



## Model Number

NBB4-12GM45-E2-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

## Accessories

### EXG-12

Quick mounting bracket with dead stop

### V1-W

Female connector, M12, 4-pin, field attachable

### V1-G

Female connector, M12, 4-pin, field attachable

## Technical Data

### General specifications

Switching element function	PNP	NO
Rated operating distance	$s_n$	4 mm
Installation		flush
Output polarity		DC
Assured operating distance	$s_a$	0 ... 3.24 mm
Reduction factor $r_{Al}$		0.39
Reduction factor $r_{Cu}$		0.35
Reduction factor $r_{304}$		0.75

### 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	$I_0$	$\leq 11$ mA
Time delay before availability	$t_v$	$\leq 5$ ms
Switching state indicator		Multihole-LED, yellow

### Functional safety related parameters

MTTF <sub>d</sub>	1560 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	Connector M12 x 1, 4-pin
Housing material	brass, nickel-plated
Sensing face	PBT
Degree of protection	IP68 / IP69K
Mass	120 g

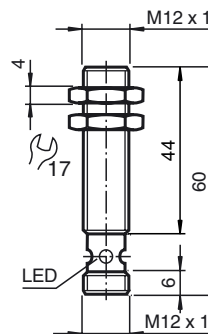
### Compliance with standards and directives

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

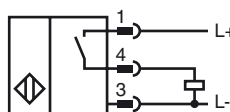
### Approvals and certificates

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
CCC approval	Certified by China Compulsory Certification (CCC)
E1 Type approval	10R-04

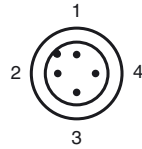
## Dimensions



## Electrical Connection



## Pinout



Wire colors in accordance with EN 60947-5-2

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

## 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