PERFORMANCE MADE SMARTER

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 in aluminum or 316 stainless steel version
- HART 7 functionality with HART 5 compatibility

High defintion 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.

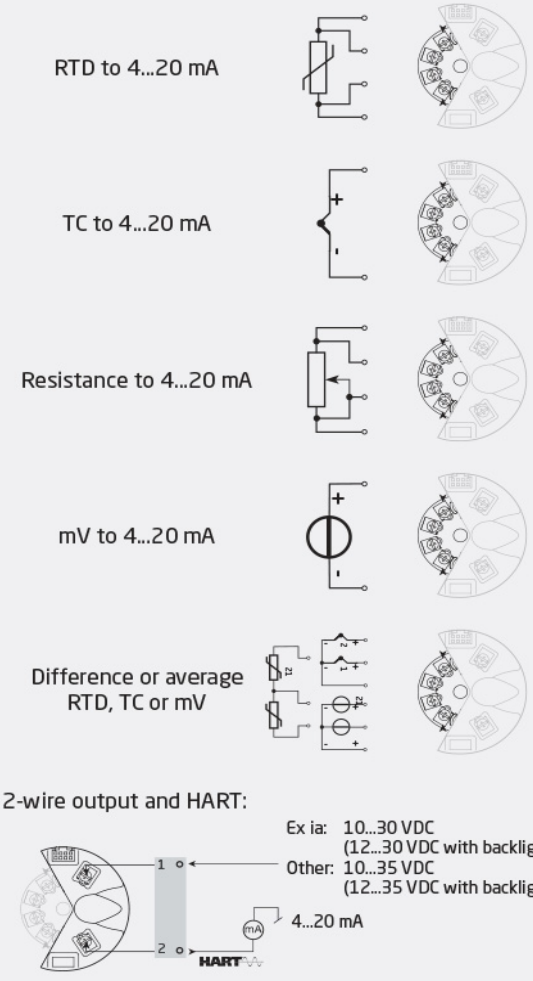
Mounting / installation
- For installation in zone 0, 1, 2 and zone 21, 22 and in Class 1, Division 1 and 2 applications.
- The 7501 provides the required failure data (SFF and PFDAVG) for SIL applications as per IEC 61508 / IEC 61511.
- Mounting on 1.5”–2” pipe bracket or on wall / bulkhead.

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.

Applications

Input signals: For full overview of input connections, refer to manual



This page is automatically generated on the basis of information provided on www.prelectronics.com and affiliated websites. It is provided to you as a service and for information purpose only. While we have attempted to maintain the information as accurately as possible, the page may contain errors or omissions for which we disclaim any and all liability

Order

Type	Housing	Local operator interface: Optical buttons	Local operator interface: Display	O-ring	Conduit thread (D1, D2 & D3)	Paint type	Transmitter	Approvals	Cover color	Additional approvals	
7501	Low copper aluminum (AL) : A	No	No : 1	-40 to +85°C silicone rubber : A	M20x1.5 6H : 1	Epoxy : A	Yes : 1	General purpose : 1	Red : -	Marine	: M
		No	Yes : 2	-20 to +85°C FKM rubber : B	½ NPT mod. : 2	Epoxy + polyurethane : B	No (comes with a connection kit) : 2	Hazardous area : 2			
		Yes	Yes : 3								
		Yes	Yes : 3				Yes : 1	Hazardous area : 2	Gray : GY		
7501	316 Stainless steel (RF) : B	No	Yes : 2	-40 to +85°C silicone rubber : A	M20x1.5 6H : 1	None : N	Yes : 1	General purpose : 1	Steel : -	Marine	: M
		Yes	Yes : 3	-20 to +85°C FKM rubber : B	½ NPT mod. : 2		No (comes with a connection kit) : 2	Hazardous area : 2			

Environmental Conditions

Operating temperature..... -40°C to +85°C (with silicone O-ring)
Operating temperature..... -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
Corrosion class 7501AxxxBxxxx / durability..... C5-I/M / 5...15 years

Mechanical specifications

Dimensions..... Ø 110 mm
Dimensions (HxWxD), aluminum..... 109.3 x 145 x 126 mm
Dimensions (HxWxD), stainless steel..... 107.4 x 145 x 124 mm
Weight approx., aluminum / stainless steel..... 1.3 / 2.8 kg
Wire size..... 0.13 x1.5 mm^2 / AWG 26...16 stranded wire
Screw terminal torque..... 0.4 Nm
Vibration..... IEC 60068-2-6
2...25 Hz..... ±1.6 mm
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
Programming..... 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
Signal dynamics, input..... 22 bit
Signal dynamics, output..... 16 bit
EMC immunity influence..... < ±0.1% of span
Extended EMC immunity: NAMUR NE21, A criterion, burst..... < ±1% of span

Input specifications

Common input specifications

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

RTD input

RTD type..... Pt50/100/200/500/1000; Ni50/100/120/1000
Cable resistance per wire..... 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 (@ current output)..... ≤ (Vsupply - 10) / 0.023 [Ω]
Load resistance, with backlight..... ≤ (Vsupply - 12) / 0.023 [Ω]
Sensor error indication..... Programmable 3.5…23 mA
NAMUR NE43 Upscale/Downscale..... 23 mA / 3.5 mA

Common output specifications

Updating time..... 440 ms
HART protocol revisions..... HART 7 and HART 5

Observed authority requirements

EMC..... 2014/30/EU & UK SI 2016/1091
ATEX..... 2014/34/EU & UK SI 2016/1107
RoHS..... 2011/65/EU & UK SI 2012/3032
EAC..... TR-CU 020/2011
EAC Ex..... TR-CU 012/2011

Approvals

ATEX..... DEKRA 15ATEX0058X
IECEx..... IECEx DEK 15.0039 X
c FM us..... FM16US0009X / FM16CA0010X
CSA..... 70024231
INMETRO..... DEKRA 23.0012 X
NEPSI..... GYJ20.1630X
EU RO MR Type Approval..... MRA0000009
EAC Ex..... EAEU KZ 7500361.01.01.08756
SIL..... Hardware assessed for use in SIL applications