



# TEL-TRU MANUFACTURING COMPANY

## NTAA3 INDUSTRIAL RTD PROBE ASSEMBLY WITH BUILT-IN TRANSMITTER

### ➤ FEATURES:

- Configured to meet your exact needs
- High accuracy, long term stability, consistent repeatability
- Fast response time
- All welded construction
- Various termination options available
- NIST traceable calibration certificate available

Tel-Tru RTD probe assemblies are designed for the most demanding industrial applications. A wide range of configurations are available to meet the requirements of many markets including Chemical Processing, Oil and Gas, Construction, Cold Storage, Water / Wastewater, HVAC, and OEMs.

### ➤ SPECIFICATIONS:

#### Environmental

Protection:	IP67 (NEMA 6)
Operating temp. range:	-40°F to 176°F (-40°C to 80°C)

#### Mechanical

Probe lengths:	2.5" to 18" (6.35cm to 45.72cm)
Probe diameters:	0.187" or 0.250" (0.47cm to 0.64cm)
Probe and housing material:	316SS with threaded fitting
Max operating pressure:	1500 PSIG max (probe only)
Connection head:	Polypropylene, 316SS, Anodized Aluminum

#### Electrical

Input:	RTD, type Pt100 ( $\alpha=0.00385$ ), 3-wire
Sensor:	Thin film Pt100 RTD TCR .00385 Accuracy Class A +/- .06% at 0°C, Conforms to IEC 751
Lead wires	3 wires, Teflon insulated
Termination:	M12 connector with or without mate and cable, strain relief with cable <a href="#">See configurator at teltru.com</a>
Output (transmitter equipped)	4-20mA loop powered Induced current required < 2.5mA Current limit < 25mA
Power supply:	9-32VDC, polarity protected
Supply effect:	0.001%/V
Accuracy:	$\pm(.25^{\circ}\text{C} + 0.40\% \text{ of span})$ with one-point calibration <sup>1</sup> $\pm(.10^{\circ}\text{C} + 0.10\% \text{ of calibrated span})$ with two-point calibration <sup>2</sup>
Maximum loop resistance:	$[(V_{\text{supply}} - 7) / 0.025\text{A}]$ ohms
Sensor open circuit:	Upscale 24mA or Downscale 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:  $\pm 0.001\%$  of Span/ $^{\circ}\text{C}$   
 Long term drift:  $< 0.1\%$  FS/Year

<sup>1</sup> Max. error on complete span. Error at calibration point  $< 0.1\%$  of Span.

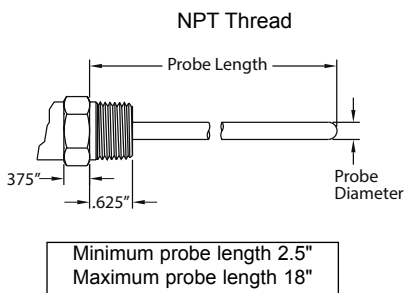
<sup>2</sup> Max. error on complete calibrated span. Error at calibration points  $< 0.1\%$  of Span.

Temperature ranges: See temperature chart for standard ranges  
 Custom ranges available from  $-103$  to  $392^{\circ}\text{F}$   
 ( $-75$  to  $200^{\circ}\text{C}$ )  
 Minimum span  $45^{\circ}\text{F}$  ( $25^{\circ}\text{C}$ )

Temperature Range Chart			
Ranges available (factory configured, built-in transmitters)			
Code	Range $^{\circ}\text{F}$	Code	Range $^{\circ}\text{C}$
52	-50/120	71	-50/100
53	-40/160	72	-50/25
54	0/140	73	-50/50
55	0/180	84	-40/70
50	0/200	86	-20/120
56	0/220	74	-10/110
67	0/250	75	0/50
57	0/300	95	0/60
59	20/240	EI	0/80
60	25/125	76	0/100
61	50/250	77	0/150
62	50/300		

## ➤ DIMENSIONS:

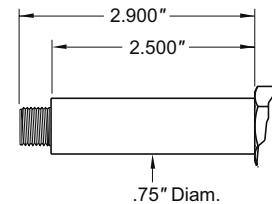
### Process Connection



### Termination

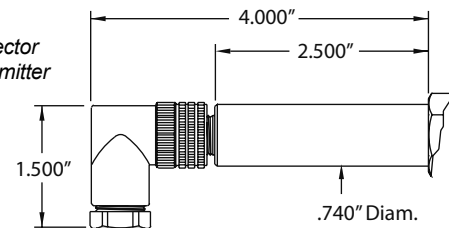
#### E00

M12 Connector w/o Mate



#### AXX

M12 w/Mating Connector and Integrated Transmitter



## ➤ ELECTRICAL CONNECTION AND WIRING (with built-in transmitter):

Electrical connection of the compact thermometer (view from above) – M12 plug, 4-pin

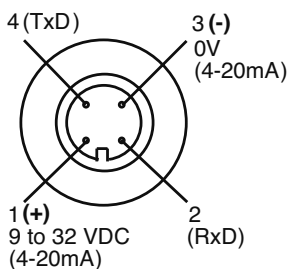
Pin 1: Power supply 9 to 32Vdc; Current output 4 to 20mA

Pin 2: PC configuration cable connection

Pin 3: Power supply 0Vdc; Current output 4 to 20mA

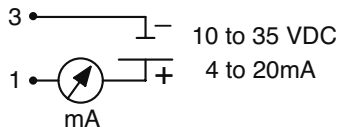
Pin 4: PC configuration cable connection

**AXX** (M12 w/Mating Connector) and  
**E00** (M12) w/out Mate



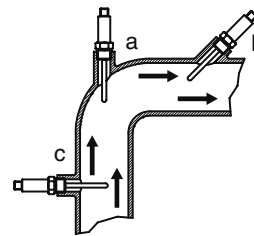
#### Wiring

1 = red  
 3 = black



### Installation Instructions

#### • Mounting Location



- At angle sections, against the direction of flow.
- In smaller pipe, against the direction of flow.
- Perpendicular to the direction of flow.

Refer to [www.teltru.com/rt\\_d\\_trans.asp](http://www.teltru.com/rt_d_trans.asp) for temperature and pressure limits.