



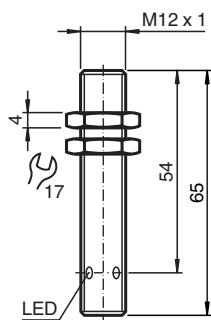
Inductive sensor

NBB2-12GM60-E2-V1-M-Y310665

- 2 mm flush
- E1-Type approval
- Extended temperature range
- Extended operating voltage range
- Waterproof, degree of protection IP68



Dimensions



Technical Data

General specifications

Switching function		Normally open (NO)
Output type		PNP
Rated operating distance	s_n	2 mm
Installation		flush
Output polarity		DC
Assured operating distance	s_a	0 ... 1.62 mm
Actuating element		mild steel, e. g. 1.0037, SR235JR (formerly St37-2) 12 mm x 12 mm x 1 mm
Reduction factor r_{Al}		0.35
Reduction factor r_{Cu}		0.2
Reduction factor r_{304}		0.7
Reduction factor r_{Brass}		0.4
Output type		3-wire

Nominal ratings

Installation conditions		
A		0 mm

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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PEPPERL+FUCHS

Technical Data

B		0 mm
C		6 mm
F		12 mm
Operating voltage	U_B	10 ... 65 V
Switching frequency	f	0 ... 1200 Hz
Hysteresis	H	0.02 ... 0.44
Reverse polarity protection		yes
Short-circuit protection		yes
Overload resistance		yes
Wire breakage protection		yes
Inductive overvoltage protection		yes
Surge suppression		yes
Ripple		10 %
Voltage drop	U_d	≤ 2.5 V
Repeat accuracy	R	0.1 mm
Operating current	I_L	0 ... 300 mA
Off-state current	I_r	0.01 mA
No-load supply current	I_0	≤ 10 mA
Time delay before availability	t_v	≤ 40 ms
Switching state indicator		Multihole-LED, yellow

Functional safety related parameters

MTTF _d		1640 a
Mission Time (T _M)		20 a
Diagnostic Coverage (DC)		0 %

Compliance with standards and directives

Standard conformity		
Standards		EN 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012

Approvals and certificates

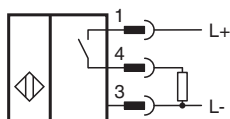
UL approval		cULus Listed, General Purpose, Class 2 Power Source
E1 Type approval		10R-04

Ambient conditions

Ambient temperature		-40 ... 85 °C (-40 ... 185 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)

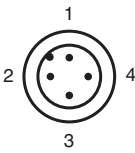
Mechanical specifications

Connection type		Connector M12 x 1 , 4-pin
Housing material		brass, nickel-plated
Sensing face		PPS
Degree of protection		IP68
Mass		20 g



Connection

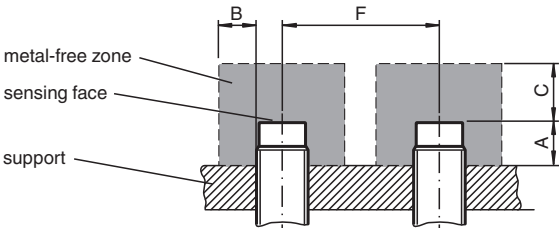
Connection Assignment



Wire colors in accordance with EN 60947-5-2

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

Installation



Mounting

Interference emission and immunity according to Motor Vehicle Directive 10R-04 (E1 type approval)
Immunity according to DIN ISO 11452-2: 30 V/m
Frequency band of 20 MHz to 2 GHz

Conducted interference according to ISO 7637-2:						
Pulse	1	2a	2b	3 a	3b	4
Severity	III	III	III	III	III	III
Failure criterion	C	A	C	A	A	A

EN 61000-4-2 was measured according to the requirements in IEC
EN 60947-5-2 (4 kV for metal, 8 kV for plastic)
EN 61000-4-3: 30 V/m (80 - 2500 MHz)
Severity IV
EN 61000-4-4: 2 kV
Severity III
EN 61000-4-6: 10 V (0.01- 80 MHz)
Severity III
EN 55011: Class A

Accessories

	V1-G-2M-PUR	Female cordset, M12, 4-pin, PUR cable
	V1-W-2M-PUR	Female cordset, M12, 4-pin, PUR cable

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