

ASi Safety Module to Monitor Damper Actuators up to SIL 2

ASi Module for monitoring damper actuators and for detecting the damper position

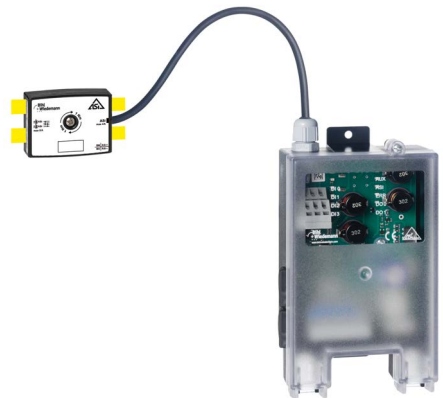
Runtime monitoring of the damper motor in master possible

Connection by external flat cable terminal via insulation penetration technology: „click and go“

Ideal for smoke dampers with ventilation function

Certified motor control module SIL 2

ASi Specifications 2.1/3.0



(figure similar)



Article no. BW3005: ASi Safety Module to Monitor Damper Actuators up to SIL 2

The ASi module to monitor damper actuators meets the requirements of the ASi Specifications 2.1/3. It is used to control the damper actuator and detect the damper position „**damper open**“ and „**damper close**“ (up to SIL 2) as well as the intermediate position „damper opens“ or „damper closes“.

The connections are short-circuit -and overload protected. A watchdog function, which switches the outputs to their current-less switching state if there is no communication on the ASi circuit, is integrated.

The transfer function is permanent monitored in the integrated ASi node and in the ASi Master.

The damper's runtime can be monitored and logged automatically on the ASi Master or via the host controller.

This module can be connected using ready to plug via Belimo compatible AMP connectors or via spring type terminal blocks.

The module is certified according IEC / EN 61508 SIL 2; EN 62061 SIL 2 and complies with the highest security level typical for this application.

Article no.	BW3005
Connection	
Connection to damper actuator	Belimo-compatible connectors or spring-type terminals
ASi connection	piercing technology (passive distributor) or spring-type terminals
Length of connector cable to motor	≤ 30 m ⁽¹⁾
Cable length of the passive distributor	0.21 m ⁽²⁾
ASi	
Profile	S-7.B.E
Address	1 single address
Required Master profile	≥ M3
Since ASi specification	2.1/3
Operating voltage	26,5 ... 31,6 V _{DC}
Quiescent current (Inputs = 0, Outputs = 0)	≤ 75 mA
Max. current consumption incl. motor	≤ 575 mA
Input	
Number	4
Power supply	out of ASi
Switching threshold	≤ 0,8 mA (low); ≥ 5 mA (high)

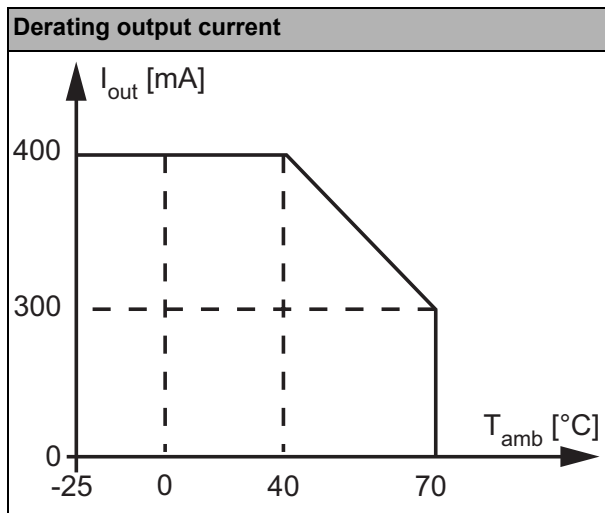
ASi Safety Module to Monitor Damper Actuators up to SIL 2

Article no.	BW3005
Output	
Number	2
Power supply	out of ASi
Max. output current	400 mA ⁽³⁾
Output function	electrical
Short-circuit proof	yes
Loading capacity	400 mA per output ⁽²⁾ , $\Sigma (\text{Out}) \leq 400 \text{ mA}$
Display	
Operating (AUX)	LED green
Function (ASi)	LED green
Error (ERR)	LED red = ASi fault; flashing = peripheral fault
Inputs (DI) 1 ... 4	4 x LEDs yellow
Outputs (DO) 1 ... 2	2 x LEDs yellow
Environment	
Applied standards	EN 61000-6-2 EN 61000-6-4 EN 61326-3-1 EN 62026-2 EN 62061 SIL 2 EN 60529
Operating altitude	max. 2000 m
Ambient temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +80 °C
Housing	plastic, for screw mounting
Protection category	IP40
Weight	250 g
Dimensions (W / H / D in mm)	90 / 160 / 55

(1) Loop resistance $\leq 150 \Omega$

(2) $\pm 1 \text{ cm}$ manufacturing tolerance

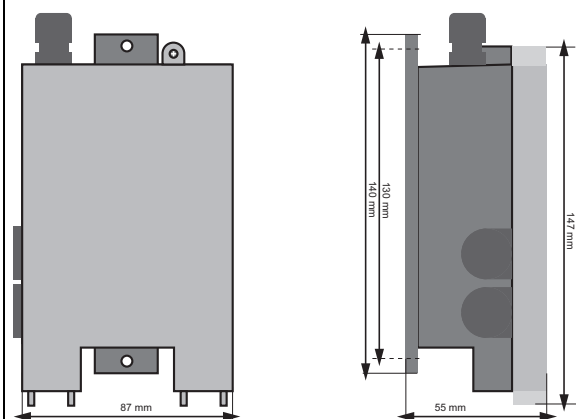
(3)



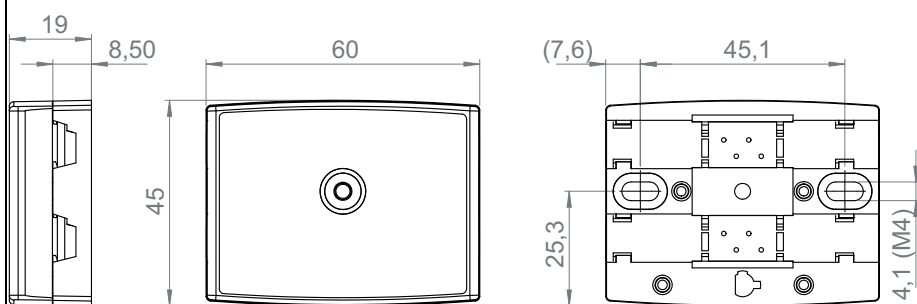
ASi Safety Module to Monitor Damper Actuators up to SIL 2

Dimensional drawings

BW3005



BW3186



Terminal assignment

Signal name	Explanation
Ix	digital input x
Ox	digital output x
Sx	end switch x (Belimo compliant)

Terminal assignment ⁽¹⁾ from Ident.No. ≥ 18876 ⁽²⁾

	X1	X2	X3 (3)	X4 (3)
1	ASi +	O1	U _{out} (S1)	O1 (3)
2	ASi +	+24 V	U _{out} (S4)	0 V (1)
3	ASi –	I3	NC1 (S2)	O2 (2)
4	ASi –	I4	NC2 (S5)	
5		NC1 (S2)	NO1 (S3)	
6		NC2 (S5)	NO2 (S6)	
7		NO1 (S3)		
8		NO2 (S6)		
9		U _{out} (S1)		
10		U _{out} (S4)		
11		O1		
12		0 V		
13		O2		
14		0 V		

J1

X1

J2

X3

X4

X2

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Connecting spring return actuators ⁽³⁾	Connecting non-spring return actuators ⁽³⁾
X4	X4

(1) The indications in brackets correspond to the Belimo designations.

(2) see lateral label

(3) Connection via Belimo-compatible plug possible.

Double-deck terminal block, 2 x 4/5/6/7 poles (pitch 5 mm)	
General	
Nominal cross section	2.5 mm ²
Conductor cross section	
Conductor cross section solid	0.8 ... 2.5 mm ²
Conductor cross section flexible	0.8 ... 2.5 mm ²
Conductor cross section flexible, with ferrule	without plastic sleeve: 0.25 ... 2.5 mm ² with plastic sleeve: 0.25 ... 1.5 mm ²
2 conductors with same cross section, stranded, with TWIN ferrules	–
AWG	28 ... 12
Stripped insulation length	6 mm

Programming instructions:

- Address 0 preset, changeable via bus master programming devices

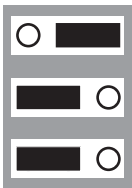
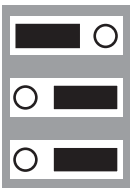
Bit assignment			
D0	D1	D2	D3
I1	I2	I3	I4
safe code sequence Bit 0	safe code sequence Bit 1	safe code sequence Bit 2	safe code sequence Bit 3
O1	O2	O3	O4
damper open up	damper closing	–	–

ASi Parameter			
P0	P1	P2	P3
write function			
watch dog 0: off 1: on	not used	not used	not used
read function			
input I1 (end switch NO1 resp. S1/S3) 0: end switch activated 1: end switch not activated	input I2 (end switch NO2 resp. S4/S6) 0: end switch activated 1: end switch not activated	input I3 0: contact closed 1: contact open	input I4 0: contact closed 1: contact open

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Jumper J1

Jumper J1 is used to select the safety related end switch.

End switch	S1 / S2 / S3	S4 / S5 / S6
Jumper position		 (factory setting)

Jumper J2

Jumper J2 enables the operation of the safety function exclusively with NO contacts.

Jumper position	Function
	Normal operation mode with changeover contacts (factory setting)
	Special function: Operation with NO contacts only.  Notice! SIL 2 is not achievable in this operation mode.

Scope of delivery:

- ASi passive distributor to round cable (BW3186) or (BW2890)

Accessories:

- ASi-5/ASi-3 Address Programming Device (art. no. BW4925)