Non - Ex i Isolators



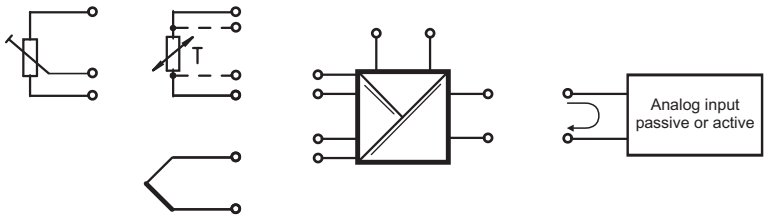
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Temperature Transmitter with Output 0/4 ... 20 mA, without Limit Value Contact, SIL (Field Circuit Non-Ex i) Type 9182/10-5.-63

- One unit for nearly all temperature sensors indivdually configurable
- 1 channel
- Galvanic isolation between input, output, power supply and configuration interface
- Open-circuit and short-circuit monitoring and messaging
- Simple configuration with PC
- Installation possible in Zone 2
- Can be used up to SIL 2 (IEC 61508)

Zones	0	1	2	20	21	22
Ex i interfaces						
Installation in			X			X

Basic function: temperature input, Ω and 1 channel.
The temperature transmitter is used for operation of temperature sensors. Most currently available sensors can be connected, such as Pt 100, Pt 500, Pt 1000, Ni 100, thermocouples and resistance transmitters. The parameters can be set using suitable software.



06261E02

Selection Table

Version	Channels	Output, analog	Limit value contact	Connection type	Order number
Temperature transmitter type 9182, field circuit Non-Ex i	1	0/4 ... 20 mA active	without	Spring clamp terminals	**9182/10-51-63k**
				Screw terminals	**9182/10-51-63s**
		0/4 ... 20 mA passive	without	Screw terminals	**9182/10-59-63s**
				Spring clamp terminals	**9182/10-59-63k**

Configuration is only possible with parameterising software ISpac Wizard.

Technical Data

Certificates	BVS 08 ATEX E 016 X		
Explosion protection	Ⓔx II 3G Ex nA nC II T4		
Installation	in Zone 2 and in the safe area		
Power supply	Nominal voltage U_N		24 V DC
	Voltage range		18 ... 31.2 V
	Residual ripple within voltage range	≤	3.6 V_{SS}
	Nominal current (at U_N, 20 mA)		70 mA
	Power consumption (at U_N)	≤	1.9 W
	Power losses (at U_N) 1 / 2 channels	≤	1.9 W
	Indication		LED green „PWR“
	Polarity reversal protection		yes
	Undervoltage monitoring		yes (no faulty module / output states)
Galvanic isolation	Test voltage		
	input to output		1.5 kV AC
	input to power supply		1.5 kV AC
	input to configuration interface		1.5 kV AC
	input to error-contact		1.5 kV AC
	Test voltage under regulations EN 50178		
	Output to power supply		350 V AC
	Output to configuration interface		350 V AC
	Outputs to each other		350 V AC
	Error-contact to power supply and outputs		350 V AC
	Galvanic isolaton of Ex i inputs		
	at thermocouples		20 V
	at resistance sensors		- -
Functional safety (IEC 61508)			
Test report	Exida FMEDA Stahl 07/07-23-R016		
Max. SIL	2		
Safe Failure Fraction SFF	78 %		
MTBF	120 years (at 40 °C)		
PFD_{AVG} at $T_{[Proof]}$	T[Proof]	1 year	3 years / 5 years
	PFD_{AVG}	7.59×10^{-4}	1.44×10^{-3} / 3.48×10^{-3}
Further information	see safety manual and test report		
Configuration	Interface:	Version	RS 232 C
		Software	ISpac Wizard 9199
		Connection	4-pole plug on front
		Settings	all module functions and diagnostics
Input	The input parameters can be set via PC software.		

Input: resistance thermometer

Types	Standard	Basic measuring range [°C]	Min. measuring span	Average Resolution	Average Measurement error
Pt 100 Pt 500 Pt 1000	IEC 60751	- 200 ...+ 850	50 K	0.1 K	0.35 K
Ni 100 Ni 500 Ni 1000	DIN 43760	- 60 ...+ 180	31 K	0.1 K	0.25 K

Connection type		in 2-, 3- or 4-wires connection
Linearisation		Temperature / resistance
Measuring current	≤	0.25 mA
Max. wire resistance per conductor	<	50 Ω (2-wires connection)
	<	100 Ω (3-, 4-wires connection)

Temperature Transmitter with Output 0/4 ... 20 mA, without Limit Value Contact, SIL (Field Circuit Non-Ex i) Type 9182/10-5.-63

Technical Data

Input: Thermocouple

Types	Standard	Basic measuring range [°C]	Min. measuring span	Average Resolution	Average Measurement error
B	IEC 60584	250 ...1800	314 K	0.1 K	1.2 K
E		- 200 ...1000	36 K	0.1 K	0.2 K
J		- 200 ...1200	42 K	0.1 K	0.2 K
K		- 200 ...1370	63 K	0.1 K	0.3 K
N		- 200 ...1300	75 K	0.1 K	0.3 K
R		- 50 ...1767	171 K	0.1 K	0.7 K
S		- 50 ...1767	185 K	0.1 K	0.8 K
T		- 200 ...400	60 K	0.1 K	0.3 K
L	DIN 43710	- 200 ...900	55 K	0.1 K	0.3 K
U		- 200 ...600	48 K	0.1 K	0.3 K
XK	GOST	- 200 ...800	50 K	0.1 K	0.2 K

Linearisation		Temperature / Voltage
Max. wire resistance (sum)		≤ 1000 Ω
External references		Pt 100 2-wires connection (- 40 ... + 85 °C) constant temperature (- 40 ... + 85 °C)

Input: Resistance temperature detector (RTD)

Basic measuring range	Average Resolution
50 ... 500 Ω	10 mΩ
500 ... 10 kΩ	10 mΩ
10 ... 100 kΩ *)	10 mΩ

*) with parallel 10 kΩ Shunt; no open-circuit detection

Connection type		3-wires connection
Measuring current	≤	0.25 mA

Output

only 9182/10-51-63 0/4 ... 20 mA, active

Output signal (configurable)		0/4 ... 20 mA
Function range		0 ... 21 mA
Connectable load resistance R_L		0 ... 750 Ω
Resolution	≤	1 µA
Response time (10 ... 90 %)	≤	35 ms
Delay input - output	≤	500 ms

Passive output

only 9182/10-59-63 0/4 ... 20 mA, passive

Output signal (configurable)		current depression, 0/4 ... 20 mA
Supply voltage		max. 31,2 V DC
Internal voltage drop	≤	3,0 V
Minimum load resistance R_L		0 Ω at 3 V ... 20 V 200 Ω at 24 V 500 Ω at 30 V

Error detection input

Open-circuit	for resistance thermometers, thermocouples and RTD > 1 kΩ
Short-circuit	for resistance thermometers with temperature linearisation and RTD
Behaviour of output	2,4 mA (configurable 0 ... 23 mA)
Error detection	LED red „LF“
Error messaging and power supply failure	- Contact (30 V / 100 mA), closed to ground in case of error - pac-Bus, floating contact (30 V / 100 mA)

Fault limits

Accuracy, typical data expressed as % of basic range at U_N, 23 °C

Average measurement error	≤	0.1 %
Temperature influence	≤	0.1 % / 10 K

Electromagnetic compatibility

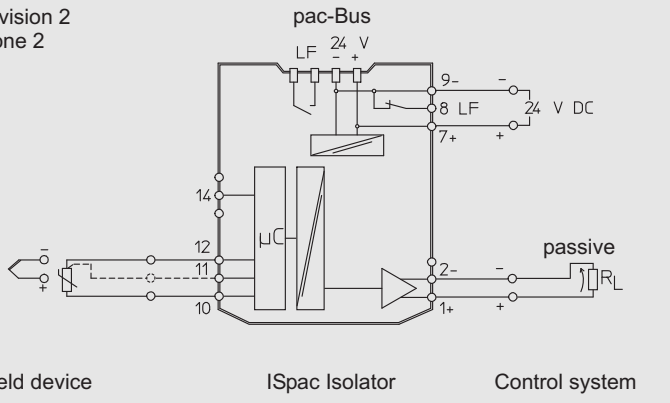
Tested under the following standards and regulations:
EN 61326-1 Use in industrial environment;
NAMUR NE 21

Technical Data

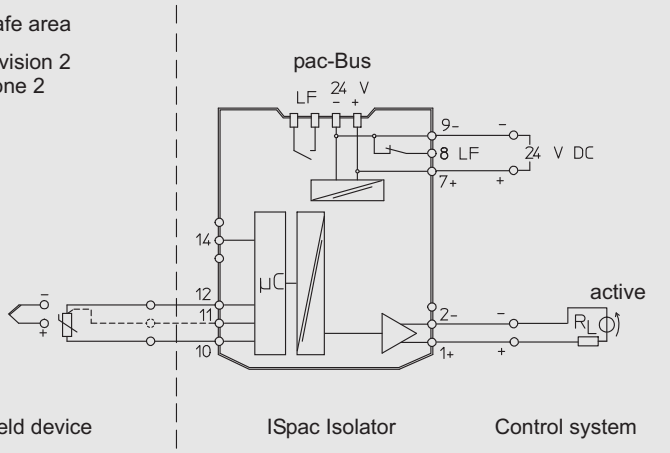
Ambient conditions	Ambient temperature		- 20 ... + 60 / + 70 °C (see instructions)
	Storage temperature		- 40 ... + 80 °C
	Relative humidity (no condensation)	≤	95 %

Connection diagram

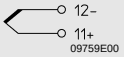
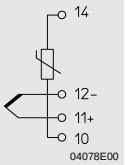
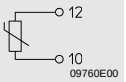
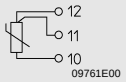
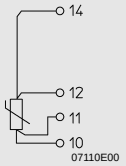
1 channel
9182/10-51-63



1 channel, passive
9182/10-59-63



Configuration input

Thermocouple		Resistance thermometer / RTD		
Cold junction compensation		2-wire	3-wire	4-wire
const. temp.	ext. Pt. 100			
				

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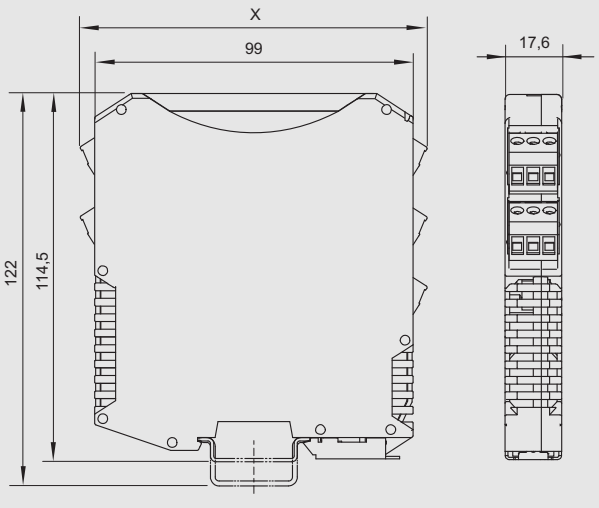
Technical Data

Mechanical data		Screw terminals	Spring clamp terminals
	Connection one wire		
	- rigid	0.2 ... 2.5 mm²	0.2 ... 2.5 mm²
	- flexible	0.2 ... 2.5 mm²	0.2 ... 2.5 mm²
	- flexible, end covering sleeves (without / with plastic sleeving)	0.25 ... 2.5 mm²	0.25 ... 2.5 mm²
	Connection two wires		
	- rigid	0.2 ... 1 mm²	- -
	- flexible	0.2 ... 1.5 mm²	- -
	- flexible, end covering sleeves	0.25 ... 1 mm²	0.5 ... 1 mm²
	Weight	approx. 160 g	
	Mounting type	on DIN rail (NS35/15; NS35/7.5)	
	Mounting position	horizontal or vertical	
	Casing protection class	IP30	
	Terminal protection class	IP20	
	Casing material	PA 6.6	
	Fire protecting class (UL-94)	V0	

Accessories and Spare Parts

Designation	Description	Order number
Reference	Serves for measurement of the junction temperature with a Pt 100 in 2-wires circuit	
	Compact screw terminal (applicable for single- or dual-channel terminal)	**9191/VS-05**
	Terminal (DIN-rail assembly) for the single-channel version 9182	**9191/VS-03**
Parameterising set - ISpac - Wizard	The software is used to commission, configurate and diagnose on the ISpac Isolators Series 9146, 9162 and 9182. For further information see operating instructions. Supplied: as CD-ROM; Parameterising software incl. Parameterising cable / adapter. System requirements: • IBM compatible PC with MS Windows 98, NT, 2000, XP, Vista, Windows 7 • CD-ROM drive • RS 232 C interface • RS 232 / USB adapter	**9199/20-02**

Dimensional Drawing (All Dimensions in mm / inches) - Subject to Alterations



	Dimension X
Screw terminals	108 mm / 4.25 in
Spring cage terminals	128 mm / 5.04 in

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.

Customer Specific Set-up Sheet

R. STAHL offers the service to configure ISpac isolators according to your requirements. There are two options:

1. The form can be downloaded on the product page ISpac, section "Data sheet". Please edit the form directly on your PC.
2. Download the software at ISpac Wizard free: "http://www.r-stahl.com/downloads/software/ex-i-isolators.html".
   Create them using the software configuration. Forward the .prj file to your R. STAHL sales office.

Order-No.: **- Pos.:** **Pieces:**

	Type	Channels	Output	Limit value
☐	9182 / 10 - 51 - 61.	1	0/4...20 mA	none
☐	9182 / 10 - 51 - 63.	1	0/4...20 mA	none
☐	9182 / 20 - 51 - 61.	2	0/4...20 mA	none
☐	9182 / 10 - 51 - 62.	1	0/4...20 mA	2 NO
☐	9182 / 10 - 51 - 64.	1	0/4...20 mA	2 NO

with: ☐ Screw terminal s (standard) ☐ Spring clamp terminal k

Please read the operating instructions before you fill in the following form.
Please select only one item parameter and channel.

	Default	Channel 1	Channel 2
Signal-Tag	ID-Nr.		
Input			
Resistance Thermometer	☒	☐	
Sensor type	PT 100	☐ PT 100 ☐ PT 500 ☐ PT 1000 ☐ NI 100 ☐ NI 500 ☐ NI 1000	☐ PT 100 ☐ PT 500 ☐ PT 1000 ☐ NI 100 ☐ NI 500 ☐ NI 1000
Circuit type	3-Wires	☐ 2-Wires ☐ 3-Wires ☐ 4-Wires	☐ 2-Wires ☐ 3-Wires ☐ 4-Wires
Measurement range	0 °C ... 400 °C	from to ☐ °C ☐ °F ☐ K ☐ Ω	from to ☐ °C ☐ °F ☐ K ☐ Ω
Thermocouple		☐	
Type		☐ Type B ☐ Type E ☐ Type L ☐ Type K ☐ Type N ☐ Type R ☐ Type S ☐ Type T ☐ Type J ☐ Type U ☐ Type XK	☐ Type B ☐ Type E ☐ Type J ☐ Type K ☐ Type N ☐ Type R ☐ Type S ☐ Type T ☐ Type L ☐ Type U ☐ Type XK
CJC type		☐ external PT 100 ☐ fixed Temp. ☐ internal	☐ external PT 100 ☐ fixed Temp. ☐ internal
Measurement range		from to ☐ °C ☐ °F ☐ K ☐ mV	from to ☐ °C ☐ °F ☐ K ☐ mV
Resistance Transmitter		☐	
Range		☐ up to 500 Ω ☐ up to 2.5 kΩ ☐ up to 10 kΩ ☐ up to 100 kΩ (+ Shunt)	☐ up to 500 Ω ☐ up to 2.5 kΩ ☐ up to 10 kΩ ☐ up to 100 kΩ (+ Shunt)
Measurement range		from % to %	from % to %
Output (only 9182/*0-51-6*)			
Signal	4 mA ... 20 mA	☐ 0 mA ... 20 mA ☐ 4 mA ... 20 mA	☐ 0 mA ... 20 mA ☐ 4 mA ... 20 mA
Fault behavior	Output Fault value	☐ Hold last value ☐ Fault control off ☐ Output Fault value: (standard 2.4 mA)	☐ Hold last value ☐ Fault control off ☐ Output Fault value: (standard 2.4 mA)
Limit value for Relay A (9182/10-51-62 and 9182/10-51-64.)			
Signaling	deactivated	☐ activated ☐ deactivated	☐ activated ☐ deactivated
Value	25 %	% or absolute:	% or absolute:
Behavior contact	inactive	☐ inactive ☐ closes, if value > limit value ☐ closes, if value < limit value ☐ opens, if value > limit value ☐ opens, if value < limit value	☐ inactive ☐ closes, if value > limit value ☐ closes, if value < limit value ☐ opens, if value > limit value ☐ opens, if value < limit value
Hysteresis	1 %	% (0.1 % ... 10 %)	% (0.1 % ... 10 %)
Lockout function	inactive	☐ active ☐ inactive ☐ active-pwrrst	☐ active ☐ inactive ☐ active-pwrrst
Limit value for Relay B (9182/10-51-62 and 9182/10-51-64.)			
Signaling	deactivated	☐ activated ☐ deactivated	☐ activated ☐ deactivated
Value	75 %	% or absolute:	% or absolute:
Behavior contact	inactive	☐ inactive ☐ closes, if value > limit value ☐ closes, if value < limit value ☐ opens, if value > limit value ☐ opens, if value < limit value	☐ inactive ☐ closes, if value > limit value ☐ closes, if value < limit value ☐ opens, if value > limit value ☐ opens, if value < limit value
Hysteresis	1 %	% (0.1 % ... 10 %)	% (0.1 % ... 10 %)
Lockout Function	inactive	☐ active ☐ inactive ☐ active-pwrrst	☐ active ☐ inactive ☐ active-pwrrst

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