

Inductive sensor

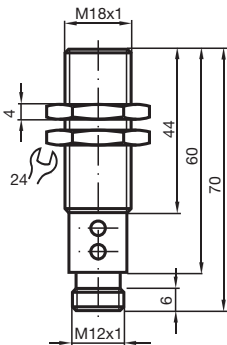
NCB5-18GM60-B3B-V1



- Comfort series
- 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



Dimensions



Technical Data

General specifications

Switching function		Normally open/closed (NO/NC) programmable
Output type		AS-Interface
Rated operating distance	s_n	5 mm
Installation		flush
Assured operating distance	s_a	0 ... 4.05 mm
Actual operating distance	s_r	4.5 ... 5.5 mm typ. 5 mm
Reduction factor r_{AI}		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		\geq V2.1

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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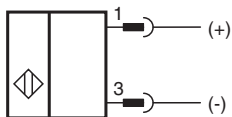
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PEPPERL+FUCHS

Technical Data

Output type	2-wire	
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 protection		reverse polarity protected
Voltage drop at I_L		
Voltage drop $I_L = 20$ mA, switching element on	U_d	3.4 ... 5 V typ. 4.3 V
No-load supply current	I_0	≤ 25 mA
Time delay before availability	t_v	≤ 1000 ms
Operating voltage indicator		dual-LED, green
Switching state indicator		dual-LED, yellow
Error indicator		dual-LED, red
Functional safety related parameters		
MTTF _d		926 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		0 %
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		CCC approval / marking not required for products rated ≤ 36 V
Ambient conditions		
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications		
Connection type		Connector plug M12 x 1, 4-pin
Housing material		Stainless steel 1.4305 / AISI 303
Sensing face		PBT
Degree of protection		IP67

Connection



Connection Assignment



Additional Information

Programming Instructions

Address 00 preset, alterable via Busmaster or programming units

IO-Code 0
 ID-Code A
 ID1-Code 7
 ID2-Code E

Data bit

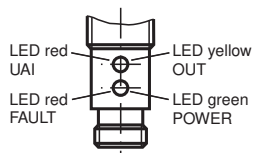
Bit	Function
D0	Switching state
D1	Prefailure message (dynamic)
D2	Oscillator monitoring
D3	Object too close

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



Accessories

	BF 18	Mounting flange, 18 mm
	V1-W-2M-PUR	Female cordset, M12, 4-pin, PUR cable
	EXG-18	Quick mounting bracket with dead stop
	V1-G-2M-PUR	Female cordset, M12, 4-pin, PUR cable

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Additional Information

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 to 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).