Series 659 Push-Button Temperature Transmitters accept thermocouple (J, K, T), RTD (Pt100Ω) or thermistor input and provide a linearized 4 to 20 mA output. The transmitter is quickly ranged and calibrated by using a single on-board switch. An LED provides visual indication of sensor fault and programming mode. Models feature reverse polarity protection. Thermocouple models are also galvanically isolated and cold junction compensated.

The compact transmitter can be mounted directly within any standard thermal head for connection to the sensor. The Series 659 Transmitters are ideal for temperature measurement in boilers, burners, ducts, furnaces, refrigeration systems, food processing, tanks, chemical processing, steam generators or any other process application.

### SPECIFICATIONS

- **Input Range:**
  - Type J T/C: -328 to 2192°F (-200 to 1200°C)
  - Type K T/C: -328 to 2498°F (-200 to 1370°C)
  - Type T T/C: -328 to 752°F (-200 to 400°C)
  - Pt100Ω RTD: -328 to 1562°F (-200 to 850°C)
  - Thermistor: -13 to 257°F

- **Accuracy:**
  - T/C models: ±0.04% FS., ±0.04% of reading or ±0.5°C whichever is greater; RTD: ±0.2°C ±0.1% of rdg; Thermistor: ±0.2°F (±0.1°C).

- **Output:**
  - Linearized 4 to 20 mA, 2-wire loop powered.

- **Sample Rate:**
  - 500 ms.

- **Loop Resistance:**
  - T/C: 700Ω @ 24 VDC; RTD: 800Ω @ 24 VDC; Thermistor: 24 VDC.

- **Output Thermal Drift:**
  - Zero: 0.2µA/°C; Span: 0.5µA/°C.

- **Temperature Limits:**
  - Ambient: -4 to 158°F (-20 to 70°C), 80% RH max.
  - Ambient Storage Temperature: -40 to 158°F (-40 to 70°C), 95% RH max.

- **Burnout:**
  - Upscale 22 mA.

- **Weight:**
  - 0.92 oz (26 g).

- **Agency Approvals:**
  - CE.

### Model Options

<table>
<thead>
<tr>
<th>Model</th>
<th>Input Type</th>
<th>Range, °F (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>659TC-1</td>
<td>Thermocouple (Type J, K, T)</td>
<td>32-212 (0-100)</td>
</tr>
<tr>
<td>659RTD-1</td>
<td>3-wire (RTD Pt100)</td>
<td>32-392 (0-200)</td>
</tr>
<tr>
<td>659TH-1</td>
<td>Thermistor (225Ω)</td>
<td>32-752 (0-400)</td>
</tr>
</tbody>
</table>

Series 651 Temperature Transmitter

RTD or Thermocouple Input, Zero and Span Adjust, Linearized 4 to 20 mA Signal

Linearized output for precise temperature monitoring or control is combined with small size and quick, easy mounting. Rugged Series 651 transmitters are designed for use with 2 or 3 wire Pt100 RTDs (to DIN standard 43760 or BS1904) or ungrounded Type K thermocouples. Thermocouple models 651TC are cold junction compensated, automatic 32 to 160°F (0 to 70°C) with upscale burnout. These economical devices provide the accuracy and reliability you need at the lowest possible cost.

### SPECIFICATIONS

- **Input:**
  - 2 or 3-wire Pt100 RTD (models 651A), or ungrounded Type K thermocouple (models 651TC).

- **Output:**
  - 4 to 20 mA DC, linearized.

- **Transmitter Type:**
  - 2-wire.

- **Output Impedance:**
  - 700Ω @ 24 VDC.

- **Power Requirements:**
  - 10 to 32 VDC, reverse connection protected.

- **Accuracy:**
  - ±0.2°C plus 0.2% reading (models 651A), ±0.1% FS plus cold junction errors (models 651TC).

- **Temperature Drift:**
  - Zero drift typical 0.02%/°C (0.09°F); SPAN typical 0.005%/°C (0.00036°F).

- **Temperature Limits:**
  - Ambient: 32 to 122°F (0 to 50°C).
  - Maximum Storage Temperature: 160°F (70°C).

- **Response Time:**
  - 10 to 90% in 200 ms (models 651A), 70% in 2 ms (models 651TC).

- **Agency Approvals:**
  - CE.

### Model Options

<table>
<thead>
<tr>
<th>Model</th>
<th>Input Type</th>
<th>Range, °F (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>651A-10</td>
<td>Pt100 RTD</td>
<td>32-212 (0-100)</td>
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<tr>
<td>651A-20</td>
<td>Pt100 RTD</td>
<td>32-392 (0-200)</td>
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<tr>
<td>651A-40</td>
<td>Pt100 RTD</td>
<td>32-752 (0-400)</td>
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<td>651TC-01</td>
<td>Type K Thermocouple</td>
<td>32-212 (0-100)</td>
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<td>651TC-02</td>
<td>Type K Thermocouple</td>
<td>32-392 (0-200)</td>
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<tr>
<td>651TC-04</td>
<td>Type K Thermocouple</td>
<td>32-752 (0-400)</td>
</tr>
<tr>
<td>651TC-06</td>
<td>Type K Thermocouple</td>
<td>32-1112 (0-600)</td>
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</table>