates

UL approval	cULus Listed, General Purpose					
CSA approval	cCSAus Listed, General Purpose					
e1 Type approval	2006/28/EG					

Dimensions

Length L [mm]	60	70	60
Diameter D [mm]		12	
Thread length l _t [mm]	45	55	44
Cap length l ₁ [mm]		0	
Connector area l _c [mm]		16	6
LED position		Pos. B	

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 12

Mounting flange, 12 mm

EXG-12

Quick mounting bracket with dead stop

V1-W-BK

4-pin, M12 female field-attachable connector

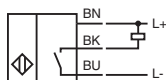
V1-G-BK

4-pin, M12 female field-attachable connector

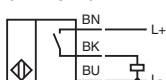
Electrical Connection



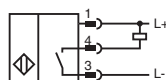
NBB4-12GM45-E0-M
NCB4-12GM70-E0-M



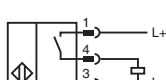
NBB4-12GM45-E2-M-150MM-3DT04
NBB4-12GM45-E2-M
NBN4-12GK50-E2-M
NCB4-12GM70-E2-M



NBB4-12GM45-E0-V1-M

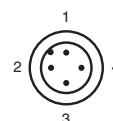


NBB4-12GM45-E2-V1-M



Wire colors

A	BN
B	BU
C	BK



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø12 mm housing
- 7 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Your Benefit

- e1 Type approval
- Increased immunity 100 V/m
- Conducted noise immunity acc. to ISO 7637-2: pulse 1...4

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	7 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 60 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 400 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP69K

Model Number

			NBN7-12GM45-E0-M	NBN7-12GM45-E2-M	NBN7-12GM50-E0-V1-M	NBN7-12GM50-E2-V1-M
Switching element function	NPN	NO	●		●	
	PNP	NO		●		●
Connection type	Device connector M12 x 1, 4-pin			●	●	●
	cable PUR, 2 m		●	●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose			●	●
	cCSAus Listed, General Purpose, Class 2 Power Source	●	●		
e1 Type approval	2006/28/EG	●	●	●	●

Dimensions

Length L [mm]	60	65
Diameter D [mm]	12	
Thread length l _t [mm]	37	41
Cap length l ₁ [mm]	8	
Connector area l _c [mm]	16	6
LED position	Pos. B	

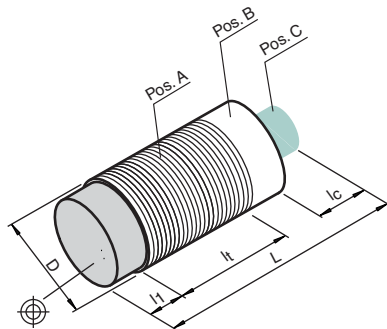
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

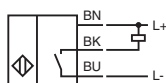
BF 12	Mounting flange, 12 mm
EXG-12	Quick mounting bracket with dead stop
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



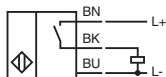
Electrical Connection



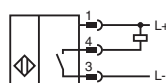
NBN7-12GM45-E0-M



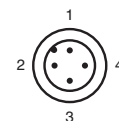
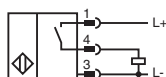
NBN7-12GM45-E2-M



NBN7-12GM50-E0-V1-M

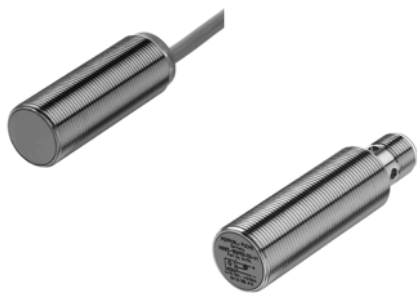


NBN7-12GM50-E2-V1-M



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	8 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 60 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Switching frequency	0 ... 400 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP68 / IP69K

Properties

- Ø18 mm housing
- 8 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Your Benefit

- e1 Type approval
- Increased immunity 100 V/m
- Conducted noise immunity acc. to ISO 7637-2: pulse 1...5

Further Products

In this series, we offer additionally:

NBB5-18GK50-E2-M

NBN8-18GK50-E2-M

Technical data comparable to NBN8-18GK50-E2-M but:

Installation: NBB5... = 5 mm, flush
NBN8... = 8 mm, non-flush

Operating voltage: 10 ... 65 VDC

Operating current: 0 ... 300 mA

Housing material: PPS

Protection degree: IP68

NBB8-18GM50-E2-M-150MM-3DT04

Technical data like NBB8-18GM50-E2-V1-M but:
Connection type: Cable connector Deutsch DT04, 3-pin with PUR cable 150 mm

Model Number

green = preferred type

Switching element function	NPN	NO
	PNP	NO
Connection type	Device connector M12 x 1, 4-pin cable PUR, 2 m	

NBB8-18GM50-E0-M

NBB8-18GM50-E2-M

NBB8-18GM50-E0-V1-M

NBB8-18GM50-E2-V1-M



Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
e1 Type approval	2006/28/EG

Dimensions

Length L [mm]	50	65
Diameter D [mm]	18	
Thread length l _t [mm]	47	50
Cap length l ₁ [mm]	0	
Connector area l _c [mm]	0	15
LED position	Pos. C	

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

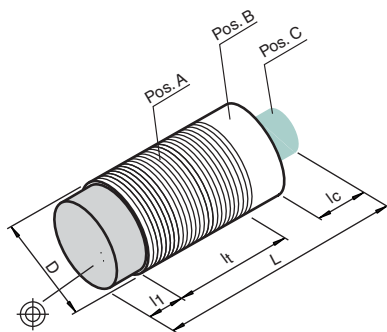
See pages 1068 ... for mounting aids

EXG-18

Quick mounting bracket with dead stop

BF 18

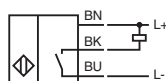
Mounting flange, 18 mm



Electrical Connection



NBB8-18GM50-E0-M

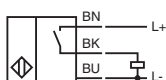


NBB5-18GK50-E2-M

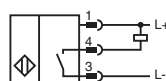
NBB8-18GM50-E2-M

NBB8-18GM50-E2-M-150MM-3DT04

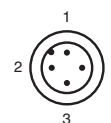
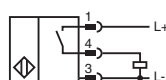
NBN8-18GK50-E2-M



NBB8-18GM50-E0-V1-M



NBB8-18GM50-E2-V1-M



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



CE

e 1

Properties

- Ø18 mm housing
- 12 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Your Benefit

- e1 Type approval
- Increased immunity 100 V/m
- Conducted noise immunity acc. to ISO 7637-2: pulse 1...5

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	12 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 60 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Switching frequency	0 ... 200 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP68 / IP69K

Model Number

	green = preferred type	
Switching element function	NPN NO	
	PNP NO	
Indication of the switching state	LED, yellow	
	Multihole-LED, yellow	
Connection type	Device connector M12 x 1, 4-pin	
	cable PUR	

NBN12-18GM50-E0-M

NBN12-18GM50-E2-M

NBN12-18GM50-E0-V1-M

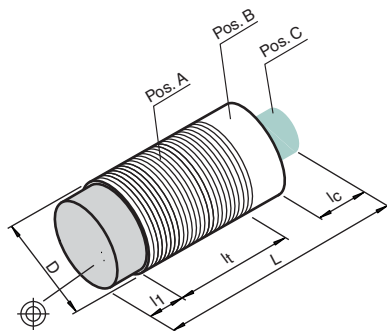
NBN12-18GM50-E2-V1-M

Approvals and Certificates

e1 Type approval	2004/104/EC			
	2006/28/EG			

Dimensions

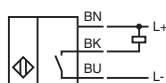
Length L [mm]	50	65
Diameter D [mm]	18	
Thread length l_t [mm]	37	40
Cap length l_1 [mm]	10	
Connector area l_c [mm]	0	15
LED position	Pos. C	



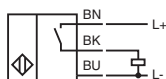
Electrical Connection



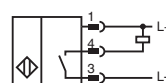
NBN12-18GM50-E0-M



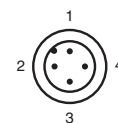
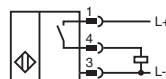
NBN12-18GM50-E2-M



NBN12-18GM50-E0-V1-M



NBN12-18GM50-E2-V1-M



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	flush
Type of voltage	DC
Operating voltage	5 ... 60 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Switching frequency	0 ... 200 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP68 / IP69K

Properties

- Ø30 mm housing
- 15 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Your Benefit

- e1 Type approval
- Increased immunity 100 V/m
- Conducted noise immunity acc. to ISO 7637-2: pulse 1...5

Further Products

In this series, we offer additionally:

NBB10-30GK50-E2-M

NBN15-30GK50-E2-M

Technical data comparable to

NBB15-30GM50-E2-M but:

Installation: NBB10... = 10 mm, flush

NBN15... = 15 mm, non-flush

Operating voltage: 10 ... 65 VDC

Operating current: 0 ... 300 mA

Housing material: PPS

Protection degree: IP68

NBB15-30GM50-E2-M-150MM-3DT04

Technical data like NBB15-30GM50-E2-V1-M but:

Connection type: Cable connector Deutsch DT04, 3-pin with PUR cable 150 mm

Model Number

green = preferred type

Switching element function	NPN	NO	PNP	NO
Connection type	Device connector M12 x 1, 4-pin			
	cable PUR, 2 m			

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
e1 Type approval	2006/28/EG	●	●	●	●

Dimensions

Length L [mm]	50	65
Diameter D [mm]	30	
Thread length l _t [mm]	47	50
Cap length l ₁ [mm]	0	
Connector area l _c [mm]	0	15
LED position		Pos. C

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 30

Mounting flange, 30 mm

V1-G-BK

4-pin, M12 female field-attachable connector

EXG-30

Quick mounting bracket with dead stop

V1-W-BK

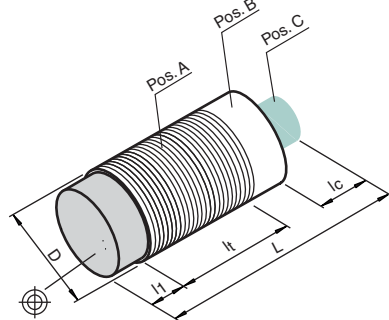
4-pin, M12 female field-attachable connector

V1-G-2M-PUR

Cable socket, M12, 4-pin, PUR cable

V1-W-2M-PUR

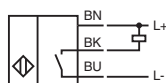
Cable socket, M12, 4-pin, PUR cable



Electrical Connection



NBB15-30GM50-E0-M

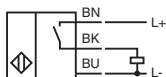


NBB15-30GM50-E2-M

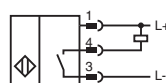
NBN15-30GK50-E2-M

NBB15-30GM50-E2-M-150MM-3DT04

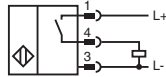
NBB10-30GK50-E2-M



NBB15-30GM50-E0-V1-M

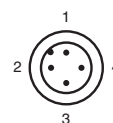


NBB15-30GM50-E2-V1-M



Wire colors

A	BN
B	BU
C	BK



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

1
.1.1

Properties

- Ø18 mm housing
- 5 mm, flush and 8 mm, non-flush mountable versions
- DC, 2-wire NAMUR
- Cable version

Your Benefit

- For use in high temperature applications
- Ex approval for use in hazardous area zone 0 and 1

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Ambient temperature	-40 ... 150 °C (-40 ... 302 °F)
Housing material	PPS
Protection degree	IP65
Connection type	cabl SIHF, 2 m



Model Number

		NJ5-18GK-N-150	NJ8-18GK-N-150
Rated operating distance	5 mm	●	
	8 mm		●
Installation	flush	●	
	non-flush		●
Switching frequency	0 ... 200 Hz		●
	0 ... 500 Hz	●	

Use in the Hazardous Area

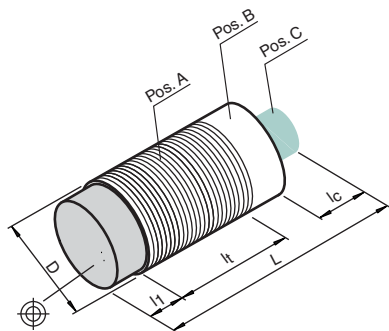
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

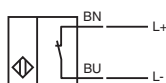
Length L [mm]	47
Diameter D [mm]	18
Thread length l _t [mm]	34.5
Cap length l ₁ [mm]	1
Connector area l _c [mm]	7
LED position	-



Electrical Connection



NJ5-18GK-N-150
NJ8-18GK-N-150



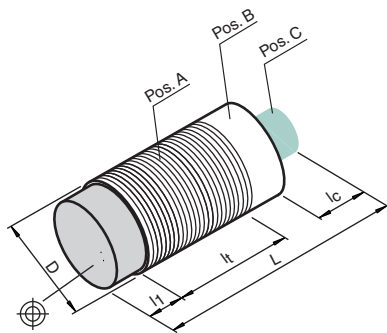


Properties

- Ø30 mm housing
- 4 mm, flush and 15 mm non-flush mountable
- DC, 2-wire NAMUR
- Cable version

Your Benefit

- For use in high temperature applications
- Ex approval for use in hazardous area zone 0 and 1



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 k Ω)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Protection degree	IP65

Model Number

		NJ4-30GM-N-200	NJ15-30GK-N-150
Rated operating distance	15 mm		
	4 mm		
Installation	flush		
	non-flush		
Switching frequency	0 ... 100 Hz		
	0 ... 1000 Hz		
Suitable for 2:1 technology	✓		
Ambient temperature	-25 ... 150 °C (-13 ... 302 °F)		
	0 ... 200 °C (32 ... 392 °F)		
Housing material	Stainless steel 1.4305 / AISI 303		
	PPS		
Connection type	cable SIHF, 2 m		
	cable SIHF, 5 m		

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals		
Category	1G; 2G		

Approvals and Certificates

FM Control drawing	116-0165F		
UL approval	cULus Listed, General Purpose		
CSA approval	cCSAus Listed, General Purpose		
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

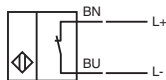
Dimensions

Length L [mm]	75	47
Diameter D [mm]	30	
Thread length l_1 [mm]	50	40
Cap length l_2 [mm]	0	
Connector area l_c [mm]	15	7
LED position	-	I

Electrical Connection



NJ15-30GK-N-150
NJ4-30GM-N-200





Properties

- Ø12 mm housing
- 1.5 mm, flush mountable
- DC, 3-wire switching output
- Connector version

Your Benefit

- For high pressure applications

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	1.5 mm
Installation	flush
Switching element function	PNP NO
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating pressure	500 bar (725,2 psi)
Peak pressure	800 bar (1160,3 psi)
Ambient temperature	-25 ... 80 °C (-13 ... 176 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Ceramic
Protection degree	IP68
Connection type	Device connector M12 x 1, 4-pin



Model Number

	NCB1,5-12GM40-E2-D-V1	NCB1,5-12GM45-E2-D-V1	NCB1,5-12GM60-E2-D-V1	NCB1,5-12GM70-E2-D-V1	NCB1,5-12GM85-E2-D-V1
Switching frequency	0 ... 2000 Hz	0 ... 2000 Hz	0 ... 2000 Hz	0 ... 2000 Hz	0 ... 2000 Hz
	0 ... 600 Hz	0 ... 600 Hz	0 ... 600 Hz	0 ... 600 Hz	0 ... 600 Hz

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.					

Dimensions

Length L [mm]	56		69	93	
Diameter D [mm]			12		
Thread length l _t [mm]	30	33	38	57	62
Cap length l ₁ [mm]	18	15	13	18	13
Connector area l _c [mm]			8		
LED position			-		

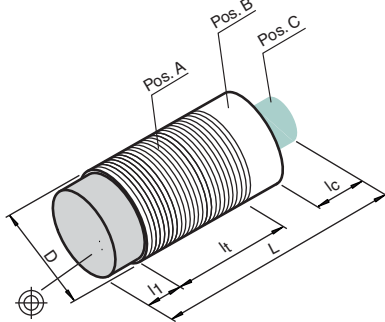
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

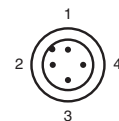
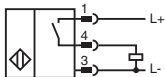
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



Electrical Connection



NCB1,5-12GM40-E2-D-V1
NCB1,5-12GM45-E2-D-V1
NCB1,5-12GM60-E2-D-V1
NCB1,5-12GM70-E2-D-V1
NCB1,5-12GM85-E2-D-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø14 mm housing
- 3 mm, flush mountable
- DC, 3-wire switching output
- Connector version

Your Benefit

- For high pressure applications

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

Model Number	NCB3-14GM65-E2-D-V1
Rated operating distance	3 mm
Installation	flush
Switching element function	PNP NO
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Switching frequency	0 ... 500 Hz
Operating current	≤ 200 mA
Short-circuit protection	pulsing
Operating pressure	500 bar (725,2 psi)
Peak pressure	800 bar (1160,3 psi)
Ambient temperature	-25 ... 80 °C (-13 ... 176 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Ceramic
Protection degree	IP68
Connection type	Device connector M12 x 1, 4-pin



Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

Dimensions

Length L [mm]	65
Diameter D [mm]	14
	19
Thread length l _t [mm]	9.1
Cap length l ₁ [mm]	18.6
Connector area l _c [mm]	0
LED position	-

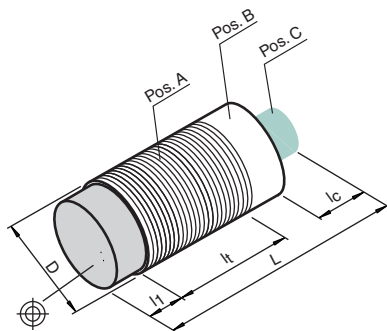
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

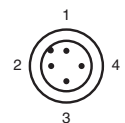
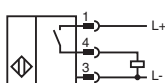
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



Electrical Connection



NCB3-14GM65-E2-D-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm housing
- 1.5 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Your Benefit

- For high pressure applications

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	1.5 mm
Installation	flush
Operating voltage	10 ... 60 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1500 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating pressure	350 bar (507.6 psi)
Ambient temperature	-35 ... 80 °C (-31 ... 176 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Epoxy (black)
Protection degree	IP67

Model Number

		NCB1,5-18GM60-E2-D	NCB1,5-18GM60-E3-D	NCB1,5-18GM60-E2-D-V1
Switching element function	PNP NO PNP NC	●	●	●
Connection type	Device connector M12 x 1, 4-pin cable PVC, 2 m	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●

Dimensions

Length L [mm]	57	57	69
Diameter D [mm]		18	
Thread length l _t [mm]	41	41	44
Cap length l ₁ [mm]		15	
Connector area l _c [mm]	0	0	10
LED position		-	

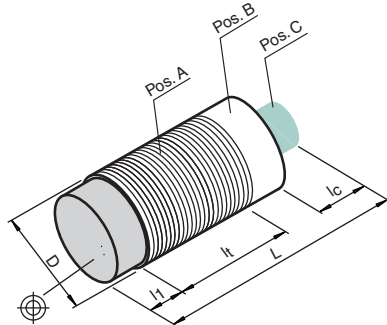
Accessories

This and more accessories can be found in chapter 10

See pages 972 ... for cordsets

See pages 1068 ... for mounting aids

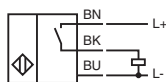
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



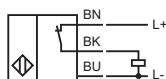
Electrical Connection



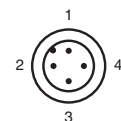
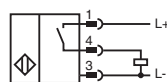
NCB1,5-18GM60-E2-D



NCB1,5-18GM60-E3-D



NCB1,5-18GM60-E2-D-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø8 mm housing
- 2 mm, flush mountable
- DC, 3-wire switching output
- Connector version

Your Benefit

- ATEX-approval for zone 2 and zone 22

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

Model Number	NBB2-8GM40-E2-V1-3G-3D
Rated operating distance	2 mm
Installation	flush
Switching element function	PNP NO
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1500 Hz
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	Multihole-LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67
Connection type	Device connector M12 x 1, 4-pin



Use in the Hazardous Area

Use in the hazardous area	see instruction manuals
Category	3G; 3D

Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

Dimensions

Length L [mm]	65
Diameter D [mm]	8 / 12
Thread length l _t [mm]	40
Cap length l ₁ [mm]	0
Connector area l _c [mm]	6
LED position	Pos. B

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

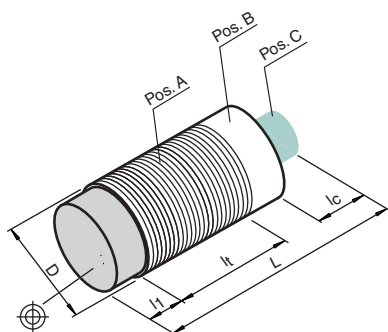
See pages 1068 ... for mounting aids

BF 8

Mounting flange, 8 mm

EXG-08

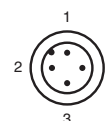
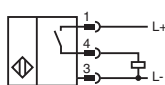
Quick mounting bracket with dead stop



Electrical Connection



NBB2-8GM40-E2-V1-3G-3D



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø12 mm housing
- 2 mm and 4 mm, flush and non-flush mountable versions
- DC, 2-wire switching output
- Cable and connector versions

Your Benefit

- ATEX-approval for zone 2 and zone 22

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	DC	NO
Operating voltage	5 ... 60 V DC	
Reverse polarity protection	tolerant	
Operating current	2 ... 100 mA	
Short-circuit protection	pulsing	
Indication of the switching state	LED, yellow	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	
Protection degree	IP67	

Model Number

green = preferred type

		NBB2-12GM40-Z0-3G-3D	NCN4-12GM40-Z0-3G-3D	NCB2-12GM40-Z0-V1-3G-3D
Rated operating distance	2 mm	●		●
	4 mm		●	
Installation	flush	●		●
	non-flush		●	
Switching frequency	0 ... 1000 Hz	●		
	0 ... 800 Hz		●	●
Housing material	Stainless steel 1.4305 / AISI 303		●	●
	brass, nickel-plated	●		
Connection type	Device connector M12 x 1, 4-pin			●
	cable PVC, 2 m	●	●	

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●	●
Category	3G; 3D	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●

Dimensions

Length L [mm]		40	55
Diameter D [mm]		12	
Thread length l _t [mm]	37	32	39
Cap length l ₁ [mm]	0	5	0
Connector area l _c [mm]		0	6
LED position	Pos.:	C	B

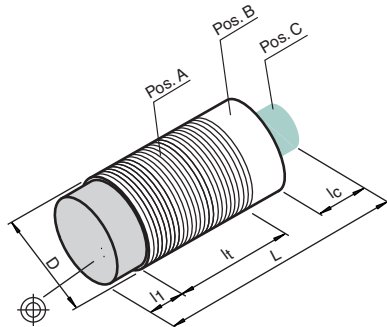
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

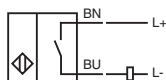
BF 12	Mounting flange, 12 mm
EXG-12	Quick mounting bracket with dead stop
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-BK	4-pin, M12 female field-attachable connector



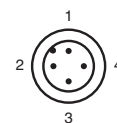
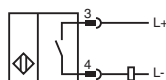
Electrical Connection



NBB2-12GM40-Z0-3G-3D
NCN4-12GM40-Z0-3G-3D



NCB2-12GM40-Z0-V1-3G-3D



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 30 V DC
Reverse polarity protection	✓
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67

Model Number

Properties

- Ø12 mm housing
- 2 mm and 4 mm, flush and non-flush mountable versions
- DC, 3-wire and 4-wire switching output
- Cable and connector versions

Your Benefit

- ATEX-approval for zone 2 and zone 22

green = preferred type

		NCB2-12GM40-E2-3G-3D	NBB2-12GM60-A2-3G-3D	NBB4-12GM50-E2-3G-3D	NCN4-12GM40-E2-3G-3D	NBB4-12GM50-E2-V1-3G-3D	NCN4-12GM40-E2-V1-3G-3D
Rated operating distance	2 mm	●	●	●	●	●	●
	4 mm						
Installation	flush	●	●	●	●	●	●
	non-flush						
Switching element function	PNP NO/NC		●				
	PNP NO	●		●	●	●	●
No-load supply current	≤ 15 mA	●		●	●	●	●
	≤ 20 mA		●				
Switching frequency	0 ... 1000 Hz	●	●	●	●	●	●
	0 ... 1200 Hz				●		●
Operating current	0 ... 150 mA			●		●	
	0 ... 200 mA	●	●		●	●	●
Housing material	Stainless steel 1.4305 / AISI 303	●			●	●	●
	brass, nickel-plated		●	●		●	
Connection type	Device connector M12 x 1, 4-pin					●	●
	cable PVC, 2 m	●	●	●	●		

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●	●	●	●	●
Category	3G; 3D	●	●	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.						

Dimensions

Dimensions							
Length L [mm]	40	60	50	40	65	50	
Diameter D [mm]	12						
Thread length l _t [mm]	37	60	47	32	49	45	
Cap length l ₁ [mm]	0	0	0	5	0	5	
Connector area l _c [mm]	0			6			
LED position	Pos.:	C	C	C	C	B	B

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 12

Mounting flange, 12 mm

V1-G-BK

4-pin, M12 female field-attachable connector

V1-W-BK

4-pin, M12 female field-attachable connector

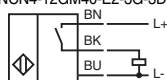
V1-G-2M-PUR

Cable socket, M12, 4-pin, PUR cable

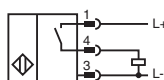
Electrical Connection



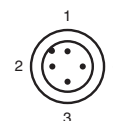
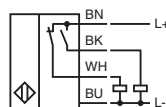
NBB4-12GM50-E2-3G-3D
NCB2-12GM40-E2-3G-3D
NCN4-12GM40-E2-3G-3D



NBB4-12GM50-E2-V1-3G-3D
NCN4-12GM40-E2-V1-3G-3D



NBB2-12GM60-A2-3G-3D



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm housing
- 5 mm, flush and 8 mm, non-flush mountable versions
- DC, 2-wire switching output
- Cable and connector versions

Your Benefit

- ATEX-approval for zone 2 and zone 22

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	5 ... 60 V DC
Reverse polarity protection	tolerant
Operating current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67

Model Number

green = preferred type

		NBB5-18GM40-Z0-3G-3D	NCB5-18GM40-Z0-3G-3D	NCB5-18GM40-Z1-3G-3D	NCN8-18GM40-Z0-3G-3D	NCB5-18GM40-Z0-V1-3G-3D
Rated operating distance	5 mm	●	●	●	●	●
	8 mm				●	
Installation	flush	●	●	●		●
	non-flush				●	
Switching element function	DC NO	●	●		●	●
	DC NC			●		
Switching frequency	0 ... 300 Hz				●	
	0 ... 350 Hz		●	●		●
	0 ... 500 Hz	●			●	
Housing material	Stainless steel 1.4305 / AISI 303		●	●	●	●
	brass, nickel-plated	●				
Connection type	Device connector M12 x 1, 4-pin cable PVC, 2 m	●	●	●	●	●



Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●	●	●	●
Category	3G; 3D	●	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●

Dimensions

Length L [mm]	40	40	40	40	55
Diameter D [mm]			18		
Thread length l _t [mm]	37	37	37	27	40
Cap length l ₁ [mm]	0	0	0	10	0
Connector area l _c [mm]	0	0	0	0	15
LED position	Pos. C				

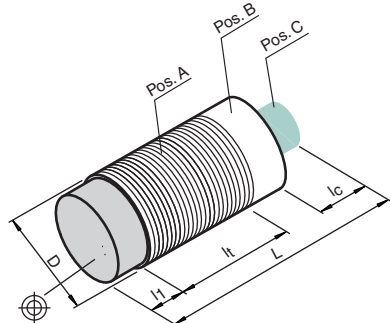
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

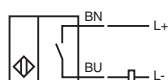
BF 18	Mounting flange, 18 mm
EXG-18	Quick mounting bracket with dead stop
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector



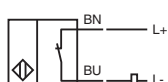
Electrical Connection



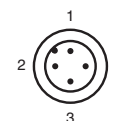
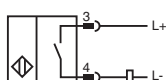
NCN8-18GM40-Z0-3G-3D
NBB5-18GM40-Z0-3G-3D
NCB5-18GM40-Z0-3G-3D



NCB5-18GM40-Z1-3G-3D



NCB5-18GM40-Z0-V1-3G-3D



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67

Model Number

		green = preferred type	N/5	NB	NC	N/5	NB	NB	NB
Rated operating distance	5 mm		●			●	●		
	8 mm			●	●			●	●
Installation	flush		●	●		●	●	●	●
	non-flush				●				
Switching element function	PNP	NO/NC					●		●
	PNP	NO	●	●	●	●		●	
Operating voltage	10 ... 30 V DC			●			●	●	●
	10 ... 60 V DC		●		●	●			
No-load supply current	[mA] ≤		9	15	10	9	20	15	25
Switching frequency	0 ... 1500 Hz		●			●			
	0 ... 400 Hz				●				
	0 ... 500 Hz			●				●	●
	0 ... 800 Hz						●		
Housing material	Stainless steel 1.4305 / AISI 303		●		●	●			
	brass, nickel-plated			●			●	●	●
Connection type	Device connector M12 x 1 , 4-pin					●	●	●	●
	cable PVC . 2 m		●	●	●				

Use in the Hazardous Area

[illegible]

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●		●	●		
	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		●		●	●	●

Dimensions

Dimensions		50	50	50	65	70	65	70
Length L [mm]		50	50	50	65	70	65	70
Diameter D [mm]		18						
Thread length l _t [mm]		50	47	37	50	60	50	60
Cap length l ₁ [mm]		0	0	10	0	0	0	0
Connector area l _c [mm]		0	0	0	15	10	15	10
LED position	Pos.:	A	C	C	C	A	C	B

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 18

Mounting flange, 18 mm

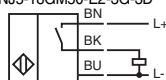
V1-G-BK

4-pin, M12 female field-attachable connector

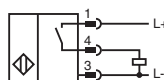
Electrical Connection



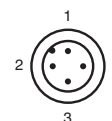
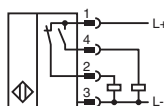
NCN8-18GM50-E2-3G-3D
NBB8-18GM50-E2-3G-3D
NJ5-18GM50-E2-3G-3D



NBB8-18GM50-E2-V1-3G-3D
NJ5-18GM50-E2-V1-3G-3D



NBB5-18GM60-A2-V1-3G-3D
NBB8-18GM60-A2-V1-3G-3D



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø30 mm housing
- 10 mm and 15 mm, flush and non-flush mountable versions
- DC, 2-wire switching output
- Cable version

Your Benefit

- ATEX-approval for zone 2 and zone 22

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	5 ... 60 V DC
Reverse polarity protection	tolerant
Operating current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	all direction LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67
Connection type	cable PVC , 2 m

Model Number

		NCB10-30GM40-Z0-3G-3D	NCN15-30GM40-Z0-3G-3D	NCB10-30GM40-Z0-V1-3G-3D
Rated operating distance	10 mm	●		●
	15 mm		●	
Installation	flush	●		●
	non-flush		●	
Switching element function	DC NO	●	●	
	DC NC			●
Switching frequency	0 ... 100 Hz		●	
	0 ... 150 Hz	●		●
Connection type	cable PVC , 2 m			
	Device connector M12 x 1 , 4-pin			

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●	●
Category	3G; 3D	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)		●	

Dimensions

Length L [mm]		40		55
Diameter D [mm]			30	
Thread length l _t [mm]	37		22	40
Cap length l ₁ [mm]	0		18	0
Connector area l _c [mm]		0		15
LED position			Pos. C	

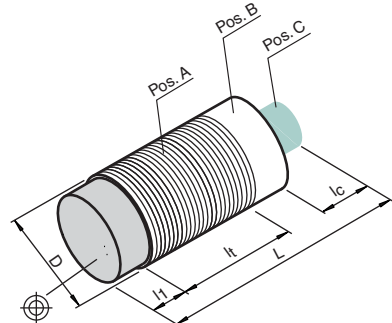
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

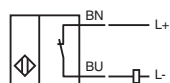
BF 30	Mounting flange, 30 mm
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-BK	4-pin, M12 female field-attachable connector



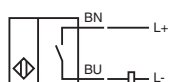
Electrical Connection



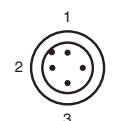
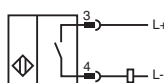
NCB10-30GM40-Z1-3G-3D



NCN15-30GM40-Z0-3G-3D

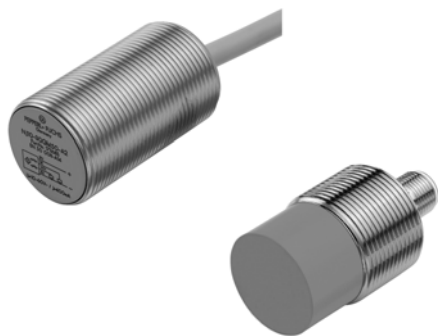


NCB10-30GM40-Z0-V1-3G-3D



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Model Number

Properties

- Ø30 mm housing
- 10 mm and 15 mm, flush and non-flush mountable versions
- DC, 3-wire switching output
- Cable and connector versions

Your Benefit

- ATEX-approval for zone 2 and zone 22

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67

		NBB15-30GM50-E2-3G-3D	NJ10-30GM50-E2-3G-3D	NJ15-30GM50-E2-3G-3D	NJ10-30GM50-E2-V1-3G-3D	NJ15-30GM50-E2-V1-3G-3D
Rated operating distance	10 mm					
	15 mm					
Installation	flush					
	non-flush					
Switching element function	PNP NO					
Operating voltage	10 ... 30 V DC					
	10 ... 60 V DC					
No-load supply current	≤ 15 mA					
	≤ 9 mA					
Switching frequency	0 ... 200 Hz					
	0 ... 500 Hz					
	0 ... 650 Hz					
Housing material	Stainless steel 1.4305 / AISI 303					
	brass, nickel-plated					
Connection type	Device connector M12 x 1, 4-pin					
	cable PVC, 2 m					

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals					
Category	3G; 3D					

Approvals and Certificates

UL approval	cULus Listed, General Purpose					
CSA approval	cCSAus Listed, General Purpose					
CCC approval	Certified by China Compulsory Certification (CCC)					

Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

Dimensions

Length L [mm]	50	50	30	65
Diameter D [mm]	30			
Thread length l _t [mm]	32	47	50	32
Cap length l ₁ [mm]	0	0	18	0
Connector area l _c [mm]	0	0		15
LED position	Pos.:	C	A	A
		C	A	C

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-G-BK

4-pin, M12 female field-attachable connector

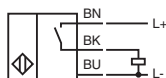
V1-W-BK

4-pin, M12 female field-attachable connector

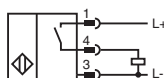
Electrical Connection



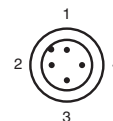
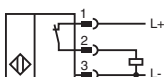
NBB15-30GM50-E2-3G-3D
NJ10-30GM50-E2-3G-3D
NJ15-30GM50-E2-3G-3D



NJ10-30GM50-E2-V1-3G-3D
NJ15-30GM50-E2-V1-3G-3D

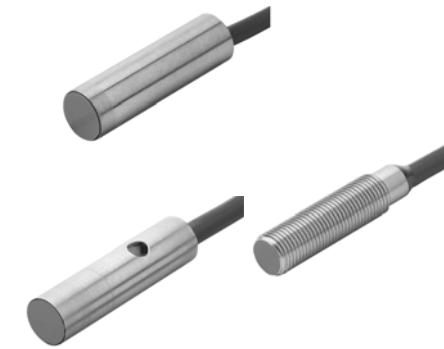


NBB15-30GM50-E3-V1-3G-3D



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

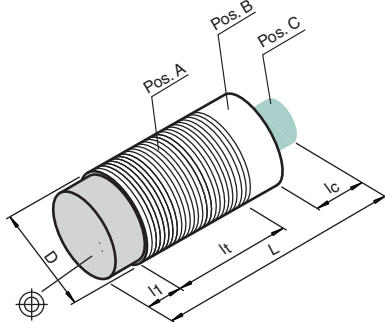


Properties

- Ø4.5 mm / Ø5 mm and Ø6.5 mm housing versions
- 0.8 mm and 1.5 mm flush mountable versions
- DC, NAMUR interface
- Cable and connector versions

Your Benefit

- ATEX approved sensor applicable up to zone 0 and zone 20
- Usable up to SIL2 acc. to IEC 61508



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	flush
Switching element function	NAMUR, NC
Nominal voltage	8.2 V (R_i approx. 1 k Ω)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Suitable for 2:1 technology	✔, Reverse polarity protection diode not required
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number

	green = preferred type	NJ	NJ	NJ	NC	NC
Rated operating distance	0.8 mm	●	●			
	1.5 mm			●	●	●
Switching frequency	0 ... 2000 Hz				●	●
	0 ... 5000 Hz	●	●	●		
Indication of the switching state	LED, yellow				●	
	Multihole-LED, yellow					●
Connection type	Device connector M12 x 1 , 4-pin					●
	cable PVC , 2 m	●	●	●	●	
						

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals					
Category	1G; 2G; 1D					
	2G					

Approvals and Certificates

Control drawing	116-0165F					
UL approval	cULus Listed, General Purpose					
CSA approval	cCSAus Listed, General Purpose					
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.					

Dimensions

Length L [mm]		20	22	25	47
Diameter D [mm]		4.5	5	6.5	6.5/12
Thread length l _t [mm]		0	17	0	
Cap length l ₁ [mm]		0			
Connector area l _c [mm]		0			
LED position	Pos.	-			A B

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

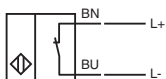
See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
BF 4,5	Mounting flange, 4.5 mm
BF 5	Mounting flange, 5 mm
BF 6,5	Mounting flange, 6.5 mm
V1-W-BK	4-pin, M12 female field-attachable connector
V1-W-N-2M-PUR	Cable socket, M12, 2-pin, NAMUR, PUR cable
V1-G-N-2M-PUR	Cable socket, M12, 2-pin, NAMUR, PUR cable

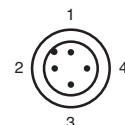
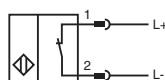
Electrical Connection



NJ0,8-4,5-N
NJ0,8-5GM-N
NCB1,5-6,5M25-N0
NJ1,5-6,5-N



NCB1,5-6,5M25-N0-V1



Wire colors in accordance with EN 60947-5-6

1		BN	(brown)
2		BU	(blue)

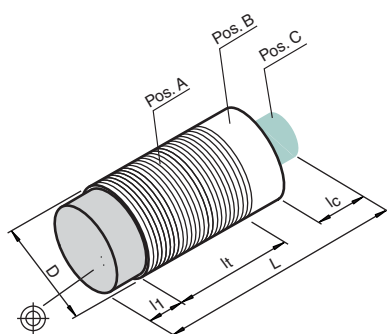


Properties

- Ø8 mm housing
- 1.5 mm flush mountable
- DC, NAMUR interface
- Cable and connector versions

Your Benefit

- ATEX approved sensor applicable up to zone 0 and zone 20
- Usable up to SIL2 acc. to IEC 61508



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	1.5 mm
Installation	flush
Switching element function	NAMUR, NC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Suitable for 2:1 technology	✓, Reverse polarity protection diode not required
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	Stainless steel 1.4305 / AISI 303

Model Number

		NJ1,5-8GM-N	NCB1,5-8GM25-N0	NJ1,5-8GM-N-V1	NCB1,5-8GM25-N0-V1
Switching frequency	green = preferred type 0 ... 2000 Hz 0 ... 5000 Hz	●	●	●	●
Indication of the switching state	LED, yellow	●	●	●	●
Protection degree	IP66 / IP67	●	●	●	●
Connection type	IP67 Device connector M12 x 1, 4-pin cable PVC, 2 m	●	●	●	●

Use in the hazardous area

Use in the hazardous area	see instruction manuals	●	●	●	●
Category	1G; 2G	●			
	1G; 2G; 1D				●
	1G; 2G; 3G; 1D		●		
	2G			●	

Approvals and Certificates

Control drawing	116-0165F	●	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	22	25	42	45	
Diameter D [mm]	8		8 / 12		
Thread length l _t [mm]	22	25	20	25	
Cap length l ₁ [mm]	0				
Connector area l _c [mm]	0		6		
LED position	Pos.	-	C	-	B

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

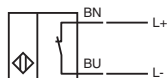
See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
BF 8	Mounting flange, 8 mm
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-N-2M-PUR	Cable socket, M12, 2-pin, NAMUR, PUR cable
V1-W-N-2M-PUR	Cable socket, M12, 2-pin, NAMUR, PUR cable

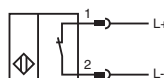
Electrical Connection



NCB1,5-8GM25-N0
NJ1,5-8GM-N

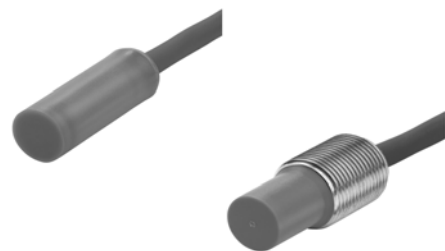


NCB1,5-8GM25-N0-V1
NJ1,5-8GM-N-V1



Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)



Properties

- Ø11 mm smooth and threaded housing versions
- 2 mm flush mountable and 5 mm non-flush mountable versions
- DC, NAMUR interface
- Cable version

Your Benefit

- ATEX approved sensor applicable up to zone 0 and zone 20
- Usable up to SIL2 acc. to IEC 61508

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 3000 Hz
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Protection degree	IP68
Connection type	cable PVC, 2 m



Model Number

		NJ2-11-N	NJ2-11-N-G	NJ5-11-N	NJ5-11-N-G
Rated operating distance	2 mm	●	●		
	5 mm			●	●
Installation	flush	●	●		
	non-flush			●	●
Suitable for 2:1 technology	✓, Reverse polarity protection diode not required			●	●
Housing material	Stainless steel 1.4305 / AISI 303		●		●
	PVDF	●		●	

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●	●	●
Category	1G; 2G; 3G; 1D; 3D	●	●		
	2G			●	
	2G; 3G; 1D; 3D				●

Approvals and Certificates

Control drawing	116-0165F	●	●	●	
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]		30		30	31
Diameter D [mm]	11	14	11	14	
Thread length l _t [mm]	0	30	0	17	
Cap length l ₁ [mm]		0		14	
Connector area l _c [mm]			0		
LED position			-		

Accessories

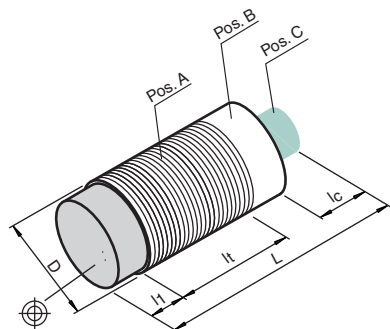
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 11

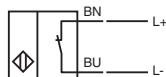
Mounting flange, 11 mm



Electrical Connection



NJ2-11-N
NJ2-11-N-G
NJ5-11-N
NJ5-11-N-G





Properties

- Ø12 mm housing
- 2 mm flush mountable and 4 mm non-flush mountable versions
- DC, NAMUR interface
- Cable version

Your Benefit

- ATEX approved sensor applicable up to zone 0 and zone 20
- Usable up to SIL2 acc. to IEC 61508

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Connection type	cable PVC, 2 m



Model Number

		NJ2-12GK-N	NJ4-12GK-N	NCB2-12GK35-N0	NCN4-12GK35-N0
Rated operating distance	2 mm	●		●	
	4 mm		●		●
Installation	flush	●		●	
	non-flush		●		●
Switching frequency	0 ... 1000 Hz		●	●	
	0 ... 1500 Hz				
	0 ... 2000 Hz	●			
	0 ... 800 Hz				●
Suitable for 2:1 technology	✓, Reverse polarity protection diode not required	●		●	
Indication of the switching state	all direction LED, yellow			●	●
Protection degree	IP66 / IP68	●	●		
	IP67			●	●

Use in the hazardous area

Use in the hazardous area	see instruction manuals	●	●	●	●
Category	2G; 1D	●	●	●	●

Approvals and Certificates

Control drawing	116-0165F	●	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	34	35
Diameter D [mm]	12	
Thread length l _t [mm]	30.5	32
Cap length l ₁ [mm]	0	
Connector area l _c [mm]	0	
LED position	-	Pos. C

Accessories

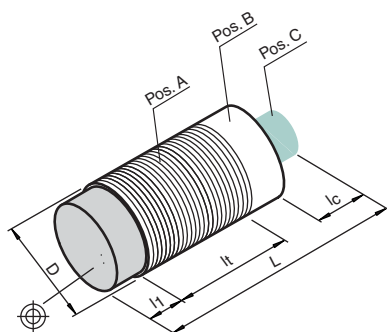
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 12

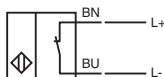
Mounting flange, 12 mm



Electrical Connection



NCB2-12GK35-N0
NJ2-12GK-N
NCN4-12GK35-N0
NJ4-12GK-N



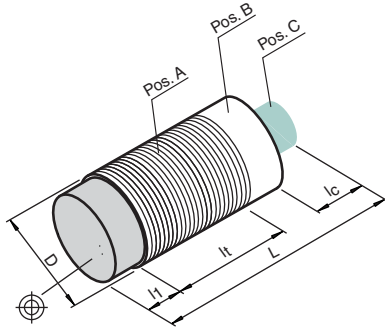


Properties

- Ø12 mm housing
- 2 mm and 4mm, flush and non-flush mountable versions
- DC, NAMUR interface
- Cable and connector versions

Your Benefit

- ATEX approved sensor applicable up to zone 0 and zone 20
- Usable up to SIL2 acc. to IEC 61508



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	Stainless steel 1.4305 / AISI 303

Model Number

		green = preferred type	NJ2-12GM-N	NJ4-12GM-N	NCB2-12GM35-N0	NCB4-12GM40-N0	NCN4-12GM35-N0	NJ2-12GM-N-V1	NJ4-12GM-N-V1	NCB2-12GM35-N0-V1	NCB4-12GM40-N0-V1	NCN4-12GM35-N0-V1
Rated operating distance	2 mm		•	•	•	•	•	•	•	•	•	•
	4 mm			•	•	•	•		•	•	•	•
Installation	flush		•	•	•	•	•	•	•	•	•	•
	non-flush			•	•	•	•		•	•	•	•
Current consumption												
Measuring plate not detected	≥ 2.2 mA											
	≥ 3 mA		•	•	•	•	•	•	•	•	•	•
Measuring plate detected	≤ 1 mA		•	•	•	•	•	•	•	•	•	•
Switching frequency	0 ... 1000 Hz			•	•	•	•		•	•	•	•
	0 ... 1500 Hz			•	•	•	•		•	•	•	•
	0 ... 2000 Hz		•					•				
	0 ... 800 Hz							•				•
Suitable for 2:1 technology	✓, Reverse polarity protection diode not required		•	•	•	•	•	•	•	•	•	•
Indication of the switching state	LED, yellow			•	•	•	•		•	•	•	•
Protection degree	IP66 / IP67			•	•	•	•		•	•	•	•
	IP67		•	•	•	•	•	•	•	•	•	•
Connection type	Device connector M12 x 1, 4-pin cable PVC, 2 m		•	•	•	•	•	•	•	•	•	•

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	•	•	•	•	•	•	•	•	•	•	•
Category	1G; 2G							•	•			
	1G; 2G; 1D		•	•						•		•
	1G; 2G; 3G											
	1G; 2G; 3G; 1D; 3D				•							
	1G; 2G; 3G; 3D				•							•

Approvals and Certificates

Control drawing	116-0165F	•	•	•	•	•	•	•	•	•	•	•
UL approval	cULus Listed, General Purpose	•	•	•	•	•	•	•	•	•	•	•
CSA approval	cCSAus Listed, General Purpose	•	•	•	•	•	•	•	•	•	•	•
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.											

Dimensions

Length L [mm]	35 33 35 40 35 50 50 50 55 50
Diameter D [mm]	12
Thread length l _t [mm]	35 28 32 37 27 50 45 34 40 29
Cap length l ₁ [mm]	0 5 0 0 5 0 5 0 0 5
Connector area l _c [mm]	0 6
LED position	- Pos. C - Pos. B

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

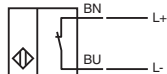
V1-G-N-2M-PUR

Cable socket, M12, 2-pin, NAMUR, PUR cable

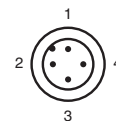
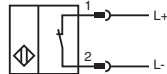
Electrical Connection



NCB2-12GM35-N0
NJ2-12GM-N
NCB4-12GM40-N0
NCN4-12GM35-N0
NJ4-12GM-N



NCB2-12GM35-N0-V1
NJ2-12GM-N-V1
NCB4-12GM40-N0-V1
NCN4-12GM35-N0-V1
NJ4-12GM-N-V1



Wire colors in accordance with EN 60947-5-6

1 | BN (brown)
2 | BU (blue)

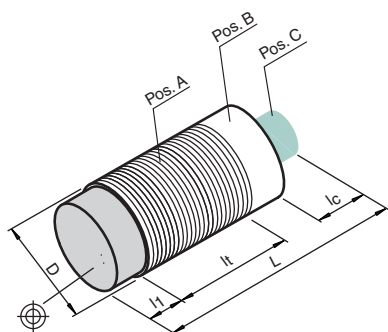


Properties

- Ø18 mm housing
- 5 mm flush mountable and 8 mm non-flush mountable versions
- DC, NAMUR interface
- Cable version

Your Benefit

- ATEX approved sensor applicable up to zone 0 and zone 20
- Usable up to SIL2 acc. to IEC 61508



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Connection type	cable PVC, 2 m



Model Number

		NJ5-18GK-N	NJ8-18GK-N	NCB5-18GK40-N0	NCN8-18GK40-N0
Rated operating distance	5 mm	●		●	
	8 mm		●		●
Installation	flush	●		●	
	non-flush		●		●
Switching frequency	0 ... 200 Hz		●		
	0 ... 300 Hz				●
	0 ... 400 Hz			●	
	0 ... 500 Hz	●			
Indication of the switching state	all direction LED, yellow			●	●
Housing material	PBT			●	●
	PBT/PPS	●	●		
Protection degree	IP66 / IP68	●		●	●
	IP67			●	●
	IP68		●		

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●	●	●
Category	2G; 1D	●	●	●	●

Approvals and Certificates

Control drawing	116-0165F	●	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	39	40
Diameter D [mm]	18	
Thread length l ₁ [mm]	34.5	37
Cap length l ₁ [mm]	1	0
Connector area l _c [mm]	0	
LED position	-	Pos. C

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

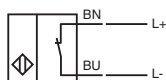
BF 18

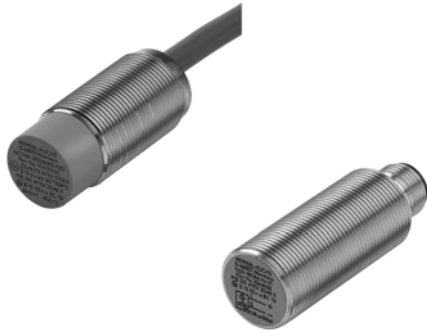
Mounting flange, 18 mm

Electrical Connection



NCB5-18GK40-N0
NJ5-18GK-N
NCN8-18GK40-N0
NJ8-18GK-N



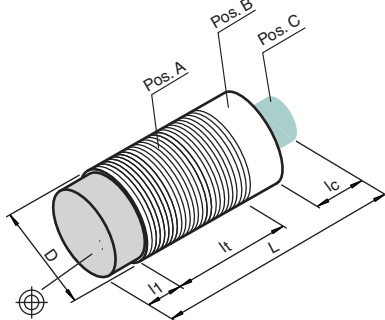


Properties

- Ø18 mm housing
- 5 mm to 8 mm flush and non-flush mountable versions
- DC, NAMUR interface
- Cable and connector versions

Your Benefit

- ATEX approved sensor applicable up to zone 0 and zone 20
- Usable up to SIL2 acc. to IEC 61508



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

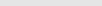
Switching element function	NAMUR, NC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	Stainless steel 1.4305 / AISI 303

Model Number

		green = preferred type						grey = not preferred					
Rated operating distance	5 mm	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	8 mm		✓			✓	✓		✓			✓	✓
	non-flush						✓						✓
Current consumption	Measuring plate detected	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Measuring plate not detected					✓					✓		
	≥ 3 mA	✓	✓	✓	✓		✓	✓	✓	✓		✓	
Switching frequency	0 ... 1000 Hz					✓							
	0 ... 1500 Hz						✓					✓	
	0 ... 200 Hz		✓						✓				
	0 ... 300 Hz						✓						✓
	0 ... 400 Hz			✓						✓			
	0 ... 500 Hz	✓							✓				
	Suitable for 2:1 technology	✓, Reverse polarity protection diode not required					✓					✓	
Indication of the switching state	LED, yellow			✓	✓	✓	✓					✓	
Protection degree	IP66 / IP67			✓		✓							
	IP67	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓
Connection type	Device connector M12 x 1, 4-pin												
	cable PVC, 2 m	✓	✓	✓	✓	✓	✓						



Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	
Category	1G; 2G	
	1G; 2G; 1D	
	1G; 2G; 3G	
	1G; 2G; 3G; 1D; 3D	
	1G; 2G; 3G; 3D	

Approvals and Certificates

Control drawing	116-0165F	
UL approval	cULus Listed, General Purpose	
CSA approval	cCSAus Listed, General Purpose	
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.	

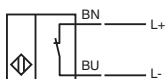
Dimensions

Length L [mm]		40	70	40	50	55						
Diameter D [mm]		18										
Thread length l _t [mm]		40	24	37	70	37	27	40	24	40	40	30
Cap length l ₁ [mm]		0	16	0		10	0	16	0		10	15
Connector area l _c [mm]		0				10				15		
LED position	Pos.	-	C				-				C	

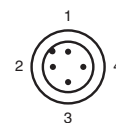
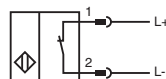
Electrical Connection



NCB5-18GM40-N0
NCB5-18GM70-N0
NJ5-18GM-N
NCB8-18GM40-N0
NCN8-18GM40-N0
NJ8-18GM-N



NCB5-18GM40-N0-V1
NJ5-18GM-N-V1
NCB8-18GM40-N0-V1
NCN8-18GM40-N0-V1
NJ8-18GM-N-V1



Wire colors in accordance with EN 60947-5-6

- | | | | |
|---|--|----|---------|
| 1 | | BN | (brown) |
| 2 | | BU | (blue) |

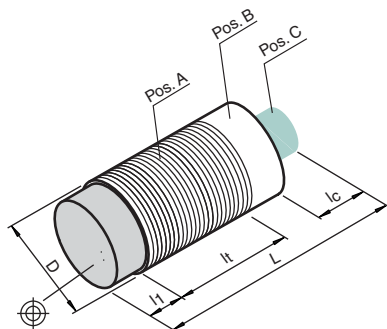


Properties

- Ø18 mm housing
- 1.5 mm flush mountable
- DC, NAMUR interface
- Cable and connector versions

Your Benefit

- ATEX approved sensor applicable up to zone 0 and zone 20
- Usable up to SIL2 acc. to IEC 61508
- Compression proof up to 350 bar, dynamically on active surface



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	1.5 mm
Installation	flush
Switching element function	NAMUR, NC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 400 Hz
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	Stainless steel 1.4305 / AISI 303

Model Number

		NJ1,5-18GM-N-D	NJ1,5-18GM-N-D-V1
Protection degree	IP66 / IP68	●	●
	IP67		●
Connection type	Device connector M12 x 1, 4-pin cable PVC, 2 m	●	●

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●
Category	2G; 1D	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●

Dimensions

Length L [mm]	50	45
Diameter D [mm]		18
Thread length l _t [mm]		20
Cap length l ₁ [mm]		15
Connector area l _c [mm]	0	10
LED position		-

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

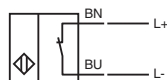
See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-W-N-2M-PUR	Cable socket, M12, 2-pin, NAMUR, PUR cable
V1-G-N-2M-PUR	Cable socket, M12, 2-pin, NAMUR, PUR cable

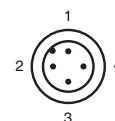
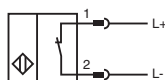
Electrical Connection



NJ1,5-18GM-N-D



NJ1,5-18GM-N-D-V1



Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)



Properties

- Ø22 mm smooth and threaded housing versions
- 6 mm flush and 8 mm non-flush mountable versions
- DC, NAMUR interface
- Cable version

Your Benefit

- ATEX approved sensors applicable up to zone 1 and zone 20
- Usable up to SIL2 acc. to IEC 61508

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 2000 Hz
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Protection degree	IP68
Connection type	cable PVC, 2 m



Model Number

		NJ6-22-N	NJ6-22-N-G	NJ10-22-N	NJ10-22-N-G
Rated operating distance	10 mm	●	●	●	●
	6 mm	●	●		
Installation	flush	●	●		
	non-flush			●	●
Housing material	Stainless steel 1.4305 / AISI 303		●		●
	PBT	●		●	

Use in the Hazardous Area

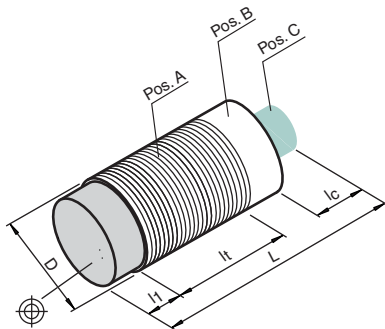
Use in the hazardous area	see instruction manuals	●	●	●	●
Category	2G			●	
	2G; 1D				●
	2G; 3G	●			
	2G; 3G; 3D		●		

Approvals and Certificates

Control drawing	116-0165F	●		●	
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

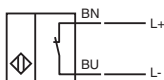
Length L [mm]			35		
Diameter D [mm]	22	28.3	22	28.3	
Thread length l _t [mm]	0	35	0	15	
Cap length l ₁ [mm]		0		20	
Connector area l _c [mm]			0		
LED position			-		



Electrical Connection



NJ10-22-N
NJ10-22-N-G
NJ6-22-N
NJ6-22-N-G





Properties

- Ø30 mm housing
- 10 mm flush and 15 mm non-flush mountable versions
- DC, NAMUR interface
- Cable version

Your Benefit

- ATEX approved sensors applicable up to zone 1 and zone 20
- Usable up to SIL2 acc. to IEC 61508

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Nominal voltage	8.2 V (R_i approx. 1 k Ω)
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Connection type	cable PVC, 2 m



Model Number

		NJ10-30GK-N	NJ15-30GK-N	NCB10-30GK40-N0	NCN15-30GK40-N0
Rated operating distance	10 mm	•		•	
	15 mm		•		•
Installation	flush	•		•	
	non-flush		•		•
Current consumption					
Measuring plate detected	≤ 1 mA	•	•	•	•
Measuring plate not detected	≥ 2.2 mA			•	•
	≥ 3 mA	•	•		
Switching frequency	0 ... 100 Hz		•		
	0 ... 150 Hz				•
	0 ... 200 Hz			•	
	0 ... 300 Hz	•			
Indication of the switching state	all direction LED, yellow			•	•
Protection degree	IP66 / IP68	•		•	•
	IP67			•	•
	IP68		•		

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	•	•	•	•
Category	2G; 1D	•	•		
	2G; 3G; 1D; 3D			•	•

Approvals and Certificates

Control drawing	116-0165F	•	•	•	•
UL approval	cULus Listed, General Purpose	•	•	•	•
CSA approval	cCSAus Listed, General Purpose	•	•	•	•
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]		40		
Diameter D [mm]		30		
Thread length l_t [mm]		34.5	37	22
Cap length l_1 [mm]		1	0	18
Connector area l_c [mm]			0	
LED position		-	Pos. C	-

Accessories

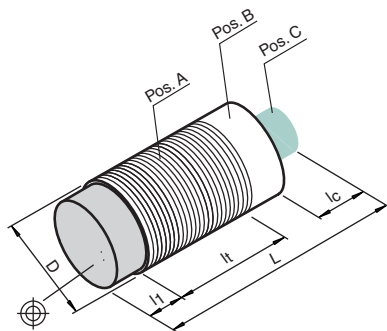
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 30

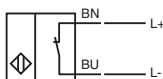
Mounting flange, 30 mm



Electrical Connection



NCB10-30GK40-N0
NJ10-30GK-N
NCN15-30GK40-N0
NJ15-30GK-N



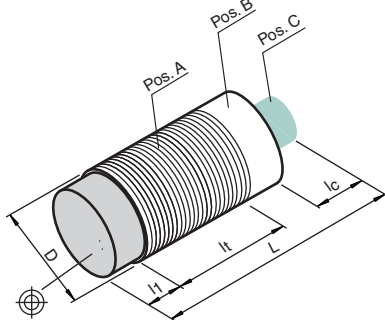
1
.1.1

Properties

- Ø30 mm housing
- 10 mm flush and 15 mm non-flush and virtually flush mountable versions
- DC, NAMUR interface
- Cable and connector versions

Your Benefit

- ATEX approved sensor applicable up to zone 0 and zone 20
- Usable up to SIL2 acc. to IEC 61508



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	Stainless steel 1.4305 / AISI 303

Model Number

green = preferred type

		NJ15-30GM-N	NCB10-30GM40-N0	NCB15-30GM40-N0	NCN15-30GM40-N0	NJ10-30GM-N-V1	NCB10-30GM40-N0-V1	NCB15-30GM40-N0-V1	NCN15-30GM40-N0-V1
Rated operating distance	10 mm								
	15 mm								
Installation	flush								
	non-flush								
	virtually flush								
Current consumption									
Measuring plate not detected	≥ 2.2 mA								
	≥ 3 mA								
Measuring plate detected	≤ 1 mA								
Switching frequency	0 ... 100 Hz								
	0 ... 150 Hz								
	0 ... 200 Hz								
	0 ... 300 Hz								
	0 ... 450 Hz								
Indication of the switching state	LED, yellow								
Protection degree	IP65								
	IP67								
Connection type	Device connector M12 x 1, 4-pin cable PVC, 2 m								

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals								
Category	1G; 2G								
	1G; 2G; 1D								
	1G; 2G; 3G; 1D; 3D								
	1G; 2G; 3G; 3D								

Approvals and Certificates

Control drawing	116-0165F								
UL approval	cULus Listed, General Purpose								
CSA approval	cCSAus Listed, General Purpose								
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.								

Dimensions

Length L [mm]	40	40	50	55
Diameter D [mm]	30	30	30	30
Thread length l _t [mm]	22	37	22	40
Cap length l ₁ [mm]	0	0	18	0
Connector area l _c [mm]	0	0	10	15
LED position	-	Pos. C	-	Pos. C

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-G-N-2M-PUR

Cable socket, M12, 2-pin, NAMUR, PUR cable

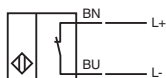
V1-W-N-2M-PUR

Cable socket, M12, 2-pin, NAMUR, PUR cable

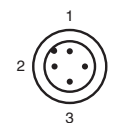
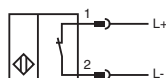
Electrical Connection



NCB10-30GM40-N0
NCB15-30GM40-N0
NCN15-30GM40-N0
NJ15-30GM-N



NCB10-30GM40-N0-V1
NJ10-30GM-N-V1
NCB15-30GM40-N0-V1
NCN15-30GM40-N0-V1



Wire colors in accordance with EN 60947-5-6

1 | BN (brown)
2 | BU (blue)



Properties

- Ø30 mm and Ø40 mm housing versions
- 10 mm to 20 mm flush and non-flush mountable versions
- DC, NAMUR interface
- Terminal compartment

Your Benefit

- ATEX approved sensor applicable up to zone 1
- Usable up to SIL2 acc. to IEC 61508

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Nominal voltage	8.2 V (R_i approx. 1 k Ω)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Protection degree	IP67
Connection type	terminal compartment



Model Number

		NJ10-30GKK-N	NJ15-30GKK-N	NJ20-40-N
Rated operating distance	10 mm	●		
	15 mm		●	
	20 mm			●
Installation	flush	●		
	non-flush		●	●
Switching frequency	0 ... 100 Hz		●	●
	0 ... 300 Hz	●		

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●	●
Category	2G	●	●	●

Approvals and Certificates

Control drawing	116-0165F			●
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.			

Dimensions

Length L [mm]	115	95
Diameter D [mm]	30	40
Thread length l_t [mm]	58	0 (50)
Cap length l_1 [mm]	2	0
Connector area l_c [mm]	0	
LED position	-	

Accessories

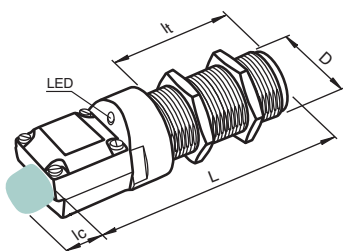
This and more accessories can be found in chapter 10
See pages from 972 ... for cordsets See pages 1068 ... for mounting aids

BF 30

Mounting flange, 30 mm

BF 40

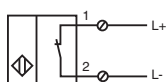
Mounting flange, 40 mm



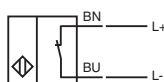
Electrical Connection



NJ10-30GKK-N
NJ15-30GKK-N



NJ20-40-N





Properties

- Ø50 mm housing
- 25 mm non-flush mountable
- DC, NAMUR interface
- Cable version

Your Benefit

- ATEX approved sensor applicable up to zone 1
- Usable up to SIL2 acc. to IEC 61508

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

Model Number	NJ25-50-N
Rated operating distance	25 mm
Installation	non-flush
Switching element function	NAMUR, NC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 250 Hz
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 2 m



Use in the Hazardous Area

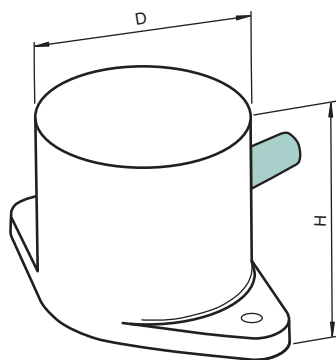
Use in the hazardous area	see instruction manuals
Category	2G
Control drawing	116-0165F

Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

Dimensions

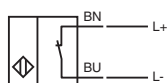
Height H [mm]	40
Diameter D [mm]	50
Thread length l _t [mm]	0
Connector area l _c [mm]	0

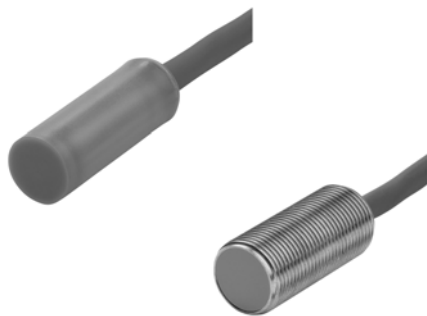


Electrical Connection



NJ25-50-N





Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	2 mm
Installation	flush
Switching element function	NAMUR, NC
Nominal voltage	8 V DC
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 3000 Hz
Suitable for 2:1 technology	✓, with reverse polarity protection diode
Ambient temperature	-40 ... 100 °C (-40 ... 212 °F)
Protection degree	IP68
Connection type	cable silicon, 2 m



Properties

- Ø11/14 mm housing
- 2 mm, flush mountable
- DC, NAMUR safety interface
- Cable version

Your Benefit

- Usable up to SIL 3 acc. to IEC 61508
- Usable in hazardous area
- High protection degree (IP68)

Model Number

Housing material	Stainless steel 1.4305 / AISI 303	NJ2-11-SN	NJ2-11-SN-G
	PVDF	●	●

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G; 1D	●	●

Approvals and Certificates

FM control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

Length L [mm]	31	30
Diameter D [mm]	11	14
Thread length l _t [mm]	0	30
Cap length l ₁ [mm]		0
Connector area l _c [mm]		0
LED position		-

Accessories

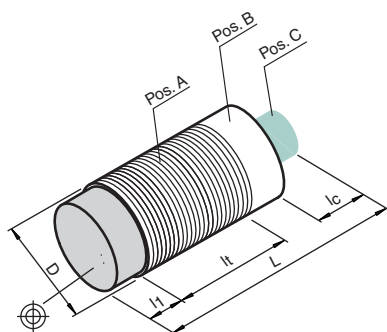
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BF 11

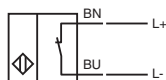
Mounting flange, 11 mm



Electrical Connection



NJ2-11-SN
NJ2-11-SN-G





Properties

- Ø12 mm housing
- 2 mm, flush and 4 mm, non-flush mountable versions
- DC, NAMUR safety interface
- Cable version

Your Benefit

- Usable up to SIL 3 acc. to IEC 61508
- Usable in hazardous area
- High protection degree (IP68)

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Nominal voltage	8 V DC
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Housing material	PP
Protection degree	IP68
Connection type	cable silicon , 2 m



Model Number

	green = preferred type		
Rated operating distance	2 mm 4 mm		
Installation	flush non-flush		
Switching frequency	0 ... 1500 Hz 0 ... 2000 Hz		
Suitable for 2:1 technology	✓, with reverse polarity protection diode		
Ambient temperature	-40 ... 100 °C (-40 ... 212 °F) -50 ... 100 °C (-58 ... 212 °F)		

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals		
Category	1G; 2G; 1D 1G; 2G; 3G; 1D; 3D		

Approvals and Certificates

FM control drawing	116-0165F		
UL approval	cULus Listed, General Purpose		
CSA approval	cCSAus Listed, General Purpose		
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

Length L [mm]	34
Diameter D [mm]	12
Thread length l _t [mm]	30
Cap length l ₁ [mm]	0
Connector area l _c [mm]	0
LED position	-

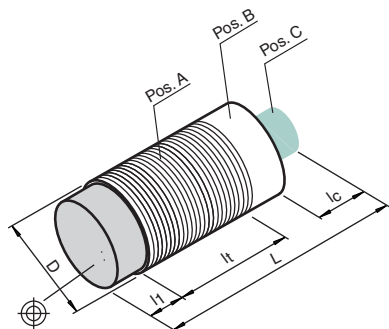
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

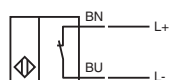
BF 12	Mounting flange, 12 mm
EXG-12	Quick mounting bracket with dead stop



Electrical Connection



NJ4-12GK-SN
NJ2-12GK-SN



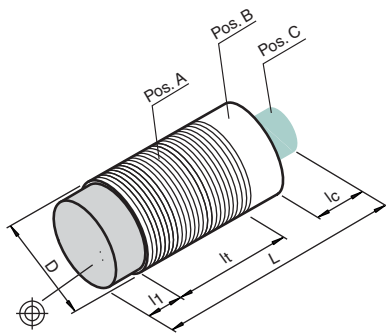


Properties

- Ø18 mm housing
- Up to 8 mm, flush and non-flush mountable versions
- DC, NAMUR safety interface
- Cable version

Your Benefit

- Usable up to SIL 3 acc. to IEC 61508
- Usable in hazardous area
- Versions with high protection degree (IP68)
- Versions usable in applications that require extended temperature range up to +130 °C (266 °F)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Nominal voltage	8 V DC
Connection type	cable silicon, 2 m



Model Number

			NJ3-18GK-S1N	NJ3-18GK-S1N-130	NJ5-18GK-SN	NJ8-18GK-SN
green = preferred type						
Rated operating distance	3 mm		●	●		
	5 mm				●	
	8 mm					●
Installation	flush		●	●	●	
	non-flush					●
Switching element function	NAMUR, NO		●	●		
	NAMUR, NC				●	●
Current consumption						
Measuring plate not detected	≥ 3 mA				●	●
	≤ 1 mA		●	●		
Measuring plate detected	≥ 3 mA		●	●		
	≤ 1 mA				●	●
Switching frequency	0 ... 200 Hz		●	●		●
	0 ... 500 Hz				●	
Suitable for 2:1 technology	✓, Reverse polarity protection diode not required		●			
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)		●			
	-25 ... 130 °C (-13 ... 266 °F)			●		
	-40 ... 100 °C (-40 ... 212 °F)				●	●
Housing material	Hostalen PPN, black		●			●
	PP				●	
	PPS, PTFE			●		
Protection degree	IP65			●		
	IP68		●		●	●

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●		●	●
Category	1G; 2G; 3G; 1D	●		●	
	1G; 2G; 3G; 1D; 3D				●

Approvals and Certificates

FM control drawing	116-0165F	●		●	●
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	40.5	39
Diameter D [mm]		18
Thread length l _t [mm]		34.5
Cap length l ₁ [mm]		1
Connector area l _c [mm]		0
LED position		-

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

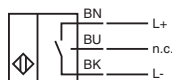
See pages 1068 ... for mounting aids

BF 18	Mounting flange, 18 mm
EXG-18	Quick mounting bracket with dead stop

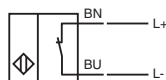
Electrical Connection

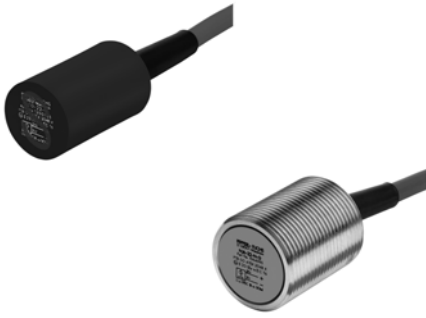


NJ3-18GK-S1N
NJ3-18GK-S1N-130



NJ5-18GK-SN
NJ8-18GK-SN





Properties

- Ø22 mm / PG21 housing
- 6 mm, flush mountable
- DC, NAMUR safety interface
- Cable version

Your Benefit

- Usable up to SIL 3 acc. to IEC 61508
- Usable in hazardous area
- High protection degree (IP68)

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	6 mm
Installation	flush
Switching element function	NAMUR, NC
Nominal voltage	8 V DC
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 2000 Hz
Suitable for 2:1 technology	✓, with reverse polarity protection diode
Ambient temperature	-40 ... 100 °C (-40 ... 212 °F)
Protection degree	IP68
Connection type	cable silicon, 2 m



Model Number

Housing material	Stainless steel 1.4305 / AISI 303
	PBT

Use in the Hazardous Area

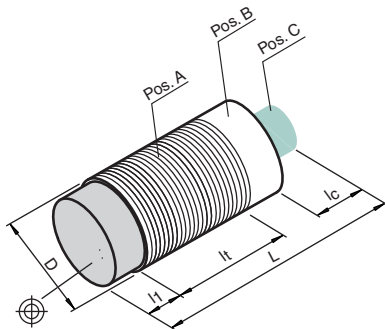
Use in the hazardous area	see instruction manuals
Category	1G; 2G; 1D

Approvals and Certificates

FM control drawing	116-0165F
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

Dimensions

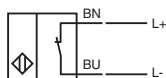
Length L [mm]	35
Diameter D [mm]	22
Thread length l _t [mm]	0
Cap length l ₁ [mm]	0
Connector area l _c [mm]	0
LED position	-



Electrical Connection



NJ6-22-SN
NJ6-22-SN-G



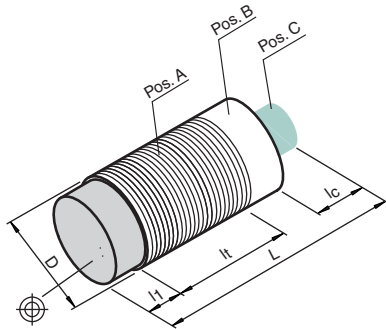


Properties

- Ø30 mm housing
- Up to 15 mm, flush and non-flush mountable versions
- DC, NAMUR safety interface
- Cable version

Your Benefit

- Usable up to SIL 3 acc. to IEC 61508
- Usable in hazardous area
- High protection degree (IP68)
- Versions usable in applications that require extended temperature range down to -50 °C (-58 °F)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Nominal voltage	8 V DC
Housing material	PP
Protection degree	IP68
Connection type	cable silicon, 2 m



Model Number

		NJ5-30GK-S1N	NJ10-30GK-SN	NJ15-30GK-SN
Rated operating distance	green = preferred type	●		
	5 mm			
	10 mm		●	
	15 mm			●
Installation	flush	●	●	
	non-flush			●
Switching element function	NAMUR, NO	●		
	NAMUR, NC		●	●
Current consumption				
Measuring plate not detected	≥ 3 mA		●	●
	≤ 1 mA	●		
Measuring plate detected	≥ 3 mA	●		
	≤ 1 mA		●	●
Switching frequency	0 ... 100 Hz	●		
	0 ... 150 Hz		●	
	0 ... 300 Hz			●
Suitable for 2:1 technology	✓, with reverse polarity protection diode	●		
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)	●		
	-40 ... 100 °C (-40 ... 212 °F)			●
	-50 ... 100 °C (-58 ... 212 °F)		●	

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●	●
Category	1G; 2G; 1D	●	●	
	1G; 2G; 3G; 1D; 3D			●

Approvals and Certificates

FM control drawing	116-0165F	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.			

Dimensions

Length L [mm]	40
Diameter D [mm]	30
Thread length l ₁ [mm]	34.5
Cap length l ₂ [mm]	1
Connector area l _c [mm]	0
LED position	-

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

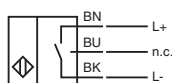
BF 30

Mounting flange, 30 mm

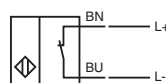
Electrical Connection



NJ5-30GK-S1N



NJ10-30GK-SN
NJ15-30GK-SN





Properties

- Ø12 mm, Ø18 mm and Ø30 mm housing versions
- 4 mm, 5 mm, 8 mm and 15 mm flush mountable versions
- AS interface
- Connector version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	flush
Switching element function	NO/NC programmable
Output polarity	AS-Interface
Slave type	A/B slave
AS-Interface specification	V3.0
Operating voltage	26.5 ... 31.9 V via AS-i bus system
No-load supply current	≤ 25 mA
Reverse polarity protection	✓
Indication of the switching state	dual-LED, yellow
Fault indication	dual-LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Connection type	Device connector M12 x 1, 4-pin



Model Number

		NCB4-12GM60-B3B-V1	NCB5-18GM60-B3B-V1	NBB8-18GM60-B3B-V1	NBB15-30GM60-B3B-V1
Rated operating distance	4 mm	●			
	5 mm		●		
	8 mm			●	
	15 mm				●
Switching frequency	0 ... 100 Hz		●		
	0 ... 200 Hz			●	
	0 ... 500 Hz	●			●
Housing material	Stainless steel 1.4305 / AISI 303	●	●		
	brass, nickel-plated			●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	75	70	75
Diameter D [mm]	12	18	30
Thread length l _t [mm]	60	44	60
Cap length l ₁ [mm]		0	
Connector area l _c [mm]	15	10	15
LED position	Pos. B		Pos. C

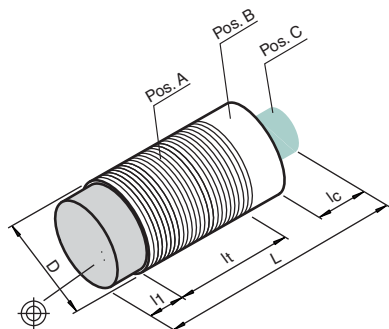
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

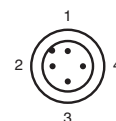
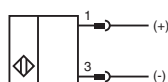
BF 12, BF 18, BF 30	Mounting flange
EXG-12, EXG-18, EXG-30	Quick mounting bracket with dead stop
V1-G-BK0,3M-PUR-U-V1-G	Connection cable, M12 to M12, PUR cable, 4-pin
V1-G-BK	4-pin, M12 female field-attachable connector
V1-G-BK1M-PUR-U-V1-G	Connection cable, M12 to M12, PUR cable, 4-pin
V1-W-BK	4-pin, M12 female field-attachable connector



Electrical Connection



NCB4-12GM60-B3B-V1
NCB5-18GM60-B3B-V1
NBB8-18GM60-B3B-V1
NBB15-30GM60-B3B-V1





Properties

- Miniature F76 housing
- 2 mm, flush mountable
- DC, 3-wire switching output
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	2 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1500 Hz
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PC
Protection degree	IP67
Connection type	cabl PVC , 0,5 m



Model Number

green = preferred type	
Switching element function	NPN NC
	NPN NO
	PNP NC
	PNP NO

NBB2-F76-E0-0,5M

NBB2-F76-E1-0,5M

NBB2-F76-E2-0,5M

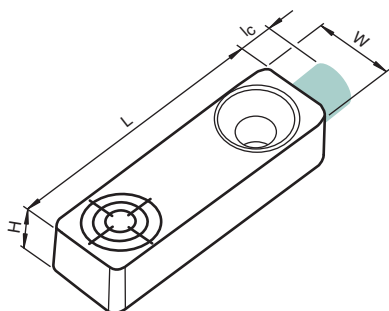
NBB2-F76-E3-0,5M

Approvals and Certificates

CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.
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Dimensions

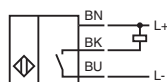
Length L [mm]	25
Width W [mm]	8
Height H [mm]	5.5
Connector area l _c [mm]	3



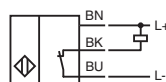
Electrical Connection



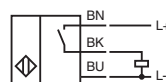
NBB2-F76-E0-0,5M



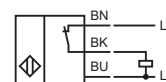
NBB2-F76-E1-0,5M



NBB2-F76-E2-0,5M



NBB2-F76-E3-0,5M





Properties

- Miniature F29 housing
- 2 mm flush and 4 mm non-flush mountable versions
- DC, 3-wire and 4-wire switching output versions
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Reverse polarity protection	✓
Switching frequency	0 ... 1000 Hz
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Connection type	cable PVC, 2 m



Model Number

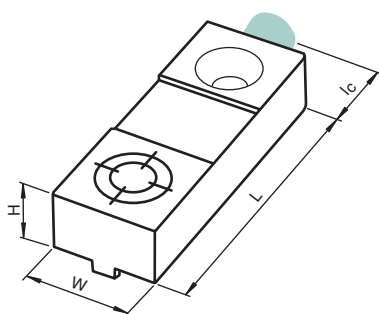
		green = preferred type	NBB2-F29-A0	NBB2-F29-A2	NBN4-F29-E0	NBN4-F29-E2	NBN4-F29-A0	NBN4-F29-A2
Rated operating distance	2 mm		●	●				
	4 mm				●	●	●	●
Installation	flush		●	●				
	non-flush				●	●	●	●
Switching element function	NPN NO/NC		●				●	
	NPN NO				●			
	PNP NO/NC			●				●
	PNP NO				●			
Operating voltage	10 ... 30 V DC				●	●		
	4.75 ... 30 V DC		●	●			●	●
No-load supply current	≤ 10 mA				●	●		
	≤ 15 mA		●	●			●	●
Housing material	PPS				●	●	●	●
	Ryton R4		●	●				

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.							

Dimensions

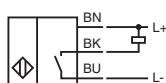
Length L [mm]	27
Width W [mm]	10
Height H [mm]	6
Connector area l _c [mm]	4



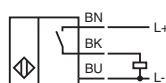
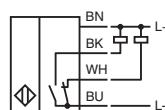
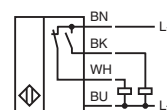
Electrical Connection



NBN4-F29-E0



NBN4-F29-E2

NBB2-F29-A0
NBN4-F29-A0NBB2-F29-A2
NBN4-F29-A2



Properties

- Miniature F79 housing
- 1.5 mm, flush mountable
- DC, 3-wire switching output
- Cable and pigtailed connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	1.5 mm
Installation	flush
Operating voltage	5 ... 30 V DC
No-load supply current	≤ 15 mA
Switching frequency	0 ... 1200 Hz
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP67

Model Number

		green = preferred type	NBB1,5-F79-E0	NBB1,5-F79-E1	NBB1,5-F79-E2	NBB1,5-F79-E3	NBB1,5-F79-E0-0,1M-V3	NBB1,5-F79-E1-0,1M-V3	NBB1,5-F79-E2-0,1M-V3	NBB1,5-F79-E3-0,1M-V3
Switching element function	NPN	NO	●				●			
	NPN	NC		●				●		
	PNP	NO			●				●	
	PNP	NC				●				●
Connection type	cable PVC, 500 mm		●	●	●	●				
	Cable connector M8 x 1, 3-pin with PVC cable 100 mm						●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	16
Width W [mm]	8
Height H [mm]	4
Cap length l ₁ [mm]	0.7
Connector area l _c [mm]	1.5

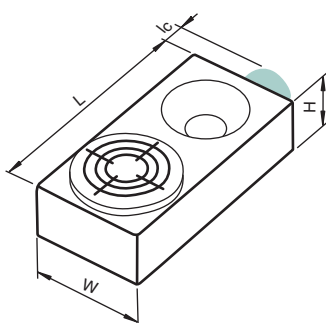
Accessories

This and more accessories can be found in chapter 10

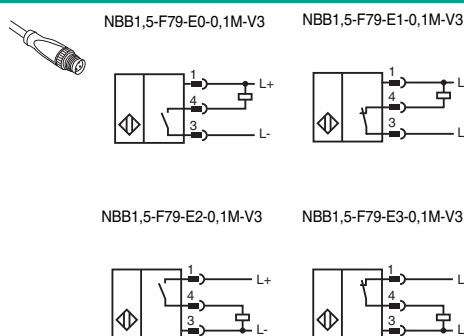
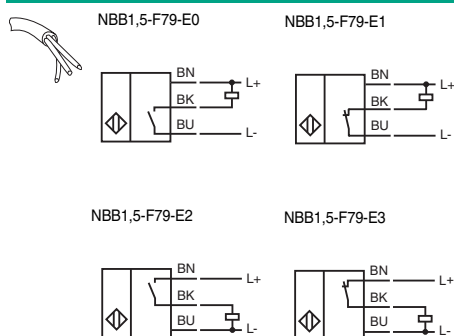
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V3-WM	Female connector, M8, 3-pin, field attachable
V3-GM	Female connector, M8, 3-pin, field attachable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable



Electrical Connection



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)





Properties

- Miniature V3 housing
- 3 mm, flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Installation	flush
Operating voltage	5 ... 60 V DC
Reverse polarity protection	✓
Switching frequency	0 ... 2000 Hz
Operating current	4 ... 100 mA
Lowest operating current	4 mA
Indication of the switching state	LED, yellow
Housing material	PBT
Protection degree	IP67

Model Number

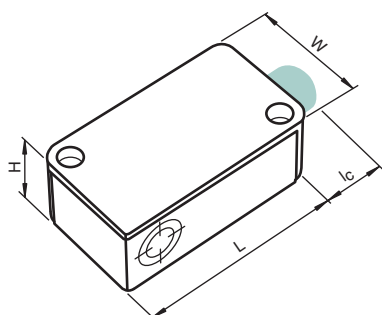
		green = preferred type	NBB3-V3-Z4	NBB3-V3-Z5	NBB3-V3-Z4-V5	NBB3-V3-Z5-V5
Switching element function	DC NO	●			●	
	DC NC			●		●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●		●	●
	-25 ... 85 °C (-13 ... 185 °F)		●		●	●
Connection type	4.8 mm Faston				●	●
	cable PVC, 130 mm		●	●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●

Dimensions

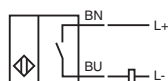
Length L [mm]	27.8
Width W [mm]	16
Height H [mm]	10
Connector area l _c [mm]	0 9.7



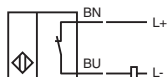
Electrical Connection



NBB3-V3-Z4

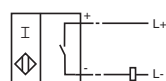


NBB3-V3-Z5



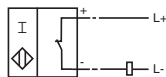
NBB3-V3-Z4-V5

Z4



NBB3-V3-Z5-V5

Z5





Properties

- Miniature V3 housing
- 2 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Further Products

In this series, we offer additionally:

NBB2-V3-E2-V3

Technical data like NBB2-V3-E2-V5 but:
Connection type: Device connector
M8 x 1 , 3-pin



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	2 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1000 Hz
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number

			green = preferred type					
Switching element function	NPN	NO	NB	NB	NB	NB	NB	NB
	NPN	NC						
	PNP	NO						
	PNP	NC						
Connection type	4.8 mm Faston							
	cable PVC , 130 mm							





Approvals and Certificates

UL approval	cULus Listed, General Purpose						
CSA approval	cCSAus Listed, General Purpose						
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.						

Dimensions

Length L [mm]	27.8
Width W [mm]	16
Height H [mm]	10
Connector area I_c [mm]	0 9.2

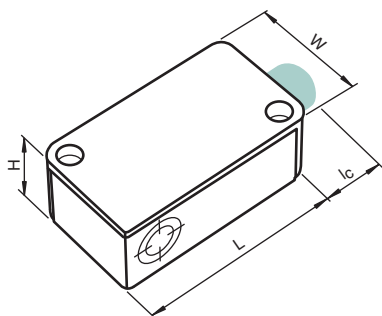
Accessories

This and more accessories can be found in chapter 10

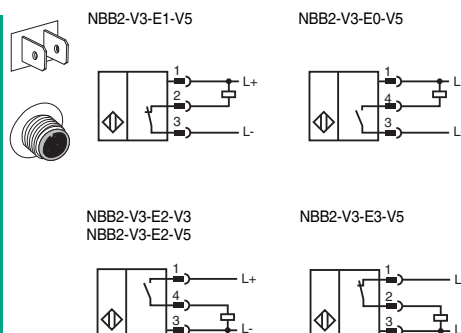
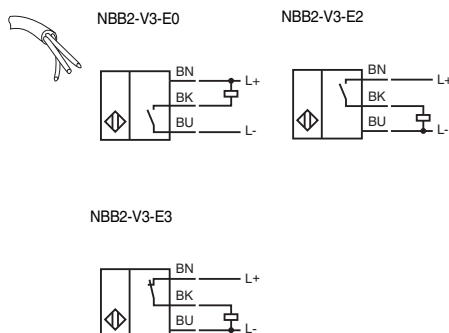
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V3-WM	Female connector, M8, 3-pin, field attachable
V3-GM	Female connector, M8, 3-pin, field attachable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable



Electrical Connection



Wire colors in accordance with EN 60947-5-2

1	BK	(black)
3	BU	(blue)
4	BN	(brown)





Properties

- Miniature V3 housing
- 4 mm, non-flush mountable
- DC, 3-wire switching output
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	4 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 500 Hz
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number

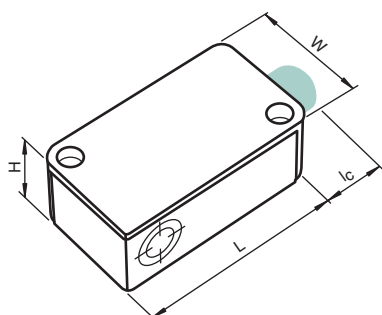
Switching element function	green = preferred type		
	NPN NO	●	
Connection type	PNP NO		●
	cable PVC, 100 mm	●	
	cable PVC, 130 mm		●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

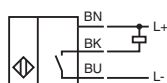
Length L [mm]	27.8
Width W [mm]	16
Height H [mm]	10
Connector area l _c [mm]	0



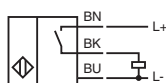
Electrical Connection



NBN4-V3-E0



NBN4-V3-E2





Properties

- Miniature F141 housing
- 0.8 mm, flush mountable
- DC, 3-wire switching output
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	0.8 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 5 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67
Connection type	cable PUR , 2 m

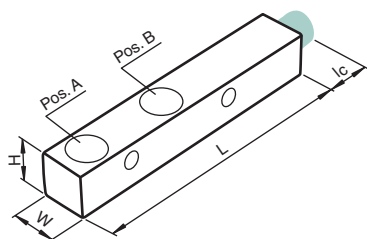


Model Number

		NBB0,8-F141-E0	NBB0,8-F141-E1	NBB0,8-F141-E2	NBB0,8-F141-E3
Switching element function	green = preferred type				
	NPN normally closed	●	●		
	NPN NO			●	
	PNP NO				●
Switching frequency	PNP NC				●
	0 ... 10000 Hz	●		●	
	0 ... 2500 Hz		●		●

Dimensions

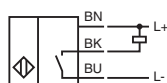
Length L [mm]	25
Width W [mm]	5
Height H [mm]	5
Connector area l _c [mm]	0
Active area position	Pos. A



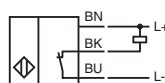
Electrical Connection



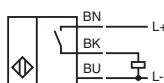
NBB0,8-F141-E0



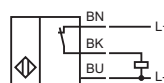
NBB0,8-F141-E1



NBB0,8-F141-E2



NBB0,8-F141-E3



1
.1.2

Properties

- Miniature F41 housing
- 1.5 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	1.5 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Operating current	0 ... 100 mA
Switching frequency	0 ... 1500 Hz
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

Switching element function	green = preferred type	
	PNP	NO
Connection type	PNP	NC
	Device connector M8 x 1, 3-pin cable PVC, 2 m	

NBB1,5-F41-E2	NBB1,5-F41-E3	NBB1,5-F41A-E2	NBB1,5-F41A-E3	NBB1,5-F41-E2-V3	NBB1,5-F41-E3-V3	NBB1,5-F41A-E2-V3	NBB1,5-F41A-E3-V3
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	●	●	●	●	●	●	●

Dimensions

Length L [mm]	40		46	
Width W [mm]			8	
Height H [mm]			8	
Connector area l _c [mm]	8		9	
Active area position	Pos. A	Pos. B	Pos. A	Pos. B

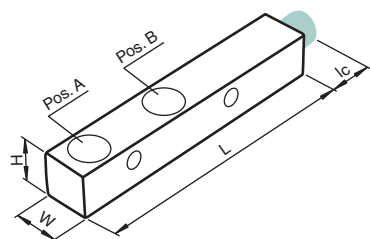
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

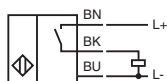
V3-GM	Female connector, M8, 3-pin, field attachable
V3-WM	Female connector, M8, 3-pin, field attachable
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable



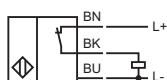
Electrical Connection



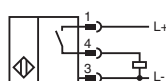
NBB1,5-F41-E2
NBB1,5-F41A-E2



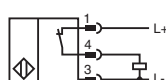
NBB1,5-F41-E3
NBB1,5-F41A-E3



NBB1,5-F41-E2-V3
NBB1,5-F41A-E2-V3



NBB1,5-F41-E3-V3
NBB1,5-F41A-E3-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Properties

- Miniature F41 housing
- 3 mm, virtually flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Installation	virtually flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1000 Hz
Operating current	0 ... 200 mA, above 50°C ≤ 150 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number

			NEB3-F41-E0	NEB3-F41-E1	NEB3-F41-E2	NEB3-F41-E3	NEB3-F41-E0-V3	NEB3-F41-E1-V3	NEB3-F41-E2-V3	NEB3-F41-E3-V3
Switching element function	NPN	NO	●				●			
	NPN	NC		●				●		
	PNP	NO			●				●	
	PNP	NC				●				●
Connection type	Device connector M8 x 1, 3-pin						●	●	●	●
	cable PVC, 2 m		●	●	●	●				

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.									

Dimensions

Length L [mm]	40	50
Width W [mm]		8
Height H [mm]		8
Connector area l _c [mm]	0	6
Active area position	Pos. A	

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V3-GM

Female connector, M8, 3-pin, field attachable

V3-WM

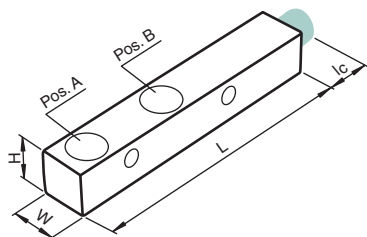
Female connector, M8, 3-pin, field attachable

V3-GM-2M-PUR

Cable socket, M8, 3-pin, PUR cable

V3-WM-2M-PUR

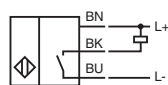
Cable socket, M8, 3-pin, PUR cable



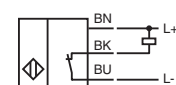
Electrical Connection



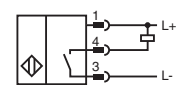
NEB3-F41-E0



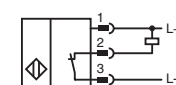
NEB3-F41-E1



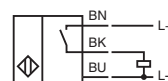
NEB3-F41-E0-V3



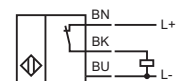
NEB3-F41-E1-V3



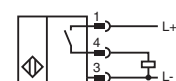
NEB3-F41-E2



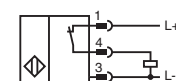
NEB3-F41-E3



NEB3-F41-E2-V3



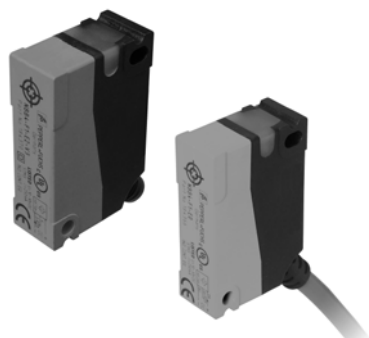
NEB3-F41-E3-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



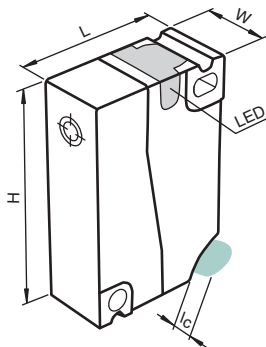


Properties

- Compact F1 housing
- 2 mm and 4 mm, flush mountable versions
- DC, 3-wire switching output
- Cable and connector versions

Your Benefit

- **Alignable housing**



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1400 Hz
Operating current	0 ... 250 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP67

Model Number

		green = preferred type	NB	NB	NB	NB	NB	NB	NB
Rated operating distance	2 mm		●					●	
	4 mm			●	●	●			●
Switching element function	NPN	NO		●				●	●
	PNP	NO	●			●		●	
	PNP	NC				●			●
Connection type	Device connector M8 x 1 , 3-pin							●	●
	cable PVC , 2 m		●	●	●	●			●
									

Approvals and Certificates

UL approval	cULus Listed, General Purpose								
CSA approval	cCSAus Listed, General Purpose								
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.								

Dimensions

Length L [mm]	26
Width W [mm]	12
Height H [mm]	40
Connector area I_c [mm]	0 9

Accessories

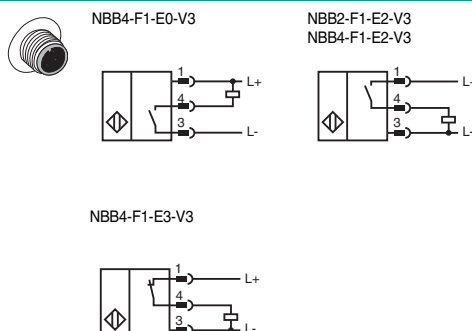
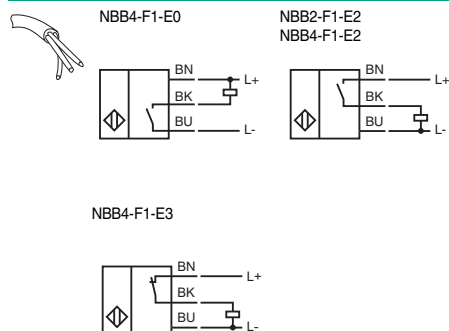
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

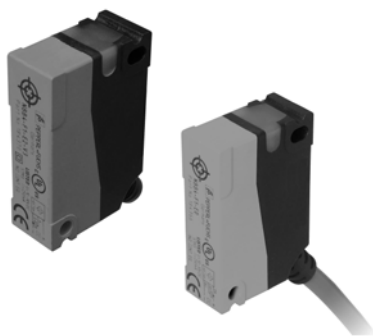
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V3-WM	Female connector, M8, 3-pin, field attachable
V3-GM	Female connector, M8, 3-pin, field attachable
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable

Electrical Connection



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Properties

- Compact F1 housing
- 4 mm, flush mountable
- DC, 4-wire switching output
- Cable and connector versions

Your Benefit

- Alignable housing

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	4 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1400 Hz
Operating current	0 ... 250 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP67

Model Number

		green = preferred type	
Switching element function	NPN NO/NC PNP NO/NC	NBB4-F1-A0 ●	NBB4-F1-A2 ●
Connection type	Device connector M8 x 1, 4-pin cable PVC, 2 m	● 	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	26
Width W [mm]	12
Height H [mm]	40
Connector area l _c [mm]	0 9

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

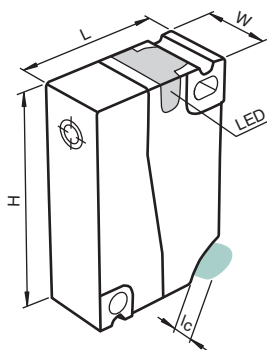
See pages 1068 ... for mounting aids

V31-GM-2M-PUR

4-pin, M8 socket, PUR cable

V31-WM-2M-PUR

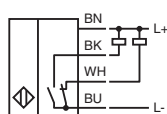
4-pin, M8 socket, PUR cable



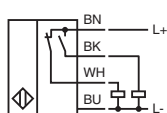
Electrical Connection



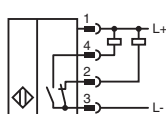
NBB4-F1-A0



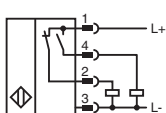
NBB4-F1-A2



NBB4-F1-A0-V31



NBB4-F1-A2-V31



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



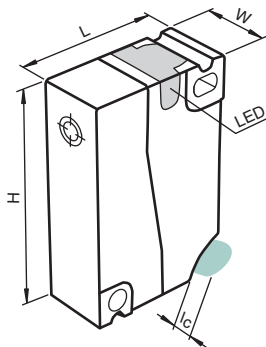


Properties

- **Compact F1 housing**
- **8 mm, non-flush mountable**
- **DC, 3-wire switching output**
- **Cable and connector versions**

Your Benefit

- **Alignable housing**



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	8 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1400 Hz
Operating current	0 ... 250 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP67

Model Number

		green = preferred type			NB	NB	NB	NB	NB	NB
Switching element function	NPN	NO	●					●		
	PNP	NO		●					●	
	PNP	NC				●				●
Connection type	Device connector M8 x 1 , 3-pin							●	●	●
	cable PVC , 2 m	●		●	●					
										

Approvals and Certificates

UL approval	cULus Listed, General Purpose						
CSA approval	cCSAus Listed, General Purpose						
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.						

Dimensions

Length L [mm]	26
Width W [mm]	12
Height H [mm]	40
Connector area I_c [mm]	0 9

Accessories

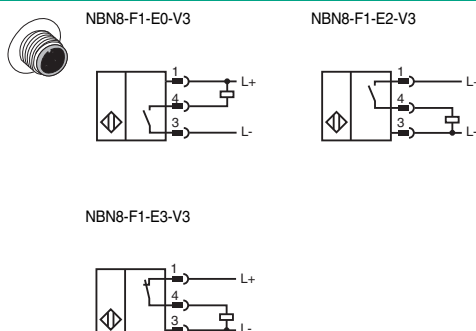
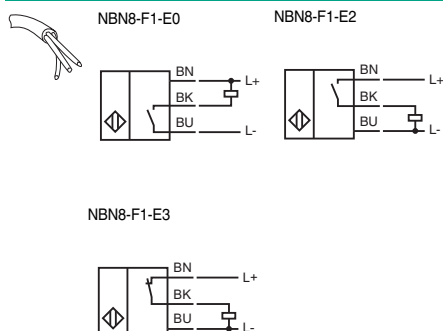
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

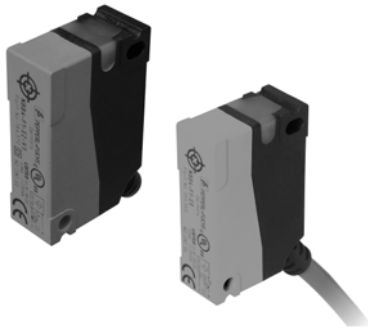
V3-WM	Female connector, M8, 3-pin, field attachable
V3-GM	Female connector, M8, 3-pin, field attachable
V3-WM-2M-PUR	Cable socket, M8, 3-pin, PUR cable
V3-GM-2M-PUR	Cable socket, M8, 3-pin, PUR cable

Electrical Connection



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Properties

- Compact F1 housing
- 8 mm, non-flush mountable
- DC, 4-wire switching output
- Cable and connector versions

Your Benefit

- Alignable housing

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	8 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1400 Hz
Operating current	0 ... 250 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP67

Model Number

		NBN8-F1-A0	NBN8-F1-A2	NBN8-F1-A0-V31	NBN8-F1-A2-V31
Switching element function	NPN NO/NC	●		●	
	PNP NO/NC		●		●
Connection type	Device connector M8 x 1, 4-pin cable PVC, 2 m	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	26
Width W [mm]	12
Height H [mm]	40
Connector area l _c [mm]	0 9

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

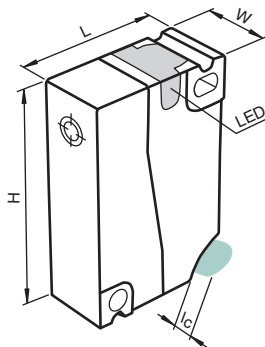
See pages 1068 ... for mounting aids

V31-WM-2M-PUR

4-pin, M8 socket, PUR cable

V31-GM-2M-PUR

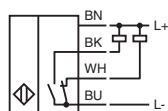
4-pin, M8 socket, PUR cable



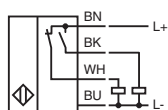
Electrical Connection



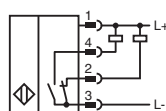
NBN8-F1-A0



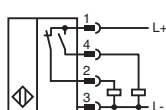
NBN8-F1-A2



NBN8-F1-A0-V31



NBN8-F1-A2-V31



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)





Properties

- Compact F1 housing
- 2 mm and 4 mm, flush mountable versions
- AC/DC, 2-wire switching output
- Cable version

Your Benefit

- Alignable housing

Technical Data

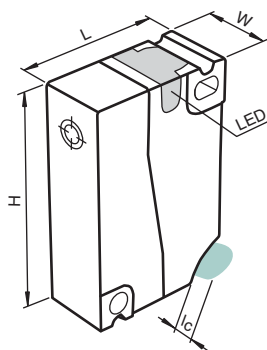
For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	flush
Operating voltage	20 ... 253 V AC/DC
No-load supply current	≤ 4 mA
Reverse polarity protection	✓
Switching frequency	0 ... 25 Hz
Operating current	4 ... 250 mA AC 4 ... 100 mA DC
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP67
Connection type	cable PVC, 2 m



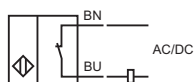
Model Number			NBB2-F1-US	NBB4-F1-US	NBB4-F1-UO
Rated operating distance	2 mm		●		
	4 mm			●	●
Switching element function	AC/DC	NO	●	●	
	AC/DC	NC			●
Approvals and Certificates					
UL approval	cULus Listed, General Purpose		●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)		●	●	●
Dimensions					
Length L [mm]			26		
Width W [mm]			12		
Height H [mm]			40		
Connector area I _c [mm]			0		



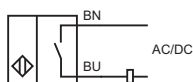
Electrical Connection

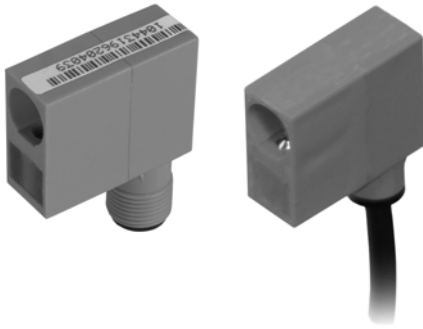


NBB4-F1-UO



NBB2-F1-US
NBB4-F1-US





Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	1.5 mm
Installation	flush
Switching element function	PNP NO
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1000 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP67

Properties

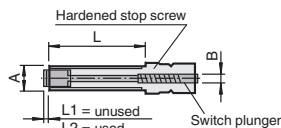
- Compact F2 housing
- 1.5 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

The inductive proximity sensor with plug-in acknowledgement elements is designed for applications where the simple installation of an adjustable mechanical stop with electronic acknowledgement is required.

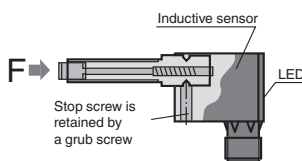
Heavy duty fine threaded stop screws serve as finely adjustable end stops. The state of the acknowledgement element is indicated by the built-in LED on the proximity sensor.

Accessories:

Stop screws (Acknowledgement elements)



Type Coding	A	B	L	L1	L2	Load F max.
AS 08/15	M 8 x 1	6	15	3.5	2	2 000 N
AS 08/40	M 8 x 1	6	40	3.5	2	2 000 N
AS 10/50	M 10 x 1	7	50	2.5	1	9 500 N
AS 12/60	M 12 x 1	9	60	2	0.5	20 500 N
AS 12/80	M 12 x 1	9	80	2	0.5	20 500 N



Model Number

Connection type	Device connector M12 x 1, 4-pin cable PUR, 2 m
-----------------	--

NJ1,5-F2-E2



NJ1,5-F2-E2-V1

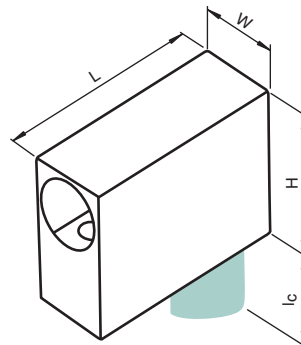


Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

Dimensions

Length L [mm]	31
Width W [mm]	12
Height H [mm]	25
Connector area l _c [mm]	9



Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

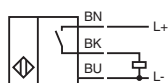
See pages 1068 ... for mounting aids

AS 12/60	Stop screw for series F2 sensors
AS 12/80	Stop screw for series F2 sensors
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
AS 08/15	Stop screw for series F2 sensors
AS 08/40	Stop screw for series F2 sensors
AS 10/50	Stop screw for series F2 sensors

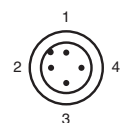
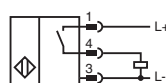
Electrical Connection



NJ1,5-F2-E2



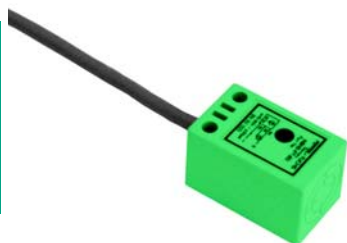
NJ1,5-F2-E2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



1
.1.2

CE

cULus

cULus

Properties

- Compact F7 housing
- 5 mm, non-flush mountable
- DC, 3-wire switching output
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	5 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 500 Hz
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 2 m



Model Number

Switching element function	NPN	NO
	PNP	NO

NBN5-F7-E0

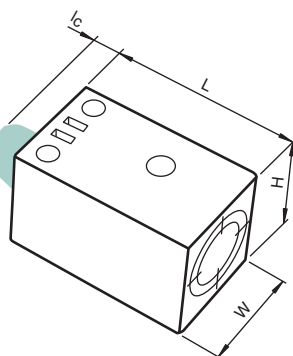
NBN5-F7-E2

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

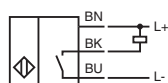
Length L [mm]	28
Width W [mm]	17
Height H [mm]	17
Connector area l _c [mm]	0



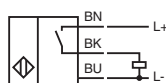
Electrical Connection

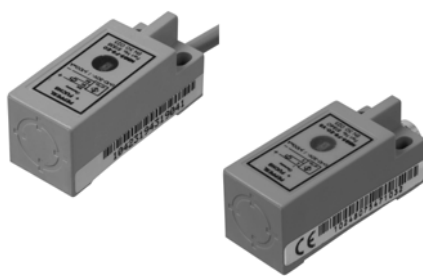


NBN5-F7-E0



NBN5-F7-E2





Properties

- Compact F9 housing
- 5 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	5 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 500 Hz
Operating current	0 ... 150 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number

	NBB5-F9-E0	NBB5-F9-E2	NBB5-F9-E0-V3	NBB5-F9-E2-V3
Switching element function	NPN NO	PNP NO	NPN NO	PNP NO
Connection type	Device connector M8 x 1, 3-pin cable PVC, 2 m	Device connector M8 x 1, 3-pin cable PVC, 2 m	Device connector M8 x 1, 3-pin cable PVC, 2 m	Device connector M8 x 1, 3-pin cable PVC, 2 m

Approvals and Certificates

UL approval	cULus Listed, General Purpose	✓	✓	✓	✓
CSA approval	cCSAus Listed, General Purpose	✓	✓	✓	✓
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	✓	✓	✓	✓

Dimensions

Length L [mm]	38.5	
Width W [mm]	16	
Height H [mm]	16.5	
Connector area l_c [mm]	0	6

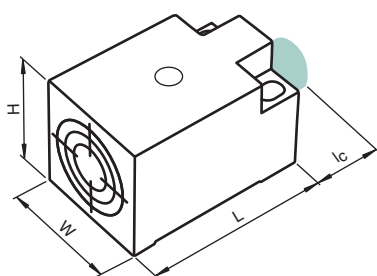
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

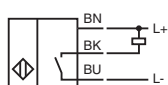
V3-GM	Female connector, M8, 3-pin, field attachable
V3-WM	Female connector, M8, 3-pin, field attachable
V3-WR-5M-PUR	Cable connector
V3-WR-E2-5M-PUR	M8 cable socket.



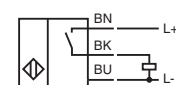
Electrical Connection



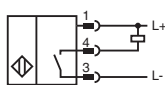
NBB5-F9-E0



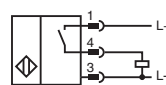
NBB5-F9-E2



NBB5-F9-E0-V3



NBB5-F9-E2-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)





Properties

- Compact F10 housing
- 7 mm, flush and non-flush mountable versions
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	7 mm
Operating voltage	10 ... 30 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	500 Hz
Operating current	0 ... 150 mA
Short-circuit protection	✓
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number

		NBB7-F10-E0	NBB7-F10-E1	NBB7-F10-E2	NBB7-F10-E3	NBB7-F10-E0-V1	NBB7-F10-E2-V1
Installation	flush	●	●	●	●		
	non-flush					●	●
Switching element function	NPN		●				
	NC						
	NPN	●				●	
	NO						
	PNP				●		
	NC						
	PNP			●			●
	NO						
Connection type	Device connector M12 x 1, 4-pin					●	●
	cable PVC, 2 m	●	●	●	●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.						

Dimensions

Length L [mm]	38.5
Width W [mm]	25
Height H [mm]	25.5
Connector area l _c [mm]	0
	10

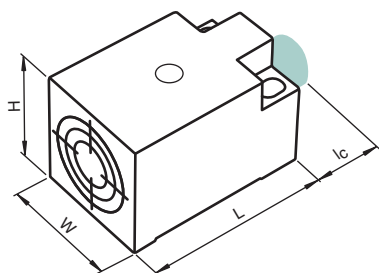
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

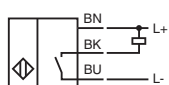
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



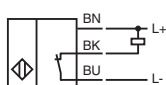
Electrical Connection



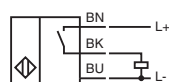
NBB7-F10-E0



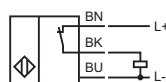
NBB7-F10-E1



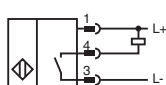
NBB7-F10-E2



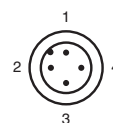
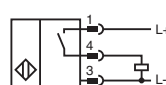
NBB7-F10-E3



NBB7-F10-E0-V1



NBB7-F10-E2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Compact F10 housing
- 10 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	10 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 500 Hz
Operating current	0 ... 150 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number

		green = preferred type			
Switching element function	NPN NO	●	NPN10-F10-E0	●	NBN10-F10-E0
	PNP NO			●	NBN10-F10-E2
Connection type	Device connector M12 x 1, 4-pin			●	NBN10-F10-E0-V1
	cable PVC, 2 m			●	NBN10-F10-E2-V1

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	38.5
Width W [mm]	25
Height H [mm]	25.5
Connector area l _c [mm]	0 10

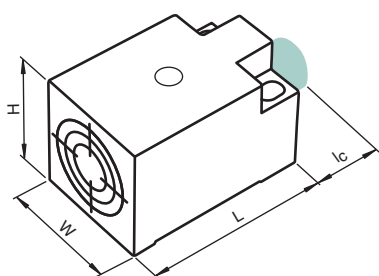
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable

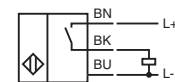
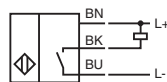


Electrical Connection



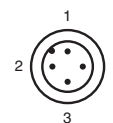
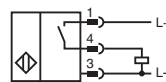
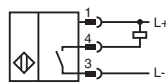
NBN10-F10-E0

NBN10-F10-E2



NBN10-F10-E0-V1

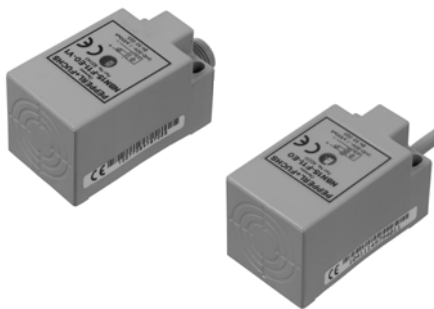
NBN10-F10-E2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)





Properties

- Compact F11 housing
- 15 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 150 Hz
Operating current	0 ... 150 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number

			NBN15-F11-E0	NBN15-F11-E2	NBN15-F11-E0-V1	NBN15-F11-E2-V1
Switching element function	NPN	NO	●		●	
	PNP	NO		●		●
Connection type	Device connector M12 x 1 , 4-pin				●	●
	cable PVC , 2 m		●	●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]		52.5
Width W [mm]		30
Height H [mm]		30.5
Connector area l _c [mm]	0	10

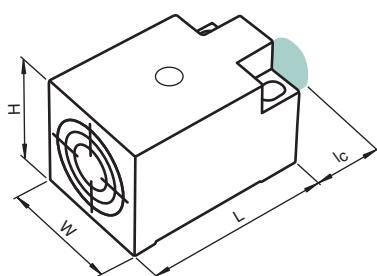
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

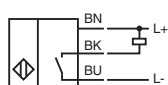
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



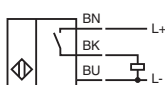
Electrical Connection



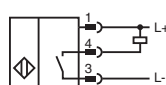
NBN15-F11-E0



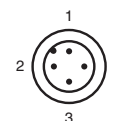
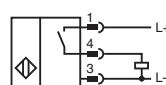
NBN15-F11-E2



NBN15-F11-E0-V1



NBN15-F11-E2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Compact F104 housing
- 7 mm, flush mountable
- DC, 4-wire switching output
- Cable and pigtailed connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	7 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	150 Hz
Operating current	200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	GD-Zn
Protection degree	IP67

Model Number

		NBB7-F104M-A0	NBB7-F104M-A2	NBB7-F104M-A0-200MM-V1	NBB7-F104M-A2-200MM-V1
Switching element function	NPN	•		•	
	PNP		•		•
Connection type	cable PUR, 2 m	•	•		
	Cable connector M12 x 1, 4-pin with PUR cable 200 mm			•	•

Approvals and Certificates

UL approval	cULus Listed, General Purpose	•	•	•	•
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	32
Width W [mm]	20
Height H [mm]	8
Connector area l _c [mm]	4

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

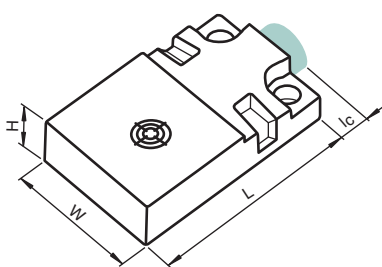
See pages 1068 ... for mounting aids

V1-G-2M-PVC

Cable socket, M12, 4-pin, PVC cable

V1-W-2M-PVC

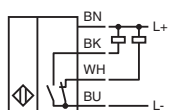
Cable socket, M12, 4-pin, PVC cable



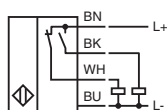
Electrical Connection



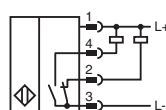
NBB7-F104M-A0



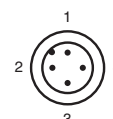
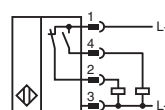
NBB7-F104M-A2



NBB7-F104M-A0-200MM-V1



NBB7-F104M-A2-200MM-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)





Properties

- Compact F33 metal housing
- 5 mm, flush mountable
- DC, 3-wire and 4-wire switching output versions
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	5 mm
Installation	flush
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✓
Switching frequency	0 ... 500 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	metal
Protection degree	IP67
Connection type	cable PVC , 2 m



Model Number

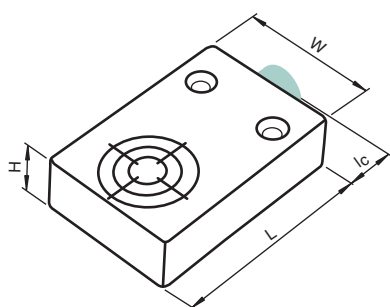
		NBB5-F33M-E0	NBB5-F33M-E2	NBB5-F33M-A0	NBB5-F33M-A2
Switching element function	NPN	NO/NC			
	NPN	NO			
	PNP	NO/NC			
	PNP	NO			
No-load supply current	≤ 15 mA				
	≤ 20 mA				

Approvals and Certificates

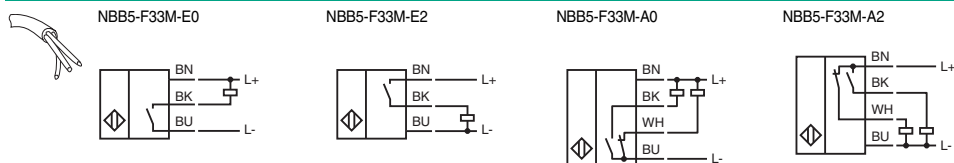
UL approval	cULus Listed, General Purpose				
CSA approval	cCSAus Listed, General Purpose				
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	50
Width W [mm]	25
Height H [mm]	10
Connector area l _c [mm]	0



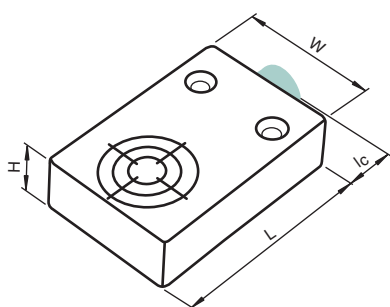
Electrical Connection





Properties

- **Compact F33 plastic housing**
- **5 mm and 8 mm, flush mountable versions**
- **DC, 3-wire and 4-wire switching output versions**
- **Cable version**



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	flush
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 2 m



Model Number

		green = preferred type	NB	NB	NB	NB	NB	NB	NB	NB
Rated operating distance	5 mm		●	●	●	●				
	8 mm						●	●	●	●
Switching element function	NPN	NO/NC			●					
	NPN	NO	●				●			
	NPN	NC						●		
	PNP	NO/NC				●				
	PNP	NO		●					●	
	PNP	NC								●
Operating voltage	10 ... 30 V DC		●	●	●	●				
	10 ... 60 V DC						●	●	●	●
No-load supply current	≤ 10 mA						●	●	●	●
	≤ 15 mA		●	●						
	≤ 20 mA				●	●				
Switching frequency	0 ... 350 Hz						●	●	●	●
	0 ... 500 Hz		●	●	●	●				
Indication of the switching state	LED yellow						●	●	●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●				
	-35 ... 70 °C (-31 ... 158 °F)						●	●	●	●

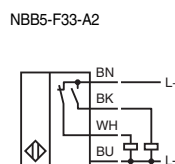
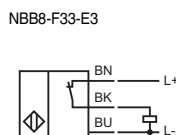
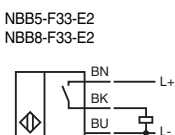
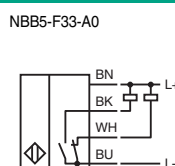
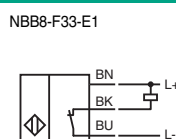
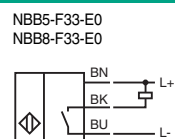
Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)					●	●	●
	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.	●	●	●	●			

Dimensions

Length L [mm]	50
Width W [mm]	25
Height H [mm]	10
Connector area I_c [mm]	0

Electrical Connection





Properties

- Flexible **VariKont-M** housing
- 15 mm, non-flush mountable
- DC, 2-wire switching output
- Terminal compartment

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

Model Number	NCN15-M1K-Z2
Rated operating distance	15 mm
Installation	non-flush
Switching element function	DC NO/NC
Operating voltage	5 ... 60 V DC
Reverse polarity protection	tolerant
Switching frequency	0 ... 150 Hz
Operating current	2 ... 200 mA
Lowest operating current	2 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Pre-fault indication	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	screw terminals



Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Certified by China Compulsory Certification (CCC)

Dimensions

Length L [mm]	91
Width W [mm]	30
Height H [mm]	30
Connector area l _c [mm]	0 (M16 X 1.5)

Accessories

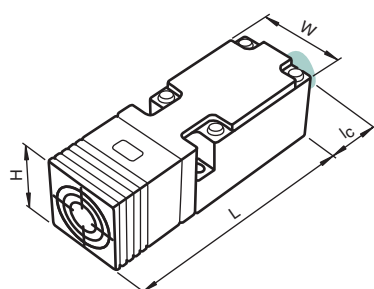
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

MH 04-3742A

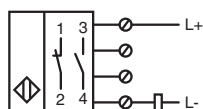
Mounting aid for VariKont and -M1K-



Electrical Connection



NCN15-M1K-Z2





Properties

- Flexible **VariKont-M** housing
- 15 mm, non-flush mountable
- DC, 3-wire and 4-wire switching output versions
- Terminal compartment

Technical Data

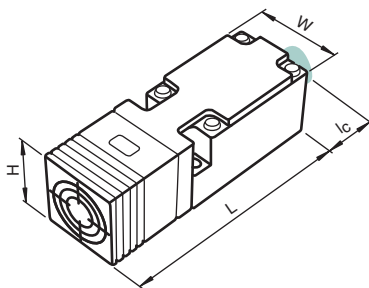
For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	non-flush
Operating voltage	10 ... 60 V DC
No-load supply current	≤ 14 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	screw terminals



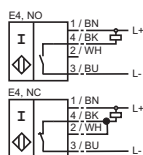
Model Number		NCN15-M1K-E4	NCN15-M1K-E5	NJ15-M1K-A2
Switching element function	NPN	●		
	PNP		●	●
Switching frequency	0 ... 200 Hz	●	●	●
	0 ... 500 Hz			
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	
CSA approval	cCSAus Listed, General Purpose	●	●	
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●
Dimensions				
Length L [mm]			91	
Width W [mm]			30	
Height H [mm]			30	
Connector area l _c [mm]			0 (M16 X 1.5)	
Accessories This and more accessories can be found in chapter 10				
See pages from 972 ... for cordsets		See pages 1068 ... for mounting aids		
MH 04-3742A		Mounting aid for VariKont and -M1K-		



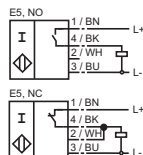
Electrical Connection



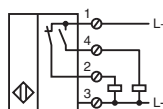
NCN15-M1K-E4



NCN15-M1K-E5



NJ15-M1K-A2





Properties

- Flexible **VariKont-M** housing
- 15 mm, non-flush mountable
- AC, 2-wire switching output
- Terminal compartment

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	non-flush
Operating voltage	20 ... 253 V AC
Switching frequency	0 ... 20 Hz
Operating current	5 ... 400 mA
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	screw terminals



Model Number

Switching element function	AC	NO
	AC	NC

NBN15-M1K-WS

NBN15-M1K-WO

Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

Dimensions

Length L [mm]	91
Width W [mm]	30
Height H [mm]	30
Connector area l _c [mm]	0 (M16 X 1.5)

Accessories

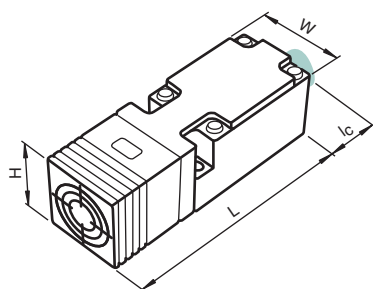
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

MH 04-3742A

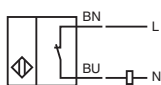
Mounting aid for VariKont and -M1K-



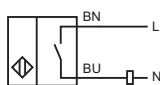
Electrical Connection



NBN15-M1K-WO



NBN15-M1K-WS



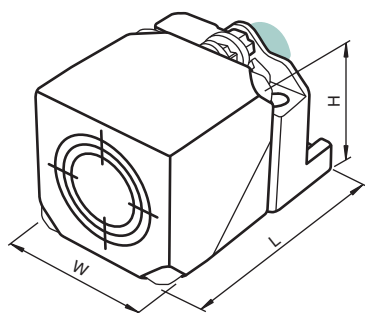


Properties

- Flexible, compact *VariKont-L* housing
- 20 mm, flush and 40 mm, non-flush mountable versions
- DC, 2-wire switching output
- Connector version

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Mounting base with quick clamping lever for swift mounting
- Rotatable connector allows all orientations of the attached cordset



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching frequency	0 ... 30 Hz
Operating current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP69K
Connection type	Device connector M12 x 1, 4-pin



Model Number

		NBB20-L2-Z0-V1	NBB20-L2-Z4-V1	NBB20-L2-Z5-V1	NBN40-L2-Z0-V1	NBN40-L2-Z4-V1	NBN40-L2-Z5-V1
Rated operating distance	20 mm	●	●	●			
	40 mm				●	●	●
Installation	flush	●	●	●			
	non-flush				●	●	●
Switching element function	NO	●	●		●	●	
	NC			●			●
Operating voltage	3.8 ... 30 V DC		●	●		●	●
	5 ... 30 V DC	●			●		
Reverse polarity protection	✓		●	●		●	●
	tolerant	●			●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.						

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

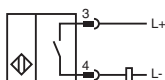
See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
MH 02-L	Mounting aid

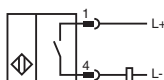
Electrical Connection



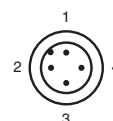
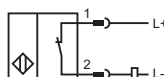
NBB20-L2-Z0-V1
NBN40-L2-Z0-V1



NBB20-L2-Z4-V1
NBN40-L2-Z4-V1



NBB20-L2-Z5-V1
NBN40-L2-Z5-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)





Properties

- Flexible, compact **VariKont-L** housing
- 20 mm, flush and 40 mm, non-flush mountable versions
- DC, 3-wire and 4-wire switching output versions
- Connector version

Your Benefit

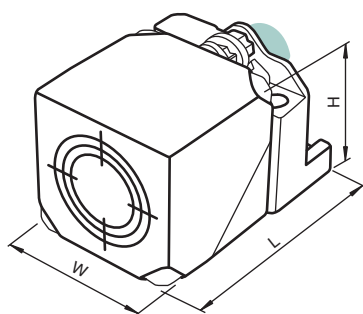
- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Mounting base with quick clamping lever for swift mounting
- Rotatable connector allows all orientations of the attached cordset

Further Products

In this series, we offer additionally:

NBB20-L2-A2-T-V1

Technical data like NBB20-L2-A2-V1 but:
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	PA
Protection degree	IP69K
Connection type	Device connector M12 x 1, 4-pin



Model Number

green = preferred type

		NBB20-L2-E0-V1	NBB20-L2-E2-V1	NBB20-L2-A0-V1	NBB20-L2-A2-V1	NBN40-L2-E0-V1	NBN40-L2-E2-V1	NBN40-L2-A0-V1	NBN40-L2-A2-V1
Rated operating distance	20 mm	●	●	●	●				
	40 mm					●	●	●	●
Installation	flush	●	●	●	●				
	non-flush					●	●	●	●
Switching element function	NPN NO/NC			●					
	NPN NO	●				●			
	PNP NO/NC				●				●
	PNP NO		●				●		
Switching frequency	0 ... 100 Hz					●	●	●	●
	0 ... 150 Hz	●	●	●	●				

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.								

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

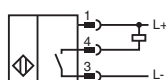
See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
MH 02-L	Mounting aid

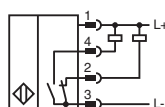
Electrical Connection



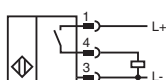
NBB20-L2-E0-V1
NBN40-L2-E0-V1



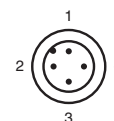
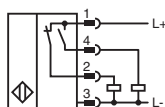
NBB20-L2-A0-V1
NBN40-L2-A0-V1



NBB20-L2-E2-V1
NBN40-L2-E2-V1



NBB20-L2-A2-T-V1
NBB20-L2-A2-V1
NBN40-L2-A2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	PA-GF35 metal base Xylan coated metal mounting flange Xylan coated.
Protection degree	IP69K
Connection type	Device connector M12 x 1, 4-pin



Properties

- Flexible, compact *VariKont-L* housing
- 20 mm, flush and 40 mm, non-flush mountable versions
- DC, 3-wire and 4-wire switching output versions
- Connector version

Your Benefit

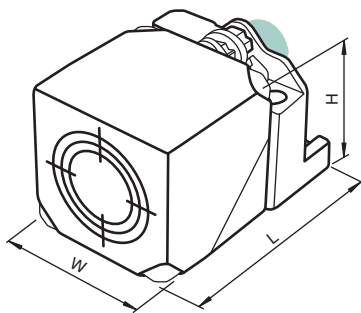
- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Mounting base with quick clamping flange for swift mounting
- Rotatable connector allows all orientations of the attached cordset

Further Products

In this series, we offer additionally:

NBB20-L2M-A2-T-V1

Technical data like NBB20-L2M-A2-V1 but:
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)
Housing material: PA-GF35
metal base powder coated
metal mounting flange powder coated.



Model Number

		NBB20-L2M-E0-V1	NBB20-L2M-E2-V1	NBB20-L2M-A0-V1	NBB20-L2M-A2-V1	NBN40-L2M-E0-V1	NBN40-L2M-E2-V1	NBN40-L2M-A0-V1	NBN40-L2M-A2-V1
Rated operating distance	20 mm	●	●	●	●				
	40 mm					●	●	●	●
Installation	flush	●	●	●	●				
	non-flush					●	●	●	●
Switching element function	NPN NO/NC			●				●	
	NPN NO	●							
	PNP NO/NC				●				●
	PNP NO		●			●			
Switching frequency	0 ... 100 Hz					●	●	●	●
	0 ... 150 Hz	●	●	●	●				

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.								

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

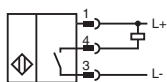
See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
MH 02-L	Mounting aid

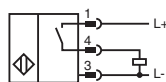
Electrical Connection



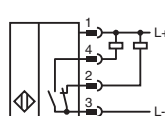
NBB20-L2M-E0-V1
NBN40-L2M-E0-V1



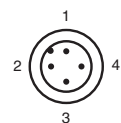
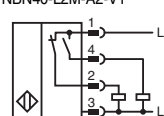
NBB20-L2M-E2-V1
NBN40-L2M-E2-V1



NBB20-L2M-A0-V1
NBN40-L2M-A0-V1



NBB20-L2M-A2-T-V1
NBB20-L2M-A2-V1
NBN40-L2M-A2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



1
.1.2

Properties

- Flexible, compact *VariKont-L* housing
- 20 mm, flush and 40 mm, non-flush mountable versions
- AC/DC, 2-wire switching output
- Connector version

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Mounting base with quick clamping flange for swift mounting

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	20 ... 250 V AC/DC
No-load supply current	≤ 0.6 mA
Reverse polarity protection	✓
Switching frequency	0 ... 30 Hz
Operating current	3 ... 300 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	metal - Zinc housing
Housing base	Metal Bracket
Protection degree	IP67

Model Number

		NBB20-L3M-US-V12	NBB20-L3M-UO-V12	NBB20-L3M-US-V93	NBB20-L3M-UO-V93	NBN40-L3M-US-V12	NBN40-L3M-US-V93
Rated operating distance	20 mm	●	●	●	●	●	●
	40 mm						
Installation	flush	●	●	●	●	●	●
	non-flush						
Switching element function	AC/DC NC		●		●		
	AC/DC NO	●		●		●	●
Connection type	Device connector 1/2"-20 UN , 3-pin	●	●			●	
	Device connector 7/8"-16 UN , 3-pin			●	●		●



Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●

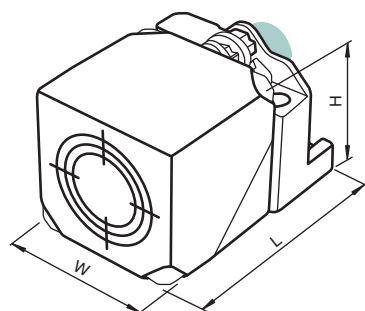
Dimensions

Length L [mm]	67	76	67	76
Width W [mm]		40		
Height H [mm]		40		

Accessories

This and more accessories can be found in chapter 10
See pages from 972 ... for cordsets See pages 1068 ... for mounting aids

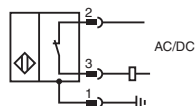
V93-G-YE2M-STOOW	Female connector, 7/8" - 16 UNF, 3-pin, PUR cable
V12-W-YE2M-PUR-H/S	Connecting cable, 1/2" - 20 UNF, 3-pin, irradiated PUR cable
MHW 01	Modular mounting bracket
V12-G-YE2M-PVC	Connecting cable, 1/2" - 20 UNF, 3-pin, PVC cable
V12-W-YE2M-PVC	Connecting cable, 1/2" - 20 UNF, 3-pin, PVC cable



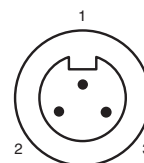
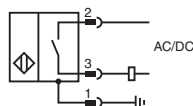
Electrical Connection



NBB20-L3M-UO-V12
NBB20-L3M-UO-V93



NBN40-L3M-US-V12
NBN40-L3M-US-V93
NBB20-L3M-US-V12
NBB20-L3M-US-V93



Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)

Date of issue: 04/08/2015

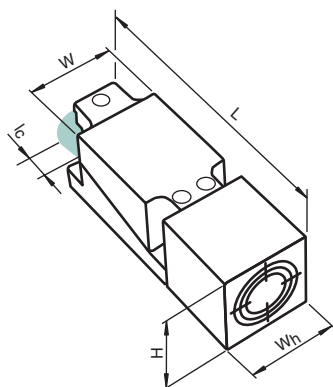


Properties

- Flexible **VariKont** housing
- 20 mm, flush and 40 mm, non-flush mountable versions
- DC, 2-wire switching output
- Terminal compartment

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	DC	NO/NC
Operating voltage	5 ... 60 V DC	
Reverse polarity protection	tolerant	
Operating current	2 ... 200 mA	
Short-circuit protection	pulsing	
Indication of the switching state	2 LED, yellow	
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)	
Housing material	PA/metal with epoxy powder coating	
Protection degree	IP68 / IP69K	
Connection type	screw terminals	



Model Number

green = preferred type

		NBB20-U1-Z2	NBN40-U1-Z2	NBB20-U4-Z2	NBN40-U4-Z2
Rated operating distance	20 mm	●		●	
	40 mm		●		●
Installation	flush	●		●	
	non-flush		●		●
Switching frequency	0 ... 100 Hz		●		●
	0 ... 250 Hz	●		●	
Housing base	plastic	●	●		
	metal			●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●

Dimensions

Length L [mm]	118
Width W [mm]	40
Head width W _h [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0 (M20 x 1.5) 0 (1/2" NPT)

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-M20-80

Receptacles, M12/M20; plastic version

MHW 01

Modular mounting bracket

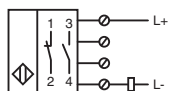
MH 04-2681F

Mounting aid for VariKont, +U1+ and +U9*

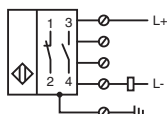
Electrical Connection

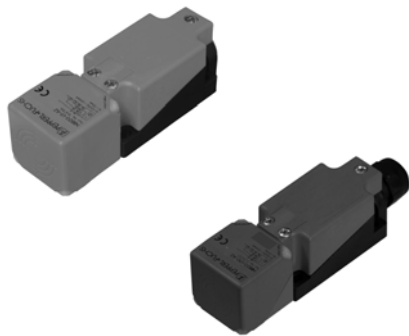


NBB20-U1-Z2
NBN40-U1-Z2



NBB20-U4-Z2
NBN40-U4-Z2





Properties

- Flexible **VariKont** housing
- 20 mm, flush mountable
- DC, 3-wire switching output
- Terminal compartment

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions

Further Products

In this series, we offer additionally:

NBB20-U4-E2-C-V1

Technical data like NBB20-U4-E2-C but:
Connection type: Device connector M12 x 1, 4-pin

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	20 mm
Installation	flush
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	PA/metal with epoxy powder coating
Protection degree	IP68 / IP69K
Connection type	screw terminals



Model Number

green = preferred type

		NBB20-U1-E0	NBB20-U1-E1	NBB20-U1-E2	NBB20-U1-E2-C	NBB20-U1-E3	NBB20-U2-E0	NBB20-U2-E2	NBB20-U4-E0	NBB20-U4-E2	NBB20-U4-E2-C	NBB20-U10-E2
Weld-immune				✓							✓	
Switching element function	NPN	NO										
	NPN	NC										
	PNP	NO										
	PNP	NC										
No-load supply current	≤ 10 mA											
	≤ 20 mA											
Switching frequency	0 ... 150 Hz											
	0 ... 5 Hz											
Housing base	plastic											
	metal											

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.											

Dimensions

Length L [mm]	118
Width W [mm]	40
Head width W _h [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0 (M20 x 1,5) 0 (1/2" NPT) 20

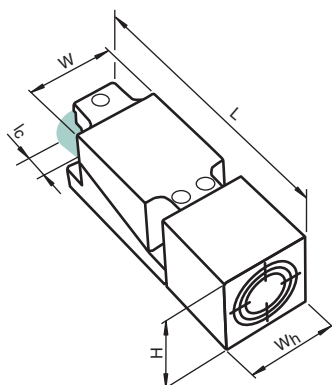
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

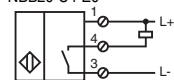
V1-M20-80	Receptacles, M12/M20; plastic version
MHW 01	Modular mounting bracket
V1-G-BK	4-pin, M12 female field-attachable connector
MH 04-2681F	Mounting aid for VariKont, +U1+ and +U9*
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



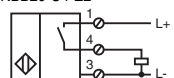
Electrical Connection



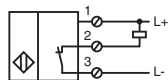
NBB20-U1-E0
NBB20-U2-E0
NBB20-U4-E0



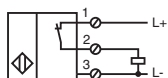
NBB20-U1-E2
NBB20-U1-E2-C
NBB20-U10-E2
NBB20-U2-E2
NBB20-U4-E2-C
NBB20-U4-E2



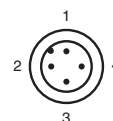
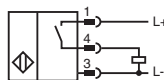
NBB20-U1-E1



NBB20-U1-E3



NBB20-U4-E2-C-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Flexible *VariKont* housing
- 20 mm, flush mountable
- DC, 4-wire switching output
- Terminal compartment

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	20 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Protection degree	IP68 / IP69K
Connection type	screw terminals



Model Number

		green = preferred type	NB1	NB2	NB3	NB4	NB5	NB6	NB7	NB8	NB9	NB10	NB11	NB12
Switching element function	NPN NO/NC PNP NO/NC		●	●	■		●		■	■		■	■	■
Switching frequency	0 ... 150 Hz 0 ... 300 Hz		●		●	●		■	■	■			■	■
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F) -25 ... 85 °C (-13 ... 185 °F)			●		●		■		■		■	■	
Housing material	PA / LCP PA/metal with epoxy powder coating			●		■		■		■		■	■	
Housing base	plastic metal		●	●	●	●	●	●	■		■	■	■	■

Approvals and Certificates

UL approval	cULus Listed, General Purpose	          
CSA approval	cCSAus Listed, General Purpose	          
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.	

Dimensions

Length L [mm]	118
Width W [mm]	40
Head width W_h [mm]	40
Height H [mm]	40
Connector area I_c [mm]	0 (M20 x 1.5) 0 (1/2" NPT) 20

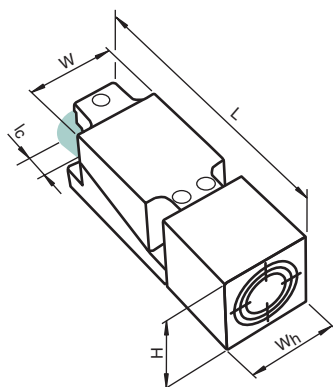
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

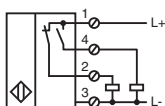
V1-M20-80	Receptacles, M12/M20; plastic version
MHW 01	Modular mounting bracket
MH 04-2681F	Mounting aid for VariKont. +U1+ and +U9*



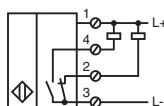
Electrical Connection



NBB20-U1-A2
NBB20-U1-A2-T
NBB20-U10-A2
NBB20-U2-A2
NBB20-U2-A2-T
NBB20-U4-A2
NBB20-U4-A2-T



NBB20-U1-A0
NBB20-U1-A0-T
NBB20-U2-A0
NBB20-U4-A0
NBB20-U4-A0-T





Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	40 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 150 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	PA/metal with epoxy powder coating
Protection degree	IP68 / IP69K
Connection type	screw terminals



Properties

- Flexible **VariKont** housing
- 40 mm, non-flush mountable
- DC, 3-wire switching output
- Terminal compartment

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions

Model Number

			green = preferred type	NBN40-U1-E0	NBN40-U1-E1	NBN40-U1-E2	NBN40-U1-E3	NBN40-U2-E0	NBN40-U2-E2	NBN40-U4-E0	NBN40-U4-E2	NBN40-U10-E2
Switching element function	NPN	NO	●					●		●		
	NPN	NC			●							
	PNP	NO				●			●		●	●
	PNP	NC					●					
Housing base	plastic		●	●	●	●	●	●	●			●
	metal									●	●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.											

Dimensions

Length L [mm]	118
Width W [mm]	40
Head width W _h [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0 (M20 x 1,5) 0 (1/2" NPT) 20

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-M20-80

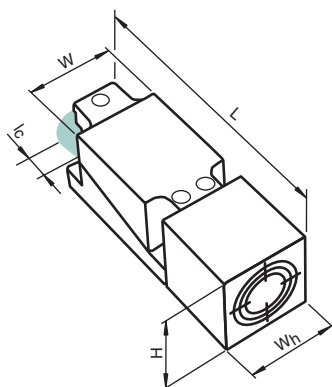
Receptacles, M12/M20; plastic version

MH 04-2681F

Mounting aid for VariKont, +U1+ and +U9*

MHW 01

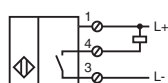
Modular mounting bracket



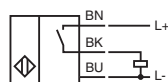
Electrical Connection



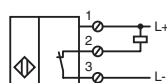
NBN40-U1-E0
NBN40-U2-E0
NBN40-U4-E0



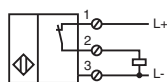
NBN40-U2-E2



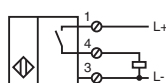
NBN40-U1-E1



NBN40-U1-E3



NBN40-U1-E2
NBN40-U4-E2
NBN40-U10-E2



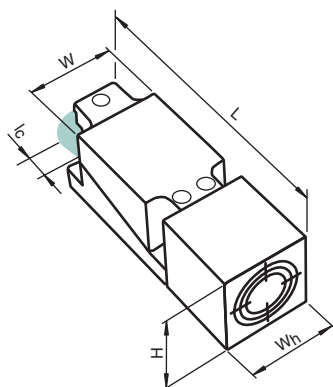


Properties

- Flexible **VariKont** housing
- 40 mm, non-flush mountable
- DC, 4-wire switching output
- Terminal compartment

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	40 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Protection degree	IP68 / IP69K
Connection type	screw terminals



Model Number

		green = preferred type	NBN40-U1-A0	NBN40-U1-A2	NBN40-U1-A2-T	NBN40-U2-A2	NBN40-U2-A2-T	NBN40-U4-A2
Switching element function	NPN	NO/NC	●	●	●	●	●	●
	PNP	NO/NC						
Switching frequency	0 ... 150 Hz		●	●	●	●	●	●
	0 ... 250 Hz				●		●	
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)		●	●	●	●	●	●
	-25 ... 85 °C (-13 ... 185 °F)					●		
Housing material	PA / LCP				●		●	
	PA/metal with epoxy powder coating		●	●		●		●
Housing base	plastic		●	●	●	●	●	●
	metal							●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.							

Dimensions

Length L [mm]	118
Width W [mm]	40
Head width W _h [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0 (M20 x 1,5) 0 (1/2" NPT)

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

MH 04-2681F

Mounting aid for VariKont, +U1+ and +U9*

V1-M20-80

Receptacles, M12/M20; plastic version

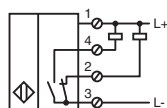
MHW 01

Modular mounting bracket

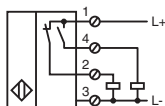
Electrical Connection

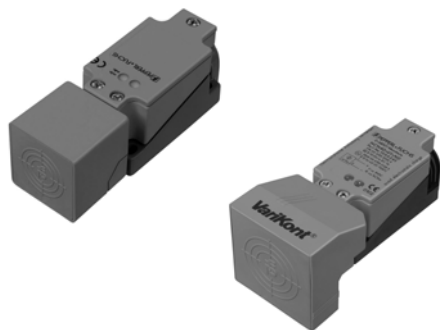


NBN40-U1-A0



NBN40-U1-A2
NBN40-U1-A2-T
NBN40-U2-A2
NBN40-U2-A2-T
NBN40-U4-A2





Properties

- Flexible **VariKont** housing
- 20 mm and 40 mm, non-flush mountable versions
- AC, 2-wire switching output
- Terminal compartment

Your Benefit

- Sensor head can be aligned in 5 different positions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	non-flush
Switching element function	AC NO/NC
Operating voltage	20 ... 253 V
Switching frequency	0 ... 20 Hz
Operating current	10 ... 500 mA
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Protection degree	IP68
Connection type	screw terminals



Model Number

		NJ20+U1+W	NJ20+U1+W-T	NJ20+U4+W	NJ40+U1+W	NJ40+U2+W	NJ40+U4+W	NJ40+U4+W-T
Rated operating distance	green = preferred type 20 mm 40 mm	●	●	●	●	●	●	●
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F) -25 ... 70 °C (-13 ... 158 °F) 0 ... 100 °C (32 ... 212 °F)	●	●	●	●	●	●	●
Housing material	PBT PBT/base of metal	●	●	●	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●	●

Dimensions

Length L [mm]		118		128
Width W [mm]			40	
Head width W _h [mm]		40		55
Height H [mm]		40		55
Connector area l _c [mm]	a) 0 (1/2" NPT) b) 0 (M20 x 1,5)	b	a	b

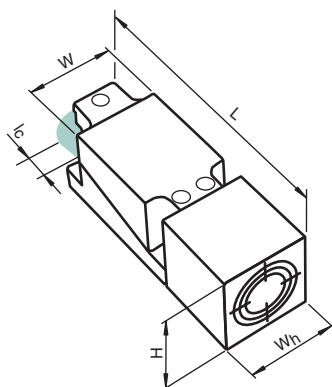
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

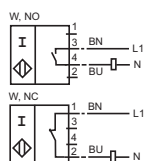
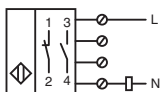
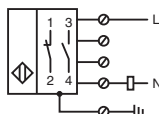
V1-G-BK	4-pin, M12 female field-attachable connector
MHW 01	Modular mounting bracket
V1-M20-80	Receptacles, M12/M20; plastic version
V1-W-BK	4-pin, M12 female field-attachable connector

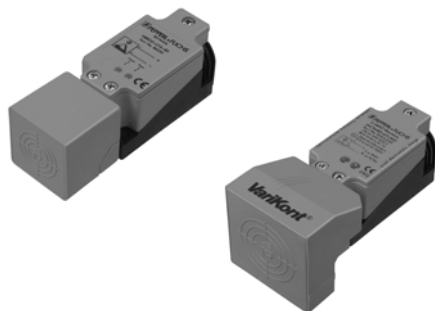


Electrical Connection



NJ20+U1+W-T

NJ20+U1+W
NJ40+U1+W
NJ40+U2+WNJ20+U4+W
NJ40+U4+W
NJ40+U4+W-T



Properties

- Flexible **VariKont** housing
- 20 mm and 40 mm, non-flush mountable versions
- AC, 4-wire switching output
- Terminal compartment

Your Benefit

- Sensor head can be aligned in 5 different positions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	non-flush
Switching element function	AC NO/NC
Operating voltage	20 ... 253 V
Switching frequency	0 ... 20 Hz
Operating current	10 ... 500 mA
Indication of the switching state	LED green: NC LED red: NO
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT housing/PBT base
Protection degree	IP68
Connection type	screw terminals



Model Number

		NJ40+U2+W4	NJ40+U1+W4	NJ20+U1+W4
Rated operating distance	20 mm			
	40 mm			

Approvals and Certificates

UL approval	cULus Listed, General Purpose			
CSA approval	cCSAus Listed, General Purpose			
CCC approval	Certified by China Compulsory Certification (CCC)			

Dimensions

Length L [mm]	128	118
Width W [mm]	40	
Head width W _h [mm]	55	40
Height H [mm]	55	40
Connector area l _c [mm]	0 (1/2" NPT)	0 (M20 x 1,5)

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-M20-80

Receptacles, M12/M20; plastic version

V1-G-BK

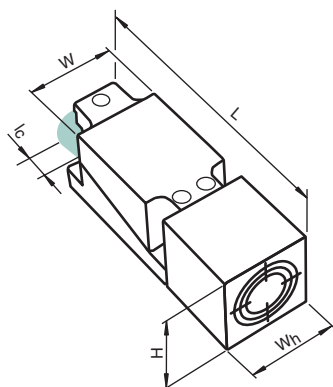
4-pin, M12 female field-attachable connector

V1-W-BK

4-pin, M12 female field-attachable connector

MHW 01

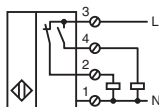
Modular mounting bracket

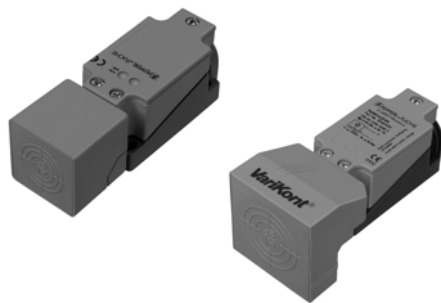


Electrical Connection



NJ20+U1+W4
NJ40+U1+W4
NJ40+U2+W4





Properties

- Flexible **VariKont** housing
- 20 mm, flush / non-flush and 40 mm, non-flush mountable versions
- AC/DC, 2-wire switching output
- Terminal compartment

Your Benefit

- Sensor head can be aligned in 5 different positions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	AC/DC	NO/NC
Operating voltage	20 ... 253 V	
Short-circuit protection	pulsing	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	
Protection degree	IP68	
Connection type	screw terminals	



Model Number

		NCB20+U4+U	NCN20+U1+U	NCN40+U1+U	NCN40+U2+U	NCN40+U4+U
Rated operating distance	20 mm	●	●			
	40 mm			●	●	●
Installation	flush	●				
	non-flush		●	●	●	●
Switching frequency	0 ... 25 Hz		●	●	●	●
	200 Hz VDC / 30 Hz VAC	●				
Operating current	3 ... 400 mA	●				
	5 ... 500 mA		●	●	●	●
Operating voltage display	LED, green		●	●	●	●
Indication of the switching state	LED, yellow		●	●	●	●
Housing material	PBT housing/PBT base		●	●	●	
	PBT housing/metal base	●				●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)		●	●	●	●

Dimensions

Length L [mm]	118	128
Width W [mm]	40	40
Head width W _h [mm]	40	55
Height H [mm]	40	55
Connector area l _c [mm]	0 (1/2" NPT)	0 (M20 x 1,5) 0 (1/2" NPT)

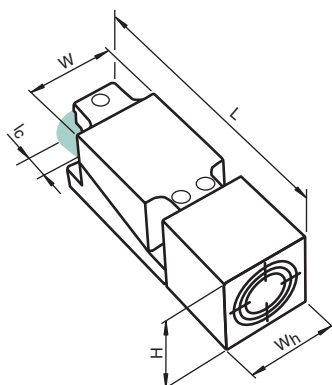
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

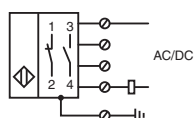
V1-W-BK	4-pin, M12 female field-attachable connector
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
V1-M20-80	Receptacles, M12/M20; plastic version



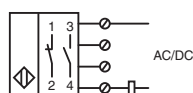
Electrical Connection



NCB20+U4+U
NCN40+U4+U



NCN40+U1+U
NCN20+U1+U
NCN40+U2+U





Properties

- Flat pack housing
- 50 mm, flush and non-flush mountable versions
- DC, 2-wire switching output
- Terminal compartment and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	50 mm
Operating voltage	10 ... 60 V DC
Reverse polarity protection	✓
Switching frequency	0 ... 80 Hz
Operating current	2 ... 200 mA
Lowest operating current	2 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)

Model Number

		NCB50-FP-Z2-P1	NCN50-FP-Z2-P1	NCN50-FP-Z2-P4	NCB50-FP-Z4-V1	NCB50-FP-Z5-V1
Installation	flush	●			●	●
	non-flush		●	●		
Switching element function	DC NO/NC	●	●	●		
	DC NO				●	
	DC NC					●
Housing material	PBT housing / PBT base	●	●		●	●
	PBT housing / metal base			●		
Protection class	II	●				
Protection degree	IP67		●	●		
	IP68	●			●	●
Connection type	Device connector M12 x 1, 4-pin screw terminals	●	●	●	●	●



Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)				●	
	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.			●		

Dimensions

Length L [mm]	84	80	84
Width W [mm]	84	80	84
Height H [mm]		40	
Cap length l ₁ [mm]		0	
Connector area l _c [mm]	9 (M20 x 1,5)	11 (M20 x 1,5)	25

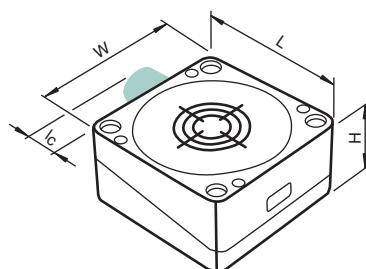
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

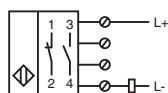
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



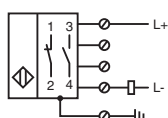
Electrical Connection



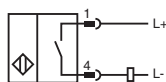
NCB50-FP-Z2-P1
NCN50-FP-Z2-P1



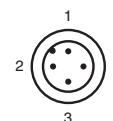
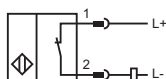
NCN50-FP-Z2-P4



NCB50-FP-Z4-V1



NCB50-FP-Z5-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)





Properties

- Flat pack housing
- 40 mm and 50 mm, flush mountable
- DC, 3-wire and 4-wire switching output versions
- Terminal compartment and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	50 mm
Installation	flush
Operating voltage	10 ... 60 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 80 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP68

Model Number

	green = preferred type
Rated operating distance	40 mm
	50 mm
Switching element function	PNP NO/NC
	PNP NO
Housing material	PBT housing / PBT base
	PBT housing / metal base
Connection type	Device connector M12 x 1, 4-pin screw terminals

NCB50-FP-E2-P1	NCB50-FP-E2-P4	NCB40-FP-A2-P1	NCB50-FP-A2-P1	NCB50-FP-A2-P4	NCB50-FP-E2-P1-V1	NCB40-FP-A2-P1-V1	NCB50-FP-A2-P1-V1
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Certified by China Compulsory Certification (CCC)

Dimensions

Length L [mm]	84	84	80	84	84	84	80	84
Width W [mm]	84	84	80	84	84	84	80	84
Height H [mm]					40			
Cap length l ₁ [mm]					0			
Connector area l _c [mm]	a) 10 (1/2" NPT)	c	a	c	c	a	b	
	b) 25							
	c) 9 (M20 x 1.5)							

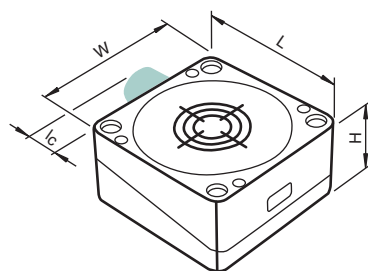
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

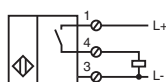
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-BK	4-pin, M12 female field-attachable connector



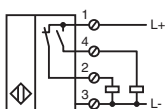
Electrical Connection



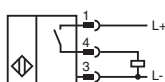
NCB50-FP-E2-P4
NCB50-FP-E2-P1



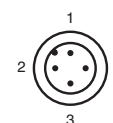
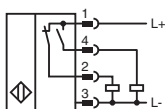
NCB50-FP-A2-P4
NCB40-FP-A2-P1
NCB50-FP-A2-P1



NCB50-FP-E2-P1-V1



NCB40-FP-A2-P1-V1
NCB50-FP-A2-P1-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Flat pack housing
- 50 mm, non-flush mountable
- DC, 4-wire switching output
- Terminal compartment and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	50 mm
Installation	non-flush
Switching element function	PNP NO/NC
Operating voltage	10 ... 60 V
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 80 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT housing / PBT base
Protection degree	IP68

Model Number

Connection type	Device connector M12 x 1, 4-pin screw terminals
-----------------	---

NCN50-FP-A2-P1



NCN50-FP-A2-P1-V1



Approvals and Certificates

UL approval	cULus Listed, General Purpose	•	•
CSA approval	cCSAus Listed, General Purpose	•	•
CCC approval	Certified by China Compulsory Certification (CCC)	•	•

Dimensions

Length L [mm]	80	
Width W [mm]	80	
Height H [mm]	40	
Cap length l ₁ [mm]	0	
Connector area l _c [mm]	11 (M20 x 1.5)	27

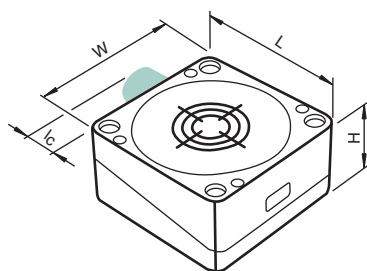
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

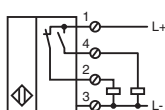
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable



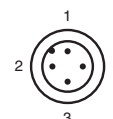
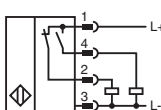
Electrical Connection



NCN50-FP-A2-P1



NCN50-FP-A2-P1-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)





Properties

- Flat pack housing
- 40 mm, flush mountable
- AC, 2-wire switching output
- Terminal compartment

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	40 mm
Installation	flush
Switching element function	AC NO/NC
Operating voltage	20 ... 253 V
Switching frequency	0 ... 20 Hz
Operating current	5 ... 500 mA
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP68
Connection type	screw terminals



Model Number

	green = preferred type
Housing material	PBT housing / PBT base
	PBT housing / metal base

NCB40-FP-W-P1

NCB40-FP-W-P2

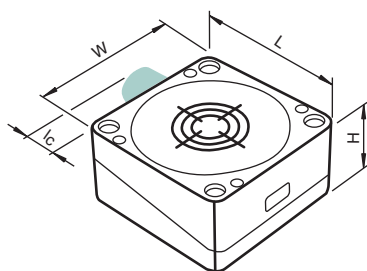
NCB40-FP-W-P4

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●		

Dimensions

Length L [mm]	80
Width W [mm]	80
Height H [mm]	40
Cap length l ₁ [mm]	0
Connector area l _c [mm]	11 (M20 x 1.5) 11 (1/2" NPT)

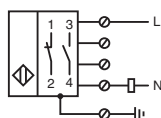
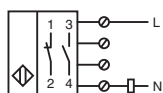


Electrical Connection



NCB40-FP-W-P1
NCB40-FP-W-P2

NCB40-FP-W-P4





Properties

- Flat pack housing
- 40 mm and 50 mm, non-flush mountable versions
- AC, 2-wire switching output
- Terminal compartment

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	non-flush
Switching element function	AC NO/NC
Operating voltage	20 ... 253 V AC
Switching frequency	0 ... 20 Hz
Operating current	5 ... 500 mA
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Protection degree	IP68
Connection type	screw terminals



Model Number

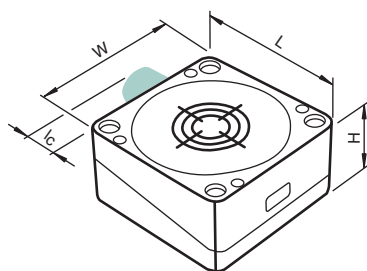
		NCN40-FP-W-T-P1	NCN40-FP-W-T-P4	NCN50-FP-W-P1	NCN50-FP-W-P2	NCN50-FP-W-P4
Rated operating distance	40 mm 50 mm	●	●	●	●	●
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F) -25 ... 70 °C (-13 ... 158 °F)	●	●	●	●	●
Housing material	PBT housing / PBT base PBT housing / metal base	●	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●

Dimensions

Length L [mm]					80
Width W [mm]					80
Height H [mm]					40
Cap length l ₁ [mm]					0
Connector area l _c [mm]	a) 11 (1/2" NPT) b) 11 (M20 x 1.5)	b	a	b	a

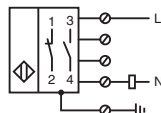
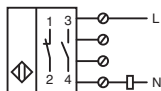


Electrical Connection



NCN40-FP-W-T-P1
NCN50-FP-W-P2
NCN50-FP-W-P1

NCN50-FP-W-P4
NCN40-FP-W-T-P4





Properties

- Flat pack housing
- 40 mm, non-flush mountable
- DC, 3-wire analog output
- Terminal compartment and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	non-flush
Measurement range	15 ... 40 mm
Switching element function	Analog current output 0 ... 20 mA
Operating voltage	15 ... 30 V DC
No-load supply current	≤ 8 mA
Repeat accuracy	0 ... 6 μm
Output type	0 ... 20 mA
Linearity error	≤ ± 10 % of full-scale value
Load resistor	≤ 500 Ω
Adjustment tolerance zero point	≤ ± 10 % of full-scale value
Ambient temperature	-10 ... 70 °C (14 ... 158 °F)
Housing material	PBT housing / PBT base
Protection degree	IP67

Model Number

Connection type	green = preferred type Device connector M12 x 1, 4-pin screw terminals
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IA40-FP-I3-P1

IA40-FP-I3-P2

IA40-FP-I3-P2-V1



Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.			

Dimensions

Length L [mm]	80
Width W [mm]	80
Height H [mm]	40
Cap length l ₁ [mm]	0
Connector area l _c [mm]	11 (M20 x 1,5)

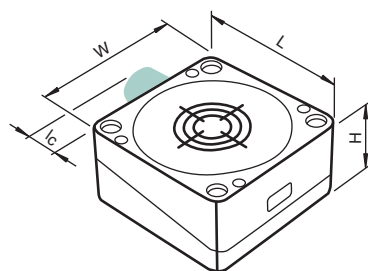
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

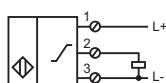
V1-G-2M-PVC	Cable socket, M12, 4-pin, PVC cable
DA5-IU-C	Digital display unit
V1-W-2M-PVC	Cable socket, M12, 4-pin, PVC cable



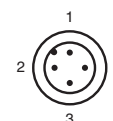
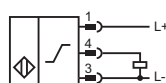
Electrical Connection



IA40-FP-I3-P2
IA40-FP-I3-P1



IA40-FP-I3-P2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



CE

Properties

- Compact flat pack housing
- 25 mm, flush and 30 mm non-flush mountable versions
- DC, 3-wire and 4-wire switching output versions
- Terminal compartment

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Short-circuit protection	✓
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	PBT
Housing base	PBT
Protection degree	IP65
Connection type	screw terminals



Model Number

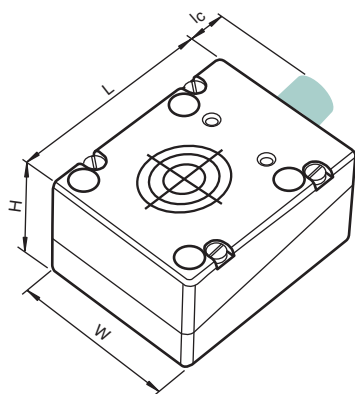
		NBN30-FPS-E5	NBB25-FPS-A2	NBN30-FPS-A2
Rated operating distance	green = preferred type			
	25 mm	•	•	•
	30 mm			
Installation	flush	•	•	•
	non-flush	•		•
Switching element function	PNP, NO/NC, programmable	•		
	PNP NO/NC		•	•
Operating voltage	10 ... 30 V DC	•	•	•
	10 ... 65 V DC			
Switching frequency	0 ... 50 Hz	•		•
	0 ... 70 Hz		•	
Operating current	0 ... 200 mA		•	•
	0 ... 300 mA	•		

Approvals and Certificates

CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		•	•
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Dimensions

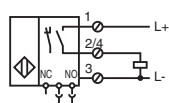
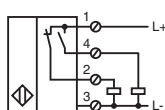
Length L [mm]	77
Width W [mm]	60
Height H [mm]	41
Connector area l _c [mm]	8



Electrical Connection



NBN30-FPS-E5

NBB25-FPS-A2
NBN30-FPS-A2

1
.1.2

Proximity Sensors, Inductive Sensors, rectangular types



Properties

- Compact flat pack housing
- 30 mm non-flush mountable
- AC/DC, 2-wire switching output
- Terminal compartment

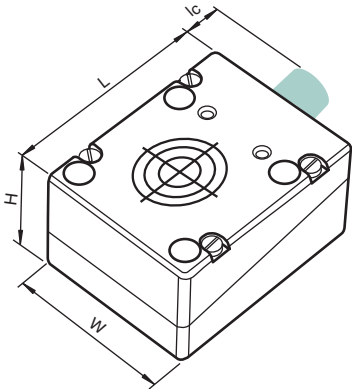
Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

Model Number	NBN30-FPS-UU
Rated operating distance	30 mm
Installation	non-flush
Switching element function	AC/DC NO/NC
Operating voltage	20 ... 265 V AC/DC
No-load supply current	≤ 2 mA
Reverse polarity protection	✓
Switching frequency	0 ... 25 Hz
Operating current	0 ... 300 mA
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	PBT
Housing base	PBT
Protection degree	IP65
Connection type	screw terminals



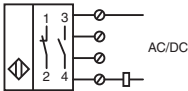
Dimensions	
Length L [mm]	77
Width W [mm]	60
Height H [mm]	41
Connector area l _c [mm]	8



Electrical Connection



NBN30-FPS-UU





Properties

- F23 surface mount housing
- 100 mm non-flush mountable
- DC, 3-wire switching output
- Connector version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

Model Number	NCN100-F23-E2-V1
Rated operating distance	100 mm
Installation	non-flush
Switching element function	PNP NO
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 10 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	ABS (TSG), bottom Al
Protection degree	IP67
Connection type	Device connector M12 x 1, 4-pin



Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

Dimensions

Length L [mm]	177
Width W [mm]	177
Height H [mm]	60.5
Connector area l _c [mm]	15

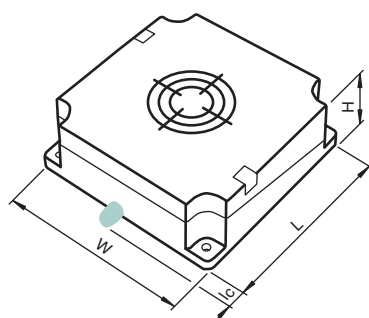
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

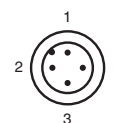
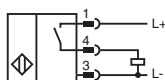
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable



Electrical Connection



NCN100-F23-E2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)





Properties

- F23 surface mount housing
- 100 mm non-flush mountable
- AC/DC, 2-wire switching output
- Connector version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

Model Number	NCN100-F23-US-V93
Rated operating distance	100 mm
Installation	non-flush
Switching element function	Normally open
Operating voltage	20 ... 300 V DC 20 ... 253 V AC
No-load supply current	≤ 1 mA
Switching frequency	0 ... 10 Hz
Operating current	0 ... 300 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	ABS (TSG), bottom Al
Protection degree	IP67
Connection type	Device connector 7/8"-16 UN , 3-pin



Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Certified by China Compulsory Certification (CCC)

Dimensions

Length L [mm]	177
Width W [mm]	177
Height H [mm]	60.5
Connector area l _c [mm]	15

Accessories

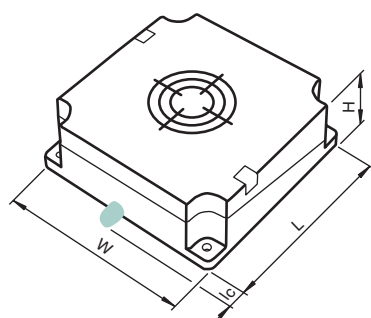
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V93-G-YE2M-STOOW

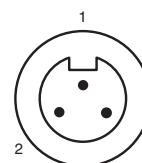
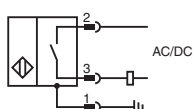
Female connector, 7/8" - 16 UNF, 3-pin, PUR cable



Electrical Connection



NCN100-F23-US-V93



Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)



Properties

- Miniature F29 housing
- 4 mm non-flush mountable
- DC, 3-wire switching output
- Cable version

Your Benefit

- Specially optimized for welding applications

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	4 mm
Installation	non-flush
Switching element function	PNP NO
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1000 Hz
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PPS
Protection degree	IP67

Model Number

Connection type	cable PUR, irradiated , 2 m cable PVC , 2 m
-----------------	--

NBN4-F29-E2-C

NBN4-F29A-E2-C

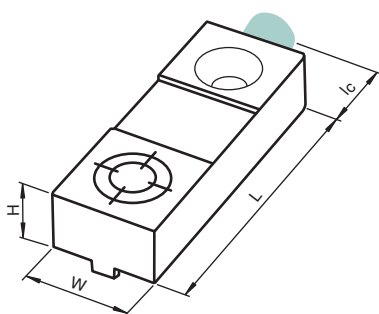


Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

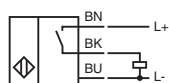
Length L [mm]	27
Width W [mm]	10
Height H [mm]	6
Connector area l _c [mm]	4



Electrical Connection



NBN4-F29A-E2-C
NBN4-F29-E2-C



1
.1.2

Properties

- Flexible **VariKont-L** housing
- 20 mm, flush mountable
- DC, 2-wire switching output
- Connector version

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Mounting base with quick clamping lever for swift mounting
- Rotatable connector allows all orientations of the attached cordset
- Specially optimized for welding applications

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

Model Number	NBB20-L2-Z4-C-V1
Rated operating distance	20 mm
Installation	flush
Switching element function	NO
Operating voltage	3.8 ... 30 V DC
Reverse polarity protection	✓
Switching frequency	0 ... 3 Hz
Operating current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP69K
Connection type	Device connector M12 x 1, 4-pin



Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0

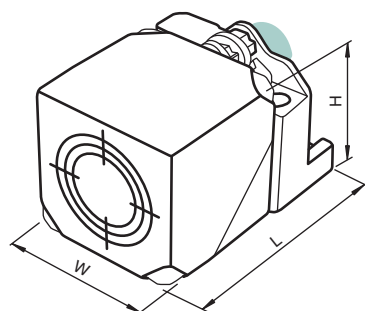
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

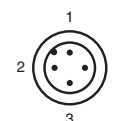
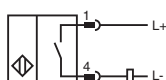
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
MH 02-L	Mounting aid



Electrical Connection



NBB20-L2-Z4-C-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

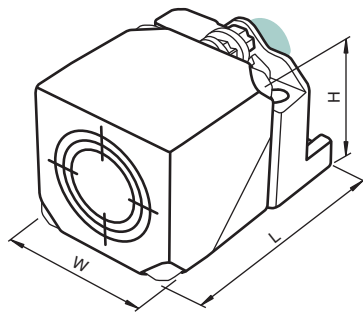


Properties

- Flexible **VariKont-L** housing
- 20 mm, flush and 40 mm non-flush mountable versions
- DC, 3-wire and 4-wire switching output
- Connector version

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Mounting base with quick clamping lever for swift mounting
- Rotatable connector allows all orientations of the attached cordset
- Specially optimized for welding applications



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 10 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	PA
Protection degree	IP69K
Connection type	Device connector M12 x 1, 4-pin



Model Number

		NBB20-L2-E2-C-V1	NBB20-L2-A2-C-V1	NBN40-L2-E2-C-V1	NBN40-L2-A2-C-V1
Rated operating distance	20 mm	●	●	●	●
	40 mm				
Installation	flush	●	●		
	non-flush			●	●
Switching element function	PNP	●	●	●	●
	NO/NC				
	NO				

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

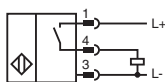
See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
MH 02-L	Mounting aid

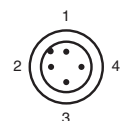
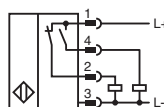
Electrical Connection



NBB20-L2-E2-C-V1
NBN40-L2-E2-C-V1



NBB20-L2-A2-C-V1
NBN40-L2-A2-C-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



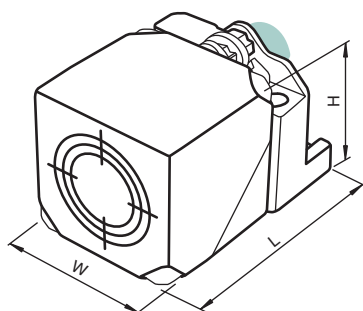


Properties

- Flexible **VariKont-L** housing
- 20 mm, flush and 40 mm non-flush mountable versions
- DC, 3-wire bistable switching output
- Connector version

Your Benefit

- Sensor for special applications e.g. conveyor systems due to bistable switching behavior
- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Mounting base with quick clamping lever for swift mounting
- Rotatable connector allows all orientations of the attached cordset
- Specially optimized for welding applications



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	PNP	NO
Operating voltage	10 ... 30 V	
No-load supply current	≤ 25 mA	
Reverse polarity protection	✓	
Switching frequency	0 ... 50 Hz	
Operating current	0 ... 200 mA	
Short-circuit protection	pulsing	
Operating voltage display	LED, green	
Indication of the switching state	LED, yellow	
Ambient temperature	0 ... 50 °C (32 ... 122 °F)	
Housing material	PA 6 Grivory GVN-35H	
Protection degree	IP69K	
Connection type	Device connector M12 x 1, 4-pin	



Model Number

Rated operating distance	20 mm
	40 mm
Installation	flush
	non-flush

NBB20-L2-E2B-C-V1

NBN40-L2-E2B-C-V1

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

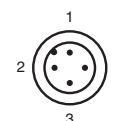
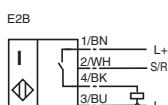
See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
MH 02-L	Mounting aid

Electrical Connection



NBB20-L2-E2B-C-V1
NBN40-L2-E2B-C-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

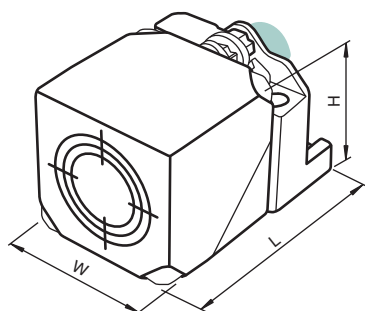


Properties

- Flexible **VariKont-L** housing
- 20 mm, flush and 40 mm non-flush mountable versions
- DC, 4-wire switching output
- Connector version

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Mounting base with quick clamping lever for swift mounting
- Rotatable connector allows all orientations of the attached cordset
- Specially optimized for welding applications



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 5 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Connection type	Device connector M12 x 1, 4-pin



Model Number

		NBB20-L3-A2-C3-V1	NBB20-L3M-A0-C3-V1	NBB20-L3M-A2-C3-V1	NBN40-L3M-A2-C3-V1
Rated operating distance	20 mm	●	●	●	
	40 mm				●
Installation	flush	●	●	●	
	non-flush				●
Switching element function	NPN NO/NC		●		
	PNP NO/NC	●		●	●
Housing material	GD-ZnAl4Cu1, Coated metal fixing flange, coated.		●	●	●
	GD-ZnAl4Cu1, coated mounting flange PA6-GF35	●			
Housing base	PTFE coated zinc	●			

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

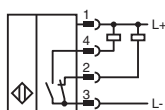
See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant
V1-W-BK	4-pin, M12 female field-attachable connector
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
MH 02-L	Mounting aid

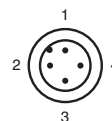
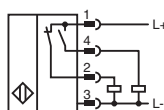
Electrical Connection



NBB20-L3M-A0-C3-V1



NBB20-L3-A2-C3-V1
NBB20-L3M-A2-C3-V1
NBN40-L3M-A2-C3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



1
.1.2

Properties

- Flexible **VariKont-L** housing
- 20 mm, flush and 40 mm non-flush mountable versions
- AC/DC, 2-wire switching output
- Connector version

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Mounting base with quick clamping lever for swift mounting
- Rotatable connector allows all orientations of the attached cordset
- Specially optimized for welding applications

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	20 ... 250 V AC/DC
No-load supply current	≤ 0.6 mA
Reverse polarity protection	✓
Switching frequency	2 Hz
Operating current	3 ... 300 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PTFE coated zinc
Housing base	PTFE coated zinc
Protection degree	IP67

Model Number

		NBB20-L3M-US-C3-V12	NBB20-L3M-US-C3-V93	NBB20-L3M-UO-C3-V12	NBN40-L3M-US-C3-V12	NBN40-L3M-US-C3-V93
Rated operating distance	20 mm	●	●	●	●	●
	40 mm					
Installation	flush	●	●	●		
	non-flush				●	●
Switching element function	AC/DC normally open	●	●		●	●
	AC/DC normally closed			●		
Connection type	Device connector 1/2"-20 UN , 3-pin	●		●	●	
	Device connector 7/8"-16 UN , 3-pin		●			●



Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V93-G-YE2M-STOOW

Female connector, 7/8" - 16 UNF, 3-pin, PUR cable

V12-W-YE2M-PUR-H/S

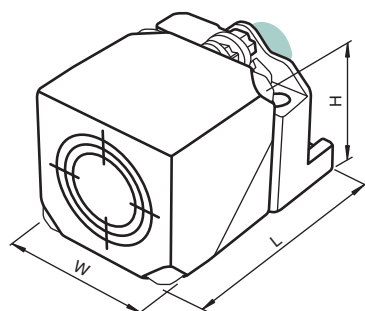
Connecting cable, 1/2" - 20 UNF, 3-pin, irradiated PUR cable

MHW 01

Modular mounting bracket

MH 02-L

Mounting aid



Electrical Connection



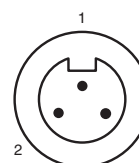
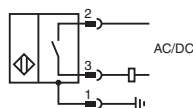
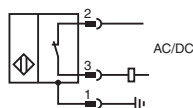
NBB20-L3M-UO-C3-V12

NBB20-L3M-US-C3-V12

NBB20-L3M-US-C3-V93

NBN40-L3M-US-C3-V12

NBN40-L3M-US-C3-V93



Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)



Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)

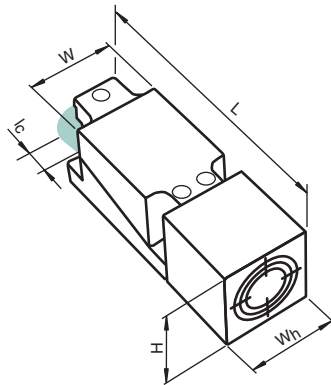


Properties

- Flexible **VariKont** housing
- Up to 40 mm, flush and non-flush mountable versions
- DC, 3-wire switching output
- Terminal compartment and connector versions

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Specially optimized for welding applications



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	PNP	NO
Operating voltage	10 ... 30 V DC	
No-load supply current	≤ 20 mA	
Reverse polarity protection	✓	
Switching frequency	0 ... 5 Hz	
Operating current	0 ... 200 mA	
Short-circuit protection	pulsing	
Operating voltage display	LED, green	
Indication of the switching state	LED, yellow	
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)	
Housing material	PA	
Housing base	plastic	
Protection degree	IP68 / IP69K	

Model Number

		NBB15-U1-E2-C	NBN40-U1-E2-C	NBB20-U1-E2-C-V1
Rated operating distance	15 mm	●		
	20 mm			●
	40 mm		●	
Installation	flush	●		●
	non-flush		●	
Connection type	Device connector M12 x 1, 4-pin			●
	screw terminals	●	●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.			

Dimensions

Length L [mm]	118
Width W [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0
	20

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

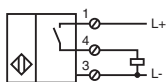
See pages 1068 ... for mounting aids

MHW 01	Modular mounting bracket
V1-M20-80	Receptacles, M12/M20; plastic version
V1-G-BK	4-pin, M12 female field-attachable connector
MH 04-2681F	Mounting aid for VariKont, +U1+ and +U9*
V1-W-BK	4-pin, M12 female field-attachable connector

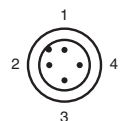
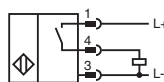
Electrical Connection



NBB15-U1-E2-C
NBN40-U1-E2-C



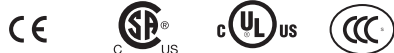
NBB20-U1-E2-C-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)





Properties

- Flat pack housing
- 50 mm, flush mountable
- DC, 3-wire and 4-wire switching output versions
- Connector version

Your Benefit

- Specially optimized for welding applications

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	50 mm
Installation	flush
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT/metal
Protection degree	IP68
Connection type	Device connector M12 x 1, 4-pin



Model Number

			NCB50-FP-E2-C-P1-V1	NCB50-FP-E2-C-P3-V1	NCB50-FP-A2-C-P3-V1
Switching element function	PNP NO		●	●	
	PNP NO/NC				●
Operating voltage	10 ... 30 V DC			●	
	10 ... 60 V DC		●		●
Housing base	metal			●	●
	PBT		●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●		●

Dimensions

Length L [mm]		84
Width W [mm]		84
Height H [mm]		40
Connector area l _c [mm]	25	32

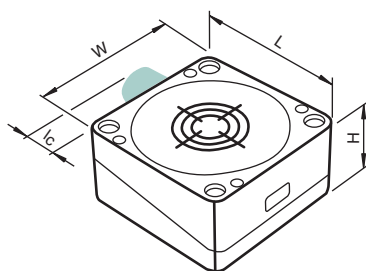
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable

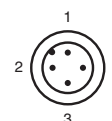
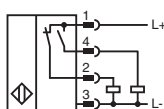
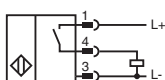


Electrical Connection



NCB50-FP-E2-C-P1-V1
NCB50-FP-E2-C-P3-V1

NCB50-FP-A2-C-P3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 30 V DC
No-load supply current	≤ 25 mA
Reverse polarity protection	✓
Switching frequency	0 ... 100 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	GD-ZnAl4Cu1, coated mounting flange PA6-GF35

Protection degree	IP67
Connection type	Device connector M12 x 1, 4-pin



Properties

- Flexible **VariKont-L** housing
- Up to 40 mm, flush and non-flush mountable versions
- DC, 3-wire and 4-wire switching output versions
- Connector version

Your Benefit

- Same sensing range for all metals
- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Rotatable connector allows all orientations of the attached cordset
- Mounting base with quick clamping lever for swift mounting

Model Number

		NRB20-L3-A2-V1	NRB20-L3-E2-V1	NRN35-L3-A2-V1	NRN40-L3K-A2-V1
Rated operating distance	20 mm	●	●		
	35 mm			●	
	40 mm				●
Installation	flush	●	●		
	non-flush			●	●
Switching element function	PNP NO/NC	●		●	●
	PNP NO		●		

Approvals and Certificates

Protection class	II	●	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0

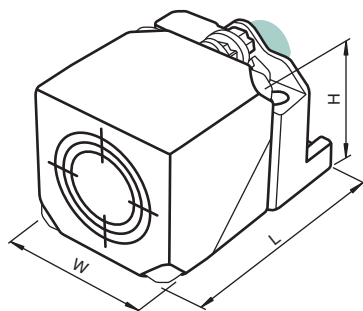
Accessories

This and more accessories can be found in chapter 10

See pages 972 ... for cordsets

See pages 1068 ... for mounting aids

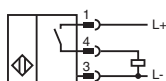
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
MH 02-L	Mounting aid



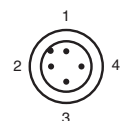
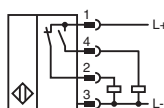
Electrical Connection



NRB20-L3-E2-V1



NRB20-L3-A2-V1
NRN35-L3-A2-V1
NRN40-L3K-A2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)





Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 30 V DC
No-load supply current	≤ 25 mA
Reverse polarity protection	✓
Switching frequency	0 ... 100 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	GD-ZnAl4Cu1, coated mounting flange PA6-GF35
Protection degree	IP67
Connection type	Device connector M12 x 1, 4-pin



Properties

- Flexible **VariKont-L** housing
- Up to 40 mm, flush and non-flush mountable versions
- DC, 3-wire and 4-wire switching output versions
- Connector version

Your Benefit

- Same sensing range for all metals
- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Rotatable connector allows all orientations of the attached cordset
- Mounting base with quick clamping lever for swift mounting

Further Products

In this series, we offer additionally:

NRB20-L3M-A2-C3-V1

Technical data like NRB20-L3-A2-C-V1 but:
Housing material: GD-ZnAl4Cu1, coated
metal fixing flange, coated.

Model Number

		NRB20-L3-E2-C-V1	NRB20-L3-A2-C-V1	NRN35-L3-E2-C-V1	NRN35-L3-A2-C-V1	NRN40-L3K-E2-C-V1	NRN40-L3K-A2-C-V1
Rated operating distance	20 mm	●	●				
	35 mm			●	●		
	40 mm					●	●
Installation	flush	●	●				
	non-flush			●	●	●	●
Switching element function	PNP NO/NC		●		●	●	●
	PNP NO	●		●		●	

Approvals and Certificates

Protection class	II	●	●	●	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.						

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0

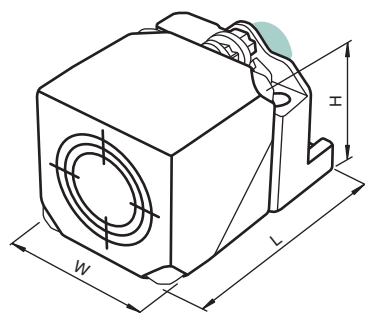
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

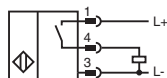
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
MH 02-L	Mounting aid



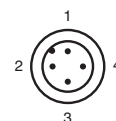
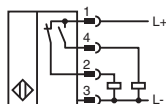
Electrical Connection



NRN35-L3-E2-C-V1
NRB20-L3-E2-C-V1
NRN40-L3K-E2-C-V1



NRB20-L3-A2-C-V1
NRB20-L3M-A2-C3-V1
NRN35-L3-A2-C-V1
NRN40-L3K-A2-C-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Flexible *VariKont* housing
- 20 mm, flush and 40 mm, non-flush mountable versions
- DC, 4-wire switching output
- Terminal compartment

Your Benefit

- Same sensing range for all metals
- All-around visible status display
- Sensor head can be aligned in 5 different positions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	PNP	NO/NC
Operating voltage	10 ... 30 V DC	
No-load supply current	≤ 25 mA	
Reverse polarity protection	✓	
Switching frequency	0 ... 100 Hz	
Operating current	0 ... 200 mA	
Short-circuit protection	pulsing	
Operating voltage display	LED, green	
Indication of the switching state	LED, yellow	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	
Housing material	PA/metal with epoxy powder coating	
Housing base	plastic	
Protection degree	IP67	
Connection type	screw terminals	



Model Number	NRB20-U1-A2	NRN40-U1-A2
Rated operating distance	20 mm	40 mm
Installation	flush	non-flush

Approvals and Certificates

Protection class	II	
UL approval	cULus Listed, General Purpose	
CSA approval	cCSAus Listed, General Purpose	
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	

Dimensions

Length L [mm]	118
Width W [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0 (M20 x 1.5)

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

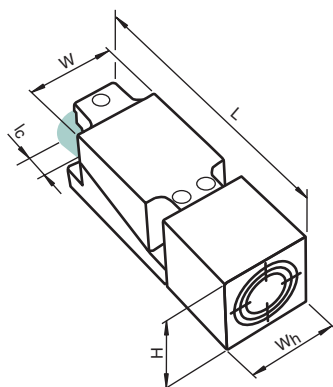
See pages 1068 ... for mounting aids

MHW 01

Modular mounting bracket

MH 04-2681F

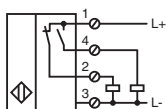
Mounting aid for VariKont, +U1+ and +U9*



Electrical Connection



NRB20-U1-A2
NRN40-U1-A2





Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	0 ... 50 °C (32 ... 122 °F) (± 10 % changing operating distance) -25 ... 70 °C (-13 ... 158 °F) (± 20 % changing operating distance)
Housing material	PBT/metal
Housing base	metal
Protection degree	IP68
Connection type	Device connector M12 x 1, 4-pin



Properties

- Flat pack housing
- 50 mm, flush and 75 mm, non-flush mountable versions
- DC, 3-wire and 4-wire switching output versions
- Connector version

Your Benefit

- Same sensing range for all metals

Model Number

		NRB50-FP-A2-P3-V1	NRB50-FP-E2-P3-V1	NRN75-FP-A2-P3-V1	NRB50-FP-A2-C-P3-V1	NRB50-FP-E2-C-P3-V1	NRN75-FP-A2-C-P3-V1	NRN75-FP-E2-C-P3-V1
Rated operating distance	50 mm	●	●	●	●	●	●	●
	75 mm			●			●	●
Installation	flush	●	●		●	●		
	non-flush			●			●	●
Switching element function	PNP	●		●	●		●	
	NO/NC							
	PNP		●			●		●
Switching frequency	0 ... 1 Hz				●	●	●	●
	0 ... 50 Hz			●				
	0 ... 80 Hz	●	●					

Approvals and Certificates

Protection class	II	●	●	●	●	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.							

Dimensions

Length L [mm]	84	80	84	80
Width W [mm]	84	80	84	80
Height H [mm]			40	
Connector area l _c [mm]	32	33	32	33

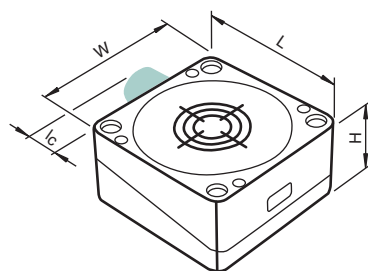
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

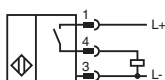
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



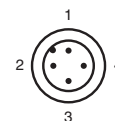
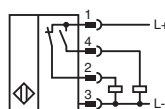
Electrical Connection



NRB50-FP-E2-P3-V1
NRB50-FP-E2-C-P3-V1
NRN75-FP-E2-C-P3-V1



NRB50-FP-A2-P3-V1
NRN75-FP-A2-P3-V1
NRB50-FP-A2-C-P3-V1
NRN75-FP-A2-C-P3-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



CE

e 1

Properties

- Compact F33 housing
- 8 mm, flush and 10 mm, non-flush mountable versions
- DC, 3-wire switching output
- Cable version

Further Products

In this series, we offer additionally:

NBB8-F33-E2-M-150MM-3DT04

Technical data like NBB8-F33-E2-M but:
Connection type: Cable connector Deutsch
DT04, 3-pin with PUR cable
150 mm

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	5 ... 60 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	PBT
Protection degree	IP67 / IP69K
Connection type	cable PUR, 2 m



Model Number

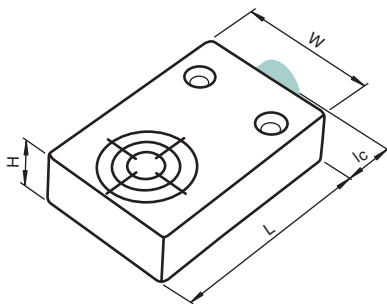
green = preferred type					
Rated operating distance	10 mm				
Installation	8 mm				
	flush				
Switching element function	non-flush				
	NPN NO				
Switching frequency	PNP NO				
	0 ... 200 Hz				
	0 ... 350 Hz				

Approvals and Certificates

e1 Type approval	2006/28/EG				
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Dimensions

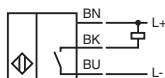
Length L [mm]	50
Width W [mm]	25
Height H [mm]	10
Connector area l _c [mm]	0



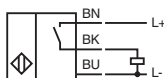
Electrical Connection



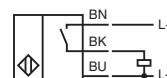
NBB8-F33-E0-M
NBN10-F33-E0-M



NBB8-F33-E2-M
NBN10-F33-E2-M



NBB8-F33-E2-M-150MM-3DT04



1
.1.2

CE

Properties

- Compact F148P housing
- 8 mm and 15 mm, flush mountable versions
- DC, 3-wire switching and relay output versions
- Cable version

Further Products

In this series, we offer additionally:

NBB8-F148P10-E2-M-150MM-3DT04

Technical data like NBB8-F148P10-E2-M but:
Connection type: 150 mm cable with Deutsch connector

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Installation	flush
Operating current	≤ 200 mA
Indication of the switching state	LED, yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	anodized aluminium
Protection degree	IP67 / IP69K
Connection type	cable PUR , 2 m



Model Number

Rated operating distance green = preferred type

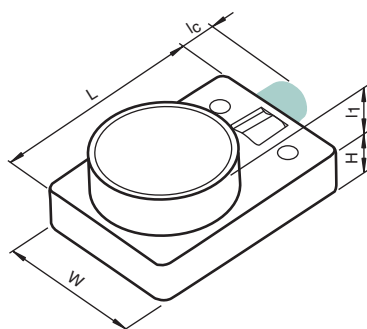
		NBB8-F148P10-E0-M	NBB8-F148P10-E2-M	NBB15-F148P10-E0-M	NBB15-F148P10-E2-M	NBB15-F148P10-ARO-M
Rated operating distance	15 mm	●	●	●	●	●
	8 mm	●	●	●	●	●
Switching element function	1 electronic relay, N.C.	●	●	●	●	●
	NPN NO	●	●	●	●	●
	PNP NO	●	●	●	●	●
Operating voltage	10 ... 30 V DC	●	●	●	●	●
	10 ... 60 V DC	●	●	●	●	●
No-load supply current	≤ 10 mA	●	●	●	●	●
	≤ 8 mA	●	●	●	●	●
Reverse polarity protection	✓	●	●	●	●	●
	tolerant	●	●	●	●	●
Switching frequency	0 ... 120 Hz	●	●	●	●	●
	0 ... 400 Hz	●	●	●	●	●
	0 ... 40 Hz	●	●	●	●	●
Short-circuit protection	pulsing	●	●	●	●	●

Approvals and Certificates

E1 Type approval	10R-04	●	●	●	●	●
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Dimensions

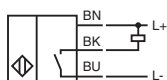
Length L [mm]	50
Width W [mm]	35
Height H [mm]	10
Connector area l _c [mm]	0



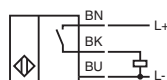
Electrical Connection



NBB8-F148P10-E0-M
NBB15-F148P10-E0-M



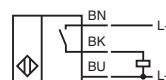
NBB8-F148P10-E2-M
NBB15-F148P10-E2-M



NBB15-F148P10-ARO-M



NBB8-F148P10-E2-M-150MM-3DT04



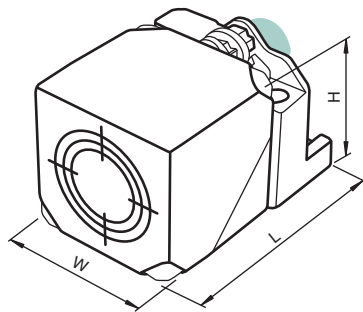


Properties

- Flexible **VariKont-L** housing
- 20 mm, flush and 40 mm, non-flush mountable versions
- DC, 4-wire switching output
- Connector version

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Mounting base with quick clamping lever for swift mounting
- Rotatable connector allows all orientations of the attached cordset



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 60 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	PA
Protection degree	IP69K
Connection type	Device connector M12 x 1, 4-pin



Model Number

		NBB20-L2-A0-V1-M	NBB20-L2-A2-V1-M	NBN40-L2-A0-V1-M	NBN40-L2-A2-V1-M
Rated operating distance	green = preferred type	●	●		
	20 mm	●	●		
	40 mm			●	●
Installation	flush	●	●		
	non-flush			●	●
Switching element function	NPN NO/NC	●		●	
	PNP NO/NC		●		●
Switching frequency	0 ... 100 Hz			●	●
	0 ... 200 Hz	●	●		

Approvals and Certificates

e1 Type approval	2006/28/EG	●	●	●	●
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Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

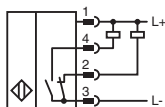
See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
V1-M20-80	Receptacles, M12/M20; plastic version

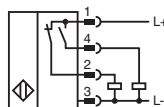
Electrical Connection



NBB20-L2-A0-V1-M
NBN40-L2-A0-V1-M



NBB20-L2-A2-V1-M
NBN40-L2-A2-V1-M



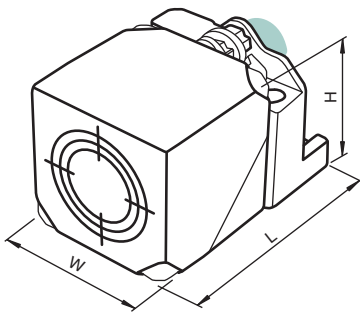


Properties

- Flexible **VariKont-L** housing
- 20 mm, flush and 40 mm, non-flush mountable versions
- DC, 4-wire switching output
- Connector version

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Rotatable connector allows all orientations of the attached cordset



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 60 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	PA-GF35 metal base powder coated metal mounting flang powder coated.
Protection degree	IP69K
Connection type	Device connector M12 x 1 , 4-pin



Model Number		NBB20-L2M-A0-V1-M	NBB20-L2M-A2-V1-M	NBN40-L2M-A0-V1-M	NBN40-L2M-A2-V1-M
Rated operating distance	20 mm 40 mm	●	●	●	●
Installation	flush non-flush	●	●	●	●
Switching element function	NPN NO/NC PNP NO/NC	●	●	●	●
Switching frequency	0 ... 100 Hz 0 ... 200 Hz	●	●	●	●

Approvals and Certificates

e1 Type approval	2006/28/EG	●	●	●	●
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Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

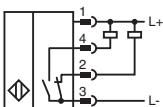
See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
V1-M20-80	Receptacles, M12/M20; plastic version

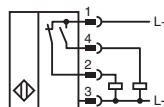
Electrical Connection



NBN40-L2M-A0-V1-M
NBB20-L2M-A0-V1-M



NBN40-L2M-A2-V1-M
NBB20-L2M-A2-V1-M





CE

e1

Properties

- Flexible **VariKont** housing
- 20 mm, flush and 40 mm, non-flush mountable versions
- DC, 3-wire and 4-wire switching output versions
- Terminal compartment

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 60 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	PA/metal with epoxy powder coating
Housing base	plastic
Protection degree	IP68 / IP69K
Connection type	screw terminals



Model Number

Rated operating distance	green = preferred type								
	20 mm	●	●	●	●	●	●	●	●
Installation	flush	●	●	●	●	●	●	●	●
	non-flush					●	●	●	●
Switching element function	NPN	●				●			
	NO/NC								
	PNP		●				●		
	NO/NC								
Switching frequency	PNP				●				●
	NO								
Switching frequency	0 ... 150 Hz		●	●	●	●	●	●	●
	0 ... 200 Hz	●	●	●	●	●	●	●	●

Approvals and Certificates

e1 Type approval	2006/28/EG	●	●	●	●	●	●	●	●
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Dimensions

Length L [mm]	128
Width W [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0 (M20 x 1.5)

Accessories

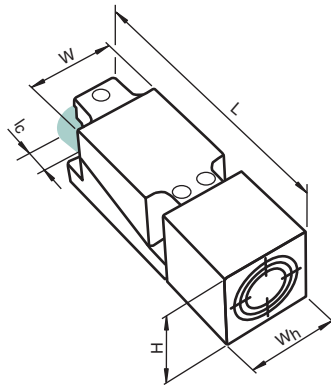
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

MHW 01

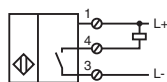
Modular mounting bracket



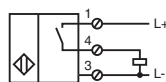
Electrical Connection



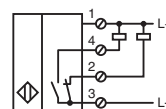
NBB20-U1-E0-M
NBN40-U1-E0-M



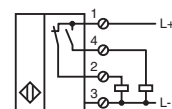
NBB20-U1-E2-M
NBN40-U1-E2-M



NBB20-U1-A0-M
NBN40-U1-A0-M



NBB20-U1-A2-M
NBN40-U1-A2-M





Properties

- Sturdy F35 housing
- 20 mm and 25 mm, flush mountable versions
- DC, 4-wire switching output
- Connector version

Your Benefit

- For use in high temperature applications

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Description	Sensor consists of a sensor head and a cylindrical amplifier
Installation	flush mountable
Switching element function	PNP NO/NC
Operating voltage	10 ... 30 V
No-load supply current	≤ 25 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Switching frequency	0 ... 20 Hz
Short-circuit protection	pulsing
Indication of the switching state	Multihole-LED, yellow
Ambient temperature	0 ... 250 °C (32 ... 482 °F)
Housing material	PTFE / Al / 1.4305 / AISI 303
Protection degree	amplifier IP67 sensor IP40
Connection type	Device connector M12 x 1, 4-pin



Model Number

		NCN25-F35-A2-250-V1	NCN20-F35-A2-250-10M-V1	NCN25-F35-A2-250-15M-V1	NCN20-F35-A2-250-20M-V1
Rated operating distance	20 mm		●		●
	25 mm	●			
Cable length between sensor and amplifier	10 m	●	●		
	15 m			●	
	20 m				●

Approvals and Certificates

UL approval	cULus Listed, General Purpose, Class 2 Power Source	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●		●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	56
Width W [mm]	40
Height H [mm]	40
Connector area l _c [mm]	12

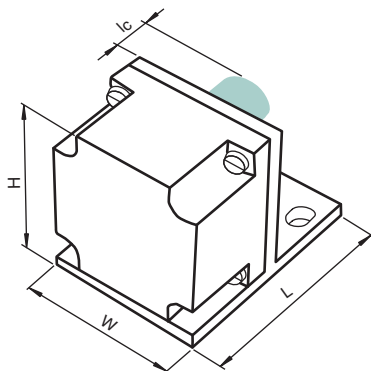
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

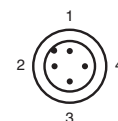
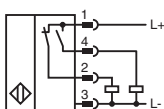
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable



Electrical Connection



NCN20-F35-A2-250-10M-V1
NCN20-F35-A2-250-20M-V1
NCN25-F35-A2-250-15M-V1
NCN25-F35-A2-250-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Miniature V3 housing
- 3 mm, flush mountable
- DC, 2-wire switching output
- Cable version

Your Benefit

- ATEX approval for use in zone 2/ zone 22

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

Model Number	NBB3-V3-Z4-3G-3D
Rated operating distance	3 mm
Installation	flush
Switching element function	DC NO
Operating voltage	5 ... 60 V DC
Reverse polarity protection	✓
Switching frequency	0 ... 2000 Hz
Operating current	4 ... 100 mA
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC, 130 mm



Use in the Hazardous Area

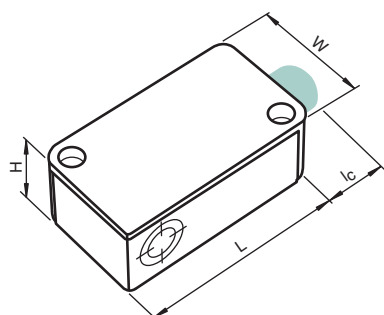
Use in the hazardous area	see instruction manuals
Category	3G; 3D

Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

Dimensions

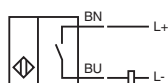
Length L [mm]	27.8
Width W [mm]	16
Height H [mm]	10
Connector area l _c [mm]	0



Electrical Connection



NBB3-V3-Z4-3G-3D





Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cabl PVC , 130 mm



Properties

- Miniature V3 housing
- 2 mm, flush and 4 mm non-flush mountable versions
- DC, 3-wire switching output
- Cable version

Your Benefit

- ATEX approval for use in zone 2 / zone 22

Model Number

green = preferred type

		NBB2-V3-E2-3G-3D	NBB2-V3-E3-3G-3D	NBN4-V3-E2-3G-3D
Rated operating distance	2 mm	●	●	●
	4 mm			
Installation	flush	●	●	
	non-flush			●
Switching element function	PNP NO	●		●
	PNP NC		●	
Switching frequency	0 ... 1000 Hz	●	●	
	0 ... 500 Hz			●

Use in the Hazardous Area

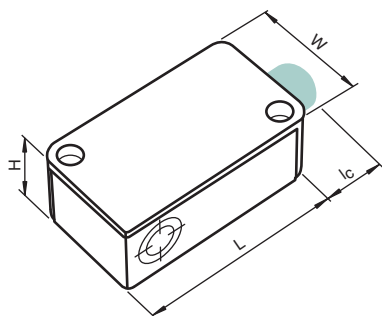
Use in the hazardous area	see instruction manuals	●	●	●
Category	3G; 3D	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.			

Dimensions

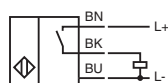
Length L [mm]	27.8
Width W [mm]	16
Height H [mm]	10
Connector area l _c [mm]	0



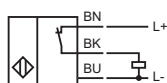
Electrical Connection



NBB2-V3-E2-3G-3D
NBN4-V3-E2-3G-3D



NBB2-V3-E3-3G-3D



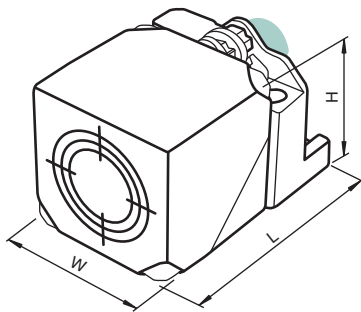


Properties

- Flexible **VariKont-L** housing
- 20 mm, flush and 40 mm non-flush mountable versions
- DC, 3-wire and 4-wire switching output versions
- Connector version

Your Benefit

- ATEX approval for use in zone 2/ zone 22
- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Rotatable connector allows all orientations of the attached cordset
- Mounting base with quick clamping lever for swift mounting



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	PA
Protection degree	IP69K
Connection type	Device connector M12 x 1, 4-pin



Model Number

		green = preferred type	NBB20-L2-E2-V1-3G-3D	NBB20-L2-A2-V1-3G-3D	NBN40-L2-E2-V1-3G-3D	NBN40-L2-A2-V1-3G-3D
Rated operating distance	20 mm		●	●		
	40 mm				●	●
Installation	flush		●	●		
	non-flush				●	●
Switching element function	PNP NO/NC			●		●
	PNP NO		●		●	
Switching frequency	0 ... 100 Hz				●	●
	0 ... 150 Hz		●	●		

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●	●	●
Category	3G; 3D	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0

Accessories

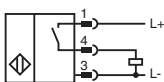
This and more accessories can be found in chapter 10
See pages from 972 ... for cordsets See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
MH 02-L	Mounting aid
MH 04-2681F	Mounting aid for VariKont, +U1+ and +U9*

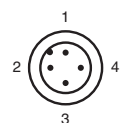
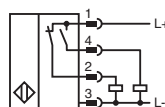
Electrical Connection



NBB20-L2-E2-V1-3G-3D
NBN40-L2-E2-V1-3G-3D



NBB20-L2-A2-V1-3G-3D
NBN40-L2-A2-V1-3G-3D



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



1
1.2

Properties

- Flexible *VariKont* housing
- 20 mm, flush and 40 mm non-flush mountable versions
- DC, 3-wire switching output
- Terminal compartment

Your Benefit

- ATEX approval for use in zone 2/ zone 22
- All-around visible status display
- Sensor head can be aligned in 5 different positions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	PNP	NO
Operating voltage	10 ... 30 V DC	
No-load supply current	≤ 20 mA	
Reverse polarity protection	✓	
Switching frequency	0 ... 150 Hz	
Operating current	0 ... 200 mA	
Short-circuit protection	pulsing	
Operating voltage display	LED, green	
Indication of the switching state	LED, yellow	
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)	
Housing material	PA/metal	
Protection degree	IP68 / IP69K	
Connection type	screw terminals	



Model Number

Rated operating distance	green = preferred type		
	20 mm	●	
Installation	flush	●	
	non-flush		●

NBB20-U1K-E2-3G-3D

NBN40-U1K-E2-3G-3D

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●
Category	3G; 3D	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

Length L [mm]	118
Width W [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0 (M20 x 1.5)

Accessories

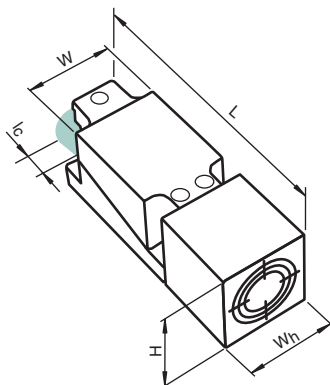
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

MHW 01

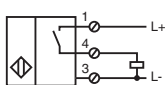
Modular mounting bracket



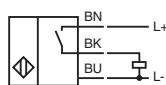
Electrical Connection



NBB20-U1K-E2-3G-3D



NBN40-U1K-E2-3G-3D



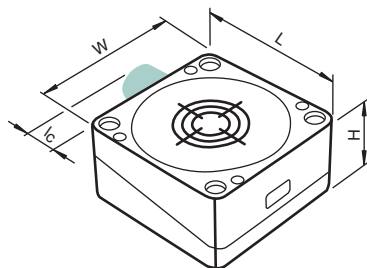


Properties

- Flat pack housing
- 40 mm and 50 mm, flush and non-flush mountable versions
- DC, 3-wire and 4-wire switching output versions
- Terminal compartment and connector versions

Your Benefit

- ATEX approval for use in zone 2/ zone 22



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 60 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 80 Hz
Operating current	0 ... 200 mA
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT housing / PBT base

Model Number

		NCB40-FP-A2-P1-3G-3D	NCB50-FP-A2-P1-3G-3D	NCN50-FP-A2-P1-3G-3D	NCB50-FP-E2-P1-V1-3G-3D
Rated operating distance	40 mm	●			
	50 mm		●		●
Installation	flush	●	●		●
	non-flush			●	
Switching element function	PNP NO				●
	PNP NO/NC	●	●	●	
Protection degree	IP67		●	●	●
	IP68	●			
Connection type	Device connector M12 x 1, 4-pin screw terminals	●	●	●	●

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●	●	●
Category	3G; 3D	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●

Dimensions

Length L [mm]	80	84	80	84
Width W [mm]	80	84	80	84
Height H [mm]	40			
Connector area I _c [mm]	11 (M20 x 1.5)			
	25			

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

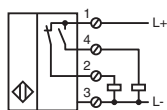
See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable

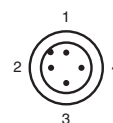
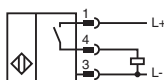
Electrical Connection



NCB40-FP-A2-P1-3G-3D
NCB50-FP-A2-P1-3G-3D
NCN50-FP-A2-P1-3G-3D



NCB50-FP-E2-P1-V1-3G-3D



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

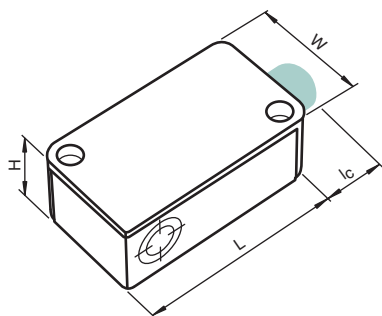


Properties

- Miniature V3 housing
- 2 mm, flush and 4 mm non-flush mountable versions
- DC, NAMUR interface
- Cable and connector versions

Your Benefit

- Usable up to SIL 2 acc. to IEC 61508
- ATEX approval up to zone 0 / zone 20



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Protection degree	IP67

Model Number

		NJ2-V3-N	NCB2-V3-N0	NCN4-V3-N0	NJ2-V3-N-V5	NCB2-V3-N0-V5	NCN4-V3-N0-V5
Rated operating distance	green = preferred type	●	●		●	●	
	2 mm	●	●		●	●	
	4 mm			●			●
Installation	flush	●	●		●	●	
	non-flush			●			●
Switching frequency	0 ... 1000 Hz	●			●		
	0 ... 2000 Hz		●	●		●	●
Suitable for 2:1 technology	✓, Reverse polarity protection diode not required	●			●		
Indication of the switching state	LED, yellow		●	●		●	●
Connection type	4.8 mm Faston cable PVC, 130 mm	●	●	●	●	●	●

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●	●	●	●	●
Category	1G; 2G; 1D	●	●	●	●	●	●

Approvals and Certificates

Control drawing	116-0165F	●	●	●			
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.						

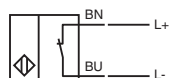
Dimensions

Length L [mm]	27.8
Width W [mm]	16
Height H [mm]	10
Connector area l _c [mm]	0 9.2

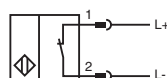
Electrical Connection



NCB2-V3-N0
NCN4-V3-N0
NJ2-V3-N



NCB2-V3-N0-V5
NCN4-V3-N0-V5
NJ2-V3-N-V5





Properties

- Compact and flexible **VariKont-M** housing
- 15 mm, non-flush mountable
- DC, NAMUR interface
- Terminal compartment and connector versions

Your Benefit

- ATEX approval up to zone 0 / zone 20

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	non-flush
Switching element function	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 k Ω)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 500 Hz
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Protection degree	IP67

Model Number

Connection type	Device connector M12 x 1, 4-pin screw terminals
-----------------	---

NCN15-M1K-N0



NCN15-M1K-N0-V1



Use in the Hazardous Area

Use in the hazardous area	see instruction manuals
Category	1G; 2G; 1D

Approvals and Certificates

Control drawing	116-0165F
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.

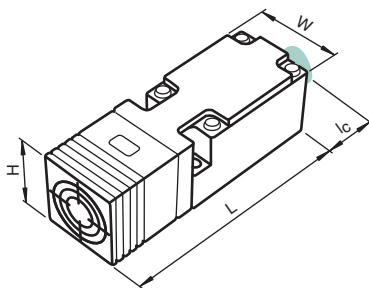
Dimensions

Length L [mm]	91
Width W [mm]	30
Height H [mm]	30
Connector area l_c [mm]	0 (M16 X 1.5) 25

Accessories

This and more accessories can be found in chapter 10
See pages from 972 ... for cordsets See pages 1068 ... for mounting aids

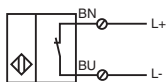
V1-W-BK	4-pin, M12 female field-attachable connector
V1-W-N-2M-PUR	Cable socket, M12, 2-pin, NAMUR, PUR cable
V1-G-BK	4-pin, M12 female field-attachable connector
V1-G-N-2M-PUR	Cable socket, M12, 2-pin, NAMUR, PUR cable



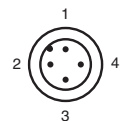
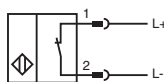
Electrical Connection



NCN15-M1K-N0



NCN15-M1K-N0-V1



Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)





Properties

- Flexible **VariKont-L** housing
- 20 mm, flush and 40 mm, non-flush mountable versions
- DC, NAMUR interface
- Connector version

Your Benefit

- ATEX approval up to zone 0 / zone 20
- Rotatable connector allows all orientations of the attached cordset

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 k Ω)
Current consumption	
Measuring plate not detected	≥ 2.2 mA
Measuring plate detected	≤ 1 mA
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PA
Protection degree	IP69K
Connection type	Device connector M12 x 1, 4-pin



Model Number

	green = preferred type
Rated operating distance	20 mm
	40 mm
Installation	flush
	non-flush
Switching frequency	0 ... 150 Hz
	0 ... 300 Hz

NCB20-L2-N0-V1

NCN40-L2-N0-V1

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals
Category	1G; 2G; 3G; 3D

Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40
Connector area l_c [mm]	0

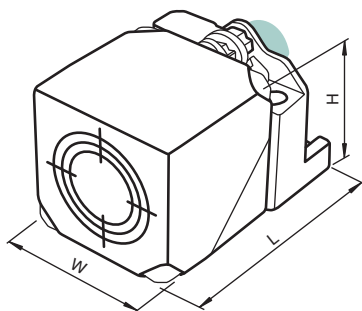
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

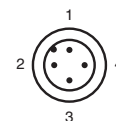
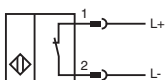
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-N-2M-PUR	Cable socket, M12, 2-pin, NAMUR, PUR cable
V1-W-N-2M-PUR	Cable socket, M12, 2-pin, NAMUR, PUR cable
MHW 01	Modular mounting bracket



Electrical Connection



NCB20-L2-N0-V1
NCN40-L2-N0-V1



Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)



Properties

- Flexible **VariKont** housing
- Up to 40 mm, flush and non-flush mountable versions
- DC, NAMUR interface
- Terminal compartment

Your Benefit

- ATEX approval up to zone 0 / zone 20

Further Products

In this series, we offer additionally:

NJ40+U1+N

NJ40+U2+N

NJ40+U4+N

Technical data like NJ20+U1+N but:

asymmetric head 55 mm x 55 mm

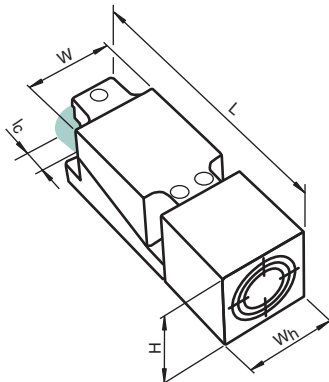
Rated operating distance: 40 mm

Housing base:

PBT with M20 thread (NJ40+U1+N)

PBT with 1/2" NPT thread (NJ40+U2+N)

metal with 1/2" NPT thread (NJ40+U4+N)



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Connection type	screw terminals



Model Number

		green = preferred type					
Rated operating distance	20 mm						
	40 mm						
Installation	flush						
	non-flush						
Current consumption							
Measuring plate not detected	≥ 2.2 mA						
	≥ 3 mA						
Measuring plate detected	≤ 1 mA						
Switching frequency	0 ... 100 Hz						
	0 ... 150 Hz						
	0 ... 300 Hz						
Indication of the switching state	LED, yellow						
Housing material	plastic housing / plastic base						
	plastic housing / metal base						
Protection degree	IP68						
	IP68 / IP69K						

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals						
Category	1G; 2G; 1D						
	1G; 2G; 3G						
	2G						

Approvals and Certificates

Control drawing	116-0165F						
UL approval	cULus Listed, General Purpose						
CSA approval	cCSAus Listed, General Purpose						
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.						

Dimensions

Length L [mm]							118
Width W [mm]							40
Height H [mm]							40
Connector area l _c [mm]							
	¹⁾ M20 x 1.5 thread	0 ¹⁾	0 ²⁾	0 ¹⁾	0 ²⁾	0 ¹⁾	0 ²⁾
	²⁾ 1/2" NPT thread						

Accessories

This and more accessories can be found in chapter 10

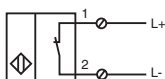
See pages from 972 ... for cordsets See pages 1068 ... for mounting aids

MHW 01	Modular mounting bracket
MH 04-2681F	Mounting aid for VariKont, +U1+ and +U9*
MH 04-2057B	Mounting aid for VariKont and +U1+

Electrical Connection



NBB20-U1K-N0
NBN40-U1K-N0
NBB20-U4K-N0
NBN40-U4K-N0
NJ20+U1+N
NJ20+U4+N
NJ40+U1+N
NJ40+U4+N
NBN40-U2K-N0



1
.1.2

Properties

- Flat pack housing
- 40 mm, flush and 50 mm, non-flush mountable versions
- DC, NAMUR interface
- Terminal compartment and connector versions

Your Benefit

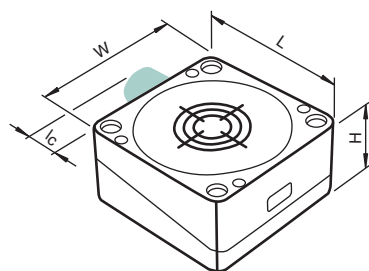
- ATEX approval up to zone 0 / zone 20

Further Products

In this series, we offer additionally:

NCB40-FP-N0-P1

Technical data like NCB40-FP-N0-P4 but:
Housing base: PBT



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Housing material	PBT/metal
Protection degree	IP67

Model Number

		NJ50-FP-N-P4	NCB40-FP-N0-P4	NCN50-FP-N0-P4	NCN50-FP-N0-P4-V1
Rated operating distance	40 mm	●	●	●	●
	50 mm	●	●	●	●
Installation	flush	●	●	●	●
	non-flush	●	●	●	●
Switching frequency	0 ... 100 Hz	●	●	●	●
	0 ... 80 Hz	●	●	●	●
Indication of the switching state	LED, yellow	●	●	●	●
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)	●	●	●	●
	-25 ... 70 °C (-13 ... 158 °F)	●	●	●	●
Connection type	Device connector M12 x 1, 4-pin	●	●	●	●
	screw terminals	●	●	●	●



Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●	●	●
Category	1G; 2G; 1D	●	●	●	●

Approvals and Certificates

Control drawing	116-0165F	●	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	●	●	●	●

Dimensions

Length L [mm]	80
Width W [mm]	80
Height H [mm]	40
Connector area l _c [mm]	25

Accessories

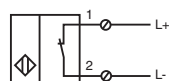
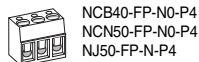
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

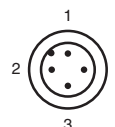
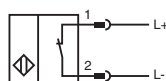
See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-N-2M-PUR	Cable socket, M12, 2-pin, NAMUR, PUR cable
V1-W-N-2M-PUR	Cable socket, M12, 2-pin, NAMUR, PUR cable

Electrical Connection



NCN50-FP-N0-P4-V1



Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)



Properties

- Flexible **VariKont** housing
- 15 mm, flush and 20 mm, non-flush mountable versions
- DC, NAMUR safety interface
- Terminal compartment

Your Benefit

- Usable up to SIL 3 acc. to IEC 61508
- ATEX approval up to zone 0 / zone 20

Further Products

In this series, we offer additionally:

NJ6S1+U1+N1

for non-ferrous metals only.

Technical data:

Rated operating distance: 6 mm

Installation: flush in mild steel

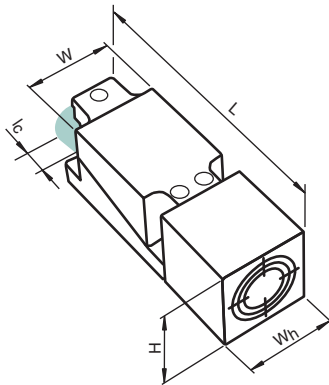
Switching element function: NAMUR, NO

Current consumption

Measuring plate not detected: ≤ 1 mA

Measuring plate detected: ≥ 3 mA

Target object: aluminium plate



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 k Ω)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 150 Hz
Ambient temperature	-40 ... 100 °C (-40 ... 212 °F)
Protection degree	IP68
Connection type	screw terminals



Model Number

		NJ15S+U1+N	NJ20S+U1+N	NJ15S+U4+N	NJ20S+U4+N
Rated operating distance	15 mm	●		●	
	20 mm		●		●
Installation	flush	●		●	
	non-flush		●		●
Housing material	PBT housing / PBT base	●	●		
	PBT housing / metal base			●	●

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●	●	●
Category	1G; 2G; 1D	●	●	●	●

Approvals and Certificates

Control drawing	116-0165F			●	●
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	118
Width W [mm]	40
Height H [mm]	40
Connector area l_c [mm]	0 (M20 x 1.5) 0 (1/2" NPT)

Accessories

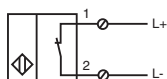
This and more accessories can be found in chapter 10
See pages from 972 ... for cordsets See pages 1068 ... for mounting aids

MHW 01	Modular mounting bracket
MH 04-2681F	Mounting aid for VariKont, +U1+ and +U9*
MH 04-2057B	Mounting aid for VariKont and +U1+

Electrical Connection

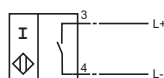


NJ15S+U1+N
NJ15S+U4+N
NJ20S+U1+N
NJ20S+U4+N



NJ6S1+U1+N1

S1N





Properties

- Flat pack housing
- 40 mm, non-flush mountable
- DC, NAMUR safety interface
- Terminal compartment

Your Benefit

- Usable up to SIL 3 acc. to IEC 61508
- ATEX approval up to zone 1 / zone 20

Technical Data

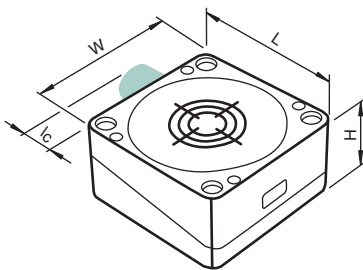
For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	40 mm
Installation	non-flush
Switching element function	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 k Ω)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 100 Hz
Ambient temperature	-40 ... 100 °C (-40 ... 212 °F)
Protection degree	IP68
Connection type	screw terminals



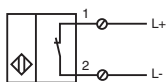
		NJ40-FP-SN-P1	NJ40-FP-SN-P4
Model Number			
Housing material	PBT housing / PBT base PBT housing / metal base	●	●
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	2G; 1D	●	●
Approvals and Certificates			
Control drawing	116-0165F		●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.		
Dimensions			
Length L [mm]		80	
Width W [mm]		80	
Height H [mm]		40	
Connector area l_c [mm]		11 (M20 x 1.5)	



Electrical Connection



NJ40-FP-SN-P4
NJ40-FP-SN-P1





Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NO/NC programmable
Slave type	A/B slave
AS-Interface specification	V3.0
Required master specification	≥ V2.1
Operating voltage	26.5 ... 31.9 V via AS-i bus system
Reverse polarity protection	✓
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Fault indication	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP69K
Connection type	Device connector M12 x 1, 4-pin



Properties

- Flexible **VariKont-L** housing
- 20 mm, flush and 40 mm non-flush mountable versions
- AS interface
- Connector version

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Mounting base with quick clamping lever for swift mounting
- Rotatable connector allows all orientations of the attached cordset

Model Number

		NBB20-L2-B3B-V1	NBN40-L2-B3B-V1
Rated operating distance	20 mm	●	
	40 mm		●
Installation	flush	●	
	non-flush		●
No-load supply current	≤ 25 mA		●
	≤ 40 mA	●	
Switching frequency	0 ... 150 Hz	●	
	0 ... 50 Hz		●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0

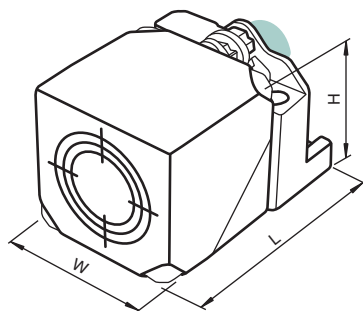
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

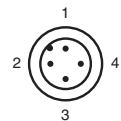
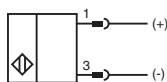
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
MH 02-L	Mounting aid



Electrical Connection



NBB20-L2-B3B-V1
NBN40-L2-B3B-V1



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.1.2

Proximity Sensors, Inductive Sensors, rectangular types



Properties

- Flexible **VariKont** housing
- 20 mm, flush and 40 mm non-flush mountable versions
- AS interface
- Terminal compartment

Your Benefit

- All-around visible status display
- Sensor head can be aligned in 5 different positions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NO/NC programmable
Slave type	A/B slave
AS-Interface specification	V3.0
Required master specification	≥ V2.1
Operating voltage	26.5 ... 31.9 V via AS-i bus system
No-load supply current	≤ 25 mA
Reverse polarity protection	✓
Switching frequency	0 ... 150 Hz
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Fault indication	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA/metal with epoxy powder coating
Housing base	plastic
Protection degree	IP68 / IP69K
Connection type	screw terminals



Model Number

		NBB20-U1-B3B	NBN40-U1-B3B
Rated operating distance	20 mm	●	
	40 mm		●
Installation	flush	●	
	non-flush		●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

Length L [mm]	118
Width W [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0 (M20 x 1.5)

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

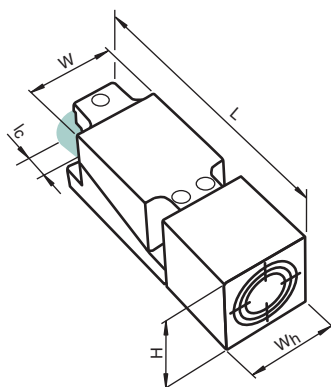
See pages 1068 ... for mounting aids

V1-M20-80

Receptacles, M12/M20; plastic version

MHW 01

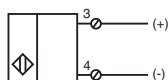
Modular mounting bracket



Electrical Connection



NBB20-U1-B3B
NBN40-U1-B3B





Properties

- 3.5 mm slot width
- Very fast response
- DC, 3-wire and 4-wire switching output versions
- Flexible leads and cable versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Slot width	3.5 mm
Depth of immersion (lateral)	5 ... 7 mm
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Housing material	PBT
Protection degree	IP67

Model Number

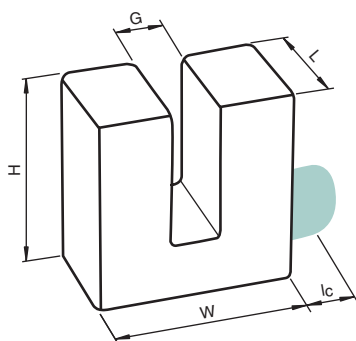
	green = preferred type	SB3,5-E2	SB3,5-G-E2	SB3,5-A2
Switching element function	PNP NO/NC PNP NO	●	●	●
Switching frequency	0 ... 2000 Hz 0 ... 3000 Hz	●	●	●
Indication of the switching state	LED, yellow	●	●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F) -25 ... 85 °C (-13 ... 185 °F)	●	●	●
Connection type	cable PVC, 500 mm flexible leads LIY, 500 mm flexible leads PVC, 135 mm	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.			

Dimensions

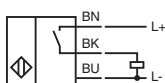
Length L [mm]	10
Width W [mm]	19
Height H [mm]	15
Slot width G [mm]	3.5
Connector area l _c [mm]	0



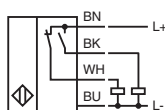
Electrical Connection

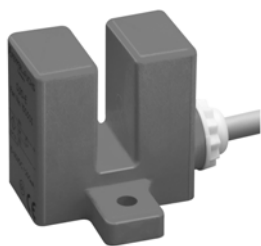


SB3,5-E2
SB3,5-G-E2



SB3,5-A2





Properties

- 10 mm slot width
- Very fast response
- DC, 3-wire switching output
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Slot width	10 mm
Depth of immersion (lateral)	13.5 ... 16.5 mm
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✓
Switching frequency	0 ... 1000 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 2 m



Model Number

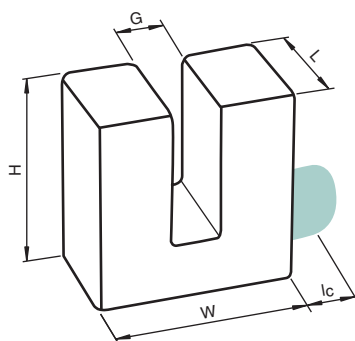
			SJ10-E	SJ10-E2	SJ10-E3
Switching element function	NPN	NO	●		
	PNP	NO		●	
	PNP	NC			●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.			

Dimensions

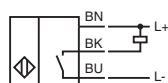
Length L [mm]	25
Width W [mm]	44
Height H [mm]	45
Slot width G [mm]	10
Connector area l _c [mm]	6 (PG9)



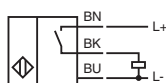
Electrical Connection



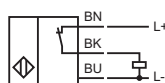
SJ10-E



SJ10-E2



SJ10-E3





Properties

- 15 mm slot width
- Fast response
- DC, 3-wire and 4-wire switching output versions
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Slot width	15 mm
Depth of immersion (lateral)	17 ... 20 mm
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 500 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number

			SJ15-E	SJ15-E2	SJ15-A	SJ15-A2	SJ15-A2-V1
Switching element function	NPN	NO/NC			●		
	NPN	NO	●				
	PNP	NO/NC				●	●
	PNP	NO		●			
Connection type	Device connector M12 x 1, 4-pin						●
	cable PVC, 2 m		●	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.						

Dimensions

Length L [mm]	30	
Width W [mm]	48	
Height H [mm]	60	
Slot width G [mm]	15	
Connector area l _c [mm]	0	12

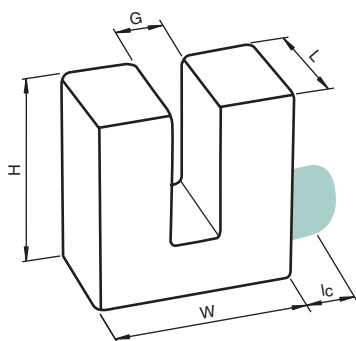
Accessories

This and more accessories can be found in chapter 10

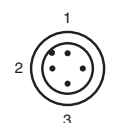
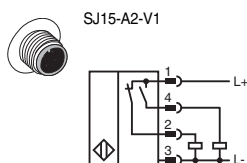
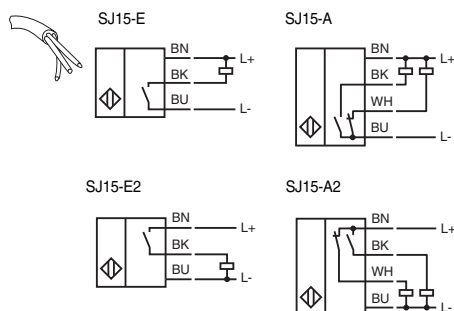
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



Electrical Connection



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- 30 mm slot width
- Fast response
- DC, 4-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Slot width	30 mm
Depth of immersion (lateral)	27 ... 31 mm
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Switching frequency	0 ... 150 Hz
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	ABS
Protection degree	IP67

Model Number

		SJ30-A	SJ30-A2	SJ30-A0-V1
Switching element function	NPN NO/NC PNP NO/NC	●	●	●
Operating voltage	10 ... 30 V DC 10 ... 65 V DC	●	●	●
Connection type	Device connector M12 x 1, 4-pin cable PVC, 2 m	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	●	●	

Dimensions

Length L [mm]	51	
Width W [mm]	84	
Height H [mm]	110	
Slot width G [mm]	30	
Connector area l _c [mm]	35 (PG13.5)	22

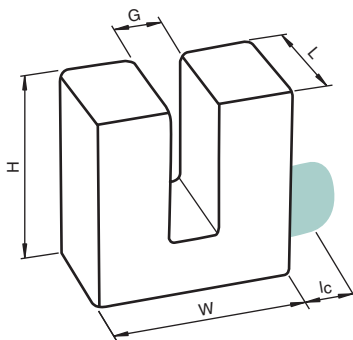
Accessories

This and more accessories can be found in chapter 10

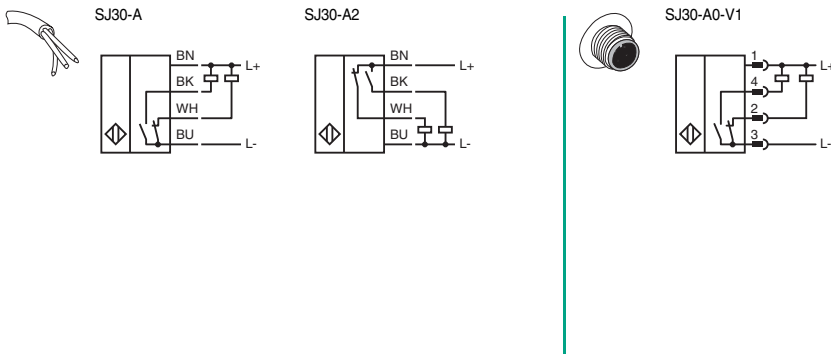
See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



Electrical Connection





Properties

- 15 mm slot width
- Fast response
- AC, 2-wire switching output
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Slot width	15 mm
Depth of immersion (lateral)	18.5 ... 20.5 mm
Operating voltage	20 ... 253 V AC
Switching frequency	0 ... 25 Hz
Operating current	10 ... 500 mA
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Housing material	PBT
Connection type	cable PVC, 2 m



Model Number

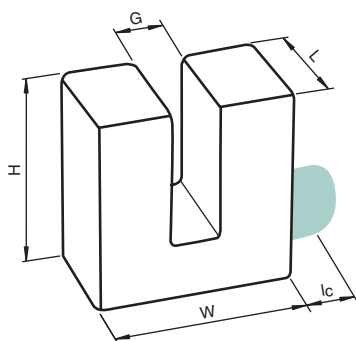
Switching element function	AC	NO	SJ15-WO	SJ15-WS
	AC	NC	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●

Dimensions

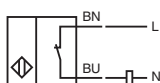
Length L [mm]	30
Width W [mm]	48
Height H [mm]	60
Slot width G [mm]	15
Connector area l _c [mm]	0



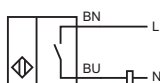
Electrical Connection

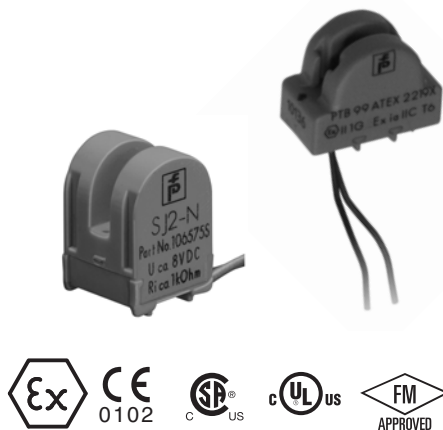


SJ15-WO



SJ15-WS





Properties

- 2 mm slot width
- Extraordinary fast response
- DC, 2-wire NAMUR
- Flexible leads version

Your Benefit

- Usable up to SIL 2 acc. to IEC 61508
- ATEX approval up to zone 0 / zone 20

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Slot width	2 mm
Switching element function	NAMUR, NC
Depth of immersion (lateral)	5 ... 7 mm, typ. 6 mm
Nominal voltage	8.2 V (R_i approx. 1 k Ω)
Operating voltage	5 ... 25 V
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 5000 Hz
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Protection degree	IP67

Model Number

	green = preferred type	SJ2-N	SC2-NO-GN
Suitable for 2:1 technology	✓, Reverse polarity protection diode not required	●	
Indication of the switching state	LED, yellow		●
Connection type	cable PVC, 500 mm flexible leads LIFYW, 500 mm	●	●

Use in the Hazardous Area

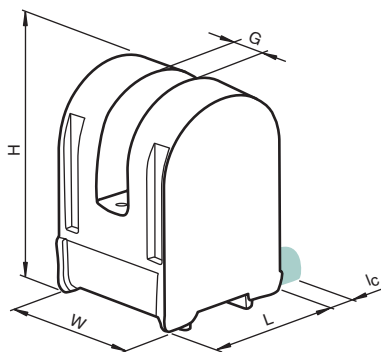
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G; 1D	●	
	1G; 2G; 3G; 1D		●

Approvals and Certificates

Control drawing	116-0165F	●	
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.		

Dimensions

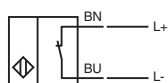
Length L [mm]	8	15
Width W [mm]	8	
Height H [mm]	12	
Slot width G [mm]	2	
Connector area l_c [mm]	0	



Electrical Connection



SC2-NO-GN
SJ2-N



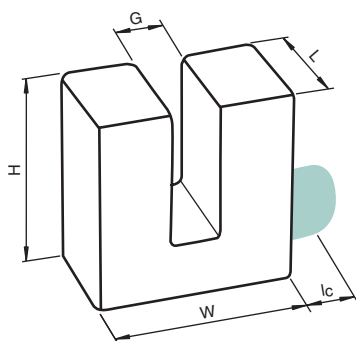


Properties

- 3.5 mm slot width
- Very fast response
- DC, 2-wire NAMUR
- Flexible leads version

Your Benefit

- Usable up to SIL 2 acc. to IEC 61508
- ATEX approval up to zone 0 / zone 20



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Slot width	3.5 mm
Switching element function	NAMUR, NC
Depth of immersion (lateral)	5 ... 7 mm , typ. 6 mm
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Operating voltage	5 ... 25 V
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 3000 Hz
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Protection degree	IP67

Model Number

	green = preferred type	SU3	SU3	SU3	SC	SC	SC
Suitable for 2:1 technology	✓, Reverse polarity protection diode not required	●	●		●	●	●
Switching hysteresis	✓, with reverse polarity protection diode			●		●	
	0.11 ... 0.2 mm					●	
	0.21 ... 0.4 mm						●
Indication of the switching state	LED, yellow			●	●	●	●
Housing material	PBT		●	●	●	●	●
	PBT/PPS	●					
Connection type	flexible leads LIY , 500 mm	●	●	●			
	flexible leads PVC , 135 mm				●		
	flexible leads PVC , 500 mm					●	●



Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	● ● ● ● ● ●
Category	1G; 2G; 1D	● ● ● ● ● ●
	1G; 2G; 3G; 1D	● ● ● ● ● ●
	2G	● ● ● ● ● ●

Approvals and Certificates

Control drawing	116-0165F	●
UL approval	cULus Listed, General Purpose	● ● ● ● ● ●
CSA approval	cCSAus Listed, General Purpose	● ● ● ● ● ●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.	

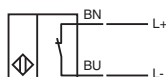
Dimensions

Length L [mm]	10
Width W [mm]	19
Height H [mm]	15
Slot width G [mm]	3.5
Connector area l_c [mm]	0

Electrical Connection



SC3,5-G-N0
SC3,5-N0-GN
SC3,5-N0-BU
SJ3,5-G-N
SJ3,5-N
SJ3,5-N LED





Properties

- 5 mm slot width
- Very fast response
- DC, 2-wire NAMUR
- Flexible leads and cable versions

Your Benefit

- Usable up to SIL 2 acc. to IEC 61508
- ATEX approval up to zone 0 / zone 20

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Slot width	5 mm
Switching element function	NAMUR, NC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Operating voltage	5 ... 25 V
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 2000 Hz
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Protection degree	IP67

Model Number

	SJ5-N	SJ5-G-N	SJ5-K-N
Depth of immersion (lateral)	5 ... 7 mm , typ. 6 mm	8 ... 10 mm , typ. 9 mm	
Connection type	cable PVC , 2 m	flexible leads LIY , 500 mm	

Use in the Hazardous Area

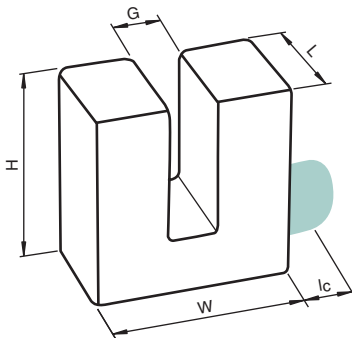
Use in the hazardous area	see instruction manuals			
Category	1G; 2G; 1D			

Approvals and Certificates

Control drawing	116-0165F			
UL approval	cULus Listed, General Purpose			
CSA approval	cCSAus Listed, General Purpose			
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.			

Dimensions

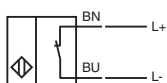
Length L [mm]	10	15
Width W [mm]	15	29
Height H [mm]	15	31
Slot width G [mm]	5	
Connector area l _c [mm]	0	



Electrical Connection



SJ5-G-N
SJ5-K-N
SJ5-N





Properties

- 10, 15 and 30 mm slot width versions
- Fast response
- DC, 2-wire NAMUR
- Cable version

Your Benefit

- Usable up to SIL 2 acc. to IEC 61508
- ATEX approval up to zone 0 / zone 20

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Nominal voltage	8.2 V (R_i approx. 1 k Ω)
Operating voltage	5 ... 25 V
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Protection degree	IP67
Connection type	cable PVC, 2 m



Model Number

		SJ10-N	SJ15-N	SJ30-N
Slot width	10 mm	●		
	15 mm		●	
	30 mm			●
Depth of immersion (lateral)	13.5 ... 16.5 mm, typ. 15 mm	●		
	16 ... 19 mm, typ. 17.5 mm		●	
	27 ... 30 mm			●
Switching frequency	0 ... 1000 Hz	●	●	
	0 ... 150 Hz			●
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)	●		
	-25 ... 70 °C (-13 ... 158 °F)		●	●
Housing material	ABS			●
	PBT	●	●	

Use in the Hazardous Area

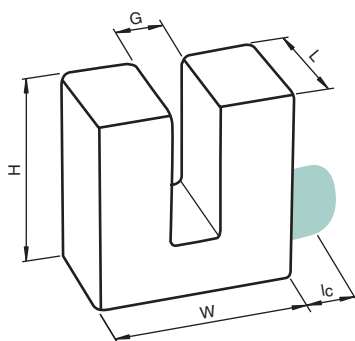
Use in the hazardous area	see instruction manuals	●	●	●
Category	1G; 2G; 1D	●	●	●

Approvals and Certificates

Control drawing	116-0165F	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.			

Dimensions

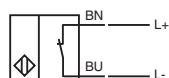
Length L [mm]	25	30	51
Width W [mm]	44	48	84
Height H [mm]	45	60	110
Slot width G [mm]	10	15	30
Connector area l_c [mm]	6 (PG9)	0	35 (PG13.5)

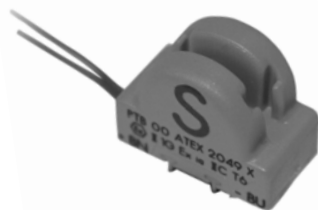


Electrical Connection



SJ10-N
SJ15-N
SJ30-N





Properties

- 2 mm slot width
- Extraordinary fast response
- DC, 2-wire NAMUR
- Flexible leads version

Your Benefit

- EX approval 1G/1D for use up to zone 0 / zone 20
- Applicable up to SIL3 acc. to IEC 61508

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Slot width	2 mm
Depth of immersion (lateral)	5 ... 7 typ. 6 mm
Type of voltage	DC
Nominal voltage	8 V
Switching frequency	0 ... 5000 Hz
Suitable for 2:1 technology	✓, with reverse polarity protection diode
Housing material	PBT
Protection degree	IP67
Connection type	flexible leads LIFYW, 500 mm



Model Number

		SJ2-SN	SJ2-S1N
Switching element function	green = preferred type NAMUR, NO NAMUR, NC	●	●
Current consumption			
Measuring plate not detected	≥ 3 mA ≤ 1 mA	●	
Measuring plate detected	≥ 3 mA ≤ 1 mA	●	●
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F) -40 ... 100 °C (-40 ... 212 °F)	●	●

Use in the Hazardous Area

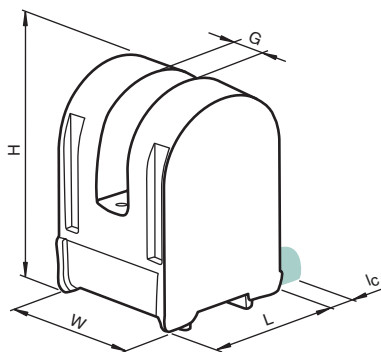
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G; 3G; 1D	●	●

Approvals and Certificates

Control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

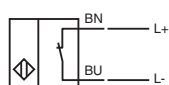
Length L [mm]	15
Width W [mm]	8
Height H [mm]	12
Slot width G [mm]	2
Connector area l _c [mm]	0



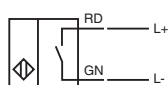
Electrical Connection

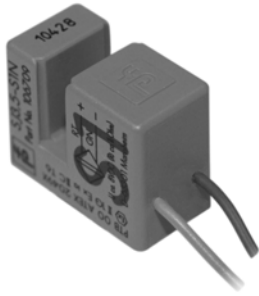


SJ2-SN



SJ2-S1N





Properties

- 3.5 mm slot width
- Very fast response
- DC, 2-wire NAMUR
- Flexible leads version

Your Benefit

- EX approval 1G/1D for use up to zone 0 / zone 20
- Applicable up to SIL3 acc. to IEC 61508

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Slot width	3.5 mm
Depth of immersion (lateral)	5 ... 7 typ. 6 mm
Type of voltage	DC
Nominal voltage	8 V
Suitable for 2:1 technology	✓, with reverse polarity protection diode
Housing material	PBT
Protection degree	IP67
Connection type	flexible leads LIY, 500 mm



Model Number

	green = preferred type		
Switching element function	NAMUR, NO NAMUR, NC		
Current consumption			
Measuring plate not detected	≥ 3 mA ≤ 1 mA		
Measuring plate detected	≥ 3 mA ≤ 1 mA		
Switching frequency	0 ... 2500 Hz 0 ... 3000 Hz		
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F) -50 ... 100 °C (-58 ... 212 °F)		

Use in the Hazardous Area

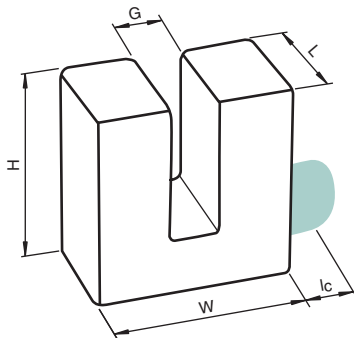
Use in the hazardous area	see instruction manuals		
Category	1G; 2G; 3G; 1D		

Approvals and Certificates

Control drawing	116-0165F		
UL approval	cULus Listed, General Purpose		
CSA approval	cCSAus Listed, General Purpose		
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.		

Dimensions

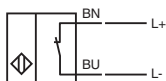
Length L [mm]	10
Width W [mm]	19
Height H [mm]	15
Slot width G [mm]	3.5
Connector area l _c [mm]	0



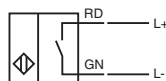
Electrical Connection

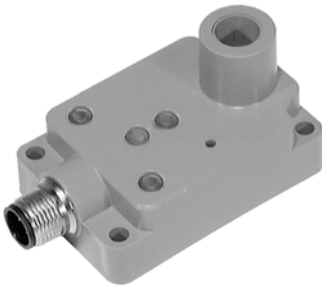


SJ3,5-SN



SJ3,5-S1N





Properties

- Ø10 mm and Ø20 mm inside diameter versions
- Weld immune
- DC, 3-wire switching output
- Connector version

Your Benefit

- Sensor for checking bolt holders and collets
- Easily programmable for optimum trip point

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	PNP	NO
Operating voltage	12 ... 30 V DC	
No-load supply current	≤ 10 mA	
Reverse polarity protection	✓	
Switching frequency	0 ... 5 Hz	
Operating current	0 ... 100 mA	
Short-circuit protection	pulsing	
Ambient temperature	0 ... 50 °C (32 ... 122 °F)	
Housing material	PA 66	
Protection degree	IP65	
Connection type	Device connector M12 x 1, 4-pin	



Model Number

Inside diameter	10 mm
	20 mm

RC10-E2-C-V1

RC20-E2-C-V1

Dimensions

Length L [mm]	60	
Width W [mm]	40	
Height H [mm]	34	
Inside diameter D [mm]	10 mm	20 mm
Connector area l _c [mm]	11	

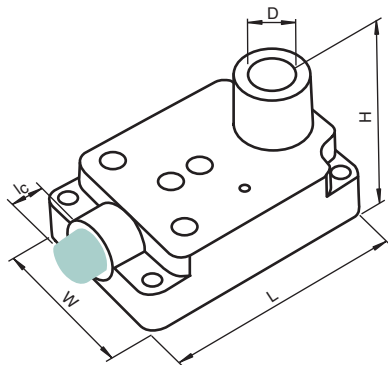
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

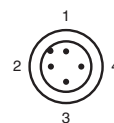
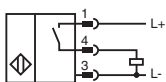
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable



Electrical Connection



RC10-E2-C-V1
RC20-E2-C-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø21 mm and Ø43 mm inside diameter versions
- 6 mm / 9 mm minimum target diameter
- Mild steel targets
- Very fast response
- DC, 3-wire switching output

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✓
Operating current	0 ... 200 mA
Short-circuit protection	pulsing
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC, 2 m



Model Number

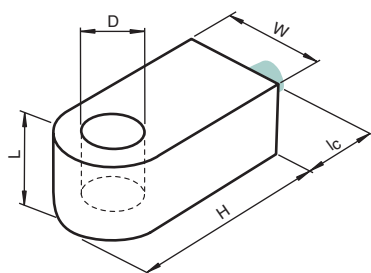
Model Number		RJ21-E	RJ43-E	RJ21-E2	RJ43-E2
Inside diameter	21 mm	●		●	
	43 mm		●		●
Switching element function	NPN NO	●	●		
	PNP NO			●	●
Measuring cylinder					
Diameter	6 mm	●		●	
	9 mm		●		●
Length	12 mm	●		●	
	18 mm		●		●
Switching frequency	0 ... 1000 Hz	●		●	
	0 ... 500 Hz		●		●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

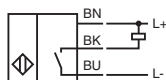
Length L [mm]			20		
Width W [mm]	45	70		45	70
Height H [mm]	80	100		80	100
Inside diameter D [mm]	21	43		21	43
Connector area l _c [mm]			0		



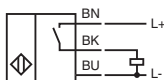
Electrical Connection



RJ21-E
RJ43-E



RJ21-E2
RJ43-E2





Properties

- Up to Ø43 mm inside diameter versions
- 3 mm / 6 mm / 9 mm minimum target diameter
- 9S20K targets
- Very fast response
- DC, NAMUR interface

Your Benefit

- EX approved sensor applicable up to zone 1

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 k Ω)
Measuring cylinder	9S20K
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	connector cable PVC, 2 m



Model Number

		RJ15-14-N	RJ15-N	RJ21-N	RJ43-N
Inside diameter	15 mm	●	●		
	21 mm			●	
	43 mm				●
Measuring cylinder	9S20K	●	●	●	●
Diameter	3 mm	●	●		
	6 mm			●	
	9 mm				●
Length	6 mm	●			
	4 mm		●		
	12 mm			●	
	18 mm				●
Switching frequency	0 ... 1000 Hz			●	
	0 ... 1500 Hz	●	●		
	0 ... 500 Hz				●

Use in the Hazardous Area

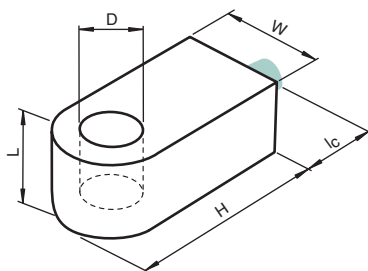
Use in the hazardous area	see instruction manuals	●	●	●	●
Category	2G	●	●	●	●

Approvals and Certificates

Control drawing	116-0165F		●	●	●
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

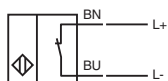
Length L [mm]		25	29	45	70
Width W [mm]		32.5	45	80	100
Height H [mm]					
Inside diameter D [mm]		15		21	43
Connector area l_c [mm]			0		



Electrical Connection



RJ15-14-N
RJ15-N
RJ21-N
RJ43-N





Properties

- Ø10 mm and Ø15 mm inside diameter versions
- 2.5 mm / 3 mm minimum target diameter
- 9S20K targets
- Very fast response
- DC, NAMUR interface

Your Benefit

- EX approved sensor applicable up to zone 1

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 k Ω)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Ambient temperature	-20 ... 65 °C (-4 ... 149 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC, 2 m



Model Number

		RC10-14-N0	RC15-14-N0
Inside diameter	10 mm	●	
	15 mm		●
Measuring cylinder	9S20K	●	●
Diameter	2.5 mm	●	
	3 mm		●
Length	4 mm	●	●
Switching frequency	0 ... 1500 Hz		●
	0 ... 2000 Hz	●	
Suitable for 2:1 technology	✓, Reverse polarity protection diode not required	●	

Use in the Hazardous Area

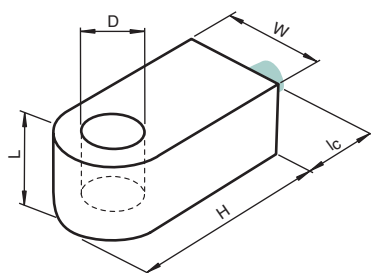
Use in the hazardous area	see instruction manuals	●	●
Category	2G	●	●

Approvals and Certificates

Control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●

Dimensions

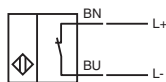
Length L [mm]		20	
Width W [mm]		25	
Height H [mm]		32.5	
Inside diameter D [mm]	10		15
Connector area l_c [mm]		0	



Electrical Connection



RC10-14-N0
RC15-14-N0





Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Switching element function	NAMUR, bistable
Type of voltage	DC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Current consumption	
Traverse B	3 mA
Traverse A	1 mA
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 2 m



Properties

- Ø10 mm and Ø15 mm inside diameter versions
- 2.5 mm / 3 mm minimum target diameter
- Ferrous targets
- Very fast response
- DC, bistable NAMUR interface

Your Benefit

- Direction detection due to bistable switching behavior
- EX approved sensor applicable up to zone 1

Model Number

Inside diameter	10 mm 15 mm
Measuring cylinder	ferrous metal
Diameter	2.5 mm 3 mm
Length	3 mm 4 mm
Passage speed	≤ 10 m/s
Ambient temperature	-20 ... 100 °C (-4 ... 212 °F) -20 ... 70 °C (-4 ... 158 °F)

RC10-14-N3

RC15-14-N3

Use in the Hazardous Area

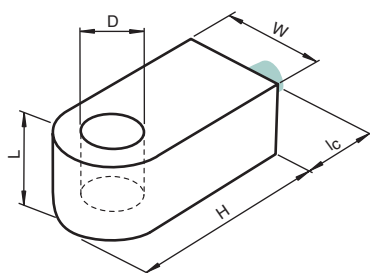
Use in the hazardous area	see instruction manuals
Category	2G

Approvals and Certificates

Control drawing	116-0165F
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

Dimensions

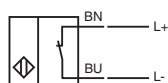
Length L [mm]	20		
Width W [mm]	25		
Height H [mm]	32.5		
Inside diameter D [mm]	10		15
Connector area I _c [mm]	0		



Electrical Connection



RC10-14-N3
RC15-14-N3





Properties

- F25 housing
- 3 mm, flush mountable
- DC, dual 2-wire switching output
- Cable and connector versions

Your Benefit

- Direct mounting without additional mounting aids on NAMUR bore holes 30 x 80

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Switching element function	Dual (NO)
Installation	flush mountable
Operating voltage	6 ... 60 V DC
Reverse polarity protection	tolerant
Switching frequency	0 ... 500 Hz
Operating current	4 ... 100 mA
Off-state current	0 ... 1 mA, typically 0.7 mA
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number

		NBN3-F25-Z8-0,14	NBN3-F25-Z8-5M	NBN3-F25-Z8-V1	NBN3-F25F-Z8-V1
Installation type	compact design for installation in housing and flange installation				
Connection type	Device connector M12 x 1, 4-pin				
	cable PVC, 180 mm				
	cable PVC, 5 m				

Approvals and Certificates

UL approval	cULus Listed, General Purpose				
CSA approval	cCSAus Listed, General Purpose				
CCC approval	Certified by China Compulsory Certification (CCC)				

Dimensions

Length L [mm]	52	61	62
Width W [mm]		52	
Height H [mm]		20	
Radius R [mm]		20.8	
Connector area l _c [mm]	0	12	18

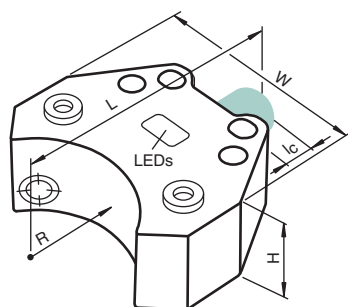
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

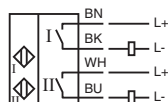
BT32	Activator for F25 series
BT32XS	Activator for F25 series
BT32XAS	Activator for F25 series
BT33	Activator for F25 series
BT34	Activator for F25 series
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable



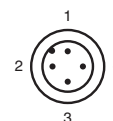
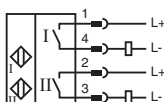
Electrical Connection



NBN3-F25-Z8-5M
NBN3-F25-Z8-0,14



NBN3-F25-Z8-V1
NBN3-F25F-Z8-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



1
.1.5

Proximity Sensors, Inductive Sensors, Double Sensors for Valve Actuators



Properties

- F25 housing
- 3 mm, flush mountable
- DC, dual 3-wire switching output
- Cable and connector versions

Your Benefit

- Direct mounting without additional mounting aids on NAMUR bore holes 30 x 80

Further Products

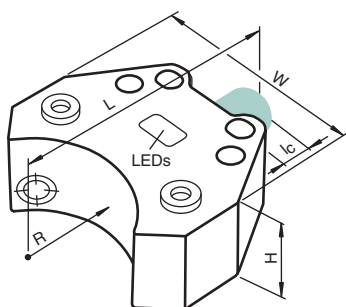
In this series, we offer additionally:

NBN3-F25-E8-K

Technical data like NBN3-F25-E8-5M but:

Protection degree: IP20

Connection type: MINI-COMBICON



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Switching element function	PNP Dual NO
Installation	flush mountable
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 25 mA
Reverse polarity protection	all connections
Switching frequency	0 ... 500 Hz
Operating current	0 ... 200 mA
Off-state current	0 ... 0.5 mA, typically 0.1 µA at 25 °C
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Protection degree	IP67
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT

Model Number

		NBN3-F25-E8-0,14	NBN3-F25-E8-5M	NBN3-F25-E8-V1	NBN3-F25F-E8-V1
Installation type	green = preferred type compact design for installation in housing and flange installation				
Connection type	Device connector M12 x 1, 4-pin cable PVC, 180 mm cable PVC, 5 m MINI-COMBICON				

Approvals and Certificates

UL approval	cULus Listed, General Purpose				
CSA approval	cCSAus Listed, General Purpose				
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	52	61	62
Width W [mm]		52	
Height H [mm]		20	
Radius R [mm]		20.8	
Connector area I _c [mm]	0	12	18

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

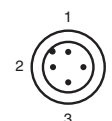
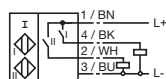
BT32	Activator for F25 series
BT32XS	Activator for F25 series
BT32XAS	Activator for F25 series
BT33	Activator for F25 series
BT34	Activator for F25 series
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable

Electrical Connection



NBN3-F25-E8-K
NBN3-F25-E8-0,14
NBN3-F25-E8-5M
NBN3-F25-E8-V1
NBN3-F25F-E8-V1

E8



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- F31 housing
- 3 mm, flush mountable
- DC, dual 2-wire switching output
- Cable and connector versions

Your Benefit

- LED indicators for switching state and valve output
- Direct mounting without additional mounting aids on NAMUR bore holes 30 x 80 and 30 x 130

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Switching element function	Dual (NO)
Installation	flush mountable
Operating voltage	6 ... 60 V DC
Reverse polarity protection	tolerant
Switching frequency	0 ... 500 Hz
Operating current	4 ... 100 mA
Off-state current	0 ... 1 mA, typically 0.7 mA
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number

	NBN3-F31-Z8-K	NBN3-F31-Z8-K-K	NBN3-F31-Z8-V1	NBN3-F31-Z8-V18	NBN3-F31-Z8-V16-V15	NBN3-F31-Z8-V16-V16
Valve status indication	LED, yellow					
Connection type	Device connector M18 x 1, 4-pin					
Connection (system side)	connector M12 x 1, 4-pin					
	connector Rd24 x 1/8, 4-pin					
	PVC cable 5 m					
Connection (valve side)	5-pin, M12 x 1 socket					
	PVC cable 0.5 m					
	connector Rd24 x 1/8, 4-pin					

Approvals and Certificates

UL approval	cULus Listed, General Purpose					
CSA approval	cCSAus Listed, General Purpose					
CCC approval	Certified by China Compulsory Certification (CCC)					

Dimensions

Length L [mm]	36			
Width W [mm]	65			
Height H [mm]	33.5			
Connector area l _c [mm]	28	10	18	28

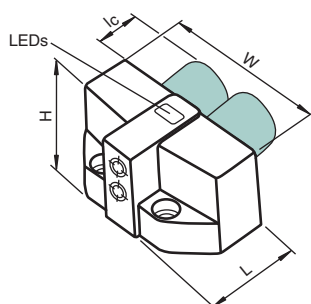
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BT65A	Activator for F31 series
BT65X	Activator for F31 series
BT115A	Activator for F31 series
BT115X	Activator for F31 series
BT65B	Activator for F31 series
BT115B	Activator for F31 series
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V18-G	Cable socket in M18 format, ready for make up
V16-G	Cable socket, dia. 24, 6-pin+PE, easy to assemble
V18-W	Cable socket in M18 format, ready for make up
V15-G-PG9	Cable socket, M12, 5-pin, ready for assembly

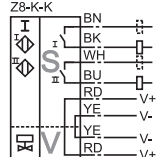
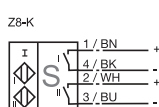


Electrical Connection

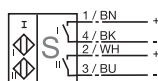


NBN3-F31-Z8-K

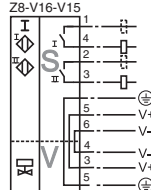
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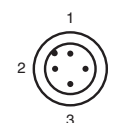
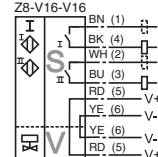
NBN3-F31-Z8-V1



NBN3-F31-Z8-V16-V15



NBN3-F31-Z8-V16-V16



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



1
1.5

Proximity Sensors, Inductive Sensors, Double Sensors for Valve Actuators



Properties

- F31 housing
- 3 mm, flush mountable
- DC, dual 3-wire switching output
- Cable and connector versions

Your Benefit

- LED indicators for switching state and valve output
- Direct mounting without additional mounting aids on NAMUR bore holes 30 x 80 and 30 x 130

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Switching element function	PNP Dual NO
Installation	flush mountable
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 25 mA
Reverse polarity protection	all connections
Switching frequency	0 ... 500 Hz
Operating current	0 ... 100 mA
Off-state current	0 ... 0.5 mA, typically 0.1 µA at 25 °C
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number

		NBN3-F31-E8-K	NBN3-F31-E8-K-K	NBN3-F31-E8-V1	NBN3-F31-E8-V16-V15	NBN3-F31-E8-V18
Valve status indication	LED, yellow		●			
Connection type	Device connector M12 x 1, 4-pin			●		
	Device connector M18 x 1, 4-pin					●
Connection (system side)	Device connector Rd24 x 1/8, 4-pin			●	●	
	PVC cable 5 m	●	●			
Connection (valve side)	5-pin, M12 x 1 socket			●	●	
	PVC cable 0.5 m		●			

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.					

Dimensions

Length L [mm]	36			
Width W [mm]	65			
Height H [mm]	33.5			
Connector area l _c [mm]	28	10	28	18

Accessories

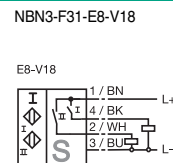
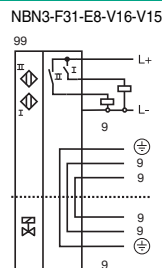
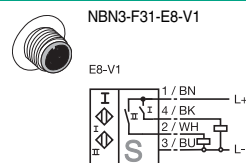
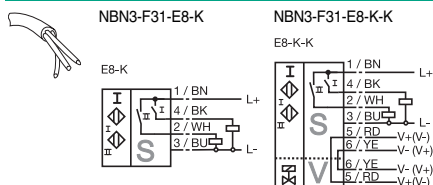
This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BT65A	Activator for F31 series
BT65X	Activator for F31 series
BT115A	Activator for F31 series
BT115X	Activator for F31 series
BT65B	Activator for F31 series
BT115B	Activator for F31 series
V1-G-BK	4-pin, M12 female field-attachable connector
V1-W-BK	4-pin, M12 female field-attachable connector
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V18-G	Cable socket in M18 format, ready for make up
V16-G	Cable socket, dia. 24, 6-pin+PE, easy to assemble
V15-G-PG9	Cable socket, M12, 5-pin, ready for assembly

Electrical Connection



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

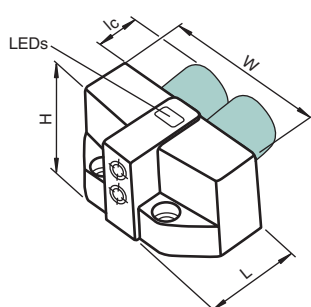


Properties

- F31 housing
- 3 mm, flush mountable
- AC/DC, dual 2-wire switching output
- Cable and connector versions

Your Benefit

- LED indicators for switching state and valve output
- Direct mounting without additional mounting aids on NAMUR bore holes 30 x 80 and 30 x 130



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Switching element function	AC/DC binary NO
Installation	flush mountable
Operating voltage	20 ... 253 V AC/DC
Reverse polarity protection	✓
Switching frequency	25 Hz
Operating current	4 ... 400 mA
Off-state current	≤ 1.7 mA
Short-circuit protection	✓
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number

		NBN3-F31-U8-K	NBN3-F31-U8-V125	NBN3-F31-U8-V18
Connection type	Device connector 1/2"-20 UN		●	
	Device connector M18 x 1, 4-pin cable PVC, 5 m	●		●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●

Dimensions

Length L [mm]		36		
Width W [mm]		65		
Height H [mm]		33.5		
Connector area l _c [mm]		28	10	18

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

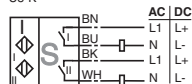
BT65A	Activator for F31 series
BT65X	Activator for F31 series
BT115A	Activator for F31 series
BT115X	Activator for F31 series
BT65B	Activator for F31 series
BT115B	Activator for F31 series
V18-G	Cable socket in M18 format, ready for make up
V125-G-YE2M-PVC	Cable socket, M12, 5-pin, PVC cable
V18-W	Cable socket in M18 format, ready for make up
V125-W-YE2M-PVC	Connecting cable, 1/2" - 20 UNF, 5-pin, PVC cable

Electrical Connection



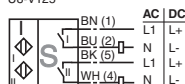
NBN3-F31-U8-K

U8-K



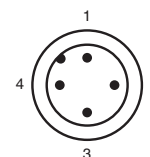
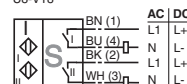
NBN3-F31-U8-V125

U8-V125



NBN3-F31-U8-V18

U8-V18



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



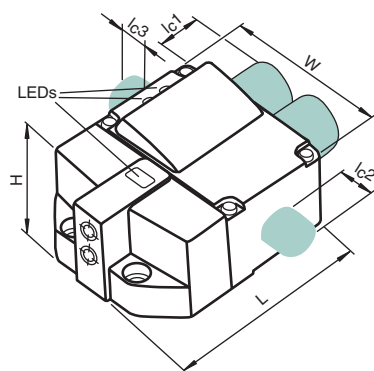
1
1.5

Properties

- F31K housing
- 3 mm, flush mountable
- DC, dual 2-wire switching output
- Terminal compartment
- Connector and cable gland versions

Your Benefit

- LED indicators for switching state and valve output
- Direct mounting without additional mounting aids on NAMUR bore holes 30 x 80 and 30 x 130



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Switching element function	DC binary NO
Installation	flush mountable
Reverse polarity protection	tolerant
Switching frequency	0 ... 500 Hz
Operating current	4 ... 100 mA
Off-state current	0 ... 1 mA, typically 0.7 mA
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number

	NBN3-F31K-Z8	NBN3-F31K-Z8-K	NBN3-F31K-Z8-V1-V1
Operating voltage	10 ... 30 V DC		
	6 ... 60 V DC		
No-load supply current	≤ 25 mA		
Short-circuit protection	pulsing		
Operating voltage display	LED, green		
Valve status indication	LED, yellow		
Connection (system side)	Cage tension spring terminals		
Connection (valve side)	4-pin, M12 x 1 socket		
	Cage tension spring terminals		

Approvals and Certificates

UL approval	cULus Listed, General Purpose			
CSA approval	cCSAus Listed, General Purpose			
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.			

Dimensions

Length L [mm]	77.5		
Width W [mm]	65		
Height H [mm]	35		
Connector area l _{c1} [mm]	10		
Connector area l _{c2} [mm]	-	10	
Connector area l _{c3} [mm]	-		10

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BT65A	Activator for F31 series
BT65X	Activator for F31 series
BT115A	Activator for F31 series
BT115X	Activator for F31 series
BT65B	Activator for F31 series
BT115B	Activator for F31 series

VMA-2+P/Z2-0,3M-PVC-V1-W-Y Valve connector, Form A on M12, 2+PE, LED, Z diode, PVC cable

VMB-2+P/Z2-0,3M-PVC-V1-W-Y Valve connector, Form B on M12, 2+PE, LED, Z diode, PUR cable

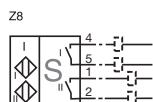
VMC-2+P/Z2-0,3M-PVC-V1-W-Y Valve connector, model C on M12, 2 + PE, LED, zener diode, PVC cable

VMCI-2+P/Z2-0,3M-PVC-V1-W-Y Valve connector, model C (ind) on M12, 2 + PE, LED, zener diode, PVC cable

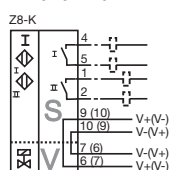
Electrical Connection



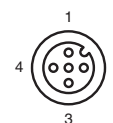
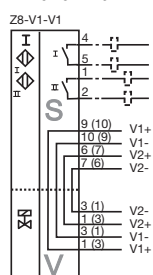
NBN3-F31K-Z8



NBN3-F31K-Z8-K



NBN3-F31K-Z8-V1-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)
5	GY	(gray)

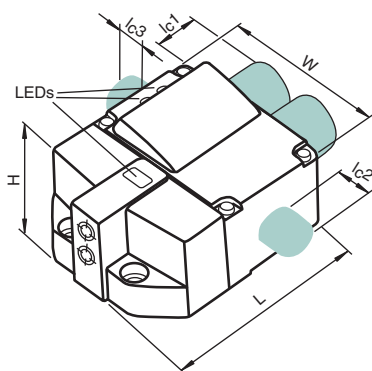


Properties

- F31K housing
- 3 mm, flush mountable
- DC, dual 3-wire switching output
- Terminal compartment
- Connector and cable gland versions

Your Benefit

- LED indicators for switching state and valve output
- Direct mounting without additional mounting aids on NAMUR bore holes 30 x 80 and 30 x 130



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Switching element function	PNP Dual NO
Installation	flush mountable
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 25 mA
Reverse polarity protection	✓
Switching frequency	0 ... 500 Hz
Operating current	0 ... 100 mA
Off-state current	0 ... 0.5 mA, typically 0.1 µA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number

	green = preferred type
Valve status indication	LED, yellow
Connection (system side)	Cage tension spring terminals
Connection (valve side)	4-pin, M12 x 1 socket Cage tension spring terminals

NBN3-F31K-E8



NBN3-F31K-E8-K



NBN3-F31K-E8-V1-V1



Approvals and Certificates

UL approval	cULus Listed, General Purpose	•	•	•
CSA approval	cCSAus Listed, General Purpose	•	•	•
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.			

Dimensions

Length L [mm]		77.5
Width W [mm]		65
Height H [mm]		35
Connector area l _{c1} [mm]		10
Connector area l _{c2} [mm]	-	10
Connector area l _{c3} [mm]	-	10

Accessories

This and more accessories can be found in chapter 10
See pages from 972 ... for cordsets See pages 1068 ... for mounting aids

BT65A	Activator for F31 series
BT65X	Activator for F31 series
BT115A	Activator for F31 series
BT115X	Activator for F31 series
BT65B	Activator for F31 series
BT115B	Activator for F31 series

VMA-2+P/Z2-0,3M-PVC-V1-W-Y Valve connector, Form A on M12, 2+PE, LED, Z diode, PVC cable

VMB-2+P/Z2-0,3M-PVC-V1-W-Y Valve connector, Form B on M12, 2+PE, LED, Z diode, PUR cable

VMC-2+P/Z2-0,3M-PVC-V1-W-Y Valve connector, model C on M12, 2 + PE, LED, zener diode, PVC cable

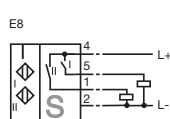
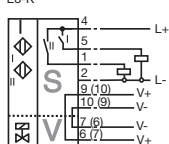
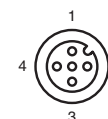
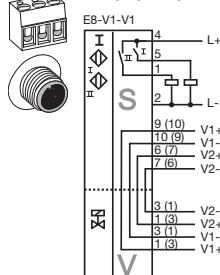
VMCI-2+P/Z2-0,3M-PVC-V1-W-Y Valve connector, model C (ind) on M12, 2 + PE, LED, zener diode, PVC cable

VMBI-2+P/Z2-0,3M-PVC-V1-W-Y Valve connector, Form B (Ind) on M12, 2+PE, LED, Z-Diode, PVC cable

Electrical Connection



NBN3-F31K-E8

NBN3-F31K-E8-K
E8-KNBN3-F31K-E8-V1-V1
E8-V1-V1

Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)
5	GY	(gray)

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1.1.5

Proximity Sensors, Inductive Sensors, Double Sensors for Valve Actuators

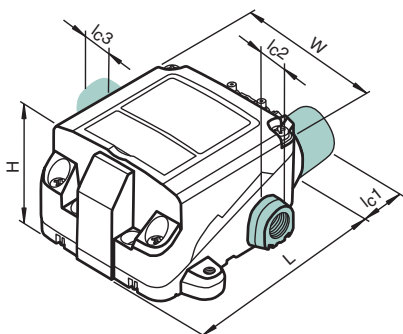


Properties

- F31K2 housing
- 3 mm, flush mountable
- DC, dual 3-wire switching output
- Terminal compartment
- Versions with connectors for valve control

Your Benefit

- LED indicators for switching state and valve output
- Direct mounting without additional mounting aids on NAMUR bore holes 30 x 80 and 30 x 130
- Tight sealing and temperature resistance



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	2.5 mm
Installation	flush mountable
Switching element function	PNP Dual NO
Operating voltage	10 ... 30 VDC
No-load supply current	≤ 25 mA
Reverse polarity protection	✓
Switching frequency	0 ... 100 Hz
Operating current	0 ... 100 mA
Off-state current	0 ... 0.5 mA typ. 0.1 µA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Valve status indication	LED, yellow
Ambient temperature	-40 ... 75 °C (-40 ... 167 °F)
Housing material	PC
Protection degree	IP66 / IP67 / IP69K
Connection (system side)	screw terminal



Model Number

Housing base	aluminum
Thread for cable gland	1/2" - 14 NPT M20 x 1.5
Connection (valve side)	4-pin, M12 x 1 socket

NBN3-F31K2-E8-B13-S

NBN3-F31K2M-E8-B13-S

NBN3-F31K2M-E8-B23-S

NBN3-F31K2-E8-B33-S

Approvals and Certificates

UL approval	cULus Listed, General Purpose, Class 2 Power Source	•	•	•	•
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	106			
Width W [mm]	100			
Height H [mm]	53			
Connector area l _{c1} [mm]	depends on the cable gland being used			
Connector area l _{c2} [mm]	-	-	-	15
Connector area l _{c3} [mm]	-	-	-	15

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

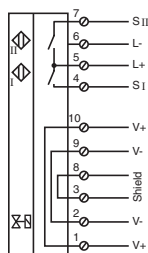
See pages 1068 ... for mounting aids

BT65A	Activator for F31 series
BT65X	Activator for F31 series
BT115A	Activator for F31 series
BT115X	Activator for F31 series
BT65B	Activator for F31 series
BT115B	Activator for F31 series
BT65-F31K2-RG-EN	Activator for F31K2 series

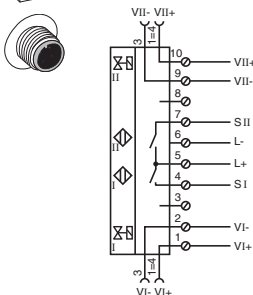
Electrical Connection



NBN3-F31K2-E8-B13-S
NBN3-F31K2M-E8-B13-S
NBN3-F31K2M-E8-B23-S



NBN3-F31K2-E8-B33-S



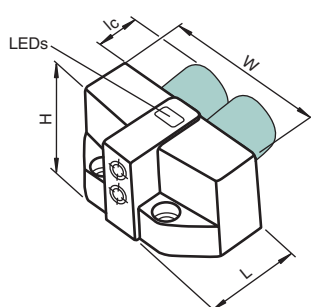


Properties

- F31 housing
- 3 mm, flush mountable
- AS interface
- Cable and connector versions

Your Benefit

- LED indicators for switching state and valve output
- Direct mounting without additional mounting aids on NAMUR bore holes 30 x 80 and 30 x 130



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Installation	flush mountable
Switching element function	programmable
Operating voltage	26.5 ... 31.9 V via AS-i bus system
Switching frequency	0 ... 100 Hz
LED PWR	AS-Interface voltage; LED green
LED IN	switching state (input); LED yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Connection (system side)	connector M12 x 1, 4-pin



Model Number

		NCN3-F31-B3B-V1	NCN3-F31-B3B-V1-K	NCN3-F31-B3B-V1-V1
LED OUT	binary LED yellow/red yellow: switching state red: lead breakage/short-circuit		●	●
Connection (valve side)	0.5 m, PVC cable		●	
	socket connector, M12 x 1, 4-pin		●	●



Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.			

Dimensions

Length L [mm]	36
Width W [mm]	65
Height H [mm]	33.5
Connector area L _c [mm]	10 12 15

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

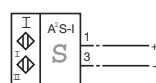
BT65A	Activator for F31 series
BT65X	Activator for F31 series
BT115A	Activator for F31 series
BT115X	Activator for F31 series
BT65B	Activator for F31 series
BT115B	Activator for F31 series
V1-W-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-G-2M-PUR	Cable socket, M12, 4-pin, PUR cable
V1-G-BK	4-pin, M12 female field-attachable connector

Electrical Connection



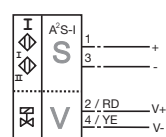
NCN3-F31-B3B-V1

B3B-V1



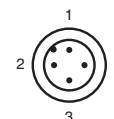
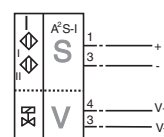
NCN3-F31-B3B-V1-K

B3B-V1-K



NCN3-F31-B3B-V1-V1

B3B-V1-V1-Y





Properties

- F31K housing
- 3 mm, flush mountable
- AS interface
- Terminal compartment

Your Benefit

- LED indicators for switching state and valve output
- Direct mounting without additional mounting aids on NAMUR bore holes 30 x 80 and 30 x 130

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

Model Number	NCN3-F31K-B3B-B31
Rated operating distance	3 mm
Installation	flush mountable
Switching element function	programmable
Operating voltage	26.5 ... 31.9 V via AS-i bus system
Switching frequency	0 ... 100 Hz
LED PWR	AS-Interface voltage; LED green
LED IN	switching state (input); LED yellow
LED OUT	binary LED yellow/red yellow: switching state red: lead breakage/short-circuit
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection (system side)	screw terminals
Connection (valve side)	screw terminals



Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

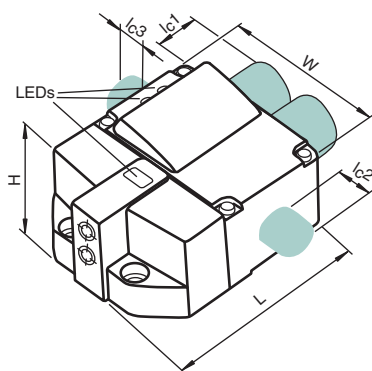
Dimensions

Length L [mm]	77.5
Width W [mm]	65
Height H [mm]	35
Connector area l _{c1} [mm]	10
Connector area l _{c2} [mm]	10

Accessories

This and more accessories can be found in chapter 10
See pages from 972 ... for cordsets See pages 1068 ... for mounting aids

BT65A	Activator for F31 series
BT65X	Activator for F31 series
BT115A	Activator for F31 series
BT115X	Activator for F31 series
BT65B	Activator for F31 series
BT115B	Activator for F31 series

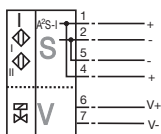


Electrical Connection



NCN3-F31K-B3B-B31

B3B-V1-K



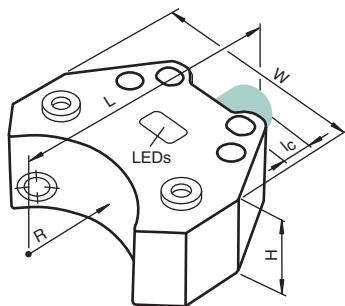


Properties

- F25 housing
- 3 mm, flush mountable
- DC, dual NAMUR interface
- Cable and connector versions

Your Benefit

- EX approval 1G applicable up to zone 0
- Direct mounting without additional mounting aids on NAMUR bore holes 30 x 80



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Installation	flush mountable
Switching element function	DC Dual NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 k Ω)
Reverse polarity protection	✓
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 1500 Hz
Suitable for 2:1 technology	✓, Reverse polarity protection diode not required
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Protection degree	IP67

Model Number

		NCN3-F25-N4-0-14	NCN3-F25-N4-5M	NCN3-F25F-N4-V1	NCN3-F25-N4-V1
Installation type	green = preferred type compact design for installation in housing and flange installation				●
Connection type	Device connector M12 x 1, 4-pin cable PVC, 180 mm cable PVC, 5 m	●	●	●	●

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals	●	●	●	●
Category	1G; 2G; 3G		●	●	
	1G; 2G; 3G; 3D	●			●

Approvals and Certificates

FM control drawing	116-0165F	●	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.				

Dimensions

Length L [mm]	52	62	61
Width W [mm]		52	
Height H [mm]		20	
Connector area I _c [mm]	0	17	9

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

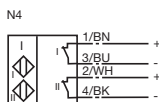
See pages 1068 ... for mounting aids

BT32	Activator for F25 series
BT32XS	Activator for F25 series
BT32XAS	Activator for F25 series
BT33	Activator for F25 series
BT34	Activator for F25 series
V1-G-BK	4-pin, M12 female field-attachable connector
V1-G-N4-5M-PUR	Female cordset, M12, 4-pin, NAMUR, PUR cable

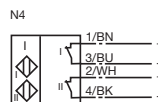
Electrical Connection



NCN3-F25-N4-0-14
NCN3-F25-N4-5M



NCN3-F25F-N4-V1
NCN3-F25-N4-V1



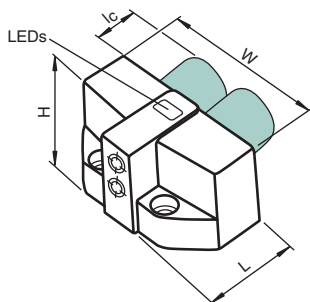


Properties

- F31 housing
- 3 mm, flush mountable
- DC, dual NAMUR interface
- Cable and connector versions

Your Benefit

- EX approval 1G applicable up to zone 0
- Usable up to SIL2 acc. to IEC 61508
- LED indicators for switching state and valve output
- Direct mounting without additional mounting aids on NAMUR bore holes 30 x 80



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Installation	flush mountable
Switching element function	NAMUR, binary NC
Type of voltage	DC
Nominal voltage	8 V
Reverse polarity protection	✓
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 3 kHz
Suitable for 2:1 technology	✓, Reverse polarity protection diode not required
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 100 °C (-13 ... 158 °F)
Housing material	PBT

Model Number

		green = preferred type							
Valve status indication	LED, yellow								
Protection degree	IP66 / IP67								
	IP67								
Connection (system side)	Device connector M12 x 1, 4-pin								
	Device connector M18 x 1, 4-pin								
	Device connector Rd24 x 1/8, 7-pin								
	PVC cable, 5 m								
Connection (valve side)	4-pin, M12 x 1 socket								
	socket connector Rd24 x 1/8, 7-pin								
	PVC cable, 0.5 m								

Use in the Hazardous Area

Use in the hazardous area	see instruction manuals								
Category	1G; 2G								
	1G; 2G; 3G								

Approvals and Certificates

UL approval	cULus Listed, General Purpose								
CSA approval	cCSAus Listed, General Purpose								
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.								

Dimensions

Length L [mm]	36
Width W [mm]	65
Height H [mm]	33.5
Connector area l _c [mm]	16 28 28 10 22 28 22

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

BT65A

Activator for F31 series

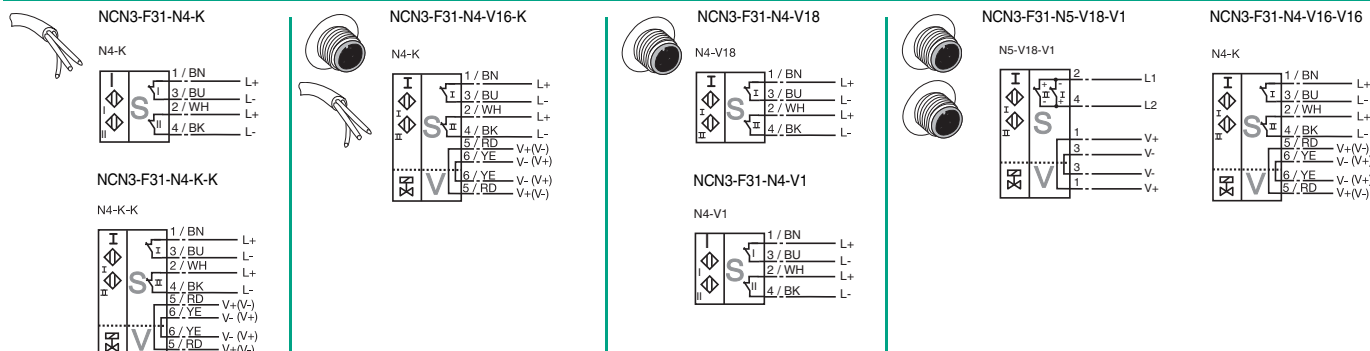
BT65X

Activator for F31 series

BT115A

Activator for F31 series

Electrical Connection



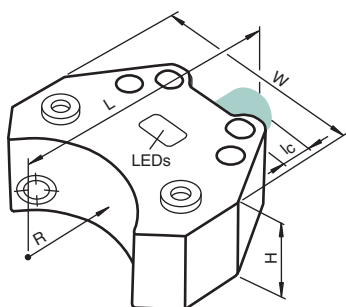
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Properties

- F25 housing
- 3 mm, flush mountable
- DC, dual NAMUR safety interface
- Cable and connector versions

Your Benefit

- EX approval 1G applicable up to zone 0
- Usable up to SIL3 acc. to IEC 61508
- LED indicators for switching state and valve output
- Direct mounting without additional mounting aids on NAMUR bore holes 30 x 80



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	3 mm
Installation	flush mountable
Switching element function	DC Dual NC
Type of voltage	DC
Nominal voltage	8.2 V (R _i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 1500 Hz
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Protection degree	IP67

Model Number

Connection type	Device connector M12 x 1, 4-pin cable PVC, 180 mm cable PVC, 5 m
-----------------	--

NCN3-F25-SN4-0,14

NCN3-F25-SN4-5M

NCN3-F25-SN4-V1



Use in the Hazardous Area

Use in the hazardous area	see instruction manuals
Category	1G; 2G; 3G

Approvals and Certificates

FM control drawing	116-0165F			
UL approval	cULus Listed, General Purpose			
CSA approval	cCSAus Listed, General Purpose			
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.			

Dimensions

Length L [mm]	52	52	61
Width W [mm]		52	
Height H [mm]		20	
Connector area l _c [mm]	0	0	9

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

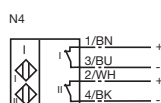
See pages 1068 ... for mounting aids

BT32	Activator for F25 series
BT32XS	Activator for F25 series
BT32XAS	Activator for F25 series
BT33	Activator for F25 series
BT34	Activator for F25 series
V1-G-BK	4-pin, M12 female field-attachable connector
V1-G-N4-5M-PUR	Female cordset, M12, 4-pin, NAMUR, PUR cable

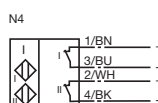
Electrical Connection



NCN3-F25-SN4-0,14
NCN3-F25-SN4-5M



NCN3-F25-SN4-V1

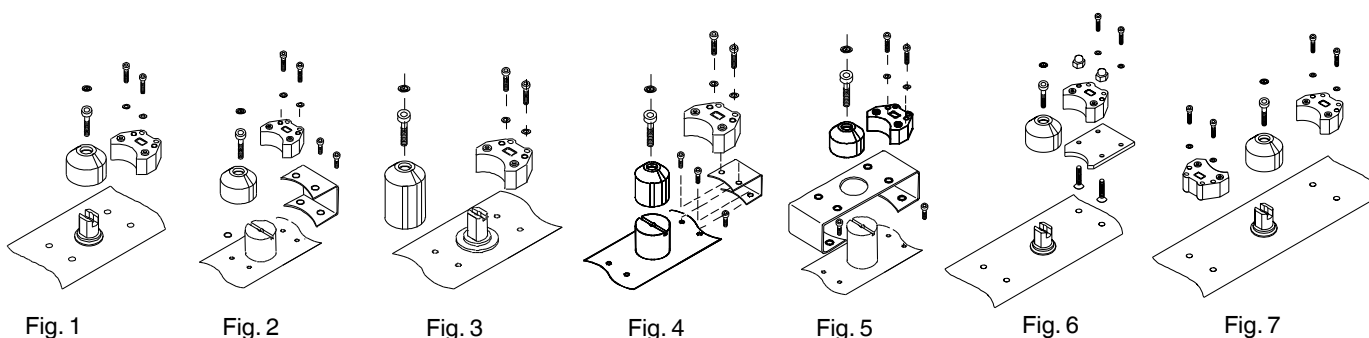


Actuator, Mounting Sets, and Brackets for Position Feedback Sensors (-F25 Series)

Mounting set ¹⁾	Shaft diameter ²⁾	Shaft height	Mounting hole pattern	Includes:		Fig.
				Actuator	Bracket	
BT32-F25-0	< 34 mm	20 mm	30 mm x 80 mm	BT32	–	1
BT33-F25-0	< 34 mm	30 mm	30 mm x 80 mm	BT33	–	3
BT34-F25-2	preferably > 34 mm	20/30 mm	30 mm x 80 mm	BT34	K2	2
BT34-F25-3	preferably > 34 mm	30 mm	30 mm x 130 mm	BT34	K3	4
BT34-F25-4	preferably > 34 mm	50 mm	30 mm x 130 mm	BT34	K4	5
MH5-F25-Y43089	< 34 mm	20/30 mm	30 mm x 130 mm	–	Metal plate	6
MH20-F25-Y43090	Height compensation for additionally mounted regulator			–	F25 fully encapsulated	7

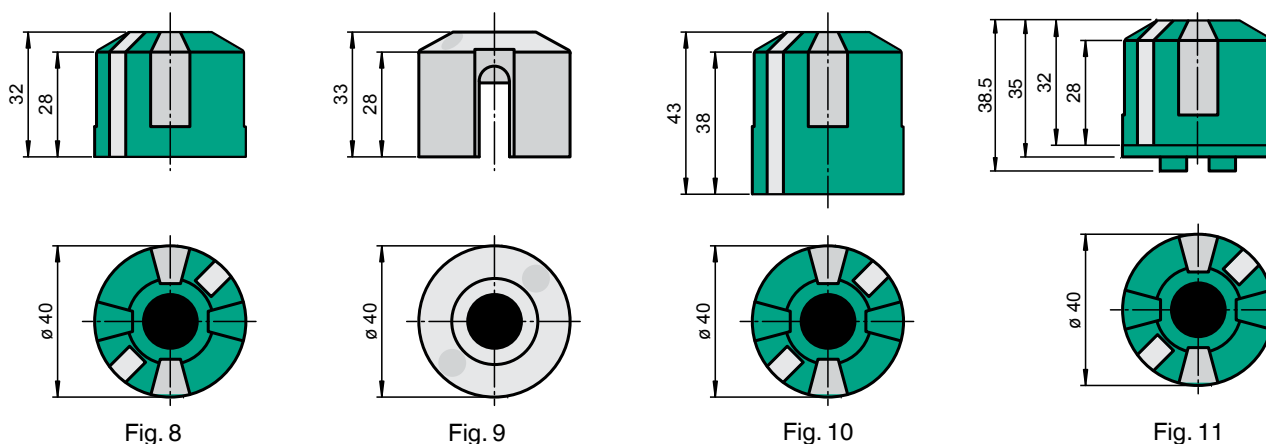
¹⁾ Includes mounting screws for the respective double sensor

²⁾ If the ring is higher than 3 mm, the height of the snap ring is the determining factor rather than the shaft diameter.



Individual part	Shaft diameter	Shaft height	Number of switching targets	Notes	Fig.
Actuator ³⁾					
BT32	≤ 34 mm	20 mm	2	Active height: 28 mm	8
BT32XS	≤ 34 mm	20 mm	1	As per BT32, with reverse-direction operation	9
BT32XAS	≤ 34 mm	20 mm	2	As per BT32, with reverse-direction operation	9
BT33	≤ 34 mm	30 mm	2	Active height: 38 mm	10
BT34	≥ 34 mm	≥ 20 mm	2	Active height: 28 mm, sitting on the drive shaft	11
BT37	≥ 34 mm	20 mm	1	Actuator BT37 with 4 mm groove for mounting on regulator	–
Bracket					
K2	–	–	–	Mounting hole pattern 30 mm x 80 mm	2

¹⁾ Actuator without mounting screws for the respective double sensor



Actuators for the -F31 / F31K2 Series with Fixed Switching Positions

The following actuators are made out of conductive plastic that prevents build-up of electrostatic charge and therefore can be used in hazardous areas. The sheathing surface of the BT65X and BT115X actuators is made out of stainless steel (V2A) with openings at the actuating positions. This results in an inverted operating principle.

Actuator	Drive shaft diameter	Shaft height	Mounting hole pattern	Notes	Illustration
BT65A	< 58 mm	20 mm and 30 mm	30 mm x 80 mm	Snap ring diameter max. 65 mm, Snap ring height max. 6 mm. For right and left rotating drives with 90°/180° rotation.	
BT65X					
BT115A	< 90 mm	30 mm and 50 mm	30 mm x 130 mm	Snap ring diameter max. 110 mm, Snap ring height max. 7 mm. For right and left rotating drives with 90°/180° rotation.	
BT115X					

Actuators for the -F31 / F31K2 Series with Adjustable Switching Positions

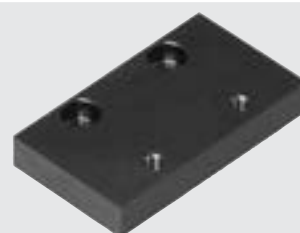
Actuator	Drive shaft diameter	Shaft height	Mounting hole pattern	Notes	Illustration
BT65B	< 58 mm	20 mm and 30 mm ¹⁾	30 mm x 80 mm	Snap ring diameter max. 65 mm, snap ring height max. 6 mm	
BT65-F31K2-RG-EN	< 49 mm	20 mm and 30 mm	30 mm x 80 mm	Adjustable in 5° steps, clearly visible colored indicators. Comes with protection hood.	
BT115B	< 90 mm	30 mm and 50 mm	30 mm x 130 mm	Snap ring diameter max. 110 mm, snap ring height max. 7 mm	

¹⁾ 30 mm using MH-BT65B mounting base

MH-BT65B Mounting Base

MH-BT65B

Adapter plate for using BT65B actuators on drives with:
hole dimension 80 mm x 30 mm
hole dimension 130 mm x 30 mm
and drive shaft height 30 mm





Assembly set with switch plate for mounting of inductive valve sensors on manual operated valves acc. to ISO5211-DIN3337.

The assembly set includes a 2-parts mounting bracket with switch plate, a driver stem and a lock nut.

Properties

- Simple mounting
- Conforming to standards
- Adjustable in height
- Adjustable shaft extension

Your Benefit

- Suitable for use in hazardous areas due to conductive material
- Sturdy holder consisting of stainless steel and Vestamid
- Easy standard installation acc. to ISO5211-DIN3337

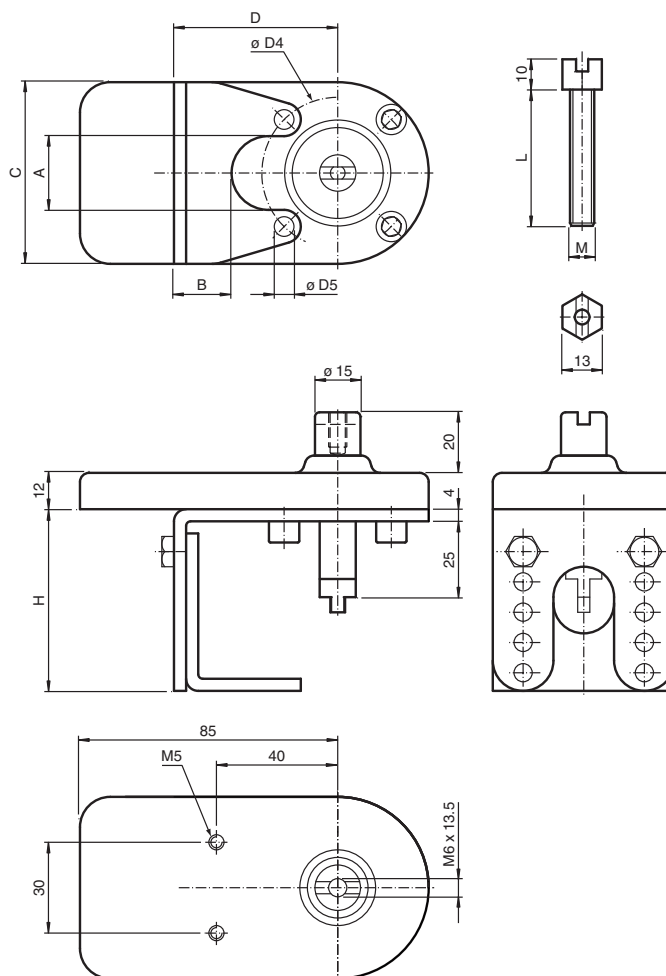
Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Suitable sensors	Double sensor, -F25 series with actuator BT32... Double sensor, -F31 series with actuator BT65A Double sensor, -F31K series with actuator BT65A
Material	Mounting bracket and nut: stainless steel 1.4301 Tappet and shaft: Stainless steel 1.4305 / AISI 303 (V2A) Sensor plate: Vestamid (PA 12), conductive

Model Number	MH-BT-F03-M5	MH-BT-F04-M5	MH-BT-F04-M6	MH-BT-F05-M5	MH-BT-F05-M6	MH-BT-F07-M5	MH-BT-F07-M6	MH-BT-F07-M8	MH-BT-F10-M8	MH-BT-F10-M10	MH-BT-F10-M12	MH-BT-F12-M10
Dimensions												
A	[mm]	16	20.7	20.7	24.36	24.36	34.36	34.5	52.12	52.12	52.12	66.39
B	[mm]	20	20	20	15	15	15	15	15	15	15	15
C	[mm]	60	60	60	60	60	64.5	64.5	93	93	93	111
D	[mm]	54	54	54	54	54	54	54	74	74	74	74
Ø D4	[mm]	36	42	42	50	50	70	70	102	102	102	125
Ø D5	[mm]	5.3	5.3	5.3	6.5	6.5	8.5	8.5	11	11	11	13
H		60 mm / 70 mm / 80 mm / 90 mm / 100 mm, adjustable							80 mm / 90 mm / 100 mm / 110 mm / 120 mm, adjustable			
L	[mm]	25	25	50	25	50	25	45	45	60	50	60
M	[mm]	5	5	6	5	6	5	6	8	10	12	10



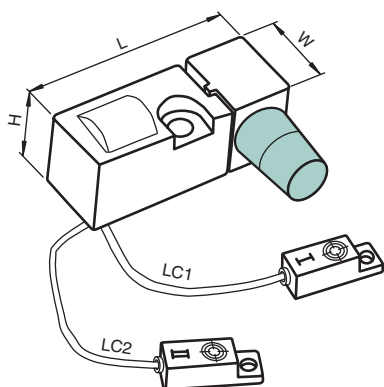
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Properties

- Compact F58 housing
- 2 mm, non-flush mountable
- DC, 3-wire switching outputs
- Adjustable connector version

Your Benefit

- Flexible mounting due to adjustable plug in 45° grid
- Numerous sensor types for minimal installation space



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	2 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✓
Operating current	0 ... 100 mA
Short-circuit protection	pulsing
Constant magnetic field	100 mT
Alternating magnetic field	100 mT
Operating voltage display	LED green
Indication of the switching state	switching state "close" = LED red (S2) switching state "open" = LED yellow (S1)
Housing material	amplifier; PBT, PA6 + GD-ZN AL4 oscillators; PBT
Protection degree	IP65
Connection type	Device connector M12 x 1, 4-pin



Model Number

			NBN2-F581-100S16-E8-V1	NBN2-F583-100S18-E8-V1	NBN2-F581-270S15-E8-V1	NBN2-F583-100S3-E8-V1	NBN2-F581-100S6-E10-V1	NBN2-F581-60/180S6-E8-V1
Switching element function	NPN	Dual NO						
	PNP	Dual NO	●	●	●	●		●
No-load supply current	≤ 15 mA		●	●	●	●		●
	≤ 35 mA						●	
Switching frequency	0 ... 100 Hz		●	●	●	●		
	0 ... 25 Hz						●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)						●	●
	0 ... 50 °C (32 ... 122 °F)		●	●	●	●		

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.							

Dimensions

Length L [mm]	47			
Width W [mm]	18			
Height H [mm]	18			
Connector area I _{c1} [mm]	100	270	100	60
Connector area I _{c2} [mm]	100	270	100	180

Accessories

This and more accessories can be found in chapter 10
See pages from 972 ... for cordsets See pages 1068 ... for mounting aids

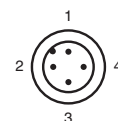
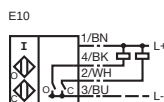
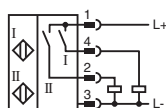
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant
V1-G-2M-PUR H/S	Female cordset, M12, 4-pin, irradiated PUR cable
V1-W-2M-PUR H/S	Female cordset, M12, 4-pin, irradiated PUR cable

Electrical Connection



NBN2-F581-100S16-E8-V1
NBN2-F581-270S15-E8-V1
NBN2-F583-100S3-E8-V1
NBN2-F583-100S18-E8-V1
NBN2-F581-60/180S6-E8-V1

NBN2-F581-100S6-E10-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Flexible **VariKont** housing
- 15 mm, flush mountable
- DC, 3-wire switching output
- Terminal compartment

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	flush
Switching element function	PNP NO
Operating voltage	15 ... 60 V DC
No-load supply current	≤ 25 mA
Reverse polarity protection	✓
Short-circuit protection	pulsing
Operating current	0 ... 100 mA
Indication of the switching state	LED 1: yellow
Damping indicator	LED 2: yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	screw terminals



Model Number	NJ15+U1+DW1-1	NJ15+U1+DW1-10	NJ15+U1+DW1-100
Frequency range	0.1 ... 1 Hz , adjustable	1 ... 10 Hz , adjustable	10 ... 100 Hz , adjustable

Approvals and Certificates

UL approval	cULus Listed, General Purpose	•	•	•
CSA approval	cCSAus Listed, General Purpose	•	•	•
CCC approval	Certified by China Compulsory Certification (CCC)	•	•	•

Dimensions

Length L [mm]	118
Width W [mm]	40
Head width W _h [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0 (M20 x 1,5)

Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

MH 04-2681F

Mounting aid for VariKont, +U1+ and +U9*

V1-M20-80

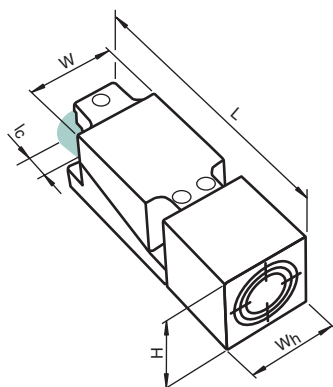
Receptacles, M12/M20; plastic version

V1-G-BK

4-pin, M12 female field-attachable connector

V1-W-BK

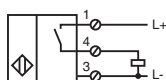
4-pin, M12 female field-attachable connector



Electrical Connection



NJ15+U1+DW1-1
NJ15+U1+DW1-10
NJ15+U1+DW1-100





Properties

- Flexible **VariKont** housing
- 15 mm, flush mountable
- AC, 3-wire switching output
- Terminal compartment

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.com

General Data

Rated operating distance	15 mm
Installation	flush
Switching element function	NO
Operating voltage	90 ... 250 V AC ¹⁾
Operating current	0 ... 150 mA
Indication of the switching state	LED 1: yellow
Damping indicator	LED 2: yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Connection type	screw terminals



Model Number

		NJ15+U1+DW2-1	NJ15+U1+DW2-10	NJ15+U1+DW2-100	NJ15+U4+DW2-1	NJ15+U4+DW2-10	NJ15+U4+DW2-100
Frequency range	0.1 ... 1 Hz , adjustable	●			●		
	1 ... 10 Hz , adjustable		●			●	
	10 ... 100 Hz , adjustable			●			●
Housing material	PBT	●	●	●			
	PBT/metal				●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●			

Dimensions

Length L [mm]	118
Width W [mm]	40
Head width W _h [mm]	40
Height H [mm]	40
Connector area l _c [mm]	0 (M20 x 1,5) 0 (1/2" NPT)

¹⁾ In the temperature range below 0 °C, permissible operating voltage U_b 80...253 V

Safety fuse ≤ 0.2 A (quick-blow) according to IEC 60127-2 Sheet 1

Recommendation: after a short circuit, check that the device is functioning correctly.

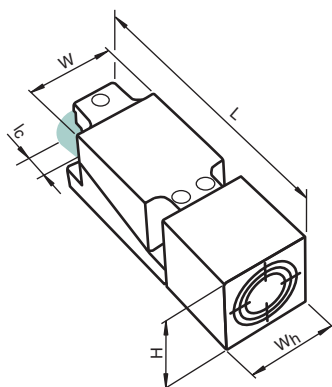
Accessories

This and more accessories can be found in chapter 10

See pages from 972 ... for cordsets

See pages 1068 ... for mounting aids

MH 04-2681F	Mounting aid for VariKont, +U1+ and +U9*
V1-M20-80	Receptacles, M12/M20; plastic version
V1-G-BK	4-pin, M12 female field-attachable connector
MHW 01	Modular mounting bracket
V1-W-BK	4-pin, M12 female field-attachable connector



Electrical Connection



NJ15+U1+DW2-1
NJ15+U1+DW2-10
NJ15+U1+DW2-100

NJ15+U4+DW2-1
NJ15+U4+DW2-10
NJ15+U4+DW2-100

DW2

