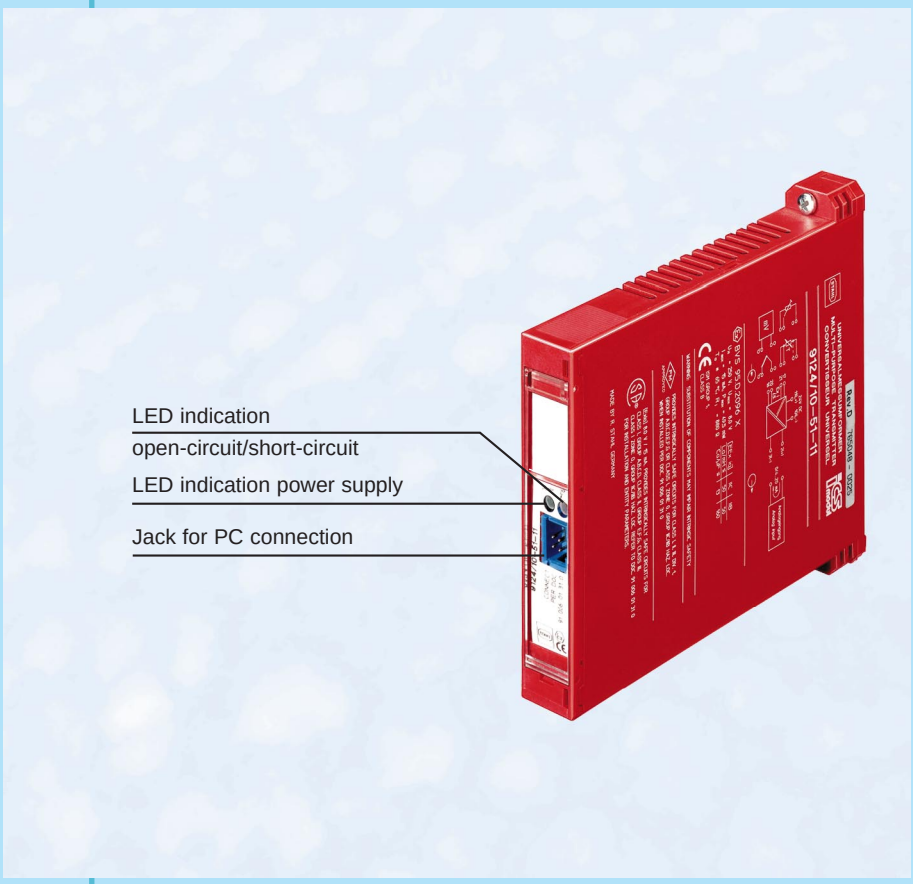
I.S. Isolators



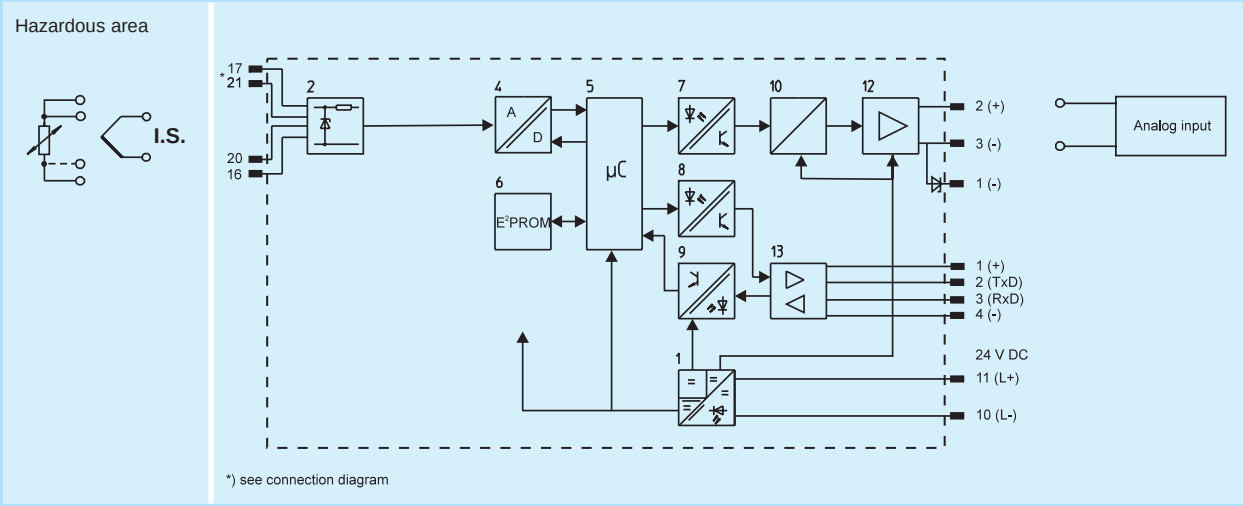
I.S. Isolators (Modules)
Multi-Purpose Transmitter
Type 9124

- Intrinsically safe input [EEx ia] IIC
- One unit for most temperature sensors
- All circuits galvanically isolated (power supply/input/output/ configuration interface)
- Simple configuration with PC via RS 232
- Power supply 18..35V
- Output (0)4 up to 20 mA
- EMC tested, CE marking

STAHL

Basic function: temperature input, Ω, 1 channel.

This multi-purpose transmitter is used for the intrinsically safe operation of temperature sensors or voltage sources. Most currently available sensors can be connected, such as Pt 100, Pt 500, Pt 1000, thermocouples and resistance transmitters. All parameters can be set using suitable software.



Selection table	
Version	**Ordering code**
Multi-purpose transmitter	**9324 / 10 - 51 - 11**

Safety data for input	
Certifications	BVS (Europe, CENELEC), CSA (Canada), SEV (Switzerland), FTZU (Czech Republic), EVPU (Slovakia), FM (USA)
Marking	[EEx ia] IIC/IIB according to CENELEC
Classification	associated electrical apparatus

Safe maximum values (CENELEC)		
Max. voltage U_{max}		8 V
Max. current I_{max}		15 mA
Max. power P_{max}		49.5 mW
Trapezoidal characteristic with	R =	880 Ω
Max. capacitance C_a for [EEx ia] IIC / IIB		13 µF / 160 µF
Max. inductance L_a for [EEx ia] IIC / IIB		50 mH / 50 mH

Further information and combinations of values, see certifications

Technical data

Power supply	
Rated voltage U_N	24 V DC
Voltage range	18 .. 35 V
Rated current	80 mA
Max. power consumption	2 W
Polarity reversal protection	yes

Input

All input quantities given can be set using a PC-software (see accessories).

Input: resistance thermometer

Types	Pt 100	Pt 500	Pt 1000	Ni 100
Basic range in °C	-200 ... 850	-200 ... 850	-200 ... 850	-60 ... 180
Min. span in K	50	50	50	50
Auflösung in K	0.1	0.1	0.1	0.1

Type of circuit		3-, 4-wire circuit
Linearity		Temperature / resistance
Measuring current	≈	0.5 mA
Max. line resistance each core		50 Ω

Input: thermocouple

Norm	IEC 584-1								DIN 43 710	
Types	B	E	J	K	N	R	S	T	L	U
Basic range in °C	400...1800	-200...1000	-200...1200	-200...1370	-200...1300	-50...1767	-50...1767	-200...400	-200...900	-200...600
Min. span in K	300	75	100	150	150	200	200	50	100	100
Middle resolution in K	0.3	0.15	0.2	0.3	0.3	0.2	0.2	0.1	0.2	0.2

Linearity	Temperature / voltage
Measurement principle	Single / difference
External references	Pt 100 (-40...+65 °C)
	const. temp. (-40...+65 °C)

STAHL

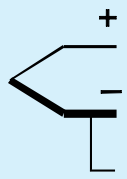
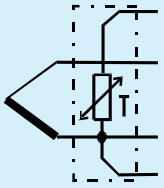
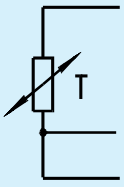
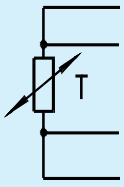
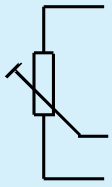
Technical data (continuation)

Input: resistance transmitter		
Basic measuring range		20...400 Ω / 0.4...3.2 kΩ
Min. span		50 % / 50 %
Auflösung		20 mΩ / 200 mΩ
Circuit type		3-wire circuit
Measuring current	≈	0.5 mA
Max. line resistance each core		40 Ω
Analog output		
The live zero/dead zero switchover is via the PC.		
Output signal		0/4…20mA
Load R_L		0…750 Ω
Settling time (step response 10..90%)	≤	950 ms
Interface for configuration/diagnostics		RS 232
Intrinsic safety of input is not given while a PC is connected.		
Open-circuit / short-circuit		
Output behavior		programmable
Output signals		≤ 0% or >100% or 0 mA
Error limits		
Tolerance band setting, in % of the measuring range		
Input error limits		
Pt 100, Ni 100 / Pt 500, Pt 1000		0.25 K / 0.5 K
Thermocouples E, J, K, N, T, L, U / B, R, S		0.3 K / 1.0 K
Pt 100 cold junction compensation		0.25 K
Resistance transmitters < 400 Ω / > 400 Ω		50 mΩ / 650 mΩ
Deviation from characteristics at U_N, 23 °C	≤	0.05% · measuring value + 0.05 % · span
Temperature drift per 10 K change of ambient temperature	≤	0.1% · measuring value + 0.1 % · span

Engineering

Connection diagram

Pt 100 for cold junction compensation, see accessories

Thermocouple			Resistance thermometer		Remote resistance transmitter	Terminal
Standard	Difference	+Ref. junction	3-wire	4-wire	3-wire	
						17 21 20 16

Please fill out for customer specific parameterisation.	
Order-Nr.	
Type	☐ 9124 / 10 - 51 -11
No. of units	

	Standard	Specific setting
General information		
Measuring point description	STANDARD	_ _ _ _ _ _ _ _ _ _ _ _ _
Units	°C	☐ °F ☐ K
Input		
Resistance thermometer	☒	
Type	Pt 100	☐ Pt 500 ☐ Pt 1000 ☐ Ni 100
Type of circuit (4-, 3-wire)	4-wire	☐ 3-wire
Linearity	Temperature	☐ Resistance
Measuring range	-200 °C ... +850 °C	from: up to:
Thermocouple		☐
Type	–	☐ B ☐ E ☐ J ☐ K ☐ N ☐ R ☐ S ☐ T ☐ L ☐ U
Linearity	Temperature	☐ Voltage
Measuring principle	Single	☐ Difference
Cold junction compensation	external Pt 100	☐ external const. temp.:
Measuring range	–	from: up to:
Resistance transmitter		☐
Value of resistance	–	☐ ≤ 400 Ω ☐ > 400 Ω
Measuring range	–	from: up to:
Output		
Analog output		
Signal	4 ... 20 mA	☐ 0 ... 20 mA
Fault bahavior	≤ 0%	☐ > 100% ☐ 0 mA ☐ hold