

## AST 20 Series

“-195...+650°C Measuring Range, 15-1000 mm Immersion Length, Analog or RTD Output”



- Selectable measuring range from -195 to +650 °C (Optional others)
- Resistant up to 200Bar (for higher pressures please ask)
- Immersion length options ranging from 15 mm to 1000 mm
- 0-20 mA, 4-20mA, 0-5V, 0-10V, 1-5V analog output or RTD (PT100, PT1000) output options
- G1/4, G1/2, NPT1/4, NPT1/2, M14x1, M20x1,5 etc. process connection options
- 304 stainless steel housing
- Easy installation and use

The AST 20 series high temperature transmitter is designed for precise temperature measurement of liquid and gaseous media in the range of -195 to +650 °C.

The detection principle is based on the variation of the electrical resistance of the conductor with temperature. The resistance signal receiving from the RTD element is converted into various analog output signals (4-20 mA, 0-10V etc.) and integrated into automation systems.

It has a wide range of user-selectable specifications such as measuring range, process connection type, immersion length, output signal, connector type etc.

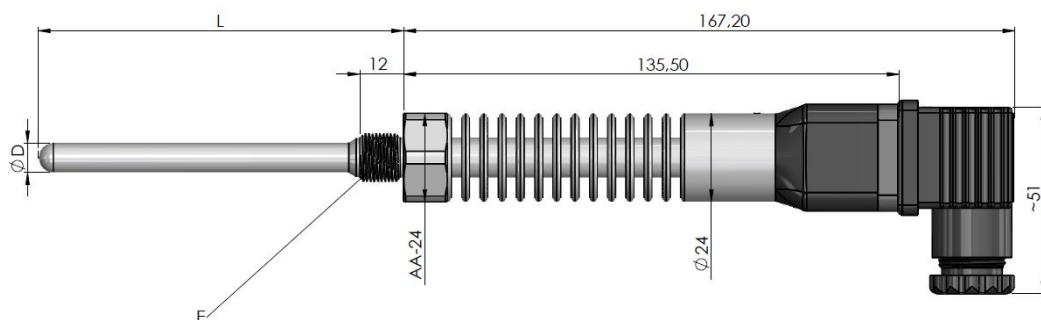
## APPLICATIONS

- Machines
- Tanks
- Boilers
- Gas and liquid fluids
- Surface temp. measurement
- Ambient temp. measurement



## MECHANICAL DIMENSIONS (mm)

### DIN43650-A CONNECTOR



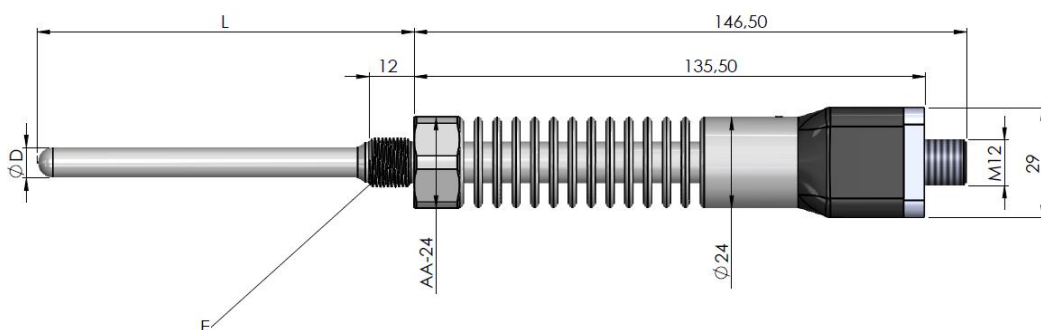
- E :** Process connection  
**L :** Immersion length  
**ØD :** Immersion diameter

\* For dimensions, see Technical specifications

The rotation angle of the connector is maximum 340°.



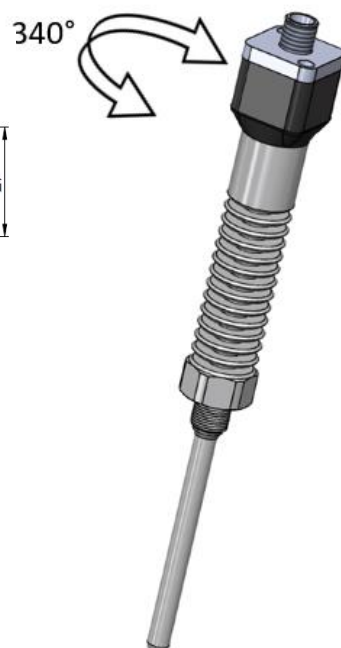
### M12 CONNECTOR



- E :** Process connection  
**L :** Immersion length  
**ØD :** Immersion diameter

\* For dimensions, see Technical specifications

The rotation angle of the connector is maximum 340°.



## TECHNICAL SPECIFICATIONS

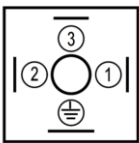
|                                    |                                                              |                       |            |          |                                    |
|------------------------------------|--------------------------------------------------------------|-----------------------|------------|----------|------------------------------------|
| <b>Sensor</b>                      | PT100, PT1000 (Class B EN60751)                              |                       |            |          |                                    |
| <b>Measuring range</b>             | -195 ... +650 °C / -319 ... +1202 °F (Optional others)       |                       |            |          |                                    |
| <b>Max. working pressure</b>       | 200 Bar (for higher pressures please ask)                    |                       |            |          |                                    |
| <b>Response time</b>               | 2 sn                                                         |                       |            |          |                                    |
| <b>Output</b>                      | 2 wire 4-20mA std.                                           | 3 wire 4-20mA, 0-20mA | 0-5V, 1-5V | 0-10V    | 2 wire RTD, 3 wire RTD, 4 wire RTD |
| <b>Load</b>                        | 250Ω                                                         | 250Ω                  | ≥2.5K      | ≥5K      | -                                  |
| <b>Supply voltage</b>              | 7-32VDC                                                      | 16-30VDC              | 12-30VDC   | 16-30VDC | -                                  |
| <b>Current consumption</b>         | 2 wire : ≤20 mA @24VDC<br>3 wire : <30 mA @24VDC             |                       |            |          |                                    |
| <b>Reverse polarity protection</b> | Yes                                                          |                       |            |          |                                    |
| <b>Short circuit protection</b>    | Yes                                                          |                       |            |          |                                    |
| <b>Overload protection</b>         | Yes                                                          |                       |            |          |                                    |
| <b>Electrical connection</b>       | DIN 43650-A, M12 Connector                                   |                       |            |          |                                    |
| <b>Process Connection (E)</b>      | G1/4, G1/2, NPT1/4, NPT1/2, M14x1, M20x1,5 (Optional others) |                       |            |          |                                    |
| <b>Immersion length (L)</b>        | Optional between 15 mm ... 1000 mm                           |                       |            |          |                                    |
| <b>Immersion Diameter (D)</b>      | 8mm<br>6mm (only for pressures up to 0...200 bar)            |                       |            |          |                                    |
| <b>Material</b>                    | 304 Stainless steel                                          |                       |            |          |                                    |
| <b>Operating Temp.</b>             | -40°C ... +85°C                                              |                       |            |          |                                    |
| <b>Storage Temp.</b>               | -40°C ... +85°C                                              |                       |            |          |                                    |
| <b>Protection Class</b>            | IP 65                                                        |                       |            |          |                                    |

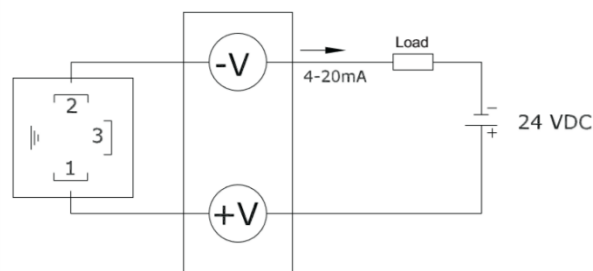
### TEMPERATURE SENSOR TOLERANCE TABLE (Class B EN60751)

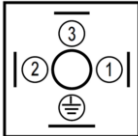
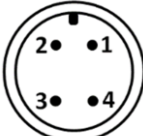
| TEMPERATURE (°C) | ±°C | ±OHM |
|------------------|-----|------|
| -200             | 1.3 | 0.56 |
| -100             | 0.8 | 0.32 |
| 0                | 0.3 | 0.12 |
| 100              | 0.8 | 0.30 |
| 200              | 1.3 | 0.48 |
| 300              | 1.8 | 0.64 |
| 400              | 2.3 | 0.79 |
| 500              | 2.8 | 0.93 |
| 600              | 3.3 | 1.06 |
| 650              | 3.6 | 1.13 |

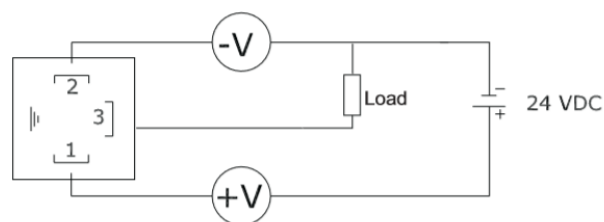
## ELECTRICAL CONNECTION

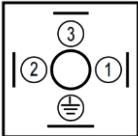
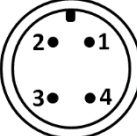
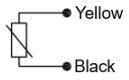
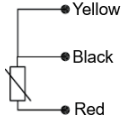
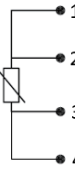
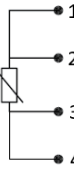
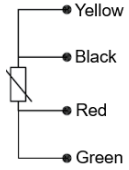
### 2 Wire 4-20mA Connection

|                                                                                    |                                                                                     |                                                                                     |                                                                                     |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |
| <b>DIN43650-A</b>                                                                  | <b>M12 4 pin Male Conn.</b>                                                         | <b>Cable Color</b>                                                                  | <b>Signal</b>                                                                       |
| <b>S200 Conn.</b>                                                                  | <b>S17 Conn.</b>                                                                    |                                                                                     |                                                                                     |
| <b>S145 Conn.</b>                                                                  | <b>S145 Conn.</b>                                                                   |                                                                                     |                                                                                     |
| <b>1</b>                                                                           | <b>1</b>                                                                            | <b>Red</b>                                                                          | <b>+VDC (Supply)</b>                                                                |
| <b>2</b>                                                                           | <b>2</b>                                                                            | <b>Black</b>                                                                        | <b>4-20mA</b>                                                                       |



| 3 Wire 0-5V, 0-10V, 1-5V, 4-20mA, 0-20mA Connection                              |                                                                                   |                                                                                   |                                                                                   |                                   |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------|
|  |  |  |  |                                   |
| DIN43650-A                                                                       | M12 4 pin Male Conn.                                                              |                                                                                   | Cable Color                                                                       | Signal                            |
| S200 Conn.                                                                       | S17 Conn.                                                                         | S145 Conn.                                                                        |                                                                                   |                                   |
| 1                                                                                | 1                                                                                 | 1                                                                                 | Red                                                                               | +VDC (Supply)                     |
| 2                                                                                | 2                                                                                 | 3                                                                                 | Black                                                                             | GND                               |
| 3                                                                                | 3                                                                                 | 4                                                                                 | Yellow                                                                            | 0-5V, 0-10V, 1-5V, 0-20mA, 4-20mA |



| RTD (1xPT100 & 1xPT1000) Connection |                                                                                     |                                                                                     |                                                                                       |
|-------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                     |    |    |    |
|                                     | DIN43650-A Connector                                                                | M12 4 Pin Male Connector                                                            | Cable                                                                                 |
| 2-Wire                              |    |    |    |
| 3-Wire                              |   |   |   |
| 4-Wire                              |  |  |  |

## ORDER CODE

### 1-Model

AST20

### 2- Temperature Range

Selectable from -195 to +650 °C (Ask for others)

### 3- Immersion Length

|            |            |            |            |              |
|------------|------------|------------|------------|--------------|
| 015: 15mm  | 160: 160mm | 350: 350mm | 550: 550mm | 750: 750mm   |
| 025: 25mm  | 200: 200mm | 400: 400mm | 600: 600mm | 800: 800mm   |
| 050: 50mm  | 250: 250mm | 450: 450mm | 650: 650mm | 900: 900mm   |
| 100: 100mm | 300: 300mm | 500: 500mm | 700: 700mm | 1000: 1000mm |

**\*We do not recommend using small immersion lengths for air or gas temperature measurements, as the body absorbs heat due to the measurement probe being very close to the sensor body.**

### 4- Immersion Pipe Diameter

8: 8mm

6: 6mm (only for pressures up to 0...200 bar)

### 5- Pressure Type

Y: High Pressure (For pressures higher than 200 bar)

D: Low Pressure (For pressures up to 0...200 bar)

### 6- Sensor Type

PT100 (available in analog or RTD output model)

PT1000 (available in only RTD output model)

| 7- Output Signal |                      |                                      |
|------------------|----------------------|--------------------------------------|
| V : 0-10VDC      | A: 4-20mA (2-wire)   | RTD2 : 1xPT100 or 1xPT1000 (2- wire) |
| V1: 0-5VDC       | A0: 0-20mA (3- wire) | RTD3 : 1xPT100 or 1xPT1000 (3- wire) |
| V5 : 1-5VDC      | A7: 4-20mA (3- wire) | RTD4 : 1xPT100 or 1xPT1000 (4- wire) |

| 8- Process Connection |                 |  |
|-----------------------|-----------------|--|
| G1/4 : G1/4           | NPT1/2 : NPT1/2 |  |
| G1/2 : G1/2           | M14 : M14x1     |  |
| NPT1/4 : NPT1/4       | M20 : M20X1,5   |  |
| * Optional others     |                 |  |

| 9- Electrical Connection |                                      |                                 |
|--------------------------|--------------------------------------|---------------------------------|
| S200 : DIN43650-A        | S17 : M12 4 pin male connector (std) | S145 : M12 4 pin male connector |
| * Optional others        |                                      |                                 |

| 10- Body Material          |  |  |
|----------------------------|--|--|
| E304 : 304 Stainless Steel |  |  |
| * Optional others          |  |  |

**Sample Order Code:** AST20 -40...+500 015 8Y PT100 V G1/4 S200 E304

## BY PRODUCTS



### EPA Series Measurement and Control Devices

[48x48mm model EPA 100](#)

[74x74mm model EPA 200](#)

[96x48mm model EPA 300](#)



### [EPD 11 Plug-in Intelligent LCD Display with Alarm For Transmitters](#)