

**Description & Features:**

- Integrated temperature transmitter with ASIC signalling transmitter
- Explosion proof smart temperature transmitter for hazardous locations
- -50 to 400°C (-58/752°F) measure range
- 0.5% accuracy
- Simple to operate 3-push button control
- HART or Modbus communications available
- Low power option available
- Re-zero function for safe field calibration
- 5 Year Warranty

**Applications:**

- TY52 can be utilized and installed anywhere where temperature measurement is required. From Oil & Gas installations to Power Generation, this product has a rugged design and is equipped with the communication protocols to meet all your day to day requirements

**Specifications**

|                                    |                                                                                                                                                                                                                                                                      |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Output Signal</b>               | 4/20 mA, 2-wire / V = 10.5-30 Vdc<br>4/20 mA + HART, 2-wire / V = 16.5-55 Vdc<br>1/5 Vdc, 3-wire / V = 12-30 Vdc<br>Modbus, 4-wire / V = 12-32 Vdc                                                                                                                   |
| <b>Sensor Type</b>                 | PT100 RTD                                                                                                                                                                                                                                                            |
| <b>Measuring Range</b>             | -50/400°C (-58/752°F)                                                                                                                                                                                                                                                |
| <b>LCD Display</b>                 | LCD display (standard) or without LCD display (optional)                                                                                                                                                                                                             |
| <b>Accuracy</b>                    | 0.5% accuracy                                                                                                                                                                                                                                                        |
| <b>Stability</b>                   | 0.05% or 0.1°C / year                                                                                                                                                                                                                                                |
| <b>Temperature Ranges</b>          | Working: -40/85°C, -40/185°F (LCD may not be readable at temperatures below -20°C/ -4°F)<br>Storage: -40/100°C (with display -20/70°C), -40/212°F (without display -4/158°F)                                                                                         |
| <b>Working Humidity</b>            | 0-95%                                                                                                                                                                                                                                                                |
| <b>Pressure Connection</b>         | 1/2" NPTM, 1/2 GM or Flanged                                                                                                                                                                                                                                         |
| <b>Housing</b>                     | Rugged die-cast aluminum housing, painted blue                                                                                                                                                                                                                       |
| <b>Wetted Parts</b>                | 316 SS, 304 SS                                                                                                                                                                                                                                                       |
| <b>Power Consumption</b>           | =500 mW @ 24 VDC, 20.8 mA (LCD); <=493mW @ 24VDC, 20.55mA (without LCD)                                                                                                                                                                                              |
| <b>Wake Up Time</b>                | 6 seconds                                                                                                                                                                                                                                                            |
| <b>Vibration</b>                   | 4g, 2...100Hz<br>According to IEC 60068-2-6                                                                                                                                                                                                                          |
| <b>Available Temperature Units</b> | Celsius (°C), Fahrenheit (°F)                                                                                                                                                                                                                                        |
| <b>Protection Class</b>            | EMI, ESD, RFI, reverse polarity protected; Surge protection IEC1000-4-5                                                                                                                                                                                              |
| <b>Approval</b>                    | <ul style="list-style-type: none"> <li>• Class I, Division 1, Groups A, B, C &amp; D, T6... T1</li> <li>• Class I, Division 2, Groups A, B, C &amp; D, T4...T1</li> <li>• Class II, Division 1, Groups E, F &amp; G, T80°C... T400°C</li> <li>• Class III</li> </ul> |
| <b>Protection Class</b>            | IP66                                                                                                                                                                                                                                                                 |

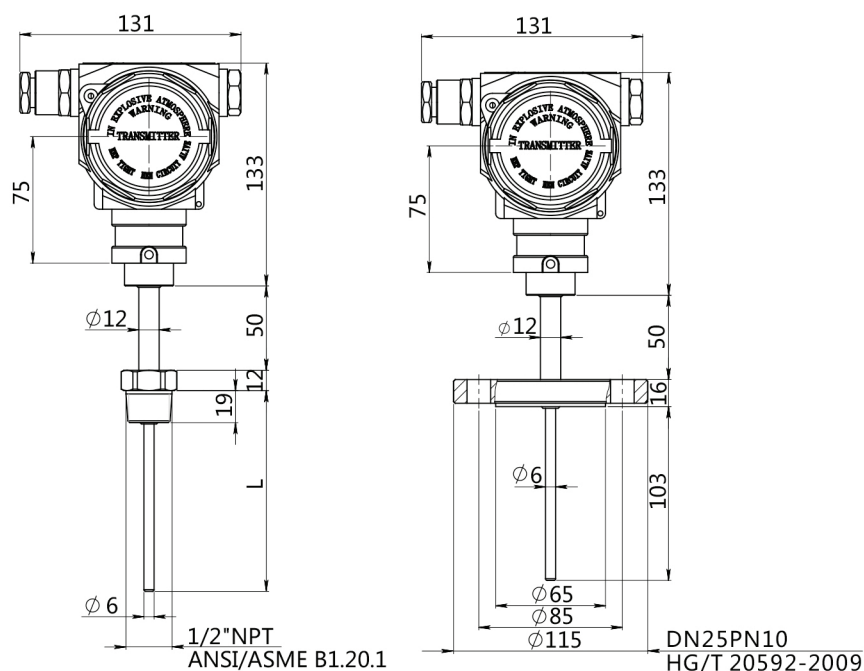
**Please Note:** Thermowell sold separately.

## Order Codes

| Insertion Length<br>(INCH), 1/2" NPT | 4/20 mA Output | 4/20 mA + HART Output | 1/5 VDC Output | MODBUS RS485 Output |
|--------------------------------------|----------------|-----------------------|----------------|---------------------|
|                                      | °C/°F          |                       |                |                     |
| 50mm (2")                            | TY520501       | TY52050H              | TY520502       | TY52050R            |
| 100mm (4")                           | TY521001       | TY52100H              | TY521002       | TY52100R            |
| 150mm (6")                           | TY521501       | TY52150H              | TY521502       | TY52150R            |
| 200mm (8")                           | TY522001       | TY52200H              | TY522002       | TY52200R            |
| 300mm (12")                          | TY523001       | TY52300H              | TY523002       | TY52300R            |

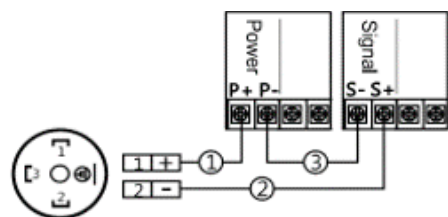
See how to order guide for specific lengths      L= Insertion length

### Dimensions (mm)



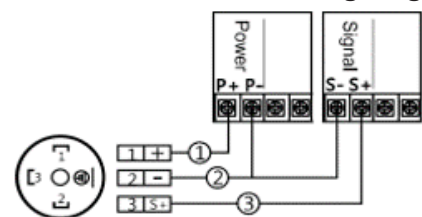
## Pin Configurations

**4-20mA two wires (DIN43650)**



- ① Connect the positive power supply (P+) to the positive power supply (P+) of temperature transmitter (terminals 1);
- ② Connect the negative power supply (P-) of temperature transmitter (terminals 2) to the positive signal module (S+);
- ③ Connect the negative signal module (S-) to the negative power supply (P-)

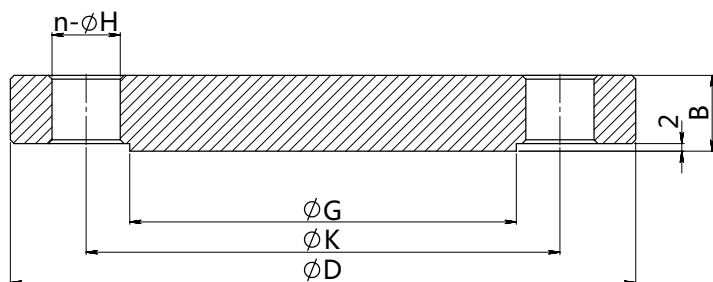
### Three wires current/voltage signal (DIN43650)



- ① Connect the positive power supply (P+) to the positive power supply (P+) of temperature transmitter (terminals 1);
- ② Connect the negative power supply (P-) of temperature transmitter (terminals 2) to the negative power supply (P-), and connect the negative signal module (S-) to negative power supply (P-);
- ③ Connect the positive signal module (S+) of temperature transmitter (terminals 3) to the positive signal module (S+);

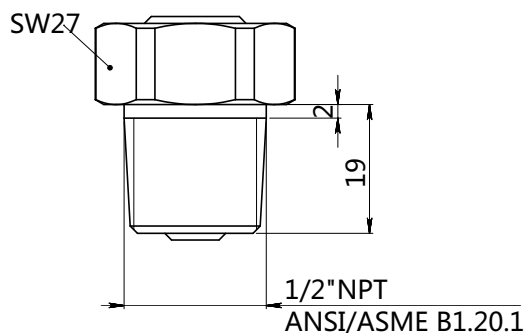
## Process Connections

H01-H02 (mm)

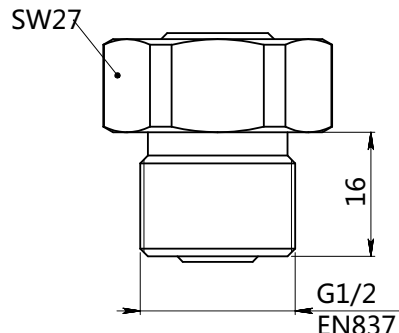


| Standard         | Specification             | Outer Diameter (φD) | Thickness (B) |
|------------------|---------------------------|---------------------|---------------|
| HG/T20592-2009   | DN50PN10-PN40             | 165                 | 20            |
| HG/T20592-2009   | DN25PN10-PN40             | 115                 | 16            |
| Hole Circle (φK) | Raised-face Diameter (φG) | Hole Diameter (φH)  | Number (n)    |
| 125              | 102                       | 18                  | 4             |
| 85               | 68                        | 14                  | 4             |

R01 (mm)



G01 (mm)



See how to order guide for specific lengths.

## Order Codes (For Thermowell)

## TY52 Series Thermowell selection, 304SS Material (Straight - Type)

| TY52<br>Insertion<br>Length | Threaded-Type, Instrument<br>Connection = 1/2" NPT |                                    | Flanged-Type, Instrument connection = 1/2" NPT |                |                 |                 |
|-----------------------------|----------------------------------------------------|------------------------------------|------------------------------------------------|----------------|-----------------|-----------------|
|                             | Process<br>Connections -> 1/2" NPT                 | Process<br>Connections -> 3/4" NPT | RF - Raised<br>Face 150# 1.5"                  | 150# 2"        | 300# 1.5"       | 300# 2"         |
| 50mm (2")                   | TY52T10N24L020                                     | TY52T10N34L020                     | TY52T154A4L020                                 | TY52T154A6L020 | TY52T154A12L020 | TY52T154A14L020 |
| 100mm (4")                  | TY52T10N24L050                                     | TY52T10N34L050                     | TY52T154A4L050                                 | TY52T154A6L050 | TY52T154A12L050 | TY52T154A14L050 |
| 150mm (6")                  | TY52T10N24L100                                     | TY52T10N34L100                     | TY52T154A4L100                                 | TY52T154A6L100 | TY52T154A12L100 | TY52T154A14L100 |
| 200mm (8")                  | TY52T10N24L200                                     | TY52T10N34L200                     | TY52T154A4L200                                 | TY52T154A6L200 | TY52T154A12L200 | TY52T154A14L200 |
| 300mm (12")                 | TY52T10N24L300                                     | TY52T10N34L300                     | TY52T154A4L300                                 | TY52T154A6L300 | TY52T154A12L300 | TY52T154A14L300 |
| 400mm (16")                 | TY52T10N24L400                                     | TY52T10N34L400                     | TY52T154A4L400                                 | TY52T154A6L400 | TY52T154A12L400 | TY52T154A14L400 |
| 500mm (18")                 | TY52T10N24L500                                     | TY52T10N34L500                     | TY52T154A4L500                                 | TY52T154A6L500 | TY52T154A12L500 | TY52T154A14L500 |

Note: Inside diameter (bore) fixed at 6.6mm + Outside diameter fixed at 10mm + Tip diameter fixed at 6mm (threaded) L= Insertion length includes instrument connection

## TY52 Series Thermowell selection, 316SS Material (Straight - Type)

| TY52<br>Insertion<br>Length | Threaded-Type, Instrument<br>Connection = 1/2" NPT |                                    | Flanged-Type, Instrument connection = 1/2" NPT |                |                 |                 |
|-----------------------------|----------------------------------------------------|------------------------------------|------------------------------------------------|----------------|-----------------|-----------------|
|                             | Process<br>Connections -> 1/2" NPT                 | Process<br>Connections -> 3/4" NPT | RF - Raised<br>Face 150# 1.5"                  | 150# 2"        | 300# 1.5"       | 300# 2"         |
| 50mm (2")                   | TY52T10N26L020                                     | TY52T10N36L020                     | TY52T156A4L020                                 | TY52T156A6L020 | TY52T156A12L020 | TY52T156A14L020 |
| 100mm (4")                  | TY52T10N26L050                                     | TY52T10N36L050                     | TY52T156A4L050                                 | TY52T156A6L050 | TY52T156A12L050 | TY52T156A14L050 |
| 150mm (6")                  | TY52T10N26L100                                     | TY52T10N36L100                     | TY52T156A4L100                                 | TY52T156A6L100 | TY52T156A12L100 | TY52T156A14L100 |
| 200mm (8")                  | TY52T10N26L200                                     | TY52T10N36L200                     | TY52T156A4L200                                 | TY52T156A6L200 | TY52T156A12L200 | TY52T156A14L200 |
| 300mm (12")                 | TY52T10N26L300                                     | TY52T10N36L300                     | TY52T156A4L300                                 | TY52T156A6L300 | TY52T156A12L300 | TY52T156A14L300 |
| 400mm (16")                 | TY52T10N26L400                                     | TY52T10N36L400                     | TY52T156A4L400                                 | TY52T156A6L400 | TY52T156A12L400 | TY52T156A14L400 |
| 500mm (18")                 | TY52T10N26L500                                     | TY52T10N36L500                     | TY52T156A4L500                                 | TY52T156A6L500 | TY52T156A12L500 | TY52T156A14L500 |

Note: Inside diameter (bore) fixed at 6.6mm + Outside diameter fixed at 10mm + Tip diameter fixed at 6.4mm (flanged) L= Insertion length includes instrument connection

## Engineering Codes

**TY52 ENGINEERED PART NUMBERS**

|                                    |                                                                                                                                                                                                                                                                            |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>OUTPUT</b>                      | 4...20 mA / 2-wire<br>4...20 mA / 2-wire + HART<br>1...5 V, 3-wire<br>MODBUS RS485, 2-wire                                                                                                                                                                                 |
| <b>SENSOR &amp; ACCURACY</b>       | PT100, 0.5 % (standard)                                                                                                                                                                                                                                                    |
| <b>ELECTRICAL CONNECTION</b>       | Water proof M20x1.5 F, PVC, IP66<br>Flame proof 1/2" NPT F, SS, IP66 (standard)<br>Flame proof M20x1.5 F, SS, IP66                                                                                                                                                         |
| <b>EXTENSION TUBE</b>              | No Extension (standard)<br>50mm length, 12mm diameter, 316SS<br>100mm length, 12mm diameter, 316SS<br>150mm length, 12mm diameter, 316SS<br>200mm length, 12mm diameter, 316SS<br>Other, specify E6 thru E9                                                                |
| <b>PROCESS CONNECTION</b>          | 1/2" NPT (M) (standard)<br>G 1/2 (M)<br>Flange DN 25<br>Flange DN 50                                                                                                                                                                                                       |
| <b>PROCESS CONNECTION MATERIAL</b> | 304 SS (standard)<br>316 SS                                                                                                                                                                                                                                                |
| <b>OUTSIDE DIAMETER</b>            | 6mm (1/4"), material same as process connection (standard)<br>8mm, material same as process connection<br>10mm, material same as process connection<br>12mm, material same as process connection<br>16mm, material same as process connection<br>Other, specify D6 thru DZ |
| <b>Insertion Length, in MM</b>     | 50 (2")<br>100 (4")<br>150 (6")<br>200 (8")<br>300 (12")<br>400 (16")<br>500 (18")<br>Special (1m/39.4" max)                                                                                                                                                               |
| <b>SPECIAL</b>                     | Without LCD display<br>Moveable process connection<br>Other, specify Z1 thru Z99                                                                                                                                                                                           |

[illegible]

