Temperature / mA converter, EMPHASIS assessed

9113A-EMP

- Input for RTD, TC and mA
- Active / passive mA output via the same two terminals
- 1 or 2 channels
- EMPHASIS assessed instrument for nuclear industry
- SIL 2-certified via Full Assessment

Advanced features

- Configuration and monitoring by way of detachable display front (PR 4511/4501); process calibration and signal simulation.
- Copying of the configuration from one device to others of the same type via the display front.
- TC inputs can use either the internal CJC or a terminal with a built-in Pt100 sensor (PR 5910, channel 1 / PR 5913, channel 2) for higher accuracy.
- Advanced monitoring of internal communication and stored data.
- SIL 2 functionality is optional and must be activated in a menu point.

Application

- The device can be mounted in and receive signals from non-classified area and zone 2.
- Conversion and scaling of temperature (Pt, Ni and TC) and active current signals.
- 9113A-EMP has been designed, developed and certified for use in SIL 2 applications according to the requirements of IEC 61508.
- Suitable for the use in systems up to Performance Level “d” according to ISO-13849.

Technical characteristics

- 1 green and 2 red front LEDs indicate operation status and malfunction.
- 2.6 kVAC galvanic isolation between input, output and supply.
- Can be supplied separately or installed on power rail, PR type 9400.

Mounting

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

Applications

- Input signals:
  - Channel 1
  - Current
  - TC Connection, wires
  - RTD Connection, wires

- Output signals:
  - Analog 0/4…20 mA
  - Channel 2
  - 2-wire supply
  - Channel 1
  - 2-wire supply

- Power connection:
  - Supply
  - +16…+36 V DC
  - +24V DC
  - Fused
  - IEC 60335-1

- Zones:
  - Zone 2
  - Class 1
  - Div. 2
  - Ex d
  - or Safe Area
### 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

### Mechanical specifications
- **Dimensions (HxWxD)**: 109 x 23.5 x 104 mm
- **Weight approx**.: 250 g
- **Weight incl. 4501 / 451x** (approx.):
  - 265 g / 350 g
- **DIN rail type**:
  - DIN EN 60715/35 mm
- **Wire size**:
  - < 0.002 Ω / Ω
- **Screw terminal torque**:
  - 0.5 Nm
- **Vibration**:
  - IEC 60068-2-6
- **Fusion**:
  - 400 mA SB / 250 VAC

### Common specifications
- **Supply voltage**:
  - 19.2...31.2 VDC
- **Max. required power**:
  - ≤ 0.8 Wh / 1 W (1 ch./2 ch.)
- **Max. power dissipation**:
  - ≤ 0.8 W / ≤ 1.4 W
- **Fuse**:
  - 400 mA SB / 250 VAC
- **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**:
  - Temperature input, programmable
  - Temperature input, non-programmable
  - mA / V input (programmable)
- **Programming**:
  - PR 45xx
- **Signal / noise ratio**:
  - Min. 60 dB (0...100 kHz)
- **Signal dynamics**:
  - 16 bit
- **Accuracy**:
  - Better than 0.1% of sel. range
- **EMC immunity influence**:
  - < ±0.5% of span
- **Extended EMC immunity**:
  - NAMUR NE21, A criterion, burst
  - < ±1% of span

### Input specifications
- **RTD input**:
  - **RTD type**:
    - Pt10/20/50/100/200/250/300/Pt100
    - Ni50/100/120/1000
  - **Cable resistance per wire**:
    - 50 Ω (max.)
  - **Sensor current**:
    - Nom. 0.2 mA
  - **Effect of sensor cable resistance**:
    - < 0.002 Ω / Ω
  - **Sensor error detection**:
    - Programmable ON / OFF

### Output specifications
- **Current output**:
  - Measurement range
  - Programmable measurement ranges
  - Input resistance
  - Sensor error detection

### Observed authority requirements
- **EMC**:
  - 2014/30/EU
  - UL 61010-1
  - RoHS:
  - 2011/65/EU
  - EAC:
  - TR-CU 020/2011

### Approvals
- **ATEX**:
  - KEMA 07ATEX0148 X
  - KEMA 09.0052X
  - UL 61010-1
  - DNV-GL Marine:
  - Stand. 1 Certific. No. 2.4
  - ClassNK:
  - TA18527M
  - SIL:
  - SIL 2 certified & fully assessed acc. to IEC 61508