

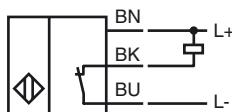
### Model Number

NBB4-12GM60-E1-M

### Features

- Basic series
- 4 mm flush
- Increased operating distance
- Extended temperature range - 40 ... +85 °C
- e1-Type approval
- Increased noise immunity 100 V/m

### Connection

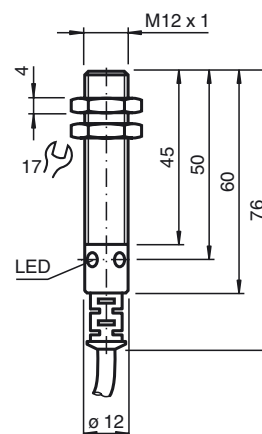


### Accessories

#### EXG-12

Quick mounting bracket with dead stop

### Dimensions



### Technical Data

#### General specifications

Switching element function		NPN	NC
Rated operating distance	$s_n$	4 mm	
Installation		flush	
Output polarity		DC	
Assured operating distance	$s_a$	0 ... 3.24 mm	
Reduction factor $r_{AI}$		0.45	
Reduction factor $r_{Cu}$		0.35	
Reduction factor $r_{304}$		0.7	

#### Nominal ratings

Operating voltage	$U_B$	10 ... 60 V
Switching frequency	$f$	0 ... 800 Hz
Hysteresis	$H$	typ. 5 %
Reverse polarity protected		reverse polarity protected
Short-circuit protection		pulsing
Voltage drop	$U_d$	$\leq 2.5$ 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 $\mu$ A
No-load supply current	$I_0$	$\leq 15$ mA
Indication of the switching state		LED, yellow

#### Functional safety related parameters

MTTF <sub>d</sub>	1530 a
Mission Time ( $T_M$ )	20 a
Diagnostic Coverage (DC)	0 %

#### Ambient conditions

Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
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#### Mechanical specifications

Connection type	cable PUR, 2 m
Core cross-section	0.75 mm <sup>2</sup>
Housing material	brass, nickel-plated
Sensing face	PBT
Protection degree	IP69K
Mass	120 g

#### Compliance with standards and directives

Standard conformity	
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007

#### Approvals and certificates

Protection class	II
Rated insulation voltage	$U_i$ 60 V
Design-impulse-voltage withstand	$U_{imp}$ 800 V
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Certified by China Compulsory Certification (CCC)
e1 Type approval	2006/28/EG



Installation hint

Emitted interference and interference immunity in  
accordance with motor vehicle directive 2006/28/EG  
(e1 Type approval)  
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
Severity level	III	III	III	III	III	III
Failure criterion	C	A	C	A	A	A

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