



HART® transparent repeater

9106B

- 24 VDC supply via power rail or connectors
- Active and passive mA input
- Active or passive output via the same two terminals
- Splitter function - 1 in and 2 out
- SIL2 / SIL3 Full Assessment and certified acc. to IEC 61508



Application

- 9106B is a 1- or 2-channel isolated 1:1 repeater barrier for intrinsic safety applications.
- The device supplies 2-wire SMART transmitters and can also be used for 2-wire SMART current sources. HART® & BRAIN protocols are supported and are transferred bi-directionally.
- 9106B can be mounted in the safe area or in zone 2 / Cl. 1, div. 2 and receive signals from zone 0, 1, 2 and zone 20, 21, 22 including mining / Class I/II/III, Div. 1, Gr. A-G.
- The PR 4501 displays the process value for each channel and can be used to define high and low limits for detection of loop current level. If these limits are exceeded, the status relay will activate.
- In the 1-channel version the status relay can be used as a simple limit switch.
- I.S. splitter application - 1 input and 2 outputs.
- In the dual channel version the 9106B can be implemented in a SIL3 loop.

Advanced features

- The PR 4501 detachable display and the green and red front LEDs indicate operation status for each channel.
- A tag number can be defined for each channel.
- Monitoring of error events and cable breakage on input via the individual status relay and/or a collective electronic signal via the power rail.

Technical characteristics

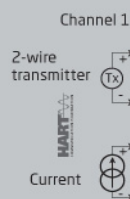
- High galvanic isolation of 2.6 kVAC.
- Fast response time <5 ms
- High accuracy better than 0.1%.
- 2-wire transmitter supply >16 V.

Mounting

- The devices can be mounted vertically or horizontally without distance between neighbouring units.

Connections

Input signals:



Output signals:

Analogue, 4...20 mA

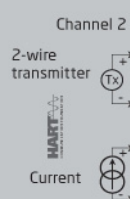
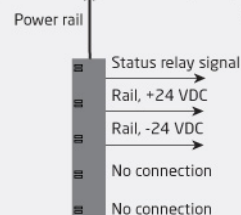
Channel 1



Passive 2-wire



Channel 2



Power connection:

Supply -

Supply + 19.2...31.2 VDC

Device status

N.C.

Device status

Same power rail as above

Zone 0, 1, 2,
20, 21, 22, M1 &
Cl. I/II/III, Div. 1
gr. A-G

Zone 2 & Cl. 1, Div. 2, gr. A-D
or Safe Area

Order:

Type	Barrier version	Unit channels
9106B	U _o = 28 V : 1	Single : A
	U _o = 25.6 V : 2	Double : B

Environmental Conditions

Specifications range.....	-20°C to +60°C
Storage temperature.....	-20°C to +85°C
Calibration temperature.....	20...28°C
Relative humidity.....	< 95% RH (non-cond.)
Protection degree.....	IP20
Installation in.....	Pollution degree 2 & measurement / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD).....	109 x 23.5 x 104 mm
Dimensions (HxWxD) w/ 4501 / 4511.....	109 x 23.5 x 116 / 131 mm
Weight approx.....	250 g
Weight incl. 4501 / 4511 (approx.).....	265 g / 350 g
DIN rail type.....	DIN EN 60715/35 mm
Wire size.....	0.13...2.08 mm ² AWG 26...14 stranded wire
Screw terminal torque.....	0.5 Nm
Vibration.....	IEC 60068-2-6 : 2007
Vibration: 2...13.2 Hz.....	±1 mm
Vibration: 13.2...100 Hz.....	±0.7 g

Common specifications

Supply voltage.....	19.2...31.2 VDC
Fuse.....	1.25 A SB / 250 VAC
Max. power consumption.....	≤ 3 W (2 channels)
Max. internal power dissipation.....	≤ 2 W (2 channels)
Isolation voltage, test / working:	
Input to any.....	2.6 kVAC / 300 VAC reinforced isolation
Analog output to supply.....	2.6 kVAC / 300 VAC reinforced isolation
Status relay to supply.....	1.5 kVAC / 150 VAC reinforced isolation
SMART bi-directional communication	
frequency range.....	0.5...7.5 kHz
Signal / noise ratio.....	> 60 dB
Response time (0...90%, 100...10%).....	< 5 ms
Accuracy.....	Better than 0.1% of selected range
mA, absolute accuracy.....	≤ ±16 µA
mA, temperature coefficient.....	≤ ±1.6 µA / °C
Effect of supply voltage change on output (nom. 24 VDC).....	< ±10 µA
EMC immunity influence.....	< ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst.....	< ±1% of span

Input specifications

Current input: Measurement range.....	3.5...23 mA
2-wire transmitter supply 9106B1x (U _o = 28 VDC).....	>16 V / 20 mA
2-wire transmitter supply 9106B2x (U _o = 25.6 VDC).....	>15 V / 20 mA
Sensor error detection: Loop break 4...20 mA.....	< 1 mA
Input voltage drop, supplied unit.....	< 4 V @ 23 mA
Input voltage drop, non-supplied unit.....	< 6 V @ 23 mA

Output specifications

Current output: Signal range.....	3.5...23 mA
Load (max.).....	20 mA/600 Ω/12 VDC
Load stability, current output.....	≤0.01% of span / 100 Ω
Current limit.....	≤ 28 mA
Effect of external 2-wire supply voltage variation.....	< 0.005% of span / V
Max. load resistance [Ω].....	(V _{supply} - 3.5) / 0.023 A
Max. external 2-wire supply.....	26 VDC
Status relay output terminal 33-34: Relay function.....	N.C.
Programmable low setpoint.....	0...29.9 mA
Programmable high setpoint.....	0...29.9 mA
Hysteresis for setpoints.....	0.1 mA
Max. voltage, status relay.....	110 VDC / 125 VAC
Max. current, status relay.....	0.3 ADC / 0.5 AAC
Max. voltage - hazardous installation.....	32 VDC / 32 VAC
Max. current - hazardous installation.....	1 ADC / 0.5 AAC
*of span.....	= normal measurement range 4...20 mA

Approvals

EMC.....	EN 61326-1
LVD 2006/95/EC.....	EN 61010-1
ATEX 2004/108/EC.....	DEKRA 11ATEX0244 X
IECEx.....	DEK 11.0084X
FM.....	0003044327-C
INMETRO.....	NCC 12.1302 X
UL.....	UL 61010-1
EAC TR-CU 020/2011.....	EN 61326-1
EAC Ex TR-CU 012/2011.....	RU C-DK.GB08.V.00410
DNV Marine.....	Stand. f. Certific. No. 2.4
CCOE.....	P337349/1
SIL.....	SIL 2 / SIL3 certified & fully assessed acc. to IEC 61508