

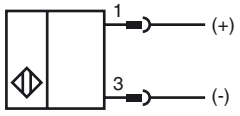
Model Number

NCB5-18GM60-B3B-V1

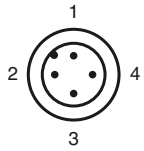
Features

- **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

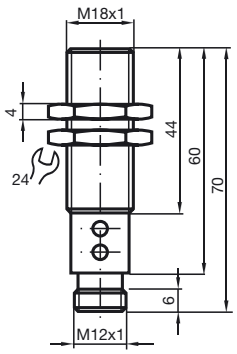
V1-G
4-pin, M12 female field-attachable connector

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		
$MTTF_d$		926 a
Mission Time (T_M)		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

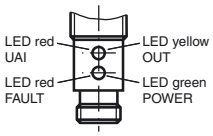
Bit	Function
D0	Switching state
D1	Prefailure message (dynamic)
D2	Oscillator monitoring
D3	Object too close

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

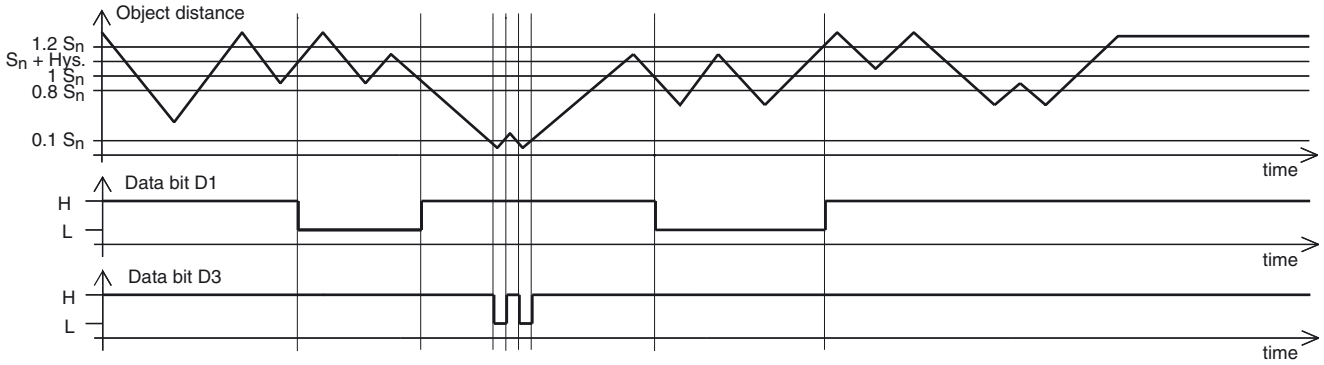
Indication depending on the operation mode

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:

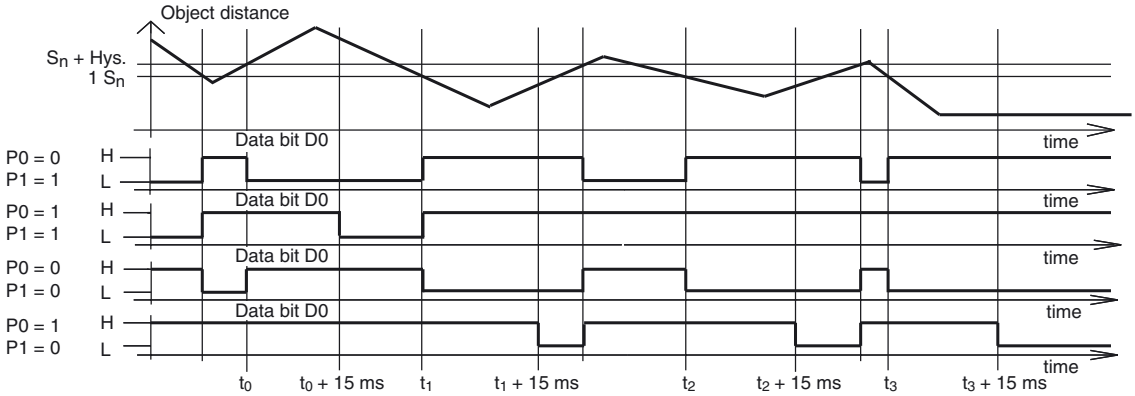
While normal operation D1=1. If the switch is damped critically, i.e. the object has passed uncompletely the unsafe sensing range of 0.8 S_n - 1.2 s_n during damping, changes D1 to 0 and signals that an adjustment is necessary. See the following diagram:



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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