

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 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.

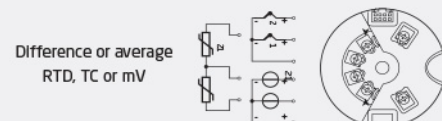
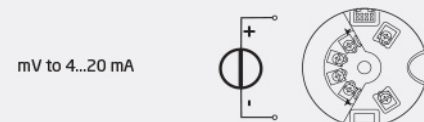
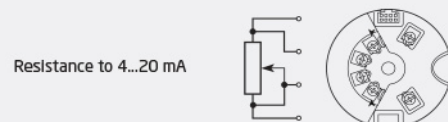
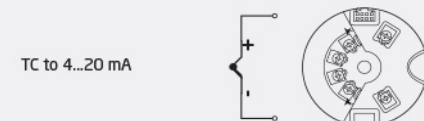
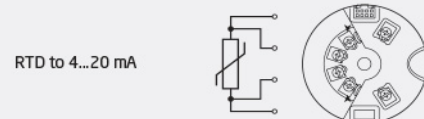
Technical characteristics

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

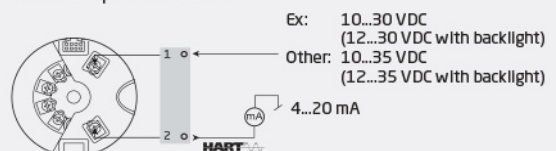
Connections

Input signals:

For full overview of Input connections, refer to manual



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 silicone rubber : A	M20x1.5 6H :1	Epoxy : A	Yes :1	General purpose :1 Hazardous area :2
		No	Yes	:2		-20 to +85°C FKM rubber : B			
		Yes	Yes	:3					

Example: 7501A3B1A12

Environmental Conditions

Specifications range.....	-40°C to +85°C (with silicone O-ring)
Specifications range.....	-20°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 / type 4X

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

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

Isolation voltage, test / working.....	1.5 kVAC / 50 VAC
--	-------------------

Response time

Response time (programmable).....	1...60 s
Signal / noise ratio.....	> 60 dB
Communications interface.....	HART
Start-up time, transmitter to display.....	Max. 5 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

Common input specifications

Max. offset.....	50% of selected max. value
------------------	----------------------------

RTD input

RTD type.....	Pt50, Pt100, Pt200, Pt500, Pt1000, Ni50, Ni100, Ni120, Ni1000
---------------	---

Cable resistance per wire (max.).....	5 Ω (up to 50 Ω per wire is possible with reduced measurement accuracy)
---------------------------------------	---

Sensor current.....	Nom. 0.2 mA
---------------------	-------------

Linear resistance input

Linear resistance min...max.....	0 Ω...7000 Ω
----------------------------------	--------------

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).....	2.5 mV
Input resistance.....	10 MΩ

Output specifications

Current output

Signal range.....	4...20 mA
Min. signal range.....	16 mA
Load resistance.....	≤ (Vsupply - 10) / 0.023 [Ω]
Load resistance, with backlight.....	≤ (Vsupply - 12) / 0.023 [Ω]
Sensor error indication.....	Programmable 3.5...23 mA
NAMUR NE 43 Upscale/Downscale.....	23 mA / 3.5 mA

Common output specifications

Updating time.....	440 ms
--------------------	--------

HART protocol revisions.....	HART 5 and HART 7
------------------------------	-------------------

Approvals

EMC.....	2004/108/EC
EAC.....	TR-CU 020/2011
RoHS.....	2001/695/EU
EU RO Mutual Recognition Type Approval.....	MRA0000009
ATEX 94/9/EC.....	DEKRA 15 ATEX 0058 X
IECEX.....	IECEX DEK 15.0039 X
FM.....	3055380
CSA.....	70024231
EAC Ex TR-CU 012/2011.....	RU C-DK.GB08.V.01316
INMETRO.....	DEKRA 15.0014 X
NEPSI.....	GYJ15.1336X, GYJ15.1337X and GYJ15.1338X