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**

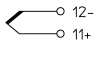
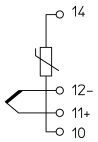
9182 series temperature transmitters for field circuits can be used to connect temperature sensors and potentiometers. They are easy to configure for virtually any sensor type by means of software or a DIP switch. These sensor types include Pt100 sensors, thermocouples and potentiometers. Variants with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

Technical Data

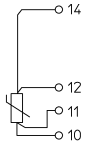
Explosion Protection	
Application range (zones)	2
IECEx gas certificate	IECEx BVS 09.0046 X
IECEx gas explosion protection	Ex ec nC IIC T4 Gc
ATEX gas certificate	BVS 08 ATEX E 016 X
ATEX gas explosion protection	Ⓔx II 3 G Ex ec nC IIC T4 Gc
FMus certificate	FM16US0122X
cFM certificate	FM16CA0067X
Marking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

Functional Safety	
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	24 V DC
Auxiliary power voltage range	18 ... 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

Galvanic Isolation	
Fault message contact to output	350 V AC
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 *)	--	*) 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 – 21 mA
Load resistance R_L	0 ... 750 Ω
Output signal resolution	≤ 1 uA
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 "A, B" LED
LF switch user adjustment	Activated/deactivated
Wire breakage error detection input	> 1 kΩ
Behaviour of output during LF	configurable
Line fault indication	Red "LF" LED
Fault message contact switching capacity	30 V / 100 mA / DC
Note on fault message contact	Values valid f. resistive load
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	≤ 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
Degree of pollution	2
Overvoltage category	II
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

Isolators

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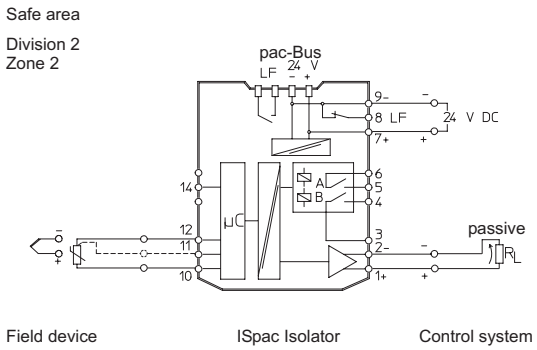
Mechanical Data

Fire resistance (UL 94)	V0
Enclosure material	Polyamide
Min. rigid conductor cross section	0.2 mm²
Max. rigid conductor cross section	2.5 mm²
Min. flexible conductor cross section	0.2 mm²
Max. flexible conductor cross section	2.5 mm²
Connection cross-section	0.2 to 2.5 mm² flexible 0.25 to 2.5 mm² flexible with core end sleeve 0.2 to 2.5 mm² rigid
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

Mounting / Installation

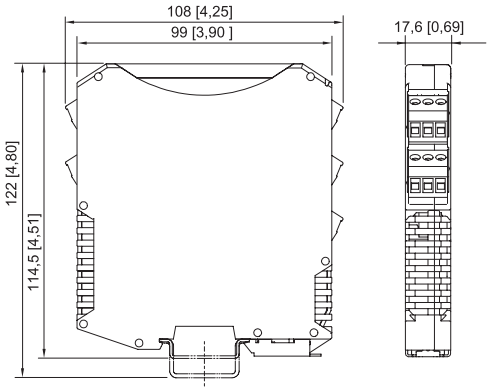
Mounting type	DIN rail NS35/15, NS35/7.5
Grid dimension	17.6 mm
Mounting orientation	Horizontal Vertical
Connection type	Screw terminal
Connection cross-section AWG	24 ... 14

Technical Drawings – Subject to Alterations



Connection diagram 9182/10-51-64

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



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

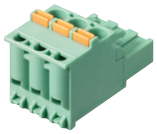
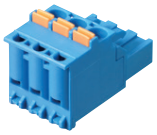
Accessories

Parameterising set Series 9199 for ISpac isolators Series 9146, 9162, 9182 and 9282		**Art. No.**
	Used for parameterisation and diagnostics of Series 9146, 9162, 9182 and 9282 ISpac isolators. Interface with the PC: USB Scope of delivery: Adaptor and cable (software is available to download online at r-stahl.com, Websites of the specified devices or MY R. STAHL: 9282A)	261507

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

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