PR electronics

BURNS ENGINEERING

Field mounted HART temperature transmitter

Burns Model T75 (PR 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 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 20, 21, 22 and in Class 1, Division 1 and 2 applications.
- Hardware assessed for use in SIL 2 applications.
- Mounting on 1.5”–2” pipe bracket or on wall / bulkhead.

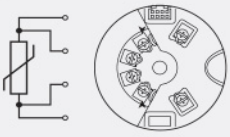
Application
- Linearized temperature measurement with TC and RTD sensors e.g. Pt100 and Ni100.
- HART communication and 4...20 mA analog PV output for individual, difference or average temperature measurement of up to two RTD or TC input sensors.
- Conversion of linear resistance to a standard analog 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.

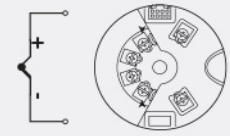
Connections

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

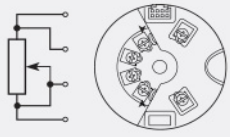
RTD to 4...20 mA



TC to 4...20 mA

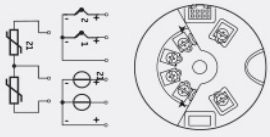


Resistance to 4...20 mA

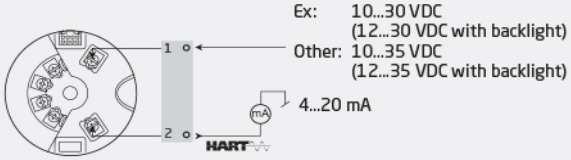


mV to 4...20 mA

Difference or average RTD, TC or mV



2-wire output and HART:



Model T75:

- Transmitter with Integrated Display
- Aluminum Epoxy Coated Housing
- Local Interface via Optical Buttons
- Silicone O-ring (-40°C to 85°C)
- ½" NPT Sensor & Service Ports
- Hazardous Location Approved

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 x1.5 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
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 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 (@ 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 NE 43 Upscale/Downscale	23 mA / 3.5 mA

Common output specifications

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

Observed authority requirements

EMC	2014/30/EU

Approvals

EAC	TR-CU 020/2011
EU RO Mutual Recognition Type Approval	MRA0000009
ATEX 2014/34/EU	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

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