



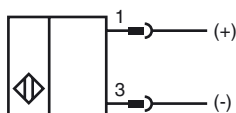
**Model Number**

NCB5-18GM60-B3B-V1

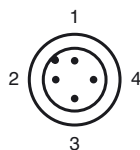
**Features**

- Comfort series
- 5 mm flush
- A/B slave with extended addressing possibility for up to 62 slaves
- Cylindrical
- NO/NC selectable
- Stability control warning
- Installation help
- On/Off delay (disconnectable)
- Oscillator monitoring

**Connection**



**Pinout**



**Accessories**

**BF 18**

Mounting flange, 18 mm

**V1-W-2M-PUR**

Cable socket, M12, 4-pin, PUR cable

**V1-G**

4-pin, M12 female field-attachable connector

**EXG-18**

Quick mounting bracket with dead stop

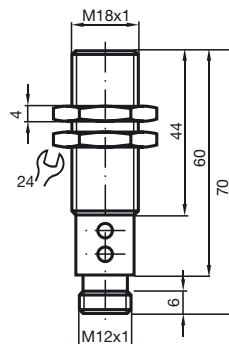
**V1-W**

4-pin, M12 female field-attachable connector

**V1-G-2M-PUR**

Cable socket, M12, 4-pin, PUR cable

**Dimensions**



**Technical Data**

**General specifications**

Switching element function		NO/NC programmable
Rated operating distance	$s_n$	5 mm
Installation		flush
Output polarity		AS-Interface
Assured operating distance	$s_a$	0 ... 4.05 mm
Reduction factor $r_{Al}$		0.2
Reduction factor $r_{Cu}$		0.15
Reduction factor $r_{304}$		0.62
Slave type		A/B slave
AS-Interface specification		V3.0
Required master specification		≥ V2.1

**Nominal ratings**

Operating voltage	$U_B$	26.5 ... 31.9 V via AS-i bus system
Switching frequency	$f$	0 ... 100 Hz
Hysteresis	$H$	1 ... 15 typ. 5 %
Reverse polarity protected		reverse polarity protected
No-load supply current	$I_0$	≤ 25 mA
Operating voltage display		dual-LED, green
Indication of the switching state		dual-LED, yellow
Fault indication		dual-LED, red

**Functional safety related parameters**

MTTF <sub>d</sub>		926 a
Mission Time (T <sub>M</sub> )		20 a
Diagnostic Coverage (DC)		0 %

**Ambient conditions**

Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)

**Mechanical specifications**

Connection type		Device connector M12 x 1 , 4-pin
Housing material		Stainless steel 1.4305 / AISI 303
Sensing face		PBT
Protection degree		IP67

**Compliance with standards and directives**

Standard conformity		Electromagnetic compatibility	EN 50295:1999-10
Standards			EN 60947-5-2:2007 IEC 60947-5-2:2007

**Approvals and certificates**

UL approval		cULus Listed, General Purpose
CSA approval		cCSAus Listed, General Purpose
CCC approval		Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

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**Programming Instructions**

Adress 00 preset, alterable  
via Busmaster  
or programming units  
IO-Code 0  
ID-Code A  
ID1-Code 7  
ID2-Code E

**Data bit**

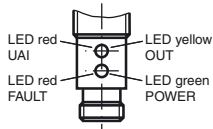
Bit	Function
D0	Switching state
D1	Prefailure message (dynamic)
D2	Oscillator monitoring
D3	Object too close

**Parameter bit**

Bit	Function
P0	ON / Off delay activated* / deactivated
P1	Switching element function NO* / NC
P2	not used
P3	not used

\*Standard setting

**Indicators**



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Indication depending on the distance to the object and switching element function (P1)

Distance to the object	Function	Parameter P1	yellow LED (OUT)	red LED (UAI)	Data bit D0	Data bit D3
$> 1.2 S_n$	NO	1	off	off	0	1
$1 S_n - 1.2 S_n$		1	off	flashing	0	1
$0.8 S_n - 1 S_n$		1	flashing	flashing	1	1
$0.1 S_n - 0.8 S_n$		1	on	off	1	1
$0 S_n - 0.1 S_n$		1	flashing	flashing	1	0
$> 1,2 S_n$	NC	0	on	off	1	1
$1 S_n - 1.2 S_n$		0	flashing	flashing	1	1
$0.8 S_n - 1 S_n$		0	off	flashing	0	1
$0.1 S_n - 0.8 S_n$		0	off	off	0	1
$0 S_n - 0.1 S_n$		0	off	flashing	1	0

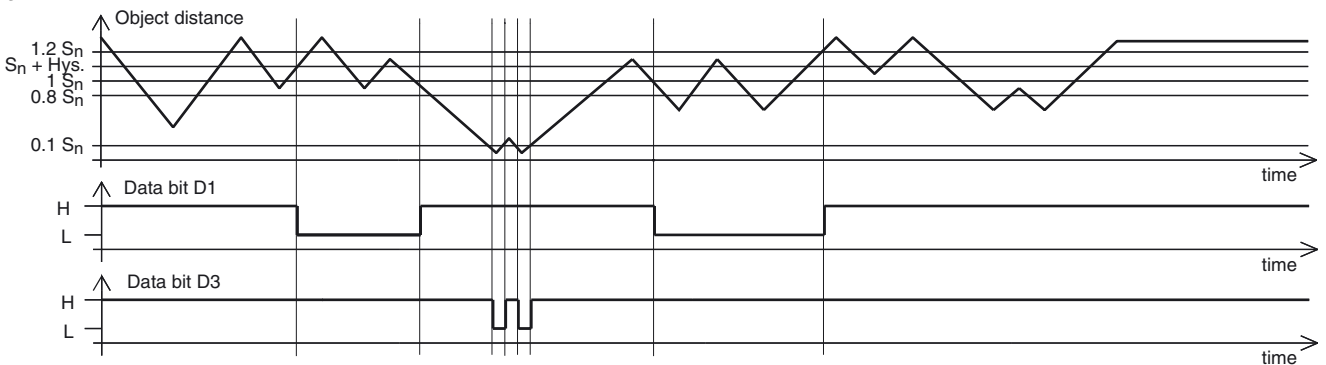
Indication depending on the operation mode

Symptoms	green LED (POWER)	red LED (FAULT)	Data bit D2
normal operation	on	off	1
oscillator defect	flashing	flashing	0*
no communication	off	on	1

\*: D0, D1, D3 will be set to 0

Dynamic pre-fault indication:

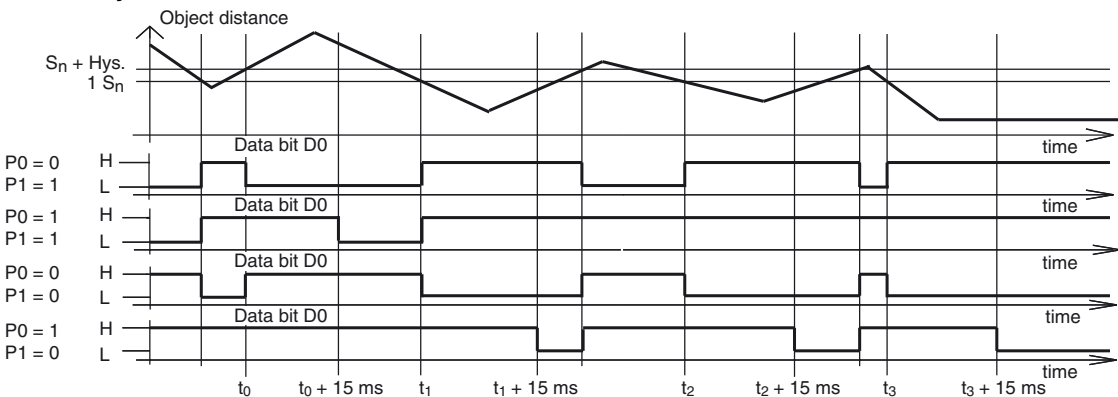
While normal operation  $D1=1$ . If the switch is damped critically, i.e. the object has passed uncompletely the unsafe sensing range of  $0.8 S_n - 1.2 s_n$  during damping, changes  $D1$  to 0 and signals that an adjustment is necessary. See the following diagram:



Monitoring "object too near":

$D3$  serves as signalling: Object too near too the sensor, danger of damage, adjustment necessary. In normal mode  $D3=1$ . If the object reaches the  $0 - 0.1 s_n$  range,  $D3=0$ . If the object leaves this range,  $D3=1$ .

On/off delay:



The on/off delay is preset and switched on ( $P0=1$ ). On delay approx.15 ms, when  $P0=1$  and NO function ( $P1=1$ ). Off delay approx.15 ms, when  $P0=1$  and NC function ( $P1=0$ ).

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