Model Number

NCN3-F31-B3-V1-K

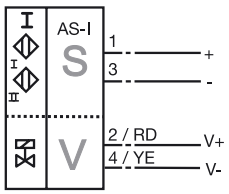
Valve positioner and valve control module

Features

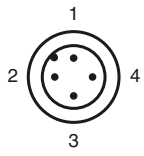
- **Direct mounting on standard actuators**
- **Nominal sensing range 3 mm by V2A target**
- **Mode of operation, programmable**
- **Lead breakage and short-circuit monitoring of the valve**
- **Protection degree IP67**
- **Communication monitoring, turn-off**

Connection

B3-V1-K



Pinout



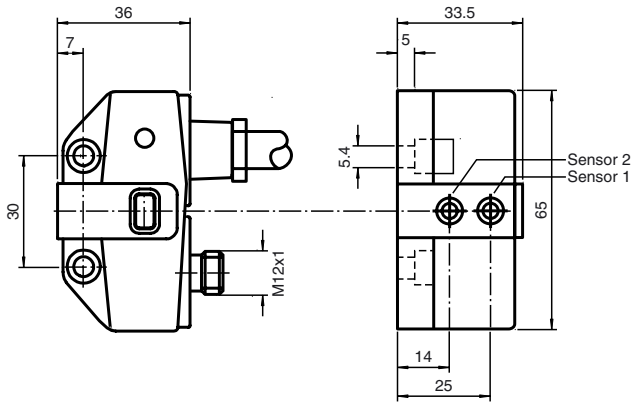
Accessories

V1-G
Field attachable female cordset

V1-W-2M-PUR
Cable socket, M12, 4-pin, PUR cable

V1-G-2M-PUR
Cable socket, M12, 4-pin, PUR cable

Dimensions



Drawing without actuator

Technical Data

General specifications		
Switching element function		programmable
Rated operating distance	s_n	3 mm
Installation		flush mountable
Output polarity		AS-Interface
Assured operating distance	s_a	0 ... 2.43 mm
Reduction factor r_{Al}		0.5
Reduction factor r_{Cu}		0.45
Reduction factor r_{303}		1
Reduction factor r_{St37}		1.2
Slave type		Standard slave
AS-Interface specification		V2.1
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
No-load supply current	I_0	≤ 35 mA
Functional safety related parameters		
$MTTF_d$		842 a
Mission Time (T_M)		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 operational voltage	U_e	26.5 ... 31.6 V from AS-Interface
Rated operational current	I_e	100 mA
Ambient conditions		
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
Mechanical specifications		
Connection (system side)		connector M12 x 1, 4-pin
Connection (valve side)		0.5 m, PVC cable
Core cross-section (valve side)		0.75 mm^2
Protection degree		IP67
Material		
Housing		PBT
Note		valve voltage limited to 26,4 V max.; valve power 2,5 W max.
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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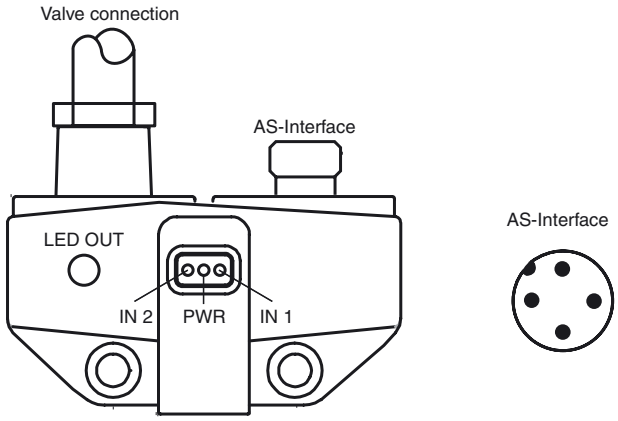
Supplementary information



Programming Instructions

Address 00 preset , alterable
via Busmaster or
programming units
IO-code D
ID-code F

Data bit

Bit	function
D0	valve status (0=valve OFF; 1=valve ON)
D1	valve fault [1] (0=lead breakage/short circuit; 1=no fault)
D2	switch output sensor 1 [2] (0=damped; 1=undamped)
D3	switch output sensor 2 [2] (0=damped; 1=undamped)

Parameter bit

Bit	function
P0	Watchdog (0= inactive; 1=active)[3]
P1	not used
P2	switching element function sensor I (0=NO; 1=NC)
P3	switching element function sensor II[4] (0=NO; 1=NC)

[1] Verification only with actuated valve (D0=1)

[2] Applies to NC function (P2/P3=1; preset),
with NO function (P2/P3=0) reversed characteristics

[3] Watchdog active: valve voltage drops
with the occurrence of an AS-i communication fault

[4] Default setting: NC

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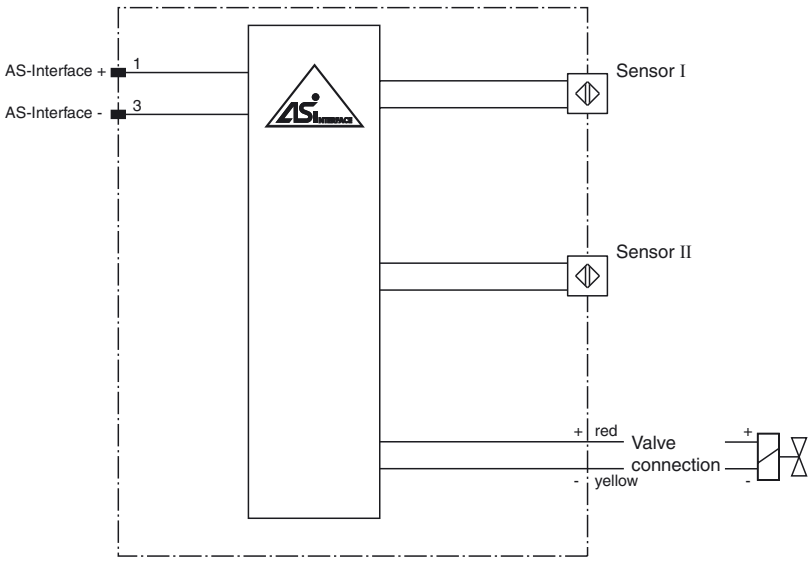
Installation hint



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[4] Default setting: NC

The NCN3-F31-B3-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. No additional adjustment is required.

A cable connection on the sensor is used directly for the valve controls. The NCN3-F31-B3-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 sensor 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 P2 and P3). If there are no communications

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on the bus cable, the valve is automatically de-energised. The P0 parameter bit disables the watchdog function.
The current switching states are displayed by means of yellow LEDs.

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