PERFORMANCE MADE SMARTER



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
– 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.
- For duplication/migration purposes, the outputs can be sent to two different DCS/PLC/HMI or any monitoring system.
- In safety applications (SIL loops), the 9106BxB can be used as a splitter with the following output configuration:· When using 9106BxB in a SIL2 safety function, channel 1 is used for the safety loop. Channel 2 can be used for any non-safety device.· For higher safety purposes (SIL 3), 9106BxB can be used as a splitter for SIL 3 loops. Channel 1 and 2 are then connected to the same safety PLC, where channel 2 is used as a redundant diagnostic channel. (for more information, consult the FMEDA Report and the Safety Manual).

Advanced features

- The PR 4501 detachable display and the green and red front LEDs indicate operation status 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.

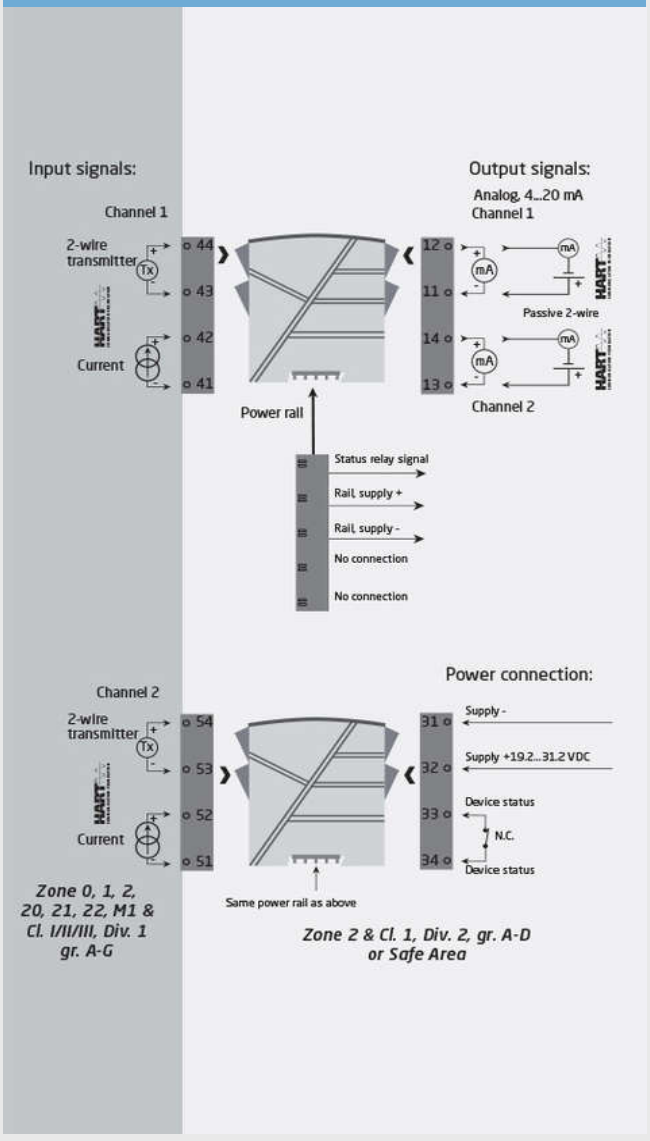
Technical characteristics

- 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 neighboring units.

Applications



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Order:

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

Environmental Conditions

Operating temperature..... -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
2...13.2 Hz..... ±1 mm
13.2...100 Hz..... ±0.7 g

Common specifications

Supply

Supply voltage..... 19.2...31.2 VDC
Fuse..... 1.25 A SB / 250 VAC
Max. required power..... ≤ 1.1 W / ≤ 1.9 W (1 ch. / 2 ch.)
Max. power dissipation, 1 / 2 ch..... ≤ 0.8 W / ≤ 1.2 W

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

Response time

Response time (0...90%, 100...10%)..... < 5 ms

SMART bi-directional communication frequency range..... 0.5...7.5 kHz
Signal / noise ratio..... > 60 dB
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 NE21, A criterion, burst..... < ±1% of span

Input specifications

Current input

Measurement range..... 3.5...23 mA
2-wire transmitter supply 9106B1x (Uo = 27.5 VDC)..... >16 V / 20 mA
2-wire transmitter supply 9106B2x (Uo = 25.3 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 (@ current output)..... ≤ 600 Ω
Load stability..... ≤ 0.01% of span / 100 Ω
Current limit..... ≤ 28 mA

Passive 2-wire mA output

Effect of external 2-wire supply voltage variation..... < 0.005% of span / V
Max. load resistance [Ω]..... (Vsupply-3.5)/0.023 A
Max. external 2-wire supply..... 26 VDC

Status relay

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..... 110 VDC / 125 VAC
Max. current..... 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

Observed authority requirements

EMC..... 2014/30/EU
LVD..... 2014/35/EU
RoHS..... 2011/65/EU
EAC..... TR-CU 020/2011

Approvals

ATEX 2014/34/EU..... DEKRA 11ATEX0244 X
IECEx..... DEK 11.0084X
FM..... 0003044327-C
INMETRO..... DEKRA 16.0001X
UL..... UL 61010-1
EAC Ex TR-CU 012/2011..... RU C-DK.GB08.V.00410
DNV-GL Marine..... Stand. f. Certific. No. 2.4
CCOE..... P337349/1
SIL..... SIL 2 / SIL 3 certified & fully assessed acc. to IEC 61508