

# Isolators

Temperature transmitter

Non-Ex i field circuit ISpac

9182/10-51-64s Art. No. 201684



- Temperature transmitter, can be configured for virtually any common sensor type
- Broad range, including variants with signal conversion and trip amplifier function
- Can be used up to SIL 2 (IEC/EN 61508)

MY R. STAHL 9182B



9182 series temperature transmitters for field circuits can be used to connect temperature sensors and potentiometers. They are easy to configure for virtually any sensor type by means of software or a DIP switch. These sensor types include Pt100 sensors, thermocouples and potentiometers. Variants with a trip amplifier function allow the input signal to be analyzed using two independent contacts.

## Technical Data

Explosion Protection	
Application range (zones)	2
IECEX gas certificate	IECEX BVS 09.0046 X
IECEX gas explosion protection	Ex ec nC IIC T4 Gc
ATEX gas certificate	BVS 08 ATEX E 016 X
ATEX gas explosion protection	Ⓔ II 3 G Ex ec nC IIC T4 Gc
FMus certificate	FM16US0122X
cFM certificate	FM16CA0067X
Marking cFMus	Class I, Div. 2, Groups A,B,C,D; Class I, Zone 2, Group IIC; T4 at Ta = 70°C; See Doc. 91 826 02 31 1  Class I, Div. 2, Groups A,B,C,D; Class I, Zone 2, Group IIC; T4 at Ta = 70°C; See Doc. 91 826 02 31 1
Certificates	ATEX (BVS), Brazil (ULB), Canada (FM), China (NEPSI), IECEX (BVS), India (PESO), Korea (KTL), SIL (exida), USA (FM)
Ship approval	CCS, EU RO MR (DNV)
Functional Safety	
SIL	2
HFT	0
SFF	78%
Lambda SD	0 FIT
Lambda SU	173 FIT
Lambda DD	384 FIT
Lambda DU	157 FIT
PFD <sub>avg</sub> at T <sub>proof</sub> 1 year	7,59E-04
PFD <sub>avg</sub> at T <sub>proof</sub> 2 years	1,44E-03

#### Functional Safety

PFD <sub>avg</sub> at T <sub>proof</sub> 5 years	3,48E-03
Further information	See safety manual and test report

#### Electrical Data

Number of channels	1
LFD relay	Yes

Electrical connection	Input configuration		
	Thermocouple	Reference junction	
		Const. temp.	Ext. Pt. 100
Resistance temperature detector	2-wire	3-wire	4-wire
Potentiometer	3-wire		

#### Auxiliary Power

Auxiliary power	24 V DC
Nominal voltage	24 V DC
Auxiliary power voltage range	18 ... 31.2 V
Voltage range residual ripple	≤ 3,6 V <sub>SS</sub>
Nominal current	70 mA
Power consumption	1.9 W
Max. power dissipation	1.9 W
Polarity reversal protection	Yes
Undervoltage monitoring	Yes
Undervoltage monitoring note	no faulty devices / output states
Operation indication	Green "PWR" LED

#### Galvanic Isolation

Ex i input to output	1.5 kV AC
Ex i input to auxiliary power	1.5 kV AC
Ex i input to fault message contact	1.5 kV AC
Test voltage as per standard	EN 50178
Output to auxiliary power	350 V AC
Output to output	350 V AC
Fault message contact to auxiliary power	350 V AC

#### Galvanic Isolation

Fault message contact to output	350 V AC
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#### Input

Sensor adjustment	Via software
Input for resistance temperature detector	See table
Connection type RTD input	2-, 3- and 4-wire circuits
2-conductor adjustment	Via ADJ DIP switch
RTD linearisation	Temperature/resistance
Sensor current RTD	≤ 0.25 mA
Max. line resistance per wire RTD	50 Ω (2-wire connection) 100 Ω (3-, 4-wire connection)
Input thermocouple	Types B, E, J, K, N, R, S, T, L, U, XK
Linearisation thermocouple	Temperature/voltage
Max. line resistance per loop thermocouple	1000 Ω
External reference junction	Pt100 2-conductor connection
Potentiometer input	Up to 100 kΩ
Potentiometer connection type	3-conductor connection
Potentiometer sensor current	≤ 0.25 mA

Input resistance temperature detector (RTD)	Types	Standard	Basic range	Min. span	Middle resolution	Middle measurement error
	Pt100 Pt500 Pt1000	IEC 60751	-200 ... +850 °C	50 K	0,1 K	0,35 K
Ni100 Ni500 Ni1000	DIN 43760	-60 ... +180 °C	31 K	0,1 K	0,25 K	

Input thermocouple	Types	Standard	Basic range	Min. span	Middle resolution	Middle measurement error
	B	IEC 60584-1	250 ... +1800 °C	314 K	0,1 K	1,2 K
E	-200 ... +1000 °C		36 K	0,1 K	0,2 K	
J	-200 ... +1200 °C		42 K	0,1 K	0,2 K	
K	-200 ... +1370 °C		63 K	0,1 K	0,3 K	
N	-200 ... +1300 °C		75 K	0,1 K	0,3 K	
R	-50 ... +1767 °C		171 K	0,1 K	0,7 K	
S	-50 ... +1767 °C		185 K	0,1 K	0,8 K	
T	-200 ... +400 °C		60 K	0,1 K	0,3 K	
L	DIN 43710	-200 ... +900 °C	55 K	0,1 K	0,3 K	
U		-200 ... +600 °C	48 K	0,1 K	0,3 K	
XK	GOST	-200 ... +800 °C	50 K	0,1 K	0,2 K	

Input potentiometer	Basic measuring range	Middle measurement error
	50 ... 500 Ω	0,1 Ω
	0,5 ... 5 kΩ	1 Ω
	1 ... 10 kΩ	2 Ω
	10 ... 100 kΩ <sup>1)</sup>	--

#### Output

Output	0/4 to 20 mA active/source
Output signal	0/4 to 20 mA (configurable)
Function range output	0 – 21 mA
Load resistance R <sub>L</sub>	0 ... 750 Ω
Output signal resolution	≤ 1 µA
Settling time output	≤ 35 ms
Response time output	≤ 500 ms
Limit contact (per channel)	2 NO/NC
Switching voltage limiting values	≤ ± 30 V
Switching current limiting values	≤ 100 mA
Switching state indication	Yellow &quot;A, B&quot;; LED
LF switch user adjustment	Activated/deactivated
Wire breakage error detection input	> 1 kΩ
Behaviour of the output at line fault	configurable
Line fault indication	Red &quot;LF&quot;; LED
Fault message contact switching capacity	30 V / 100 mA
Line fault and loss of power signalisation	- Contact (30 V/100 mA), closed against earth in case of error - pac-Bus, potential-free contact (30 V/100 mA)
Deviations / error note	Information in % of the measuring range (20 mA) at U <sub>N</sub> , 23 °C
Average measurement fault	< 0,1%
Temperature influence	≤ 0,25 %/10K

#### Ambient Conditions

Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Ambient temperature	-4°F ... +158°F (Single device) -4°F ... +140°F (Group assembly)
Storage temperature	-40 °C ... +80 °C
Storage temperature	-40°F ... +176°F
Maximum relative humidity	95%
Max. additional relative humidity	No condensation
Use at the height of	< 2000 m
Electromagnetic compatibility	Tested to the following standards and regulations: EN 61326-1 For use in industrial areas; NAMUR NE 21

#### Mechanical Data

Degree of protection (IP)	IP30
Degree of protection (IP) terminals	IP20
Fire resistance (UL 94)	V0
Enclosure material	Polyamide

### Mechanical Data

Connection cross-section	0.2 to 2.5 mm <sup>2</sup> flexible 0.25 to 2.5 mm <sup>2</sup> flexible with core end sleeve 0.2 to 2.5 mm <sup>2</sup> rigid
Grid dimension	17.6 mm
Width	17.6 mm
Width, inches	0.69 in
Height	114.5 mm
Length	108 mm
Length in inches	4.25 in
Mounting depth in inches	4.51 in
Weight	170 g
Weight	0.37 lb

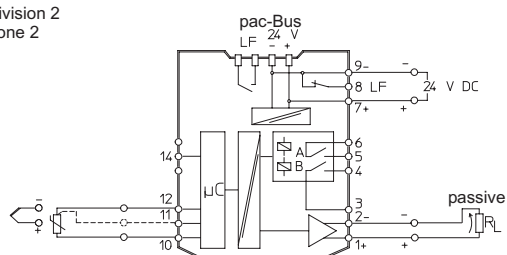
### Mounting / Installation

Mounting type	DIN rail NS35/15, NS35/7.5
Mounting orientation	Horizontal Vertical
Connection type	Screw terminal
Min. rigid conductor cross section	0.2 mm <sup>2</sup>
Max. rigid conductor cross section	2.5 mm <sup>2</sup>
Min. flex conductor cross section	0.2 mm <sup>2</sup>
Max. flex conductor cross section	2.5 mm <sup>2</sup>
Connection cross-section AWG	24 ... 14

### Technical Drawings – Subject to Alterations

Safe area

Division 2  
Zone 2



Field device

ISpac Isolator

Control system

Connection diagram 9182/10-51-64

# Isolators

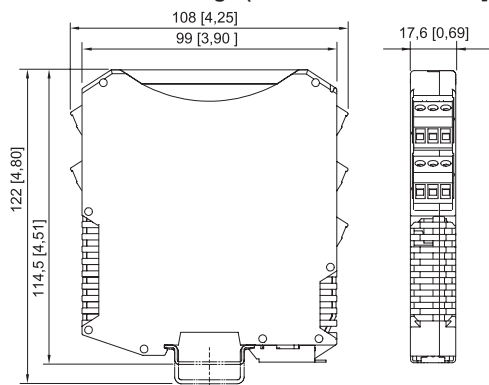
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## Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations



ISpac Series 9143, 9146, 9147, 9160, 9162, 9163, 9165, 9167, 9170, 9172, 9175, 9176, 9180, 9182, 9193, ISbus Series 9412 with screw terminal

## Accessories

### 9182 Parameterisation



Parameterisation ex works optionally available for all variants.

**Art. No.**

270433

### ISpac Wizard parameterising set



The software is used to commission, configure and diagnose Series 9146, 9162 and 9182 ISpac isolators.

For further information, see the operating instructions.

Delivery form: USB stick; parameterising software incl. parameterising cable/adaptor

System requirements:

IBM-compatible PC with MS XP, Vista, Windows 7, 10

RS 232 C interface

RS 232/USB adaptor

**Art. No.**

202595

### Transparent cover



For 91xx ISpac modules

Yellow, transparent

Clear identification of the device for SIL applications.

(Packaging unit: 10 pieces)

**Art. No.**

200914

### External reference junction



External reference junction for 2 x thermocouple (1 x Pt100 for 2-, 3- or 4-wire connection) integrated into the 4-pin terminal block. Mounted on a DIN rail.

**Art. No.**

160675



External reference junction for 1 x thermocouple (Pt100 in 2-wire connection) integrated into the pluggable terminal (3-pin). Mounted in the ISpac device instead of the standard connection terminal.

**Art. No.**

160676

## Spare Parts

### Screw terminal

**Art. No.**




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	3-pole plug, screw connector thread: M3 stripping length: 7 mm colour: green	112817
	3-pole plug, screw connector thread: M3 stripping length: 7 mm colour: black	112816
	3-pole plug, screw connector thread: M3 stripping length: 7 mm colour: blue	112818




## Screw terminal with test tap

Art. No.

	3-pole plug with test tap, screw connector thread: M3 stripping length: 7 mm colour: black	113005
	3-pole plug with test tap, screw connector thread: M3 stripping length: 7 mm colour: blue	113004

## Spring clamp terminal

Art. No.

	3-pole plug with test tap, spring clamp connection stripping length: 10 mm colour: green	112825
	3-pole plug with test tap, spring clamp connection stripping length: 10 mm colour: black	112824
	3-pole plug with test tap, spring clamp connection stripping length: 10 mm colour: blue	112826

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.