

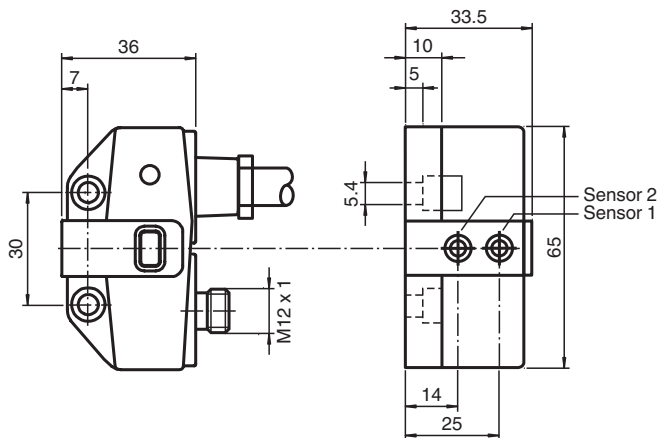
## Inductive sensor NCN3-F31-B3B-V1-K

- Direct mounting on standard actuators
- A/B node with extended addressing possibility for up to 62 nodes
- Mode of operation, programmable
- Degree of protection IP67
- Communication monitoring, turn-off
- Lead breakage and short-circuit monitoring of the valve

Valve positioner and valve control module



### Dimensions



Drawing without actuator

### Technical Data

General specifications		
Switching function		Normally open/closed (NO/NC) programmable
Output type		AS-Interface
Rated operating distance	s <sub>n</sub>	3 mm
Installation		flush mountable
Assured operating distance	s <sub>a</sub>	0 ... 2.43 mm
Reduction factor r <sub>AI</sub>		0.5
Reduction factor r <sub>Cu</sub>		0.45
Reduction factor r <sub>304</sub>		1
Reduction factor r <sub>St37</sub>		1.2
Node type		A/B node
AS-Interface specification		V3.0
Required gateway specification		≥ V2.1
Nominal ratings		
Operating voltage	U <sub>B</sub>	26.5 ... 31.9 V via AS-i bus system
Switching frequency	f	0 ... 100 Hz
No-load supply current	I <sub>0</sub>	≤ 35 mA

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

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## Technical Data

### Functional safety related parameters

MTTF <sub>d</sub>		842 a
Mission Time (T <sub>M</sub> )		20 a
Diagnostic Coverage (DC)		0 %

### Indicators/operating means

LED PWR		AS-Interface voltage; LED green
LED IN		switching state (input); LED yellow
LED OUT		binary LED yellow/red yellow: switching state red: lead breakage/short-circuit

### Electrical specifications

Rated operating voltage	U <sub>e</sub>	26.5 ... 31.6 V from AS-Interface
Rated operating current	I <sub>e</sub>	100 mA

### Compliance with standards and directives

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

### Approvals and certificates

UL approval		cULus Listed Load Type: General Purpose Circuitry: Class 2 Power Source Enclosure Type Rating: Type 1 Supply/Switching Voltage: 31.9 V DC
CSA approval		cCSAus Listed, General Purpose
CCC approval		CCC approval / marking not required for products rated ≤36 V

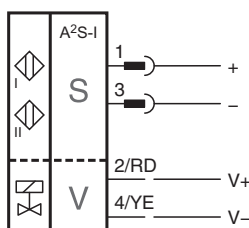
### Ambient conditions

Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
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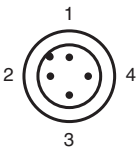
### Mechanical specifications

Connection (system side)		4-pin, M12 x 1 connector
Connection (valve side)		0.5 m, PVC cable
Core cross section (valve side)		0.75 mm <sup>2</sup>
Connector housing		metal
Housing material		PBT
Degree of protection		IP67
Cable		
Cable diameter		6 mm ± 0.2 mm
Bending radius		> 10 x cable diameter
Tightening torque, fastening screws		≤ 5 Nm
Dimensions		
Height		33.5 mm
Width		65 mm
Length		36 mm
Note		valve voltage limited to 26,4 V max.; valve power 2,5 W max.

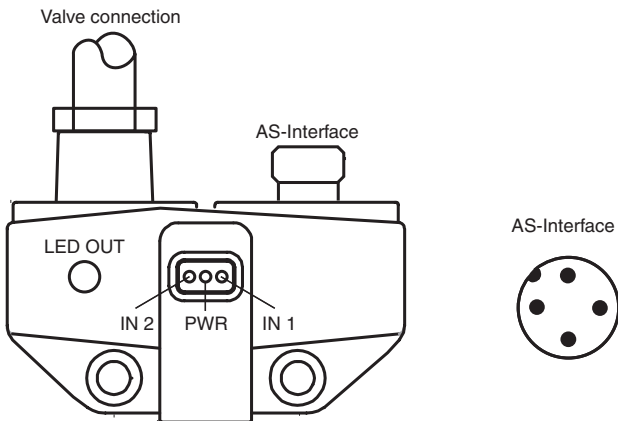
## Connection Assignment



Connection Assignment



Assembly



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## Additional Information

### Programming Instructions

Address 00 preset, alterable via Busmaster  
or programming units  
IO-code D  
ID-code A  
ID1-code 7  
ID2-code E

### Data bit

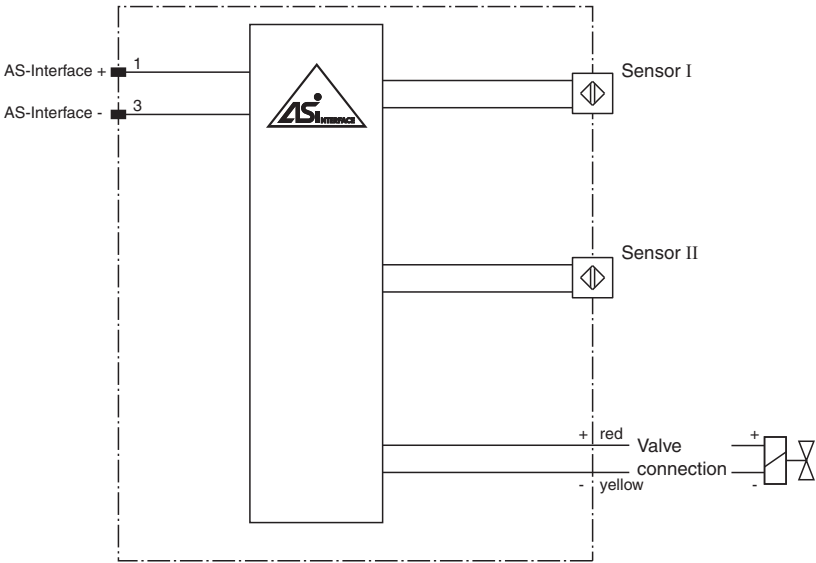
Bit Function  
D0 valve status  
(0=valve OFF, 1=valve ON)  
D1 valve fault <sup>1)</sup>  
(0=lead breakage/short circuit;  
1=no fault)  
D2 switch output sensor 1 <sup>2)</sup>  
(0=damped; 1=undamped)  
D3 switch output sensor 2 <sup>2)</sup>  
(0=damped; 1=undamped)

### Parameter bit

Bit Function  
P0 Watchdog (0=inactive; 1=active) <sup>3)</sup>  
P1 switching element function sensor II <sup>4)</sup>  
0=NO; 1= NC)  
P2 switching element function sensor I <sup>4)</sup>  
0=NO; 1= NC)  
P3 not used

- 1) Verification only with actuated valve (D0=1)  
2) Applies to NC function (P1/P2=1; preset), with NO  
function (P1/P2=0) reversed characteristics  
3) Watchdog active: valve voltage drops with the  
occurrence of an AS-I communication fault

Connection



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## Function

The NCN3-F31-B3B-V1-K is an inductive dual sensor used to indicate the valve positioning of actuators. The dual sensor is mounted directly on the actuator using two screws. Additional adjustment is not necessary.

A cable connection on the sensor is used directly for the valve controls. The NCN3-F31-B3B-V1-K is connected via a M12x1 screw fixing to the bus line. This makes it possible to transmit both the switch signal for the valve and the messages of the sensors via AS-Interface. They are both powered directly through the bus cable. Moreover, the valve is monitored for lead breakage and short circuit. The D1 data bit monitors the fault signal.

The sensors can be programmed as normally closed and normally open contacts (parameter bit P1 and P2). If there are no communications on the bus cable, the valve is automatically de-energised. This communication monitoring can be turned off via the parameter bit P0.

The current switching states are displayed by means of yellow LEDs.