

Field mounted HART temperature transmitter

7501



- RTD, TC, Ohm, and bipolar mV input and analog output
- High definition local operator interface (LOI) with 3 optical buttons
- Selectable red or white backlight
- Ex d explosion proof / flame proof
- HART 7 functionality with HART 5 compatibility



High definition display

- 0, 90, 180, & 270 degree position adjustments.
- Monitoring, programming and diagnostics view.
- Extensive diagnostics with flashing red or white backlight
- Supports 7 languages.

Local operator interface (LOI)

- 3 optical buttons; up, down and enter.
- Dynamically adaptive to wear or accumulation of dirt.
- Immune to interference from ambient light sources.
- Useable with or without gloves.

Configuration

- From the LOI through PR guided menu.
- PReset and HART modem.
- HHC, DCS or AMS via HART.

Mounting / installation

- For installation in zone 0, 1, 2 and zone 20, 21, 22, in mines M1 and in Class 1, Division 1 and 2 applications.
- Hardware assessed with SFF value of 69%.
- Mounting on 1.5"-2" pipe bracket or on wall / bulkhead.

Application

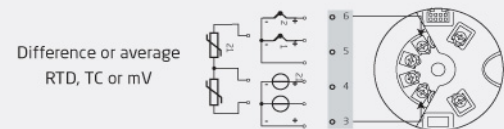
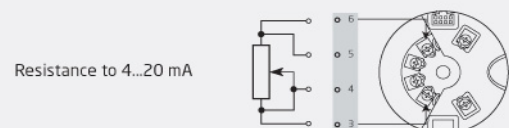
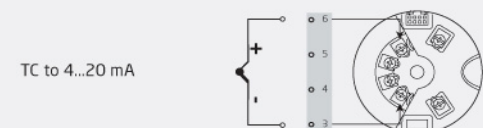
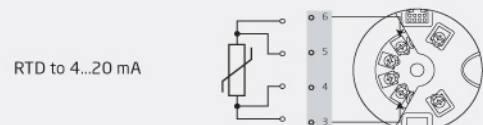
- Linearized temperature measurement with TC and RTD sensors e.g. Pt100 and Ni100.
- HART communication and 4...20 mA analog PV output for individual, difference or average temperature measurement of up to two RTD or TC input sensors.
- Conversion of linear resistance to a standard analog current signal, e.g from valves or Ohmic level sensors.
- Amplification of bipolar mV signals to standard 4...20 mA current signals.
- Up to 63 transmitters (HART 7) can be connected in a multidrop communication setup.

Technical characteristics

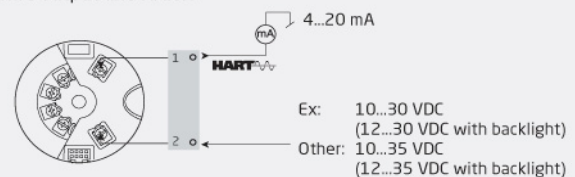
- NAMUR NE21, NE43 and NE89.
- HART protocol revision can be changed by user configuration to either HART 5 or HART 7 protocol.

Connections

Input signals:



2-wire output and HART:



Order

| Type | Housing | Local operator interface | | | O-ring | Conduit thread | Paint type | Transmitter | Approvals |
|------|-------------------------|--------------------------|---------|-----|-------------------|----------------|--------------------------|--------------------------------------|---------------------|
| | | Optical buttons | Display | | | | | | |
| 7501 | Low copper aluminum : A | No | No | : 1 | -40 to +85 °C : A | M20x1,5 6H : 1 | Epoxy : A | Yes : 1 | General purpose : 1 |
| | | No | Yes | : 2 | silicone rubber | ½ NPT mod : 2 | Epoxy + polyurethane : B | No (comes with a connection kit) : 2 | Hazardous area : 2 |
| | | Yes | Yes | : 3 | -20 to +85 °C : B | FKM rubber | | | |

Order example: 7501A3B1A12

Environmental Conditions

| | |
|------------------------------|---------------------------------------|
| Specifications range..... | -40°C to +85°C (with silicone O-ring) |
| Specifications range..... | -40°C to +85°C (with FKM O-ring) |
| Storage temperature..... | -40°C to +85°C |
| Calibration temperature..... | 20...28°C |
| Relative humidity..... | 0...100% RH (condensing) |
| Protection degree..... | IP54 / IP66 / IP68 |

Mechanical specifications

| | |
|-----------------------------|--|
| Dimensions..... | Ø 110 mm |
| Dimensions (HxWxD)..... | 109 x 145 x 125.5 mm |
| Weight approx..... | 1.3 kg |
| Wire size..... | 0.13 x 1.5 mm ² / AWG 26...16 stranded wire |
| Screw terminal torque..... | 0.4 Nm |
| Vibration..... | IEC 60068-2-6 : 2007 |
| Vibration: 2...25 Hz..... | ±1.6 mm |
| Vibration: 25...100 Hz..... | ±4 g |
| Display resolution..... | 96 x 64 pixels |
| Number of digits..... | 5 |
| Backlight..... | Selectable ON/OFF |
| Backlight color..... | Selectable white or red |

Common specifications

| | |
|---|-------------------------------------|
| Supply voltage, DC: Ex ia, intrinsically safe..... | 10 (12 - with backlight)...30 VDC |
| Supply voltage, DC: Other..... | 10 (12 - with backlight)...35 VDC |
| Isolation voltage, test / working..... | 1.5 kVAC / 50 VAC |
| Signal / noise ratio..... | > 60 dB |
| Communications interface..... | HART |
| Start-up time, transmitter to display..... | Max. 5 s |
| Response time (programmable)..... | 1...60 s |
| Long-term stability, better than..... | ±0.1% of span / Year |
| Accuracy..... | Better than 0.05% of selected range |
| EMC immunity influence..... | < ±0.1% of span |
| Extended EMC immunity: NAMUR NE 21, A criterion, burst..... | < ±1% of span |

Input specifications

| | |
|---|---|
| Max. offset..... | 50% of selected max. value |
| RTD input..... | Pt50, Pt100, Pt200, Pt500, Pt1000, Ni50, Ni100, Ni120, Ni1000 |
| Cable resistance per wire (max.), RTD..... | 5 Ω (up to 50 Ω per wire is possible with reduced measurement accuracy) |
| Sensor current, RTD..... | Nom. 0.2 mA |
| TC input: Thermocouple type..... | B, E, J, K, L, N, R, S, T, U, W3, W5, LR |
| Cold junction compensation (CJC)..... | Constant, internal or external via a Pt100 or Ni100 sensor |
| Voltage input: Measurement range..... | -800...+800 mV |
| Min. measurement range (span), voltage input..... | 2.5 mV |
| Input resistance, voltage input..... | 10 MΩ |

Output specifications

| | |
|--|------------------------------|
| Current output: Signal range..... | 4...20 mA |
| Min. signal range..... | 16 mA |
| Updating time..... | 440 ms |
| Load resistance, current output..... | ≤ (Vsupply - 10) / 0.023 [Ω] |
| Load resistance, with backlight..... | ≤ (Vsupply - 12) / 0.023 [Ω] |
| Sensor error indication, current output..... | Programmable 3.5...23 mA |
| NAMUR NE 43 Upscale/Downscale..... | 23 mA / 3.5 mA |
| HART protocol revisions..... | HART 5 and HART 7 |

Approvals

| | |
|----------------------------|----------------------|
| EMC..... | EN 61326-1 |
| ATEX 2004/108/EC..... | DEKRA 15 ATEX 0058 X |
| IECEX..... | IECEX DEK 15.0039 X |
| FM..... | 3055380 |
| DNV Marine..... | Yes |
| CSA..... | Yes |
| GL..... | Yes |
| EAC TR-CU 020/2011..... | EN 61326-1 |
| EAC Ex TR-CU 012/2011..... | Yes |
| INMETRO..... | Yes |
| NEPSI..... | Yes |



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