

# SMX 31R/2

SMXSERIES » Compact » Central expansion » I/O module

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## DESCRIPTION

Digital I/O-Expansion module for the SMXCOMPACT - Basic modules

- 12 Safe digital inputs
- 8 Relay outputs
- 2 Digital I/Os
- 2 Auxiliary / pulse outputs
- Safety controller up to PL e acc. to EN ISO 13849-1 or SIL3 acc. to IEC 61508

## CHARACTERISTIC OF THE MODULE

- » Pulse outputs for cross-shortening detection of digital input signals
- » External contact monitoring of connected switchgear (EMU)
- » Comprehensive diagnostics functions integrated
- » Assembly on top hat rail

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## SAFETY RELATED CHARACTERISTIC DATA

Performance Level	PL e (EN ISO 13849-1)
PFH <sup>1)</sup> / architecture	9,2 FIT / Cat 4 <sup>1)</sup>
	1-channel per Rel 20 FIT (max.8)
	2-channel per Rel 1,0 FIT (max.4)
Safety Integrity Level	SIL 3 (IEC 61508)
Proof test interval	20 years = max. operating period

## GENERAL DATA

Max. no. of expansion modules	-
Interface for expansion modules	T-bus connector, pluggable in top-hat rail
Number of safe digital inputs	12
Number of safe digital outputs	-
	pp-switching
	pn-switching
Number of safe digital I/O	2
Number of relay outputs	8
Number of safe analogue inputs	-
Number of auxiliary outputs	2
Number of pulse outputs (clock outputs)	2
Type of connection	Plug-in terminals with spring or screw connection
Axis monitoring	-/-
Encoder interfaces (D-Sub / screw terminals)	-/-

<sup>1)</sup> Value applies only for extension module

For a total assessment in accordance with EN ISO 13849-1 one must use a series connection with the corresponding basic device

►  $PFH_{logic} = PFH_{Basic} + PFH_{Extension}$

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## ELECTRICAL DATA

Fuse	X11.1	min. 30 VDC; max. 10A
Max. Power consumption (logic)	SMX31R/2	7,1 W
Rated data digital inputs		24 VDC; 20 mA, Typ1 acc. to IEC 61131-2
Rated data digital outputs		
	auxiliary outputs	24 VDC; 250mA
	pulse outputs (clock outputs)	24 VDC; 250mA
	digital I/O	01 - 05 06 - 10
		24 VDC; 0,5A 24 VDC; 2A *
Rated data relays		
	Normally open	DC 13 AC 15
		24 VDC; 2A 230 VAC; 2A
	Normally closed (read back contact)	DC 13
		24 VDC; 2A

\* See „Derating outputs“

## DERATING OUTPUTS

- » Maximum current load based on temperature.
- » The maximum total current is 10A.

type of module	outputs	temperature 30°C / 50°C
SMX31R/2/x	IQ 6 – IQ 10	2A / 1,8A

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## ENVIRONMENTAL DATA

Temperature	0°C ... +50°C operation
	-25°C ... +70°C storage and transport
Class of protection	IP 20
Climatic category	3K3 acc. to DIN EN 60721-3
Min-, Maximum relative humidity (no condensation)	5% - 85%
EMC	DIN EN 61000-6-2, DIN EN 61000-6-4, DIN EN 61000-6-7, DIN EN 61800-3, DIN EN 61326-3, DIN EN 62061
Operating altitude	2000m

## MECHANICAL DATA

Dimension (HxDxW [mm])	SMX31R/2	100x115x90
Weight [g]	SMX31R/2	680
Mounting		to snap on top-hat rail
Number of T-Bus		
	SMX31R/2	4
Min. terminal cross-section / AWG		0,2 mm <sup>2</sup> / 24
Max. terminal cross-section / AWG		2,5 mm <sup>2</sup> / 12

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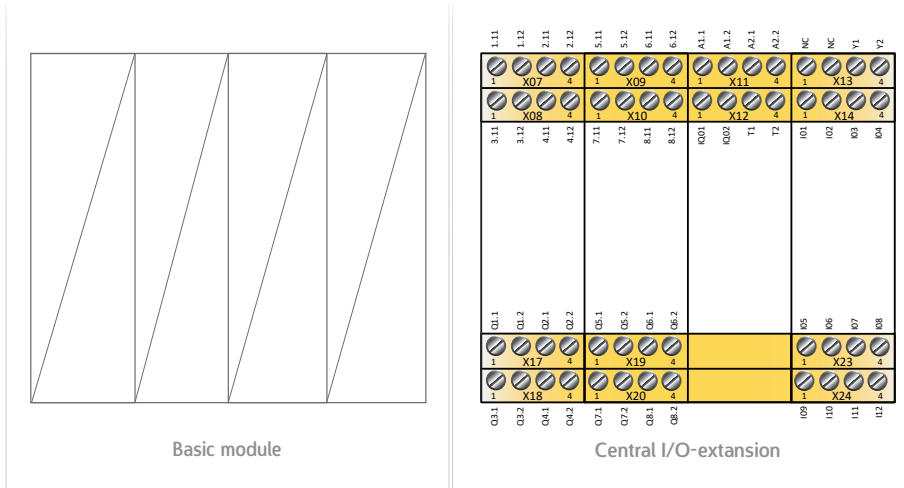


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## DEVICE INTERFACES



Interface	Description of interface
X07 – X14 / X17 – X24	Voltage supply and I/O interface

## VOLTAGE SUPPLY AND I/O INTERFACE

X 07		
Pin	1 - 1.11	Read back contact relay 1
	2 - 1.12	
	3 - 2.11	Read back contact relay 2
	4 - 2.12	
X 08		
Pin	1 - 3.11	Read back contact relay 3
	2 - 3.12	
	3 - 4.11	Read back contact relay 4
	4 - 4.12	
X 09		
Pin	1 - 5.11	Read back contact relay 5
	2 - 5.12	
	3 - 6.11	Read back contact relay 6
	4 - 6.12	
X 10		
Pin	1 - 7.11	Read back contact relay 7
	2 - 7.12	
	3 - 8.11	Read back contact relay 8
	4 - 8.12	

X 11		
Pin	1 - A1.1	Voltage supply device +24 VDC outputs
	2 - A1.2	
	3 - A2.1	Voltage supply device 0 VDC
	4 - A2.2	
X 12		
Pin	1 - IQ01	Safe digital inputs, outputs pp-switching
	2 - IQ02	
	3 - T1	Clock outputs
	4 - T2	
X 13		
Pin	1 - NC	No functions
	2 - NC	
	3 - Y1	Auxiliary outputs
	4 - Y2	
X 14		
Pin	1 - IO1	Safe digital inputs
	2 - IO2	
	3 - IO3	
	4 - IO4	

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X 17		
Pin	1 - Q1.1	Safe relay output 1
	2 - Q1.2	
	3 - Q2.1	Safe relay output 2
	4 - Q2.2	
X 18		
Pin	1 - Q3.1	Safe relay output 3
	2 - Q3.2	
	3 - Q4.1	Safe relay output 4
	4 - Q4.2	
X 19		
Pin	1 - Q5.1	Safe relay output 5
	2 - Q5.2	
	3 - Q6.1	Safe relay output 6
	4 - Q6.2	

X 20		
Pin	1 - 7.1	Safe relay output 7
	2 - 7.2	
	3 - 8.1	Safe relay output 8
	4 - 8.2	
X 23		
Pin	1 - I05	Safe digital inputs
	2 - I06	
	3 - I07	
	4 - I08	
X24		
Pin	1 - I09	Safe digital inputs
	2 - I10	
	3 - I11	
	4 - I12	

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## ORDER INFORMATION

### EXTENSIONS

item	description	item no.
SMX 31R/2	I/O expansion module with relay expansion	2046

### ACCESSORIES

item	description	item no.
SXxxx-x	Terminal connector, screw terminals (set), encoded for cabling SMX 31R/2	on request
SXxxx-x	Terminal connector, spring terminals (set), encoded for cabling SMX 31R/2	on request
SX0000-9	T-Bus connector, voltage-carrying (grey)	1015

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