

Safety + standard I/O in one module

AS-i Safety relay output with galvanically isolated contact sets, approved up to 230V

EN 954-1 Cat 4, IEC 61 508 SIL 3, EN 13 849-1/PLe Cat 4, EN IEC 62 061 SIL 3

Protection category IP20



Article no. ASOM-1SO-R2

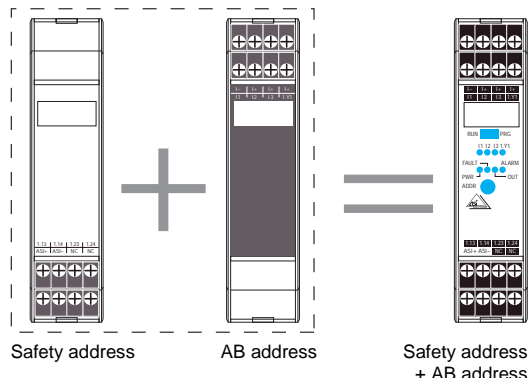
The stainless steel AS-i Safety Monitor controls the safety relays of the AS-i Safety Relay Output Module by using a safety AS-i single address. To set the safety AS-i address, the dip-switch has to be in the PRG position. Addressing can then be accomplished by using an AS-i addressing device, for example. Several AS-i Safety Relay Output modules can have the same safety address and can be controlled via this same safety address on a AS-i circuit. All AS-i Safety Relay Out-

put Modules with the same safety address are controlled simultaneously. In addition to the safety single address the module also supports an AB-address e.g. used to transmit the states of the standard inputs. To set the AB address of the inputs, e.g. with an AS-i addressing device, the dip-switch has to be in the RUN position.

Article no.	ASOM-1SO-R2
Inputs	1 diagnostic + 1 EDM
Outputs	1 relay 3A, 24V, DC-13 or 3A, 230V, AC-15
AS-i profile	S.7.A.E
ID1 Code	5 _{hex} (default), value modifiable
External device monitoring (EDM)	supplied out of AS-i, approx. 24V, approx. 10 mA
Indicators	
3 x LED yellow (I1, I2, I3)	state of standard inputs I1, I2, I3
1 x LED yellow (1.Y1)	state EDM input 1.Y1
LED green (PWR)	AS-i voltage ON
LED red (FAULT)	AS-i Fault
LED yellow (OUT)	for definition see table "device color"
LED red (ALARM)	PLC indicates alarm
Operating current	< 200mA
Current supply of sensors	90mA
Operating voltage	AS-i (30V _{DC})
Voltage of insulation	≥ 6 kV
Applied standards	EN 954-1 Cat 4 IEC 61 508 SIL 3 EN 13 849-1/PLe Cat 4 EN IEC 62 061 SIL 3
Housing	Din-rail mounting
Ambient operating temperature	0°C ... +55 °C
Storage temperature	-25°C ... +85 °C
Dimensions (L / W / H in mm)	114 / 22,5 / 99
Protection class DIN EN 60 529	Housing IP20

**ASO-1SO-R2:
2 AS-i modules in one housing!**

1 safety relay output 1 diagnostic- and 1 EDM input ASOM-1SO-R2



Diagnostic operation ID1 = 5_{hex} (default)

Programming instructions (Bit values of inputs/outputs Diagnostic Slave)

Bit	AS-i output	Bit	AS-i input
O0	1: Alarm LED <i>on</i> 0: Alarm LED <i>off</i>	I0	Diagnostic (for definition see table device colors)
O1	Parameter P1=1 Parameter P1=0	I1	
	not used 1: output controlled by safety release 0: inhibits output on irrespective of safety release	I2	
O2	not used	I3	1.Y1
O3	inexistent		

Diagnostic (device colors)

Value	Color	Description	State change	LED "Out"
0	green	output on		on
1	green flashing	-		-
2	yellow	restart inhibit	auxillary signal 2	1 Hz
3	yellow flashing	-		-
4	red	output off		off
5	red flashing	waiting for "reset of error condition"	auxillary signal 1	8 Hz
6	grey	internal error, such as "fatal error"	only via "Power On" on device	all LEDs flashing
7	green/yellow	output released, but not switched on	switching-on by setting of O1	off

Programming instructions

Programming instructions Diagnostic Slave (bit values of the AS-i parameter)

Bit P1	
P1=1	safety output controlled by safety release only
P1=0	safety output controlled by output O1 in addition to safety release
Bits P0, P2, P3:	
not used	

Release		AS-i Safety Relay Output Module, safety release from the AS-i safety monitor...	
		... not received	... received
AS-i Parameter (Diagnostic Slave) changes the function of output bit O1	AS-i Parameter P1=1 (default) O1=0	safety output contact set open	safety output contact set closed
	AS-i Parameter P1=1 O1=1	safety output contact set open	safety output contact set closed
	AS-i Parameter P1=0 O1=0	safety output contact set open	safety output contact set open
	AS-i Parameter P1=0 O1=1	safety output contact set open	safety output contact set closed

3I standard inputs (instead of diagnostic) ID1=7_{hex}, or ID1=F_{hex}

Connection of sensors

Programming instructions (Bit values of inputs/outputs AB-Slave)

Bit	AS-i output	Bit	AS-i input
O0	1: Alarm LED <i>on</i> 0: Alarm LED <i>off</i>	I0	I1
O1	Parameter P1=1 Parameter P1=0	I1	I2
	not used 1: output controlled by safety release 0: inhibits output on irrespective of safety release	I2	Parameter P2=0 Parameter P2=1
O2	not used	I3	1: feedback for user: <i>safety release on</i> 0: feedback for user: <i>safety release off</i>
O3	inexistent	I3	1.Y1

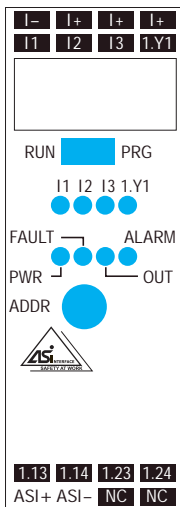
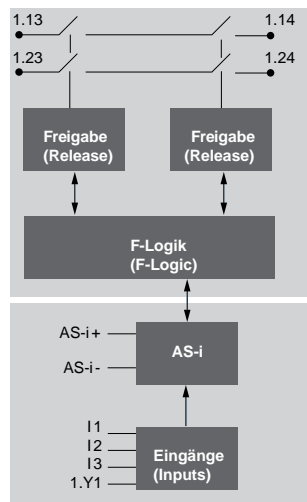
Programming instructions

Programming instructions AB slave (bit values of the AS-i parameter)

Bit P2	
P2=1	feedback: safety release at AS-i bit I2 / LED I3
P2=0	input I3 at AS-i bit I2
Bit P1	
P1=1	safety output controlled by safety release only
P1=0	safety output controlled by output O1 in addition to safety release
Bits P0, P3	
not used	

Release		AS-i Safety Relay Output Module, safety release from the AS-i safety monitor...	
		... not received	... received
AS-i parameter (AB slave) changes the function of output bit O1	AS-i Parameter P1=1 (default) O1=0	safety output contact set open	safety output contact set closed
	AS-i Parameter P1=1 O1=1	safety output contact set open	safety output contact set closed
	AS-i Parameter P1=0 O1=0	safety output contact set open	safety output contact set open
	AS-i Parameter P1=0 O1=1	safety output contact set open	safety output contact set closed

Operating elements and clamp assignment



Clamps/Switch	Description
I1, I2, I3	standard inputs I1, I2 and I3
1.13, 1.14	safety output contact set 1
1.23, 1.24	safety output contact set 2
I-, I+	supply voltage for inputs (out of AS-i)
1.Y1	EDM / input for electronic device monitoring
AS-i+, AS-i-	AS-i network connection
ADDR	addressing socket
PRG	protective mode not possible. Programming of safety-related AS-i address enabled
RUN	protective mode possible. Programming of non safety-related AS-i address enabled

LEDs	State	Signal / Description
PWR (green)		no operating voltage
		operating voltage present, safety-related IEC-address sector IEC-AD address is „P“
		operating voltage present
FAULT (red)		AD-communication OK
		no data exchange with AD slave
OUT (yellow)		output relays contacts open
		reset inhibited, waiting for the start signal, the output relays switch-on after the start signal
		device is in undetectable error state. (Intermittent "burst of error condition signal". After receiving this signal the device returns up with normal operation.
		output relays contacts closed
ALARM (red)		AD-output bit AD3 is normal
		AD-output bit AD3 is set
I1, I2, I3, 1.Y1 (yellow)		the corresponding input is <i>not</i> connected (mode standard inputs) or release has not been issued (I3, diagnostic mode)
		the corresponding input is connected (mode standard inputs) or release has not been issued (I3, diagnostic mode)
		(running light) switch is adjust to PRG position

LED on LED flashing LED off

	In case all LEDs are blinking simultaneously in fast rythm a fatal error has been detected. This message is reset by a short-run disconnection of the power supply (Power On Reset).
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