

# AS-i Safety Module to Monitor Damper Actuators up to SIL 2

## AS-i 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

AS-i Specifications 2.1/3.0



(figure similar)



### Article no. BW3005: AS-i Safety Module to Monitor Damper Actuators up to SIL 2

The AS-i module to monitor damper actuators meets the requirements of the AS-i Specifications 2.1/3.0. 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 AS-i circuit,

is integrated. The transfer function is permanent monitored in the integrated AS-i Slave and in the AS-i Master.

The damper's runtime can be monitored and logged automatically on the AS-i 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.**

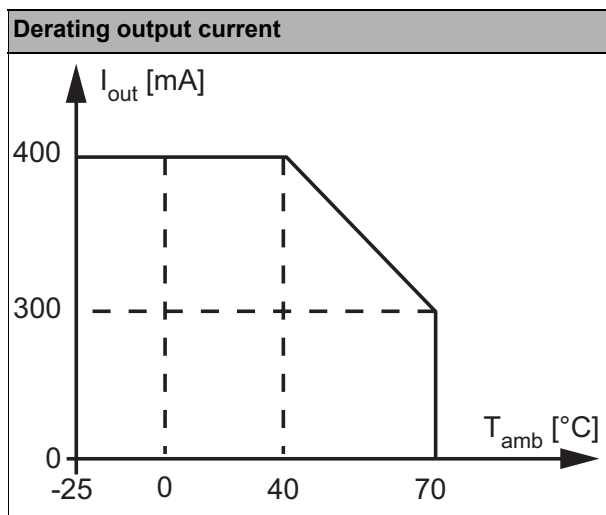
<b>Article no.</b>	<b>BW3005</b>
<b>Connection</b>	
Connection to damper actuator	Belimo-compatible connectors or spring-type terminals
AS-i connection	piercing technology (passive distributor) or spring-type terminals
Length of connector cable to motor	≤ 30 m <sup>(1)</sup>
<b>AS-i</b>	
Profile	S-7.B.E
Address	1 single slave
Required Master profile	≥ M3
Since AS-i specification	2.1/3.0
Operating voltage	26,5 ... 31,6 V <sub>DC</sub>
Quiescent current (Inputs = 0, Outputs = 0)	≤ 75 mA
Max. current consumption incl. motor	≤ 575 mA
<b>Input</b>	
Number	4
Power supply	out of AS-i
Switching threshold	≤ 0,8 mA (low); ≥ 5 mA (high)

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<b>Article no.</b>	<b>BW3005</b>
<b>Output</b>	
Number	2
Power supply	out of AS-i
Max. output current	400 mA <sup>(2)</sup>
Output function	electrical
Short-circuit proof	yes
Loading capacity	400 mA per output <sup>(2)</sup> , $\Sigma$ (Out) $\leq$ 400 mA
<b>Display</b>	
Operating (AUX)	LED green
Function (AS-i)	LED green
Error (ERR)	LED red = AS-i fault; flashing = peripheral fault
Inputs (DI) 1 ... 4	4 x LEDs yellow
Outputs (DO) 1 ... 2	2 x LEDs yellow
<b>Environment</b>	
Applied standards	EN 61000-6-2 EN 61000-6-4 EN 61326-3-1 EN 62026-2 EN 62061 SIL 2 EN60529
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)



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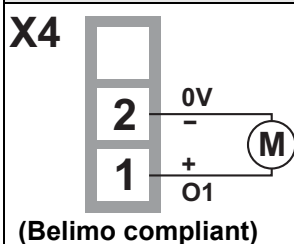
## Terminal assignment

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

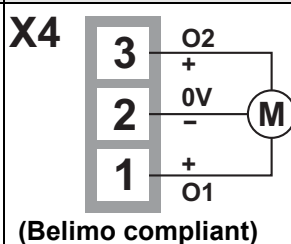
### Terminal assignment from Ident.No. ≥ 16240 <sup>(1)</sup>

	X1	X2	X3	X4
1	AS-i +	Out_RM	S2	O1
2	AS-i +	+24 V	S5	0 V
3	AS-i -	I3	S4	O2
4	AS-i -	I4	S6	
5		S5 (NC1)	S3	
6		S6 (NC2)	S1	
7		S3 (NO1)		
8		S4 (NO2)		
9		S1 (U <sub>out</sub> )		
10		S2 (U <sub>out</sub> )		
11		O1		
12		0 V		
13		O2		
14		0 V		

#### Connecting spring return actuators



#### Connecting non-spring return actuators



<sup>(1)</sup> see lateral label

## 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	-	-

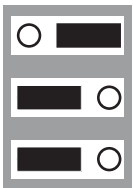
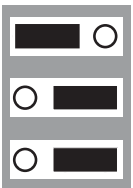
### AS-i Parameter

P0	P1	P2	P3
<b>write function</b>			
watch dog 0: off 1: on	not used	not used	not used
<b>read function</b>			
input I1 (end switch S1/S3) 0: end switch activated 1: end switch not activated	input I2 (end switch 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

# AS-i Safety Module to Monitor Damper Actuators up to SIL 2




## 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.   <b>Notice!</b> SIL 2 is not achievable in this operation mode.

## Scope of delivery:

- AS-i passive distributor to round cable (BW3186) or (BW2890)