

Isolators

Temperature transmitter

Ex i field circuit ISpac

9182/10-51-14k Art. No. 201683



- Temperature transmitter, can be configured for virtually any common sensor type
- Broad range, including variants with signal conversion and trip amplifier function
- Variants for SIL 2 applications available

WebCode **9182A**



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 electronic contacts.

Technical Data

Explosion Protection

Application range (zones)	2
Ex interface zone	0 1 2 20 21 22
IECEx gas certificate	IECEx BVS 09.0046 X
IECEx gas explosion protection	Ex nA nC [ia Ga] IIC T4 Gc
IECEx dust certificate	IECEx BVS 09.0046 X
IECEx dust explosion protection	[Ex ia Da] IIIC
ATEX gas certificate	DMT 02 ATEX E 243 X
ATEX gas explosion protection	II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc
ATEX dust certificate	DMT 02 ATEX E 243 X
ATEX dust explosion protection	II (1) D [Ex ia Da] IIIC
FMus certificate	FM16US0122X
cFM certificate	FM16CA0067X
Marking cFMus	Class I, Div. 2, Groups A,B,C,D; Class I, Zone 2, Group IIC AIS Class I,II,III, Div. 1, Groups A,B,C,D,E,F,G; Class I, Zone 0, [AEx ia]/[Ex ia] IIC T4 at Ta = 70°C See Doc. 91 826 01 31 1
Certificates	ATEX (BVS), Brazil (ULB), Canada (FM), IECEx (BVS), India (PESO), Korea (KTL), SIL (exida), USA (FM)
Ship approval	CCS, EU RO MR (DNVGL)
Notes	CCC, UKCA certificate available from 2022 onward
Installation	in Zone 2, Division 2 and in the safe area

Explosion Protection

Further information	see respective certificate and operating instructions
---------------------	---

Safety Data

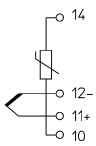
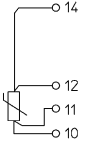
Max. voltage U_o	6.5 V
Max. current I_o	19.7 mA
Max. power P_o	32 mW
Max. power P_o note	linear characteristic
Max. permissible external capacity C_o for IIC	25 μ F
Max. permissible external capacity C_o for IIB	570 μ F
Max. permissible external inductance L_o for IIC	90 mH
Max. permissible external inductance L_o for IIB	330 mH
Internal capacitance	Negligible
Internal inductance	Negligible
Safety-related max. voltage	253 V

Functional Safety

SIL	2
Further information	see safety manual and test report

Electrical Data

Number of channels	1
LFD relay	Yes

Electrical connection	Configuration input			
	Thermocouple	Cold junction compensation		
		const. temp.	ext. Pt. 100	
	Channel 2			
	Resistance thermometer	2-wire	3-wire	4-wire
	Channel 2			
	Resistance transmitter (RTD)	3-wire		
	Channel 2			

Auxiliary Power

Auxiliary power	24 V DC
-----------------	---------

Auxiliary Power

Nominal voltage	24 V DC
Auxiliary power voltage range	18 to 31.2 V
Voltage range residual ripple	$\leq 3,6 V_{SS}$
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

Test voltage as per standard	IEC EN 60079-11
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
Sensor adjustment	Via software
Max. line resistance	$\leq 1000 \text{ ohm}$
Line fault and loss of power signalisation	- Contact (30 V / 100 mA) closed to ground in case of fault - pac-Bus, floating contact (30 V / 100 mA)
Input resistance temperature detector (RTD)	Types Pt 100, Pt 500, Pt 1000, Ni 100, Ni 500, Ni 1000
Input for resistance temperature detector	See table
RTD input	2-, 3- and 4-wire circuits
RTD linearisation	Temperature/resistance
Sensor current	$\leq 0.25 \text{ mA}$
Input thermocouple	Types B, E, J, K, N, R, S, T, L, U, XK
Linearisation	Temperature/voltage
External reference junction	Pt100 2-conductor connection
Potentiometer input	Up to 100 k Ω
Potentiometer input	3-conductor connection
Potentiometer sensor current	$\leq 0.25 \text{ mA}$

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
	Pt250	IEC 60751	-200 ... +850 °C	40 K	0,1 K	0.5 K
	Pt2000	IEC 60751	-200 ... +850 °C	40 K	0,1 K	0.35 K
	Ni100 Ni500 Ni1000	DIN 43760	-60 ... +180 °C	31 K	0,1 K	0.25 K
	PT100	GOST 6651-94	-200 ... +1100 °C	40 K	0.1 K	0.7 K
	M50	GOST 6651-94	-200 ... +200 °C	70 K	0.1 K	0.7 K
	M53	GOST 6651-94	0.. +120 °C	70 K	0.1 K	0.5 K
	M100	GOST 6651-94	-200 ... +200 °C	40 K	0.1 K	0.45 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 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
Max. load resistance R _L	750 Ω

Output	
Output signal resolution	$\leq 1 \mu\text{A}$
Settling time output	$\leq 35 \text{ ms}$
Response time output	$\leq 500 \text{ ms}$
Average measurement fault	$< 0,1\%$
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
Fault message contact switching capacity	30 V / 100 mA
LF switch user adjustment	Activated/deactivated
Indication of line fault	Red "LF" LED
Wire breakage error detection	$> 1 \text{ k}\Omega$
Behaviour of output with DB	Selectable

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)
Note	Installation conditions influence the ambient temperature. Observe operating instructions.
Storage temperature	-40 °C ... +80 °C
Storage temperature	-40°F ... +176°F
Maximum relative humidity	95%
Max. additional relative humidity	No condensation
Temperature influence	$\leq 0,25 \text{ } \%/10\text{K}$
Use at the height of	$< 2000 \text{ m}$
Electromagnetic compatibility	Tested to the following standards and regulations: EN 61326-1 Use in industrial environment; NAMUR NE 21

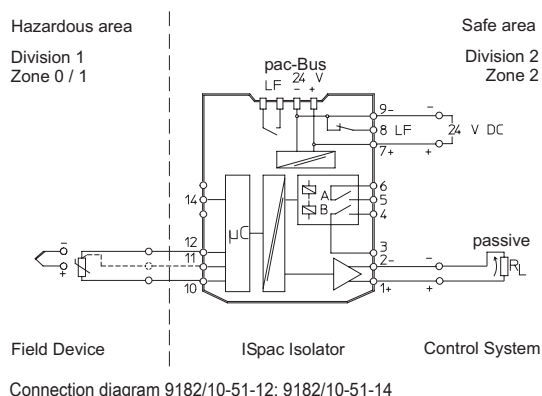
Mechanical Data	
Degree of protection (IP)	IP30
Degree of protection (IP) terminals	IP20
Fire resistance (UL 94)	V0
Enclosure material	Polyamide
AWG clamping range	16 – 12
Grid dimension	17.6 mm
Width	17.6 mm
Width, inches	0.69 in
Height	114.5 mm
Length	128 mm
Length, inches	5.04 in
Mounting depth, inches	4.51 in
Weight	0.17 kg
Weight	0.37 lb

Mounting / Installation	
Mounting type	DIN rail NS35/15, NS35/7.5

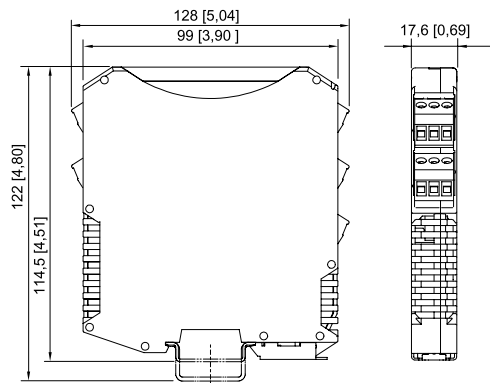
Mounting / Installation

Mounting orientation	Horizontal Vertical
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

Technical Drawings – Subject to Alterations



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

Parameterising set ISpac - Wizard

Art. No.

	The software serves for commissioning, configuring and diagnosing the ISpac isolators Series 9146, 9162 and 9182. For further information, see operating instructions. Form of delivery: 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
--	---	--------

Isolators

Temperature transmitter

Ex i field circuit ISpac

9182/10-51-14k Art. No. 201683

STAHL

Resistance coupling element

Art. No.



The 0/4 to 20 mA signal of channel 1 is converted to a 0/2 to 10 V signal. The resistive coupling element replaces the available connection terminal. (Set with 5 pieces)

273968

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-pole terminal block. Installation takes place on the DIN rail.

160675



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



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

Isolators



Temperature transmitter
Ex i field circuit ISpac
9182/10-51-14k Art. No. 201683

	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.