Isolator Barriers
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 analysed using two independent contacts.

Technical Data

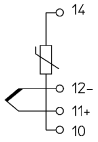
Explosion Protection	
Application range (zones)	2
IECEx gas certificate	IECEx BVS 09.0046 X
IECEx gas explosion protection	Ex ec nC IIC T4 Gc
ATEX gas certificate	BVS 08 ATEX E 016 X
ATEX gas explosion protection	Ⓔx II 3 G Ex ec nC IIC T4 Gc
FMus certificate	FM16US0122X
cFM certificate	FM16CA0067X
Marking 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

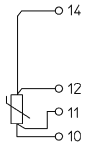
Electrical Data

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	4-wire
			

Potentiometer	3-wire
	

Auxiliary Power

Auxiliary power	24 V DC
Nominal voltage V_{nom}	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

2-conductor adjustment	Via ADJ DIP switch

Input

Sensor adjustment	Via software
Input for resistance temperature detector	See table
Connection type RTD input	2-, 3- and 4-wire circuits
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)
Max. line resistance per loop thermocouple	1000 Ω
Input thermocouple	Types B, E, J, K, N, R, S, T, L, U, XK
Linearisation thermocouple	Temperature/voltage
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 *)	--	*) with parallel 10 kO 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	0.0-21 mA
Load resistance R_L	0 ... 750 Ω
Output signal resolution	≤ 1 uA
Settling time output	≤ 35 ms
Response time output	≤ 500 ms
Average measurement fault	< 0,1%
Limit contact (per channel)	2 NO/NC
Switching voltage limiting values	≤ ± 30 V
Switching current limiting values	≤ 100 mA
Switching state indication	Yellow "A, B" LED
Fault message contact switching capacity	30 V / 100 mA
Wire breakage error detection input	> 1 kΩ
LF switch user adjustment	Activated/deactivated
Indication of line fault	Red "LF" LED
Deviations / error note	Information in % of the measuring range (20 mA) at U_N, 23 °C
Behaviour of the output at line fault	configurable
Line fault and loss of power signalization	- Contact (30 V/100 mA), closed against earth in case of error - pac-Bus, potential-free contact (30 V/100 mA)
Ambient Conditions	
Ambient temperature °C	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Ambient temperature °F	-4°F ... +158°F (Single device) -4°F ... +140°F (Group assembly)
Storage temperature °C	-40 °C ... +80 °C
Storage temperature °F	-40°F ... +176°F
Max. relative humidity	95%
Max. additional relative humidity	No condensation
Temperature influence	≤ 0,25 %/10K
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
Grid dimension	17.6 mm
Width	17.6 mm
Width, inches	0.69 in
Height	114.5 mm
Length	128 mm
Length, inches	5.04 in
Mounting depth, inches	4.51 in
Weight	170 g

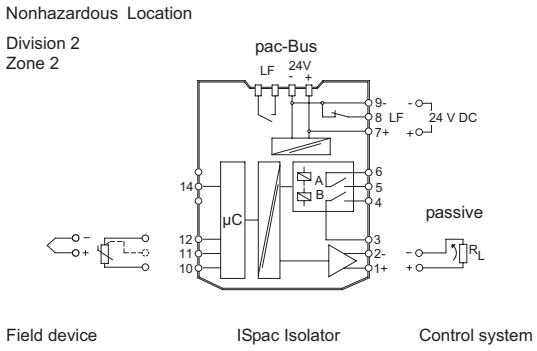
Mechanical Data

Weight	0.37 lb

Mounting / Installation

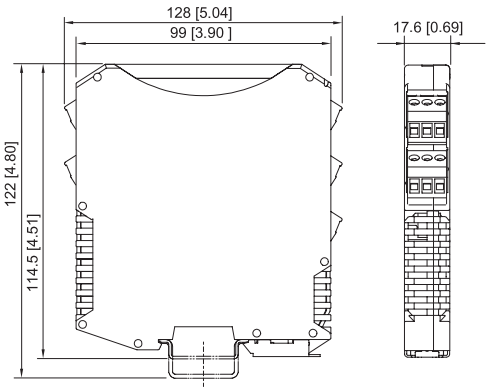
Mounting type	DIN rail NS35/15, NS35/7.5
Mounting orientation	Vertical Horizontal
Connection type	Spring clamp terminal
Min. rigid conductor cross section	0.2 mm²
Max. rigid conductor cross section	2.5 mm²
Min. flex conductor cross section	0.2 mm²
Max. flex conductor cross section	2.5 mm²
Connection cross-section AWG	24 ... 14

Technical Drawings – Subject to Alterations



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, Fieldbus Power Supply Series 9412 with spring clamp terminal

Accessories

9182 Parameterisation		Art. No.
	Parameterisation ex works optionally available for all variants.	270433

Parameterization set ISpac - Wizard		Art. No.
	The software serves for commissioning, configuring and diagnosing the ISpac isolators Series 9146, 9162, 9182 and 9282. For further information, see operating instructions. Form of delivery: USB stick; parameterization software incl. parameterization 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 color: green	112817
	3-pole plug, screw connector thread: M3 stripping length: 7 mm color: black	112816
	3-pole plug, screw connector thread: M3 stripping length: 7 mm color: 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 color: green	112825
	3-pole plug with test tap, spring clamp connection stripping length: 10 mm color: black	112824
	3-pole plug with test tap, spring clamp connection stripping length: 10 mm color: blue	112826