PERFORMANCE MADE SMARTER



HART transparent repeater

9106A

– 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

- 9106A is a 1- or 2-channel isolated 1:1 repeater.
- 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.
- 9106A can be mounted in the safe area or in zone 2 / Class I, Division 2, Groups A, B, C, D.
- 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 9106AxBx can be used as a splitter with the following output configuration: • When using 9106AxBx 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), 9106AxBx 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 detachable display 45xx 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.
- Suitable for the use in systems up to Performance Level “d” according to ISO-13849.

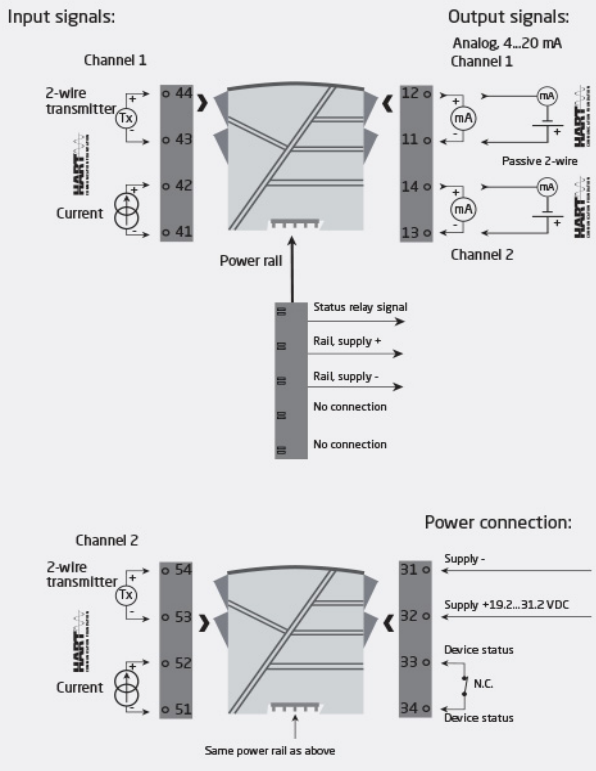
Technical characteristics

- 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.

Applications



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Order

Type	Barrier version	Unit channels	I.S. / Ex approvals
9106A	Uo = 27.5 V : 1 Uo = 25.3 V : 2	Single : A Double : B	ATEX, IECEx, FM, INMETRO, CCC, EAC-Ex : - cULus, ATEX, IECEx, FM, INMETRO, CCC, EAC-Ex : -U9

Example: 9106A2B

Remember to order short-circuit bridge(s) ST9106-01 when using the 9106 with no load on the output terminals.

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 & meas. / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD) ..... 109 x 23.5 x 104 mm
Dimensions (HxWxD) w/ 4501/451x ..... 109 x 23.5 x 116 / 131 mm
Weight approx ..... 250 g
Weight incl. 4501 / 451x (approx.) ..... 265 g / 280 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

Programming ..... PR 4500 communication interfaces
Signal dynamics, input ..... Analog signal chain
Signal dynamics, output ..... Analog signal chain
SMART bi-directional communication frequency range ..... 0.5...7.5 kHz
Signal / noise ratio ..... > 60 dB
Accuracy ..... Better than 0.1% of sel. 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 9106A1x ..... >16 V / 20 mA
2-wire transmitter supply 9106A2x ..... >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. 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 ..... 125 VAC / 110 VDC
Max. current ..... 0.5 AAC / 0.3 ADC
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
ATEX 2014/34/EU
RoHS 2011/65/EU
EAC ..... TR-CU 020/2011
EAC Ex ..... TR-CU 012/2011
EAC LVD ..... TR-CU 004/2011

Approvals

ATEX ..... DEKRA 11ATEX0244 X
c FM us ..... FM16US0465X / FM16CA0213X
c UL us, UL 61010-1 ..... E314307
c UL us, UL 913 ..... E233311 (only 9106xxx-U9)
CCC 2020322309003231
EAC Ex ..... RU C-DK.HA65.B.00355/19
DNV Marine TAA00000JD
ClassNK TA18527M
SIL ..... SIL 2 / SIL 3 certified & fully assessed acc. to IEC 61508