



# Weed Instrument

Temperature, Pressure, and Fiber Optic Technology

## N7000 Series RTD and Thermocouple Temperature Transmitter

**W**eed Instrument's Model N7000 Temperature Transmitter provides high accuracy transmission of temperature measurements and is specifically designed for nuclear power plant applications. The transmitter has been seismically qualified to IEEE 344-1987, with a design capability of withstanding a 20G acceleration in the horizontal and vertical plane from 1 to 33HZ. It is also capable of withstanding 40 years of background radiation of 10 Kilorads T.I.D.

Each transmitter has a gasketed, aluminum case which is moisture resistant and provides a high degree of RFI protection. For especially harsh environments, an explosion-proof/corrosion resistant, NEMA 4X certified housing is also available.

The N7000 Series Temperature Transmitter features complete field configurability, making it adaptable to any application. Top entry test jacks provide easy access for direct current measurements without disturbing the loop wiring. The N7000 is offered with a 3 hole mounting plate option for 4000R replacement.

The N7000 Series transmitter is insensitive to ambient temperature changes and every unit is thoroughly tested during burn-in. The transmitter maintains excellent stability and accuracy over its installed life.



- Seismic qualified to IEEE 344-1987
- Covers all temperature ranges
- Selectable burnout indication
- Perfect lead wire compensation
- Optimum linearization for all zeros and spans
- 3 or 4 wire RTD input versions

# Specifications

## RTD Transmitter N7000R

## Thermocouple Transmitter N7000T

<b>Input:</b> <i>(Note 1)</i>	Platinum: 100, 200 ohm	•T/C Types J, K, T, E, R, S, and B •mV Ranges -30 to 180 mV
<b>Rangeability:</b> <i>(Note 2)</i>	Field Selectable Zero and Span •Zero: -100 to 400°C (-148 to 752°F) Pt 100 •Span: 25 to 800°C (45 to 1440°F) Pt 100	Field Selectable Zero and Span •Zero: -45 to 80 mV •Span: 270 to 1 gain
<b>Potentiometer Adjustment:</b> <i>(Note 2)</i>	•Zero: 25°C (45°F) Pt 100 •Span: 2:1 Turndown	•Zero: ±4.5mV •Span: 2:1 Turndown
<b>Output:</b>	4 to 20 mA DC (10 to 50 mA DC option)	
<b>Accuracy:</b>	0.1% of calibrated span non-isolated 0.2% of calibrated span isolated (or 0.02 mV for isolated, N7000T, whichever is larger)	
<b>Power Supply:</b>	14 to 48 VDC (4-20mA output)	
<b>Max. Load Resistance:</b>	1200 ohms at 48 VDC (4-20 mA output)	
<b>Stability:</b>	0.1% of calibrated span for one year non-isolated 0.2% of calibrated span for one year isolated (or 0.02 mV for isolated, N7000T, whichever is larger)	
<b>Input/Output Isolation:</b>	500 VRMS (with isolation option)	
<b>Loss of Input:</b>	Field Selectable: • Upscale for open or shorted sensor • Downscale for open or shorted sensor	• Upscale for open sensor • Downscale for open sensor
<b>Span and Zero:</b>	Continuously adjustable, non-interacting	
<b>Ambient Temperature Effect:</b>	• ±(0.3°C + 0.4% of span) for an ambient change of 50°C	• ±(2.5°C + 0.5% of span) for an ambient change of 50°C • ±(0.07 mV + 0.5% of span) for millivolt input
<b>RFI Effect:</b>	Less than ±0.5% of span for 5 watts at 3 feet for 470 MHz and 27 MHz	
<b>Temperature Limits:</b>	Operate within specifications: -25 to +85°C (-13 to +185°F) Operate without damage: -55 to +100°C (-67 to +212°F)	
<b>Intrinsic Safety:</b>	FM certification if used with approved barrier; FM certified transmitters also available	

### Explosion-Proof Housing

<b>Material:</b>	Low copper aluminum; epoxy base paint; 3.0 lbs.
<b>Hazardous Location:</b>	Explosion-proof: Factory Mutual (FM), Underwriter Laboratories (UL), and Canadian Standards Association (CSA) approved for: Class I, Div. 1, Groups B, C, D; Class II, Div. 1, Groups E, F, G; Class III, Div. 1 Weatherproof: NEMA 4X enclosure (vendor certified)
<b>Conduit/Sensor Connections:</b>	Two 3/4"-14 NPT connections

Note 1: For inputs other than the above defined, contact factory.

Note 2: Adjustability may vary with temperature range and sensor type.

# Ordering Information

**N7003 - 3 Wire RTD Input**  
**N7004 - 4 Wire RTD Input**  
**N7000 - (Type) Thermocouple**

1. Sensor Type	
<b>RP</b>	100 ohm platinum
<b>RW</b>	200 ohm platinum
<b>R-</b>	Contact factory for other RTD inputs
<b>TM</b>	mV input
<b>TJ</b>	J type thermocouple
<b>TK</b>	K type thermocouple
<b>TT</b>	T type thermocouple
<b>TE</b>	E type thermocouple
<b>TR</b>	R type thermocouple
<b>TS</b>	S type thermocouple
<b>TB</b>	B type thermocouple
<b>T-</b>	Contact factory for other thermocouple inputs

2. Isolation	
<b>0</b>	Non-isolated
<b>1</b>	Isolated
<b>2</b>	Linearized and isolated thermocouple

3. Failure Mode Scale	
<b>U</b>	Upscale, Open or Short
<b>D</b>	Downscale, Open or Short

4. Housing	
<b>00</b>	No Housing
<b>10</b>	XP/WP Housing

5. Tags, Mounting Accessories & Output Options	
<b>S</b>	Standard SS Tag (Tag Number & Calibrated Range, Model No. & S.N.)
<b>C</b>	Custom SS Tag (Customer-Specified Information)
<b>D1</b>	3 Hole Mounting Plate for 4000R Replacement
<b>10</b>	10-50 mA Output
Note: Leave this field blank if the above options are not needed.	

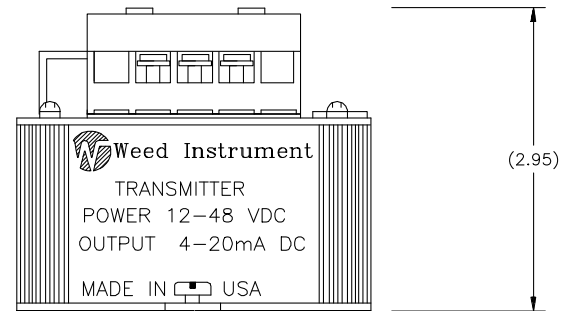
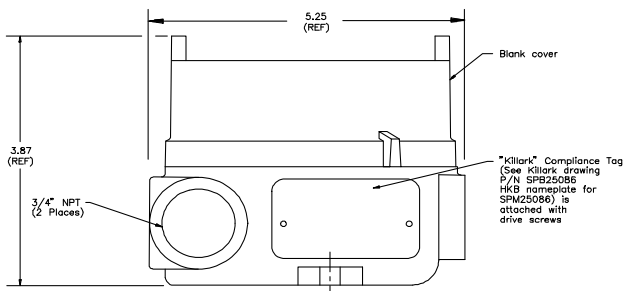
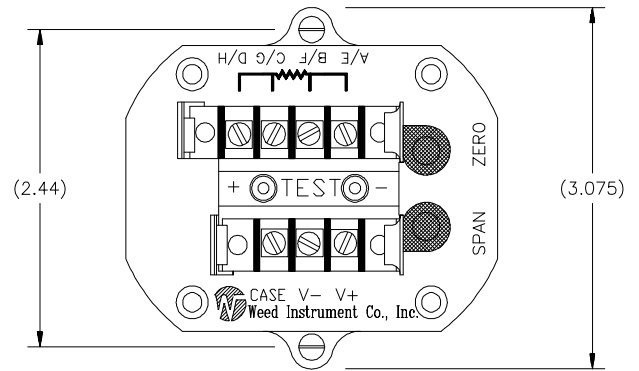
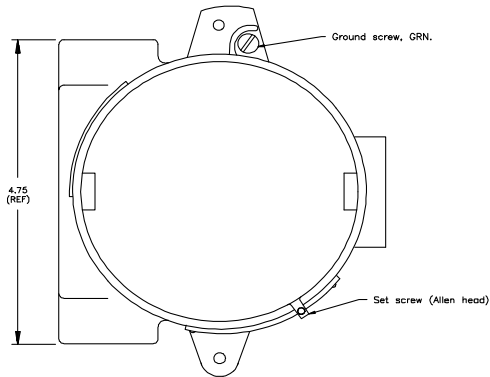


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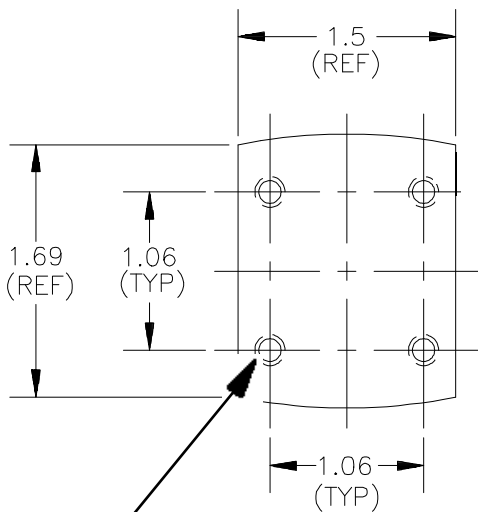
**N 7 0 0 0 T K 1 U 1 0 S (0-100°C) D 1** ← Sample Model Number  
 For Factory Calibration, specify temperature in °C or °F

# Mounting and Wiring Diagrams

## Two Hole Mount (Standard)



## HOUSING MOUNTING



Drill #7 (.201) x .50 deep  
Tap 1/4-20 UNC-2B x .38 Thread depth

## 4 WIRE CONFIGURATION

