

Isolators

Temperature transmitter

Non-Ex i field circuit ISpac

9182/10-51-64k Art. No. 201685



- 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	Ex 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
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 _{avg} at T _{proof} 1 year	7,59E-04
PFD _{avg} at T _{proof} 2 years	1,44E-03
PFD _{avg} at T _{proof} 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
Potentiometer		3-wire	
Auxiliary Power			
Auxiliary power	24 V DC		
Nominal voltage	24 V DC		
Auxiliary power voltage range	18 to 31.2 V		
Voltage range residual ripple	≤ 3,6 V _{SS}		
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		
Fault message contact to output	350 V AC		
Input			
Sensor adjustment	Via software		

Input

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 ¹⁾	-- ¹⁾ with parallel 10 kΩ Shunt, no open-circuit detection				

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_L	0 ... 750 Ω
Output signal resolution	$\leq 1 \mu\text{A}$
Settling time output	$\leq 35 \text{ ms}$
Response time output	$\leq 500 \text{ ms}$
Limit contact (per channel)	2 NO/NC
Switching voltage limiting values	$\leq \pm 30 \text{ V}$
Switching current limiting values	$\leq 100 \text{ mA}$
Switching state indication	Yellow "A, B"; LED
LF switch user adjustment	Activated/deactivated
Wire breakage error detection input	$> 1 \text{ k}\Omega$
Behaviour of the output at line fault	configurable
Line fault indication	Red "LF"; 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_N , 23 °C
Average measurement fault	$< 0,1\%$
Temperature influence	$\leq 0,25 \%/10\text{K}$

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	$< 2000 \text{ m}$
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
Grid dimension	17.6 mm
Width	17.6 mm
Width, inches	0.69 in
Height	114.5 mm
Length	128 mm
Length in inches	5.04 in
Mounting depth in inches	4.51 in
Weight	0.37 lb

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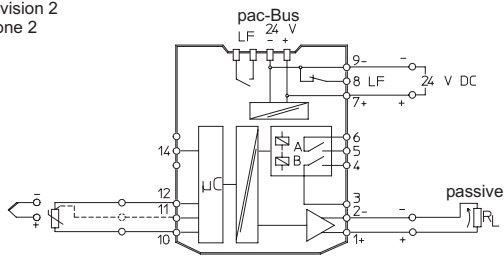
Mounting / Installation

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

Technical Drawings – Subject to Alterations

Safe area

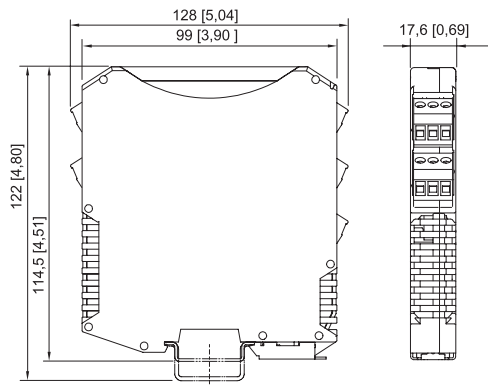
Division 2
Zone 2



Field device ISpac Isolator Control system

Connection diagram 9182/10-51-64

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



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

Accessories

9182 Parameterisation



Parameterisation ex works optionally available for all variants.

Art. No.

270433

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ISpac Wizard parameterising set

Art. No.



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

202595

Transparent cover

Art. No.



For 91xx ISpac modules
Yellow, transparent
Clear identification of the device for SIL applications.
(Packaging unit: 10 pieces)

200914

External reference junction

Art. No.



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.

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.

160676

Spare Parts

Screw terminal

Art. No.



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





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	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.