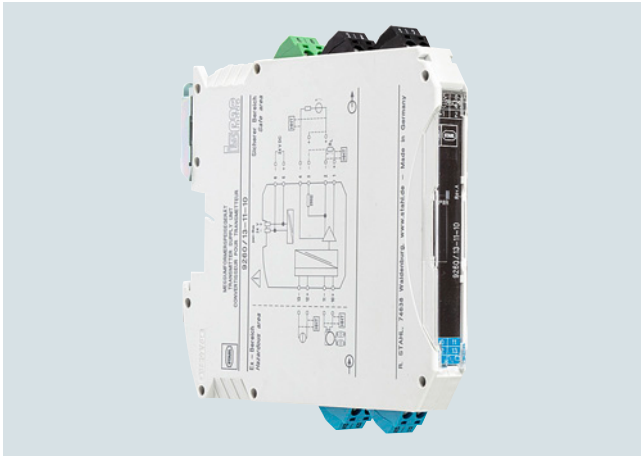


Overview



Analog input 0/4 to 20 mA

The isolating power supplies are used for the intrinsically safe operation of transmitters or for connecting to intrinsically safe mA sources.

The transmitters are supplied with auxiliary power from the isolating power supplies.

HART communication signals are transmitted bidirectionally by the isolating power supplies.

Benefits

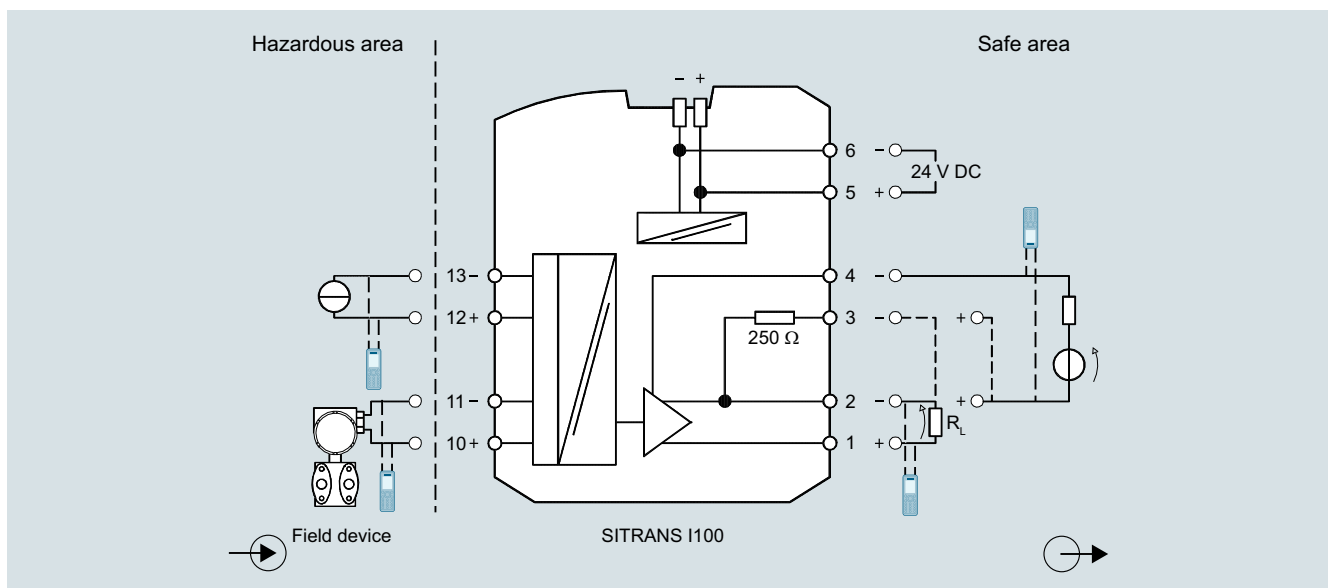
- Active and passive output 0/4 to 20 mA
- Universally applicable for transmitters and mA sources (4-wire transmitters)
- Narrow design – 12.5 mm wide – for single and two-channel models
- Intrinsically safe input [Ex ia] IIC
- Galvanic isolation between input, output and auxiliary power
- Installation possible in Zones 2, 22 and Div. 2
- Can be used up to SIL 2 (IEC 61508)

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

Design

The HART isolating power supply is comprised of a compact plastic enclosure (IP30) and is equipped with push-in screw terminals.

On the front are a green LED for indicating the power supply status and a red LED for signaling errors.



SITRANS I100 isolating power supply HART, function block diagram

Supplementary components

Supply units and isolation amplifiers

SITRANS I100

Technical specifications

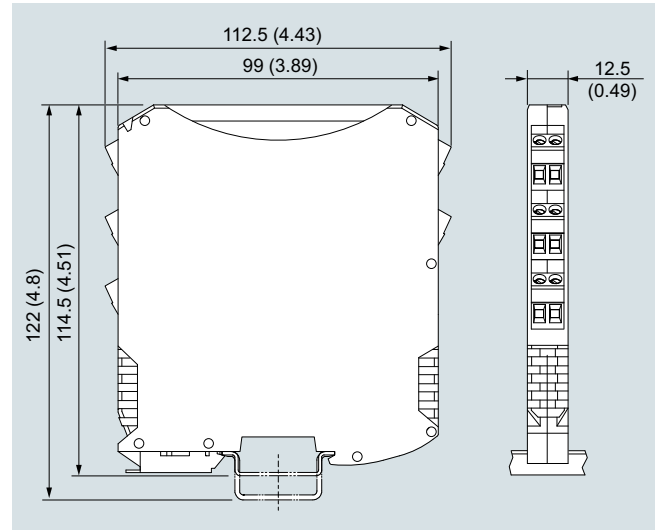
General		Construction	
Number of channels	1	Weight	185 g (0.41 lb)
Transmitter infeed operation	Yes	Enclosure material	Polyamide
Isolation amplifier operation	Yes	Grid dimension	12.5 mm (0.49 inch)
Input	0/4 ... 20 mA	Fire resistance (UL-94)	V0
Output	0/4 ... 20 mA with HART	Mounting type	DIN rail NS35/15; NS35/7.5
Output adjustment time	< 0.2 ms	Mounting position	Vertical or horizontal
Output A	0/4 ... 20 mA active (source)	Type of connection	Screw terminals
Output B	0/4 ... 20 mA active (sink)	• One-wire cross section	
Ex i input		- Rigid	0.2 ... 2.5 mm ² (0.00031 ... 0.0039 inch ²)
Input signal	0/4 ... 20 mA with HART	- Flexible	0.2 ... 2.5 mm ² (0.00031 ... 0.0039 inch ²)
Input functional range	0 ... 24 mA	Auxiliary power	
Communication signal	HART	Rated voltage U _N	24 V DC
Transmitter supply voltage	≥ 16 V at 20 mA	Voltage range	19.2 ... 30 V
Voltage drop	< 3.5 V	Residual ripple within voltage range	≤ 3.6 V _{SS}
Short-circuit current	≥ 22.5 mA	Rated current	76 mA
Output		Power consumption	1.8 W
Output signal	0/4 ... 20 mA with HART (active/passive)	Max. power loss:	1.2 W
Output functional range	0 ... 24 mA	Operation indicator	Green "PWR" LED
Communication signal	HART	Reverse polarity protection	Yes
Output characteristics	= Input signal	Safety specifications	
Output current at I _E = 0	I _A = 0 mA	• Max. voltage U _O	25.2 V
Max. load resistance R _L	1 000 Ω	• Max. current I _O	93 mA
Residual ripple	≤ 20 mV _{eff}	• Max. power P _O	587 mW
Settling time (10 ... 90%)	< 200 μs (isolating transformers: < 600 μs)	• Max. permissible external capacitance C _O for IIC/IIB	107 nF/820 nF
Galvanic isolation		• Max. permissible external inductance L _O for IIC/IIB	2 mH/4 mH
• Test voltage according to EN 60079-11		• Internal capacitance C _i and inductance L _i	Negligible
- Ex i-input to output	375 V peak value	• Max. safety-technical voltage	AC 253 V
- Ex i-input to auxiliary power	375 V peak value	• SIL	2
• Test voltage according to EN 61010/EN 50178		• Isolation amplifier, input:	
- Output to auxiliary power	300 V _{eff}	- Max. output voltage U _O	1)
- Output to output	300 V _{eff}	- Max. connectable voltage U _i	30 V
		- Max. connectable current I _i	150 mA
		- Internal capacitance C _i and inductance L _i of the isolation amplifier	Negligible
Measuring accuracy		Certificates and approvals	
Error limits temperature influence	≤ 0.1%/10 K	<u>ATEX/IECEx explosion protection</u>	
Deviation	≤ 0.1 %	ATEX/IECEx explosion protection	
Deviation typical	0.05%	Certificates	
Rated conditions		BVS 17 ATEX E 087 X IECEx BVS 17.0079X	
Degree of protection		Gas/dust explosion protection, fire-damp protection for Zones 2 and 22	
• Enclosure	IP30	• ATEX	
• Terminals	IP20	II 3 (1) G Ex nA [ia Ga] IIC T4 Gc II (1) D [Ex ia Da] IIIC I (M1) [Ex ia Ma] I	
Ambient temperature	-20 ... +60 °C (-4 ... +140 °F)	• IECEx	
Storage temperature	-40 ... +80 °C (-40 ... +176 °F)	Ex nA [ia Ga] IIC T4 Gc [Ex ia Da] IIIC [Ex ia Ma] I	
Relative humidity	≤ 95%, (no condensation)	Installation	
Usage in height	< 2 000 m (6 562 ft)	In Zones 2 and 22, Div. 2 and in safe areas	
Electromagnetic compatibility	Tested acc. to the following standards and regulations: • EN 61326-1 Use in the industrial environment • Interference immunity in accordance with EN 61000-6-2 • Noise radiation according to EN 61000-6-4	Other approvals	
		USA/Canada (UL): NEC certification (Class I, II, III) 1, 2 Marine approval (planned) EAC TR approval (planned) Metrological certificate (planned)	

1) U_O does not have to be taken into account in 4-wire operation.

Selection and ordering data

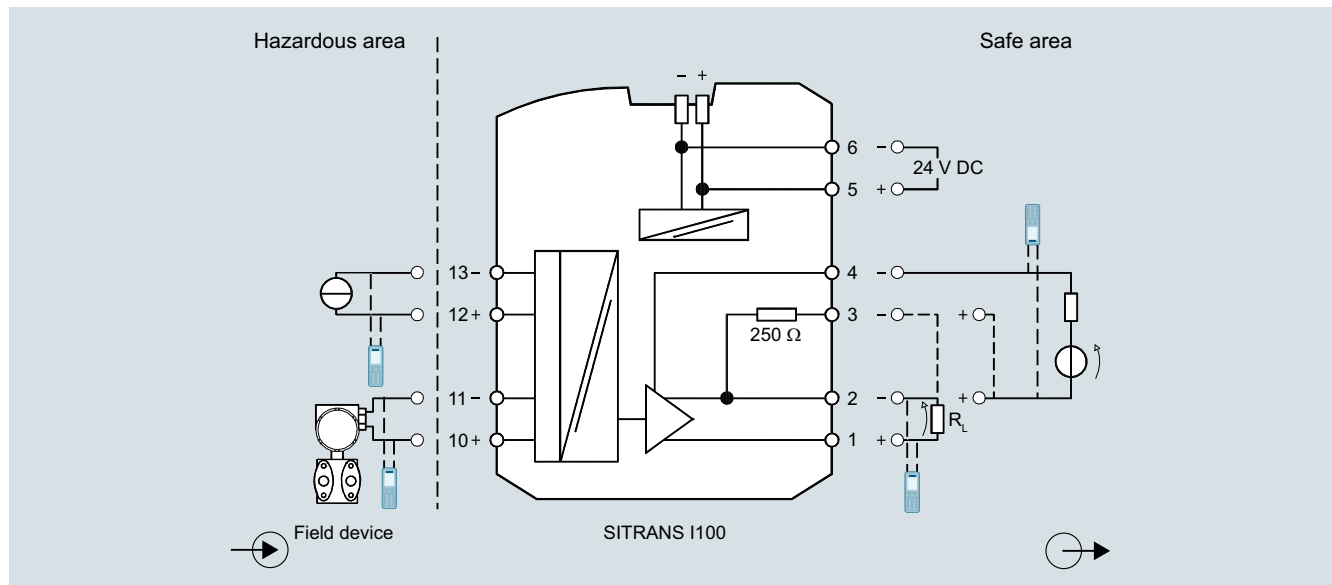
	Article No.
SITRANS I100 Isolating power supply, Ex <ul style="list-style-type: none"> • Rail mounting • For 2-wire transducers • For 4-wire transmitters with intrinsically safe input (mA sources) • For Analog Output Modul (AOM) for SIPART PS2 • Single channel design with output 0/4 ... 20 mA, intrinsically safe Ex i • Width 12.5 mm • Approved up to SIL 2 (IEC/EN 61508) 	7NG4124-1AA00

Dimensional drawings

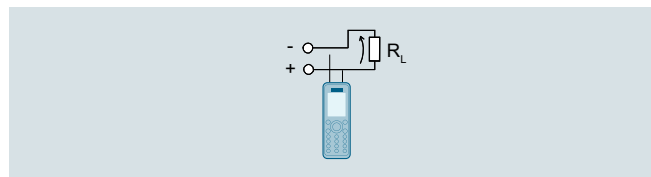


SITRANS I100 isolating power supply HART, dimensions in mm (inch)

Circuit diagrams



SITRANS I100 isolating power supply HART, connection diagram



SITRANS I100 isolating power supply HART, output configuration