



**Model Number**

**NCN3-F31-B3B-V1-V1**  
Valve positioner and valve control module

**Features**

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

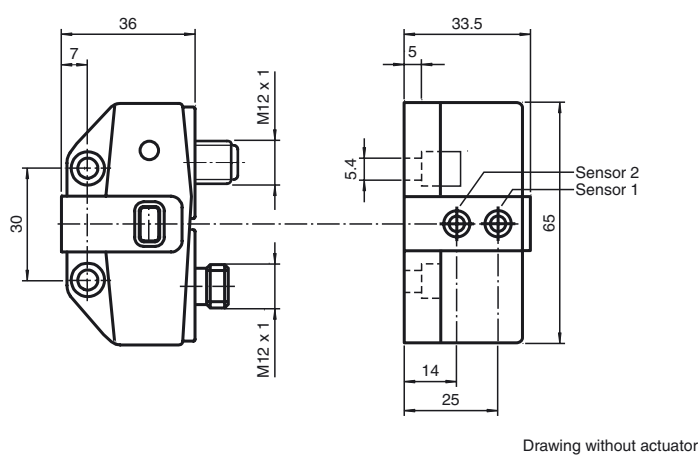
**Accessories**

- BT65A**  
Activator for F31 series
- BT65X**  
Activator for F31 series
- BT115A**  
Activator for F31 series
- BT115X**  
Activator for F31 series
- BT65B**  
Activator for F31 series
- BT115B**  
Activator for F31 series
- V1-W-2M-PUR**  
Female cordset, M12, 4-pin, PUR cable
- V1-G-2M-PUR**  
Female cordset, M12, 4-pin, PUR cable
- V1-G**  
Female connector, M12, 4-pin, field attachable

**Technical Data**

<b>General specifications</b>	
Switching function	Normally open/closed (NO/NC) programmable
Output type	AS-Interface
Rated operating distance	$s_n$ 3 mm
Installation	flush mountable
Assured operating distance	$s_a$ 0 ... 2.43 mm
Reduction factor $r_{AI}$	0.5
Reduction factor $r_{Cu}$	0.45
Reduction factor $r_{304}$	1
Reduction factor $r_{St37}$	1.2
Slave type	A/B slave
AS-Interface specification	V3.0
Required master specification	≥ V2.1
<b>Nominal ratings</b>	
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
<b>Functional safety related parameters</b>	
MTTF <sub>d</sub>	842 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %
<b>Indicators/operating means</b>	
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
<b>Electrical specifications</b>	
Rated operating voltage	$U_e$ 26.5 ... 31.6 V from AS-Interface
Rated operating current	$I_e$ 100 mA
<b>Programming instructions</b>	
Parameter bits (programmable via AS-i)	
<b>Ambient conditions</b>	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
<b>Mechanical specifications</b>	
Connection (system side)	4-pin, M12 x 1 connector
Connection (valve side)	socket connector , M12 x 1 , 4-pin
Connector housing	metal
Housing material	PBT
Degree of protection	IP67
Note	valve voltage limited to 26,4 V max.; valve power 2,5 W max.
<b>Compliance with standards and directives</b>	
Standard conformity	Electromagnetic compatibility EN 50295:1999-10
Standards	EN 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012
<b>Approvals and certificates</b>	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for products rated ≤36 V

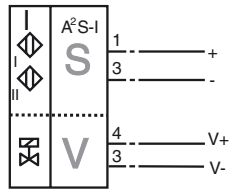
**Dimensions**



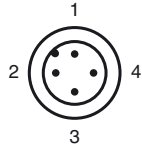
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**Electrical Connection**

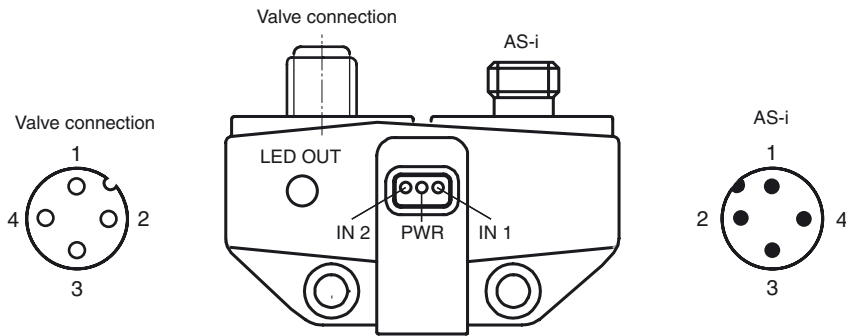
B3B-V1-V1-Y



**Pinout**



**Additional Information**



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**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**

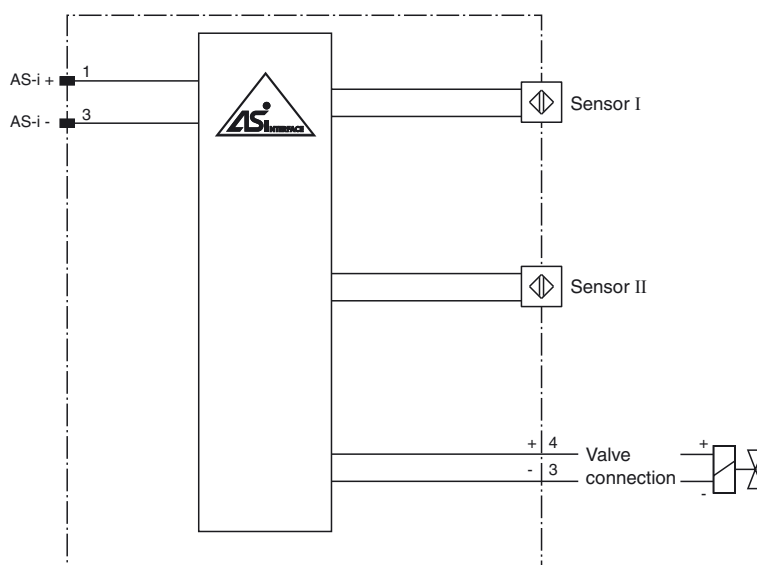
Bit	Function
D0	valve status (0=valve OFF, 1=valve ON)
D1	valve fault <sup>1)</sup> (0=lead breakage/short circuit; 1=no fault)
D2	switch output sensor 1 <sup>2)</sup> (0=damped; 1=undamped)
D3	switch output sensor 2 <sup>2)</sup> (0=damped; 1=undamped)

**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 (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

**Installation Hint**



The NCN3-F31-B3B-V1-V1 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.

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A switch box M12 x 1 on the sensor is used directly for the valve controls. The NCN3-F31-B3B-V1-V1 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.