



### Model Number

NBB8-F33-E2-M

### Features

- 8 mm flush
- E1-Type approval
- Extended temperature range -40 ... +85 °C
- Increased operating distance
- Increased noise immunity 100 V/m

## Technical Data

### General specifications

Switching element function		PNP	NO
Rated operating distance	$s_n$	8 mm	
Installation		flush	
Output polarity		DC	
Assured operating distance	$s_a$	0 ... 6.48 mm	
Reduction factor $r_{Al}$		0.3	
Reduction factor $r_{Cu}$		0.2	
Reduction factor $r_{304}$		0.6	

### Nominal ratings

Operating voltage	$U_B$	5 ... 60 V DC
Switching frequency	$f$	0 ... 350 Hz
Hysteresis	$H$	typ. 5 %
Reverse polarity protection		reverse polarity protected
Short-circuit protection		pulsing
Voltage drop	$U_d$	$\leq 2$ V
Operating current	$I_L$	0 ... 200 mA
Off-state current	$I_r$	0 ... 0.1 mA
No-load supply current	$I_0$	$\leq 10$ mA
Time delay before availability	$t_v$	$\leq 80$ ms
Switching state indicator		LED yellow

### Functional safety related parameters

MTTF <sub>d</sub>	1140 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

### Ambient conditions

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

### Mechanical specifications

Connection type	cable PUR , 2 m
Core cross-section	0.5 mm <sup>2</sup>
Housing material	PBT
Sensing face	PBT
Degree of protection	IP67 / IP69K
Note	Tightening torque: 5 Nm

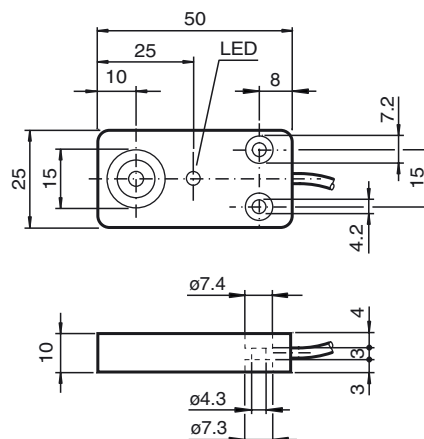
### Compliance with standards and directives

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

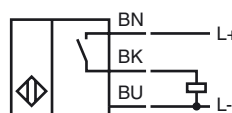
### Approvals and certificates

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

## Dimensions



## Electrical Connection



**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	5
Severity level	III	III	III	III	III	III	IV
Failure criterion	C	A	C	A	A	A	C

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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