HART transparent driver

9107A

- 24 VDC supply via power rail or connectors
- Fast response time
- High active output load 725 Ohm / 20 mA
- Output line fault detection via status relay
- SIL2 certified via Full Assessment according to IEC 61508

Application

- 9107A is a 1- or 2-channel isolated 1:1 driver.
- Operation and drive control of I/P converters, valves and indicators.
- Operation of HART devices is possible as the unit transmits HART communication signals bi-directionally.
- 9107A can be mounted in the safe area or in zone 2 / Class I, Division 2, Groups A, B, C, D.
- The PR 45xx 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.
- Dual channel versions can be used for signal splitter applications - 1 in and 2 out.

Advanced features

- The PR 45xx detachable display and the green and red front LEDs indicate operation status for each channel.
- A tag number can be defined for each channel.
- Output line fault detection.
- In the 1-channel version the status relay can be used as a simple limit switch.
- Suitable for the use in systems up to Performance Level “d” according to ISO-13849.

Technical characteristics

- High galvanic isolation of 2.6 kVAC.
- High accuracy better than 0.1%.
- Continuous check of vital stored data for safety reasons.

Mounting

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

Applications

Output signals:

- Analog 4...20 mA

Input signals:

- Current 4...20 mA

Power connection:

- Supply 19.2...31.2 VDC
- Device status N.C.
- Same power rail as above
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: Pollution degree 2 & meas. / overvoltage cat. II

Mechanical specifications
Dimensions (HxWxD): 109 x 23.5 x 104 mm
Weight approx.: 250 g
Weight incl. 4501 / 451x: 265 g / 350 g
DIN rail type: DIN EN 60715/35 mm
Wire size: 0.13...2.06 mm² 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
Supplied voltage: 19.2...31.2 VDC
Fuse: 1.25 A SB / 250 VAC
Max. required power: ≤ 1.0 W / ≤ 1.8 W (1 ch. / 2 ch.)
Max. power dissipation, 1 / 2 ch. : ≤ 1.0 W / ≤ 1.8 W

Isolation voltage
Test /working: Input to any: 2.6 kVAC / 300 VAC
Analog output to supply: 2.6 kVAC / 300 VAC
Status relay to supply: 1.5 kVAC / 150 VAC

Response time
Response time (0...90%, 100...10%): < 5 ms
Programming: PR 45xx
Signal dynamics, input: Analog signal chain
Signal dynamics, output: Analog signal chain
HART 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: ≤ ±1.8 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
Sensor error detection: Loop break 4...20 mA: < 1 mA
Input voltage drop, supplied unit: < 2 V @ 23 mA
Input voltage drop, non-supplied unit: < 4 V @ 23 mA

Output specifications
Current output
Signal range: 3.5...23 mA
Load (@ current output): ≤ 725 Ω
Load stability: ≤ 0.01% of span / 100 Ω
Current limit: ≤ 28 mA

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: TR-CU 004/2011
LVD: TR-CU 020/2011
ATEX: TR-CU 012/2011
EAC Ex: TR-CU 004/2011

Approvals
ATEX: PR 14ATEX0101 X
c FM us: FM16US0465X / FM16CA0213X
c UL us, UL 61010-1: E314307
c UL us, UL 913: E233311 (only 9107xx-U9)
DIN-GL Marine: TA000000JD
ClassNK: TA18527M

SiL: Sil 2 certified & fully assessed acc. to IEC 61508