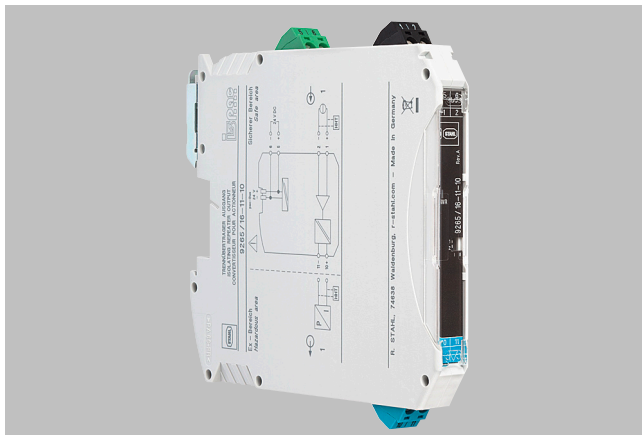


Overview



Analog output 0/4 to 20 mA for HART

The single-channel Ex i output isolation amplifiers are used for intrinsically safe operation of valve positioners, i/p converters or indicators.

Operation of intrinsically safe HART valve positioners (e.g. SIPART PS2) is also possible. The devices transfer a superimposed HART communication signal bidirectionally.

The SITRANS I200 is used for intrinsically safe operation of regulating valves, I/P converters or indicators.

- Superimposed HART communication signals are transmitted bidirectionally by the output isolator.
- Input, output and auxiliary power are electrically isolated from each other.

Benefits

- Compact single-channel Ex i output isolation amplifiers
- Narrow design – 12.5 mm (0.49 inch) width – for single-channel version
- For HART output signals 0/4 to 20 mA
- Output intrinsically safe [Ex ia] IIC
- Galvanic isolation between input, output and auxiliary power
- Wire break and short-circuit monitoring and messaging (can be switched off)
- Installation permissible in Zone 2 and Div. 2
- Can be used up to SIL 2 (IEC/EN 61508)

	Zones					
	0	1	2	20	21	22
Ex intrinsically safe interface	X	X	X	X	X	X
Installation in			X			X

Supplementary components

Supply units and isolation amplifiers

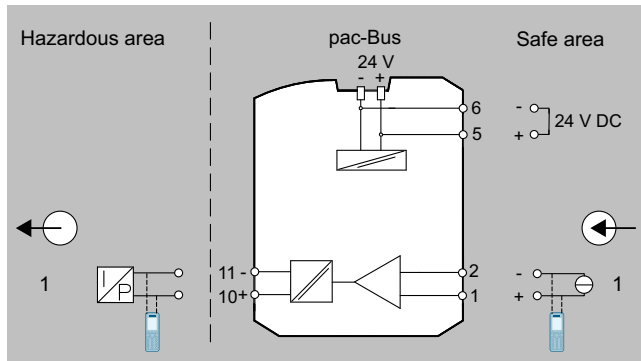
SITRANS I200

Design

The SITRANS I200-Ex i output isolation amplifier 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.

The auxiliary power supply can be individually connected using push-in screw terminals.



SITRANS I200 output isolation amplifier, function block diagram

Selection and ordering data

	Article No.
SITRANS I200 Ex i output isolation amplifier, Ex	7NG4131-1AA00
• Single channel • DIN rail mounting • For HART output signals 0/4 ... 20 mA • Intrinsically safe operation of positioners, e.g. SIPART PS2, I/P converters or indicators • 12.5 mm wide • Approved up to SIL 2 (IEC/EN 61508)	

Technical specifications

SITRANS I200	
General	
Number of channels	1
LFD relay (LFD = Line fault detection)	No
Electrical specifications	
Input	
Input signal	0/4 ... 20 mA with HART
Functional range	0 ... 24 mA
Response threshold line fault (I_E)	$I_E > 3.6$ mA
Response of the input to line fault (L_F)	$R_E \geq 1$ M Ω
Output	
Output signal	0/4 ... 20 mA with HART
Functional range	0.0 ... 24.0 mA
Communication signal	HART
Max. load resistance R_L	700 Ω
Residual ripple	≤ 20 mV
Settling time (10 ... 90%) (valid for 4 ... 20 mA)	≤ 140 μ s
No-load voltage U_a	27.00 V
Average measuring error	0.10%
Line fault	
• Setting switch	Enabled/disabled for short circuit
• Response threshold	$I_E > 3.6$ mA
• Display	Red "ERR" LED
Error detection	
• Wire break	$R_L > 10$ k Ω
• Short circuit	$R_L < 50$ Ω
Error limits temperature influence	$\leq 0.1\%$ / 10 K
Galvanic isolation	
Test voltage according to IEC EN 60079-11	
• Ex i output to auxiliary power	375 V AC peak value
• Ex i output to input	375 V AC peak value
Test voltage according to EN 61010/EN 50178	
• Input to auxiliary power	300 V_{eff}
Auxiliary power	
Nominal voltage U_N	24 V DC
Voltage range	19.2 ... 30 V
Rated current	45 mA
Power consumption	1.1 W
Max. power loss:	1.1 W
Status indicator	Green "PWR" LED
Reverse polarity protection	Yes
Safety specifications	
• Max. voltage U_o	25.2 V
• Max. current I_o	93 mA
• Max. power P_o	587 mW
• Max. permissible external capacitance C_o for IIC/IIB	0.107 μ F/0.817 μ F
• Max. permissible external inductance L_o for IIC/IIB	2 mH/4 mH
• Internal capacitance C_i / internal inductance L_i	Negligible
• Max. safety-technical voltage	253 V
• SIL	2
Operating conditions	
Degree of protection	
• Enclosure	IP30

Supplementary components

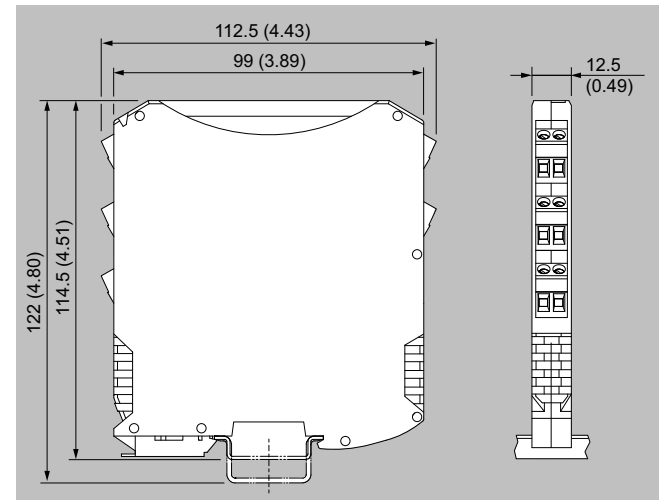
Supply units and isolation amplifiers

SITRANS I200

Technical specifications (continued)

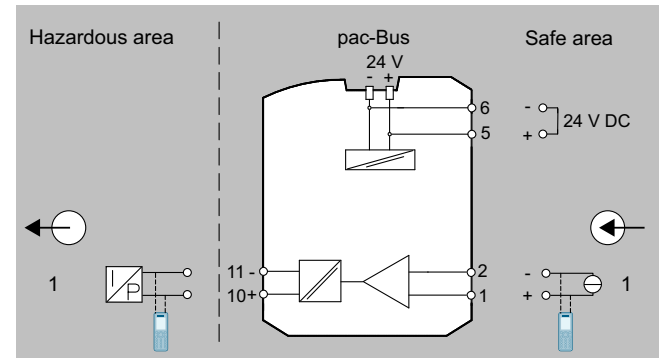
SITRANS I200	
• Terminals	IP20
Ambient temperature	-40 °C ... +70 °C (-40 °F ... +158 °F)
Storage temperature	-40 °C ... +85 °C (-40 °F ... +185 °F)
Relative humidity	≤ 95%
Usage in height	< 2 000 m (6 562 ft)
Electromagnetic compatibility (EMC)	• EN 61326-1 Use in the industrial environment • Namur NE 21
Structural design	
Weight	0.170 kg (0.38 lb)
Enclosure material	Polyamide
Grid size	12.5 mm (0.49 inch)
Width	12.5 mm (0.49 inch)
Height	114.5 mm (4.51 inches)
Length	116 mm (4.57 inches)
Fire resistance (UL-94)	V0
Mounting type	DIN rail NS35/15, NS35/7.5
Mounting position	Any (vertical or horizontal)
Connection type	Screw terminal
Screw terminals	
Core cross-section	
• Rigid	0.2 mm ² ... 2.5 mm ² (0.00031 ... 0.0039 inch ²)
• Flexible min.	0.2 mm ² ... 2.5 mm ² (0.00031 ... 0.0039 inch ²)
Conductor cross-section AWG	16 ... 12
Certificates and approvals	
<u>ATEX/IECEx explosion protection</u>	
Operating range (zones)	2
Ex interface zone	0, 20
Gas/dust explosion protection, firedamp protection for Zones 2 and 22	
Certificates	• BVS 20 ATEX E 045 X • IECEx BVS 20.0035X • Ex II 3 (1) G Ex ec [ia Ga] IIC T4 Gc • Ex II (1) D [Ex ia Da] IIIC • Ex I (M1) Ex [Ex ia Ma] I • Ex ec [ia Ga] IIC T4 Gc • [Ex ia Da] IIIC • Ex [Ex ia Ma] I
• ATEX	
• IECEx	
Installation	In Zone 2, Div. 2 and in the safe area
Certificates	• ATEX (BVS), IECEx (BVS), SIL (BVS) • cULus • PESO • KTL
Marine approval	DNV

Dimensional drawings



SITRANS I200 output isolation amplifier HART, dimensions in mm (inch)

Circuit diagrams



SITRANS I200 output isolation amplifier HART, connection diagram