### How to Order

**Ordering Example:** Model STAA3, .187" probe diameter, 4" length, 2-1/2" Tri-Clamp connection, -50/120°F range, M-12 termination with 15' of cable, programmable built-in compact transmitter.

```
STAA3 1 0 4 2 5 5 2 A 1 5 Z 1
```

#### Range Chart

<table>
<thead>
<tr>
<th>Standard Ranges</th>
<th>Code</th>
<th>Range °F</th>
<th>Code</th>
<th>Range °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>52</td>
<td>71</td>
<td>-50/100</td>
<td>53</td>
<td>-50/25</td>
</tr>
<tr>
<td>54</td>
<td>73</td>
<td>0/50</td>
<td>55</td>
<td>0/40/70</td>
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<tr>
<td>56</td>
<td>84</td>
<td>0/20</td>
<td>58</td>
<td>0/10/110</td>
</tr>
<tr>
<td>67</td>
<td>86</td>
<td>0/50</td>
<td>68</td>
<td>0/100</td>
</tr>
<tr>
<td>69</td>
<td>95</td>
<td>0/60</td>
<td>70</td>
<td>0/80</td>
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<tr>
<td>71</td>
<td>102</td>
<td>1/2&quot;</td>
<td>72</td>
<td>1/4&quot;</td>
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<tr>
<td>73</td>
<td>114</td>
<td>1/4&quot;</td>
<td>74</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>75</td>
<td>126</td>
<td>1/2&quot;</td>
<td>76</td>
<td>2&quot;</td>
</tr>
<tr>
<td>77</td>
<td>138</td>
<td>2&quot;</td>
<td>78</td>
<td>3&quot;</td>
</tr>
</tbody>
</table>

*Other ranges available on request, minimum scale Minimum span 10°C or 18°F.*

#### Process Connection Options

**STAA3**

- Tri-Clamp
- Probe Length
- Minimum probe length 2.5" Maximum probe length 12"

**NTAA3**

- NPT Thread
- Probe Length
- Minimum probe length 2.5" Maximum probe length 12"

### Termination Option - ST and NT

**AXX**

- M-12 w/ Mating Conn. and Integrated Transmitter
- 1.500" Diameter
- 2.000" Length
- 4.000" Length

---

### RTD Probe Assemblies

**NTAA3**

- Industrial RTD probe assembly with built-in compact transmitter
- Probe: 316SS with threaded fitting
- Minimum probe length 2.5" Maximum probe length 12"

**STAA3**

- Sanitary RTD probe assembly with built-in compact transmitter
- Probe: 316L SS with Tri-Clamp CIP fitting
- Sanitary Standard: Meets 3-A Sanitary Standard 74-06 requirements

4 to 20 mA 2-wire loop powered output, with single element thin film Pt100 3-wire RTD, Accuracy Class A +/- .06% at 0°C (coefficient 0.00385)

**PC programmable**

**Measurement Range:**

- -60/320°F (-50/160°C)

---

### Table

<table>
<thead>
<tr>
<th>MODEL</th>
<th>CODE</th>
<th>MODEL</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTAA3</td>
<td>A</td>
<td>NTAA3</td>
<td>A</td>
</tr>
</tbody>
</table>

#### A

**MODEL**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
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</thead>
<tbody>
<tr>
<td>NTAA3</td>
<td>PROBE DIAMETER</td>
</tr>
<tr>
<td>STAA3</td>
<td>PROBE DIAMETER</td>
</tr>
</tbody>
</table>

#### B

**PROBE DIAMETER**

<table>
<thead>
<tr>
<th>Probe DIAMETER</th>
<th>0.187&quot;</th>
<th>0.250&quot;</th>
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</thead>
<tbody>
<tr>
<td>CODE</td>
<td>1</td>
<td>2</td>
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</tbody>
</table>

#### C

**PROBE LENGTH**

<table>
<thead>
<tr>
<th>Probe LENGTH</th>
<th>2-1/2&quot;</th>
<th>4&quot;</th>
<th>6&quot;</th>
<th>9&quot;</th>
<th>12&quot;</th>
<th>15&quot;</th>
<th>18&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>CODE</td>
<td>02</td>
<td>04</td>
<td>06</td>
<td>09</td>
<td>12</td>
<td>15</td>
<td>18</td>
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</table>

#### D

**PROCESS CONNECTION**

<table>
<thead>
<tr>
<th>PROCESS CONNECTION</th>
<th>1/2&quot; NPT</th>
<th>1/4&quot; NPT</th>
<th>3/8&quot; NPT</th>
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</thead>
<tbody>
<tr>
<td>CODE</td>
<td>A1</td>
<td>A2</td>
<td>A3</td>
</tr>
</tbody>
</table>

#### E

**TEMPERATURE RANGE**

<table>
<thead>
<tr>
<th>TEMPERATURE RANGE</th>
<th>See Range Chart</th>
</tr>
</thead>
</table>

#### F

**TERMINATION**

<table>
<thead>
<tr>
<th>TERMINATION</th>
<th>M-12 conn. w/o mate</th>
<th>M-12 w/mating conn. and XX feet cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>CODE</td>
<td>E00</td>
<td>XXX</td>
</tr>
</tbody>
</table>

#### G

**TRANSMITTER**

<table>
<thead>
<tr>
<th>TRANSMITTER</th>
<th>Programmable built-in compact transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>CODE</td>
<td>Z1</td>
</tr>
</tbody>
</table>

*OEM Special configurations available upon application*

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www.teltru.com
Microprocessor Integrated Sensor Technology (MIST™)

The key innovation of the Tel-Tru MIST™ Series temperature sensors is a compact and programmable microprocessor based transmitter, fully integrated, and built-in to the RTD probe assemblies. Based on patented* MIST Technology, the MIST Temperature Sensors are designed for optimum accuracy and performance.

Best Value in RTD Temperature Transmitters

**Compact Size**
- More compact than conventional RTD and transmitter assemblies
- Easily used in environments where space is limited or access is difficult
- Electronic circuit and microprocessor are potted in a miniature stainless steel housing, only 2.5” long by 0.75” in diameter

**Robust and Long Lasting**
- TIG welded construction
- Hermetic seal keeps moisture out
- Highest quality materials
  - Fully potted electronics
  - 316 stainless steel probe
- Robust construction of the transmitter housing enables it to withstand:
  - Severe vibrations
  - Harsh wash downs
  - Drastic temperature changes
  - Other severe operational conditions
- Maintenance free
- Sturdy, reusable and well designed construction for long lifespan

**Easy Installation-Unique Design**
- RTD element and electronics are integrated in the mechanical assembly for reduced installation time and wiring
- No additional connection leads and hardware required
- No connection head type transmitter housing needed
- Direct installation into process piping or thermowell

**Superior Accuracy**
- Factory calibrated to a customer specified temperature range
- Accuracy is stable over the entire measuring scale
- The transmitter is perfectly matched to its element
- High accuracy, long term stability, consistent repeatability
- Fast response time
- The RTD element Pt100 accurate to IEC751 Class A

**Traceable Calibration**
- Part number, range and date is marked on the housing
- Calibrated to traceable standards
- As an option, a full calibration certificate to NIST (National Institute of Standards and Technology) can be supplied

**Applications**
The sturdy construction makes it highly resistant to vibrations. It is ideal for use in:
- Generators
- Compressors
- Engines
- Other vibrating equipment
The hermetically sealed transmitter allows it to function even in the roughest environmental conditions. It yields accurate readings in extreme temperatures, moisture, snow and rain and is suitable for any outdoor use. Common applications include:
- Pharmaceutical industries
- Food/Dairy processing
- Utilities
- Chemical plants
- Paper mills
- Petrochemical plants
- Refineries
- Gas pipelines

*Patent No.: US 7,223,014 MIST™*
Specifications
Technical Specifications @ Vnom. = 24VDC, T ambient = 25°C, Min. Span 100°C
Only for series ST100 and NT100 RTD probe assemblies with integrated programmable compact transmitter. Specifications subject to change.

Electrical Properties
Input: RTD, type Pt100 (α=0.00385), 3-wire
Sensor Temperature Ranges: See range chart for standard ranges
Custom ranges available from -103 to 392°F (-75 to 200°C)
Minimum span 45°F (25°C)
Output: 4-20mA loop powered, linear to temperature
Induced current required < 2.5mA
Current limit < 25mA
Power Supply: 9-32VDC, polarity protected
Supply Effect: 0.001%/V
Accuracy: ±(0.25°C + 0.40% of span) with one-point calibration
±(0.10°C + 0.10% of calibrated span) with two-point calibration
Maximum Loop Resistance: [(V_supply – 7) / 0.025A] ohms
Sensor Open Circuit: Upscale 24mA or Downsce 2.5mA
Undershooting Measurement Range: Decreases to 3.5mA
Exceeding Measurement Range: Increases to 23mA
Switch on Delay: 2s
Electronic Response Time: 1s at startup
RFI Effect: 1% or less typical
Isolation: 500VDC Input/Output
Temp. Effects: ±0.001% of Span/°C
Long Term Drift: <0.1% FS/Year
1. Max. error on complete span. Error at calibration point <0.1% of Span.
2. Max. error on complete calibrated span. Error at calibration points <0.1% of Span.

Mechanical Properties
Probe and Housing Material: Stainless steel 316, welded to probe
Protection: IP67 (NEMA 6)
Storage Temp. Range: -40°F to 176°F (-40°C to 80°C)
Operating Temp. Range: -40°F to 176°F (-40°C to 80°C)
Maximum Operating Pressure: 1500 PSIG Max (probe only)
500 PSIG (Tri-clamp)
Sanitary Surface Finish: Polished to #4 finish per 3-A standards, 32 micro-inches max

Electrical Connection
AXX Wiring
Models NT100 and ST100
1 = Red
3 = Black
Electrical connection of the compact thermometer (view from above) – M12 plug, 4-pin
Pin 1: Power supply 9 to 32Vdc; Current output 4 to 20mA
Pin 2: PC configuration cable connection
Pin 3: Power supply 0Vdc; Current output 4 to 20mA
Pin 4: PC configuration cable connection

Tele-Tru Product Warranty
Please see our limited product warranty at www.teltru.com/t-warranty.aspx