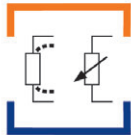


# Temperature Input Module R Ex i / I.S. Inputs, 8 Channels

## Series 9480



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- > 8 channels for all standard RTD's (such as PT 100, Ni 100) and 3-wire potentiometers up to 10 kΩ
- > 2-wire, 3-wire or 4-wire connection
- > Intrinsically safe inputs Ex ia IIC
- > Galvanic isolation between inputs and system
- > Open-circuit and short-circuit monitoring for each field circuit
- > Module can be replaced in operation (hot swap)



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The Temperature Input Module R is used for the intrinsically safe connection of up to 8 RTD's or 3-wire potentiometers. Each input is individually monitored for open and short circuits. Line balancing for a 2-wire circuit can be implemented by means of the keyboard and the display of the corresponding CPU & Power Module (CPM).

In a 2-channel operating mode, short signal delays can be achieved for special applications (e.g. joystick).

The interface of the Temperature Input Module with the internal data bus of the BusRail is designed with redundancy.



	ATEX / IECEx						NEC 505						NEC 506						NEC 500					
	0	1	2	20	21	22	Class I						Class II						Class III					
Zone	0	1	2	20	21	22	Zone	0	1	2	20	21	22	Division	1	2	1	2	1	2				
Ex interface	x	x	x	x	x	x	Ex interface	x	x	x	x	x	x	Ex interface	x	x	x	x	x	x				
Installation in		x	x		x <sup>*)</sup>	x <sup>*)</sup>	Installation in		x	x		x <sup>*)</sup>	x <sup>*)</sup>	Installation in	x	x	x <sup>*)</sup>	x <sup>*)</sup>	x <sup>*)</sup>	x <sup>*)</sup>				

<sup>\*)</sup> Restrictions see table explosion protection

WebCode 9480A

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### Selection Table

Version	Description	Order number	Weight kg / lbs
Temperature Input Module R	8 channels for all standard RTD's (such as PT 100, Ni 100) and 3-wire potentiometers up to 10 k $\Omega$	<b>9480/12-08-11</b>	0.321 / 0.708
Note	Please order 2 terminals separately - see Accessories		

### Explosion Protection

#### Global (IECEX)

Gas	PTB 06.0001X Ex ib [ia] IIC/IIB T4
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#### Europe (ATEX)

Gas and dust	PTB 00 ATEX 2123 Ⓢ II 2 (1) G Ex ib [ia] IIC T4 Ⓢ II (1) D [Ex ia] IIIC
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### Certifications and certificates

Certificates	IECEX, ATEX, Brazil (Inmetro), India (PESO), Canada (CSA), Kazakhstan (GOST K), Russia (GOST R), Serbia (SRPS), USA (FM), Belarus (operating authorisation)
Ship approval	ABS, BV, ClassNK, DNV, GL, LR, RS

### Safety data

Maximum values	max. voltage $U_o / V_{oc}$	6.51 V
	max. current $I_o / I_{sc}$	26.3 mA
	max. power $P_o$	42.8 mW
Cable parameters (ATEX) (for inductive or capacitive circuits)	max. capacitance $C_o / C_a$ for IIC	25 $\mu$ F
	max. capacitance $C_o / C_a$ for IIB	570 $\mu$ F
	max. inductance $L_o / L_a$ for IIC	52.3 mH
	max. inductance $L_o / L_a$ for IIB	191 mH
The effective internal capacitances and inductances are negligible.		

### Further parameters

Installation in	Zones 1 & 2, Div. 1 & 2, Zones 21 & 22
Further information	see respective certificate and operating instructions

# Temperature Input Module R Ex i / I.S. Inputs, 8 Channels

## Series 9480



### Technical Data

#### Electrical data

##### Ex i / I.S. inputs

Number of channels	8
Signal	0 ... 10 k Ω
Measuring current	0.2 mA multiplexed
Maximum line resistance per conductor	100 Ω
Linearity (adjustable parameters)	linear to temperature / linear to resistance

##### Connectable sensors/ 3-wire potentiometers (adjustable parameters for every 2 channels)

Type	Reference	Measuring range (ITS-90)	Medium resolution
Pt100	IEC 60751	-200 ... +850 °C / -328 ... +1562 °F	0.1 K
Pt500	IEC 60751	-200 ... +850 °C / -328 ... +1562 °F	0.1 K
Pt1000	IEC 60751	-200 ... +850 °C / -328 ... +1562 °F	0.1 K
Ni100	DIN 43760	-60 ... +180 °C / -76 ... +356 °F	0.1 K
Ni500	DIN 43760	-60 ... +180 °C / -76 ... +356 °F	0.1 K
Ni1000	DIN 43760	-60 ... +180 °C / -76 ... +356 °F	0.1 K
Pt46 <sup>2)</sup>	GOST 6651-94	-200 ... +1100 °C / -328 ... +2012 °F	0.15 K
Pt50 <sup>2)</sup>	GOST 6651-94	-200 ... +1100 °C / -328 ... +2012 °F	0.15 K
Pt100 <sup>1)</sup>	GOST 6651-94	-200 ... +1100 °C / -328 ... +2012 °F	0.1 K
Cu53 <sup>2)</sup>	GOST 6651-94	-50 ... +180 °C / -58 ... +356 °F	0.1 K
M50 <sup>1)</sup>	GOST 6651-94	-200 ... +200 °C / -328 ... +392 °F	0.15 K
M100 <sup>1)</sup>	GOST 6651-94	-200 ... +200 °C / -328 ... +392 °F	0.1 K
3-wire potentiometer	--	0 ... 500 Ω	0.02 Ω
3-wire potentiometer	--	0 ... 2,5 kΩ	0.10 Ω
3-wire potentiometer	--	0 ... 5 kΩ	0.20 Ω
3-wire potentiometer	--	0 ... 10 kΩ	0.4 Ω

1) from firmware V02-04, 2) from firmware V02-05

##### Galvanic separation

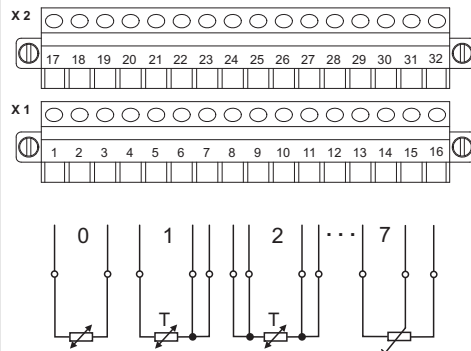
between power supply and system components	1500 V AC
between two input / output modules	500 V AC
between inputs and system components	500 V AC

The inputs of an I/O module have a common negative conductor.

##### Electrical connection

Ex i field signals Plug-in terminals 16-pole with catch, 2.5 mm<sup>2</sup> / up to 14 AWG, screw or spring type

##### Connection diagram



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# Temperature Input Module R Ex i / I.S. Inputs, 8 Channels

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### Technical Data

#### Electrical data

Auxiliary power	
Maximum power consumption	1.6 W
Maximum power dissipation	1.6 W
Diagnostics	
Retrievable parameters	Manufacturer, type, version, serial number
Module faults	<ul style="list-style-type: none"> <li>• Internal primary bus faults</li> <li>• Internal redundant bus faults</li> <li>• No response</li> <li>• Module does not correspond to configuration</li> <li>• Hardware fault</li> </ul>
Signal errors for each channel	
Open circuit	< 10 k Ω
Measuring range	Over range / under range

#### Device-specific data

Accuracy of measurement			
Note	All values in % of the signal span, at 23 °C / 73.4 °F		
Measurement deviation	0.025 % (with filter time constant 50 Hz or 60 Hz)		
Ambient temperature influence	0.025 % / 10 K		
Settings			
Fault monitoring	ON, OFF (for each channel)		
Value to fieldbus during open circuit	Alarmcode, hold last value		
Signal processing time	Filter time constant (adjustable parameters)	Fault monitoring	Delay from input to internal bus
			Operating mode - 8 channels -      Operating mode - 2 channels -
	small	OFF	95 ms      35 ms
	small	ON	190 ms      70 ms
	60 Hz	ON	650 ms      250 ms
	50 Hz	ON	780 ms      300 ms
	Filter time constants of 50 Hz or 60 Hz are recommended for temperature measurements.		

#### Mechanical data

Module enclosure	Polyamide 6GF
Fire resistance (UL 94)	V2
Degree of protection (IEC 60529)	
Module	IP30
Connections	IP20

#### Operator interface

Operation	LED green "RUN"
Fault	LED red "ERR"

#### Ambient conditions

Ambient temperature	-20 ... +65 °C / -4 ... +149 °F
Storage temperature	-40 ... +70 °C / -40 ... +158 °F
Maximum relative humidity	95 % (no condensation)
Sinusoidal vibration (IEC EN 60068-2-6)	1 g in frequency range between 10 ... 500 Hz 2 g in frequency range 45 ... 100 Hz
Semi-sinusoidal shock (IEC EN 60068-2-27)	15 g (3 shocks per axis and direction)
Electromagnetic compatibility	Tested according to the following standards and regulations: EN 61326-1 (1998) IEC 1000-4-1...6, NAMUR NE 21

# Temperature Input Module R Ex i / I.S. Inputs, 8 Channels

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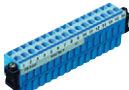

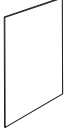



### Technical Data

#### Installation conditions

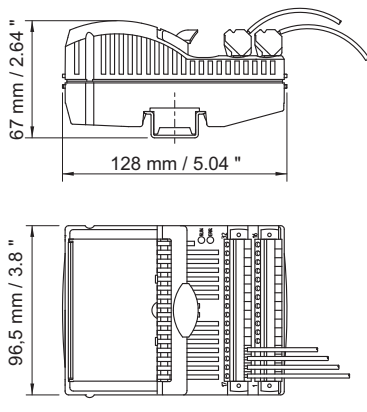
Mounting type	on 35 mm DIN rail NS 35/15
Mounting orientation	horizontal and vertical

#### Accessories and Spare Parts

Designation	Figure	Description	Art. no.
Plug-in terminal	 02079E00	2.5 mm <sup>2</sup> / 14 AWG with catch, 16-pole, screw connection, blue, for connecting the field signals to I/O modules, for intrinsically safe field circuits Designation: 1 ... 16 Attention: An additional terminal is necessary for I/O module Series 9470 and 9480. Designation: 17 ... 32	162702
		2.5 mm <sup>2</sup> / 14 AWG with catch, 16-pole, screw connection, blue, for connecting the field signals to I/O modules, for intrinsically safe field circuits Labelling: 17 ... 32	162718
	 02077E00	2.5 mm <sup>2</sup> / 14 AWG with catch, 16-pole, spring connection, blue, for connecting the field signals to I/O modules, for intrinsically safe field circuits including test jacks Designation: 1 ... 16 Attention: An additional terminal is necessary for I/O module Series 9470 and 9480. Designation: 17 ... 32	162695
		2.5 mm <sup>2</sup> / 14 AWG with catch, 16-pole, spring connection, blue, for connecting the field signals to I/O modules, for intrinsically safe field circuits including test jacks Labelling: 17 ... 32	162716
Labelling strips	 05869E00	"FB Addr ... Mod No ..." for pluggable terminal, sheet with 26 strips	162788
DIN A4 sheet	 09900E00	For label plate on I/O modules; 6 labels on each sheet; print-out using IS Wizard; packaging unit = 20 sheets	162832
Partition	 02078E00	For assembly between intrinsically safe and non-intrinsically safe connectors of the I/O modules, in order to adhere to the required 50 mm / 2 in distance	162740

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#### Dimensional Drawings (All Dimensions in mm / inches) - Subject to Alterations



We reserve the right to make alterations to the technical data, dimensions, weights, designs and products available without notice. The illustrations cannot be considered binding.