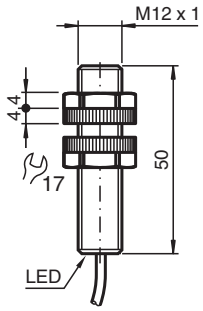


Inductive sensor

NBB4-12GK50-E2-M

- 4 mm flush
- E1-Type approval
- Increased noise immunity 100 V/m
- Extended temperature range -40 ... +85 °C
- With increased sealing, protection class IP68 / IP69K
- Highly shock and vibration resistant

Dimensions



Technical Data

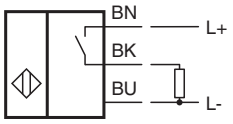
General specifications		
Switching function		Normally open (NO)
Output type		PNP
Rated operating distance	s_n	4 mm
Installation		flush
Output polarity		DC
Assured operating distance	s_a	0 ... 3.24 mm
Actuating element		mild steel, e. g. 1.0037, SR235JR (formerly St37-2) 12 mm x 12 mm x 1 mm
Reduction factor r_{Al}		0.35
Reduction factor r_{Cu}		0.25
Reduction factor r_{304}		0.7
Reduction factor r_{Brass}		0.4
Output type		3-wire
Nominal ratings		
Operating voltage	U_B	5 ... 60 V
Switching frequency	f	0 ... 2500 Hz
Hysteresis	H	typ. 5 %
Reverse polarity protection		reverse polarity protected
Short-circuit protection		pulsing
Inductive overvoltage protection		yes
Surge suppression		yes

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Technical Data

Voltage drop	U_d	≤ 2 V
Rated insulation voltage	U_{BIS}	60 V
Operating current	I_L	0 ... 200 mA
Off-state current	I_r	0 ... 0.5 mA typ. 0.1 µA at 25 °C
No-load supply current	I_0	≤ 7 mA
Time delay before availability	t_v	≤ 200 ms
Switching state indicator		LED, yellow
Functional safety related parameters		
$MTTF_d$		1006 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		0 %
Compliance with standards and directives		
Standard conformity		
Standards		EN IEC 60947-5-2
Approvals and certificates		
UL approval		cULus Listed Load Type: General Purpose Circuitry: Class 2 Power Source Supply/Switching Voltage: 60 V DC Output Switching Current: 200 mA
CSA approval		cCSAus Listed, General Purpose
CCC approval		Certified by China Compulsory Certification (CCC)
E1 Type approval		10R-06
Ambient conditions		
Ambient temperature		-40 ... 85 °C (-40 ... 185 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications		
Connection type		cable
Housing material		PBT
Sensing face		PBT
Degree of protection		IP68 / IP69K
Cable		
Wire end ferrules		yes
Cable diameter		6 mm ± 0.2 mm
Bending radius		> 6 x cable diameter
Material		PUR
Color		black
Number of cores		3
Core cross section		0.75 mm^2
Length	L	2 m
Mass		110 g
Dimensions		
Length		50 mm
Diameter		12 mm

Connection Assignment



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Technical Features

Interference immunity in accordance with
DIN ISO 11452-2: 100 V/m
Frequency band 20 MHz up to 2 GHz

Mains-borne interference in accordance with ISO

7637-2: Pulse	1	2a	2b	3 a	3b	4	5
Severity level	III	III	III	III	III	III	III
Failure criterion	C	A	C	A	A	A	B

EN 61000-4-2:	CD: 8 kV /	AD: 15 kV
Severity level	IV	IV
EN 61000-4-3:	30 V/m (80...2500 MHz)	
Severity level	IV	
EN 61000-4-4:	2 kV	
Severity level	III	
EN 61000-4-6:	10 V (0.01...80 MHz)	
Severity level	III	
EN 55011:	Class A	

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