



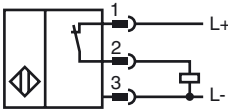
**Model Number**

NBB4-12GM45-E3-V1-M

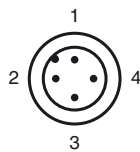
**Features**

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

**Connection**



**Pinout**



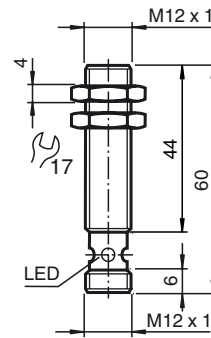
Wire colors in accordance with EN 60947-5-2

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

**Accessories**

- EXG-12**  
Quick mounting bracket with dead stop
- V1-W**  
4-pin, M12 female field-attachable connector
- V1-G**  
4-pin, M12 female field-attachable connector

**Dimensions**



**Technical Data**

General specifications			
Switching element function		PNP	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 protection		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	$I_0$	$\leq 14$ mA	
Time delay before availability	$t_v$	$\leq 5$ ms	
Switching state indication		Multihole-LED, yellow	

Functional safety related parameters	
MTTF <sub>d</sub>	1560 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

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

Mechanical specifications	
Connection type	connector M12 x 1, 4-pin
Housing material	brass, nickel-plated
Sensing face	PBT
Protection degree	IP68 / 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
e1 Type approval	2006/28/EG

Release date: 2013-02-01 08:45 Date of issue: 2013-02-01 211903\_eng.xml

**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: 4 kV / AD: 8 kV

Severity level II III

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