

2018

# CATÁLOGO DE INGLÉS

PTH 301 H



## TEMPREATURE TRANSMITTER HART

[www.petrotecho.es](http://www.petrotecho.es)



## PTH Temperature Field-Mounted Transmitter PTH301H with HART Protocol



### Application Area

Field mounted temperature transmitter PTH301H with HART- protocol for converting a wide variety of input signals from Resistance Temperature Devices (RTDs) with 2-, 3-, and 4-wire connection and Thermocouples (TCs) into a scalable 4 to 20 mA analogue output signal.

### Input Types

This Transmitter can be used with a wide variety of temperature sensors, including 2-, 3-, and 4-wire RTDs, most popular thermocouples. The following is a general list of transmitter input types:

- Platinum RTDs, 2-, 3-, and 4-wire
- Copper RTDs
- Nickel RTDs
- Thermocouples



- High Performance and Accuracy in total ambient temperature range
- Digital Communication and Universal configuration with HART protocol communicator or PC-based configuration
- Self-diagnostics function ensures long-term performance and lower cost of ownership
- High Resolution LCD display and a bar-graph with an indicator for alarms
- 2-wire technology, Loop-powered 4-20mA temperature Transmitter analogue output with HART protocol
- Supporting internal cold junction compensation for Thermocouples
- Wide voltage supply range from 9V DC without load up to 15V DC with 250  $\Omega$  load



## Technical Data

| Power Supply   |                 |   |                           |
|--|-----------------|---|---------------------------|
| Supply Voltage   | Minimum         | 9V DC without load<br>15V DC with 250Ω load                                   |                           |
|  | Maximum         | 36V DC  |                           |
| Output   |                 |   |                           |
| Output Signal  |                 | 4 to 20 mA  |                           |
| Signal on Alarm  |                 | Sensor break , Short circuit:3.85mA<br>Under Range 3.9 mA<br>Over Range 21 mA |                           |
| Load   |                 | Max. 23mA   |                           |
| Transmission Behavior                                  |                 | Loop Current Linear in Input Range  |                           |
| Input Types and Ranges                                 |                 |   |                           |
| Input Sensor   | Type            | Measurement Range   | Minimum Resistance Ranges |
| Resistor Temperature Device (RTD)                      | PT100           | -200°C to 850°C (-328°F to 1562°F)  | 10K                       |
|  | PT200           | -40°C to +649°C (-40°F to +1200°F)  | 10K                       |
|  | PT500           | -200°C to 250°C (-328°F to 482°F)   | 10K                       |
|  | PT1000          | -200°C to 250°C (-328°F to 482°F)   | 10K                       |
| Thermocouple   | B(PtRh30-PtRh6) | 0 to 1820 °C (-32°F to 3308 F)  | 500K                      |
|  | E(NiCr-CuNi)    | -270°C to 1000°C (-454°F to 1832°F)   | 50K                       |
|  | J(Fe-CuNi)      | -210°C to 1200°C (-346°F to 2192°F)   | 50K                       |
|  | K(NiCr-Ni)      | -270 °C to 1372°C (-454°F to 2501°F)  | 50K                       |
|  | N(NiCrSi-NiSi)  | -270 to 1300°C (-454°F to 2372°F)   | 50K                       |
|  | R(PtRh13-Pt)    | -50 to 1768°C ( -58°F to 3214.4°F)  | 500K                      |
|  | S(PtRh10-Pt)    | -50 to 1768°C (-58°F to 3214.4°F)   | 500K                      |
|  | T(Cu-CuNi)      | -270 to 400°C (-454°F to 752°F)   | 50K                       |
| Input Connections                                      |                 |   |                           |
| Connection of sensors for resistance (RTD) measurement |                 | 2, 3 & 4 wire connections   |                           |
| Thermocouple Temperature compensation                  |                 | Internal  |                           |
|  |                 |   |                           |

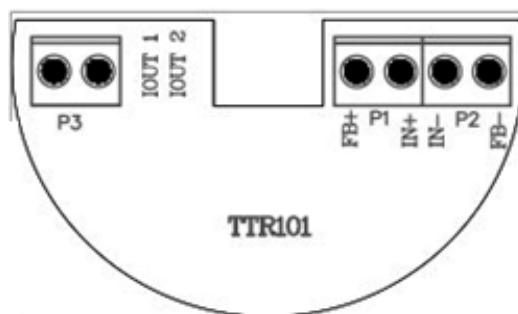


| Performance Characteristic                    |                             |  |
|---|-----------------------------|--|
| Accuracy                                      |                             | $\pm 0.1^{\circ}\text{C}$ to $\pm 1^{\circ}\text{C}$ according to sensor type  |
| Stability                                     | RTD (for 24 month)          | $\pm 0.2\%$ of output reading or $\pm 0.2^{\circ}\text{C}$ (whichever is greater)                                      |
|   | Thermocouple (for 12 month) | $\pm 0.3\%$ of output reading or $\pm 0.5^{\circ}\text{C}$ (whichever is greater)                                      |
| 5 Years Stability                             | RTD                         | $\pm 0.5\%$ of output reading or $\pm 0.5^{\circ}\text{C}$ (whichever is greater)                                      |
|   | Thermocouple                | $\pm 0.7\%$ of output reading or $\pm 1^{\circ}\text{C}$ (whichever is greater)  |
| Noise suppression for noise frequency         |                             | 50/60 Hz   |
| Update time                                   |                             | < 0.5 sec  |
| Response Time                                 |                             | 2 sec  |
| Switch on Delay                               |                             | 3 sec  |
| Influence of Ambient                          |                             | Negligible   |
| Load Influence                                |                             | Negligible   |
| Power Supply Influence                        |                             | Negligible   |
| Resolution                                    |                             | 1 $\mu\text{A}$  |
| Electromagnetic Compatibility (EMC) standards |                             |  |
| Electromagnetic Compatibility (EMC) standards |                             | IEC/EN 61326-1: 2006<br>IEC/EN 61326-2-3: 2006   |
| EMC   | ESD                         | 4KV Contact<br>8KV Air   |
|   | Radiated                    | 80-1000MHz @ 10V/m AM  |
|   | Burst                       | 1KV  |
|   | Surge                       | 0.5KV Line-Line<br>1KV Line-Earth  |
|   | Conducted                   | 150KHz to 80MHz @ 10V  |
|   | Magnetic                    | 50Hz @ 30A/m   |
|   | Emission                    | 30-230MHz, 30dB (uV/m) @ 10m<br>230-1000MHz, 37dB (uV/m) @ 10m   |
| Vibration Effect                              |                             | 10 to 60 Hz : 0.21mm peak Displacement<br>60 to 500 Hz : 3g  |
| Operating Temperature                         |                             | Without LCD: $-40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$<br>With LCD: $-20^{\circ}\text{C}$ to $60^{\circ}\text{C}$ |
| Relative humidity                             |                             | 0% to 95%  |
| Protection rating (Enclosure)                 |                             | IP66   |

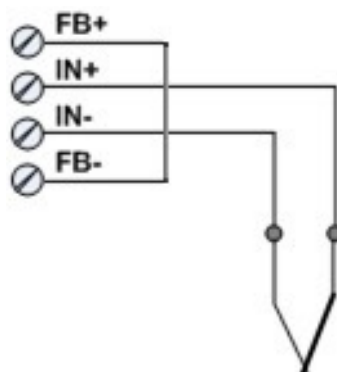
| Others        |  |
|---------------|--|
| Display Type  | Graphical Display, 8×17 Characters, 102x64 Pixels, FSTN Pos. Transflective |
| Weight        | Approx. 1,100 g  |
| Display Range | Temperature :-9999.9 Current : 99.999                                      |
| Materials     | Aluminum die cast  |

## Electrical Connection of Sensors

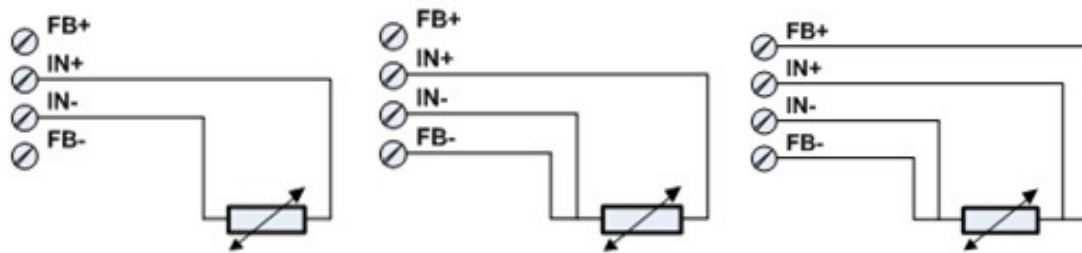
### 1. Diagram of connectors on the PTH301H



### 2. Thermocouple (TC) connection



### 3. RTD Connections (2-, 3- and 4-wire)



### 4. Electrical Field Connection Diagram

