



## Wireless Instrumentation Temperature Field Unit



### Temperature Field Unit Description

The RTD Temperature Field Unit comes complete with a signal conditioner and a RF transceiver operating in the 902 MHz to 928 MHz ISM license-free band. It is battery powered with up to twenty (20) year battery life. Sensors may be integrated (-I), or split (-S) packages. The split architecture package includes one or two discrete contact closure inputs for simple apparatus. The split sensor option enables easy field replacement of probes. One sensor input is available with the split RTD sensor package. Data from the sensor is transmitted to the Base Radio for centralized monitoring and data acquisition. You may specify updates between once per second and once per minute based on your monitoring and control needs. The RTD is included in the integrated version of the RTD Temperature Field Unit, Model

WI-RT-I. The standard probe is a 4 wire DIN curve 100  $\Omega$  platinum RTD. Probes are available with either spring loaded or direct insertion fitting with probe lengths of 2.5," 4.5," 6" or 9". Custom RTD lengths can be provided on a special order basis, however non standard probes should use the split architecture. With the split architecture, the RTD is not included with sensor unit and it can be easily replaced in the field.

### Technical Specifications

#### RTD Options

- Several RTD curves are embedded in the microprocessor including: DIN 100  $\Omega$  platinum, SAMA 100  $\Omega$  platinum, DIN 1000  $\Omega$  platinum and Special curves. A 22 point offset function is available for non standard curve programming and precision trimming of temperature value.

#### Linearization

- RTD linearization to  $\pm .05^\circ \text{C}$
- Custom linearization with 22-point curve

#### Accuracy of Electronics

- $\pm 0.1$  % of full-scale reading
- RTD:  $\pm 0.002$  % of reading per  $^\circ \text{C}$  for ambient temperature effect

#### Long-Term Stability

- Stability deviation per year is less than 0.025 %

#### Operating Ambient Environment

- $-40^\circ \text{F}$  to  $+220^\circ \text{F}$  ( $-40^\circ \text{C}$  to  $+104^\circ \text{C}$ ) process connection temperature, steady state
- $-40^\circ \text{F}$  to  $+185^\circ \text{F}$  ( $-40^\circ \text{C}$  to  $+85^\circ \text{C}$ ) electronics
- $-4^\circ \text{F}$  to  $+158^\circ \text{F}$  ( $-20^\circ \text{C}$  to  $+70^\circ \text{C}$ ) display (full visibility)
- $-40^\circ \text{F}$  to  $+185^\circ \text{F}$  ( $-40^\circ \text{C}$  to  $+85^\circ \text{C}$ ) display (with reduced visibility)
- Humidity Limits: 0 to 95 %, non condensing

#### Power Characteristics

- Self-contained power
- 'C' Size 3.6 V lithium battery
- Up to twenty (20) year battery life (depends on sample rate and RF update rate), field replaceable

## Technical Specifications—Continued

### RF Characteristics

902 MHz – 928 MHz Frequency Hopping Spread Spectrum (FHSS), FCC certified ISM license-free band  
Up to 3000' range from Base Radio with clear line of sight; 500' to 1000' typical range with obstructions  
The RF module in each Field Unit is individually tested and calibrated over the full temperature range to ensure reliable wireless operation

### Self-Diagnostics

Low battery alarm – indicates the need to replace the battery (approximately one month warning)  
Contains extensive self-checking software and hardware that continuously monitors the operation. Any sensor or device parameter out of spec is identified and reported

### Local Configuration

Integrated LCD display with membrane switch buttons  
Display provides pressure reading and error messages, if applicable  
Configure sampling and RF parameters locally using membrane switch buttons

### Materials of Construction

Type 316 stainless steel base and diaphragm  
Standard 1/2" MNPT (other options available)  
GE Lexan® cover. V-0 rating and UV stable

### Operating Shock and Vibration

Certified per IEC EN00068 2-6 (vibration) and 2-27 (shock)

### Random Vibration Characteristics

Certified to withstand 6 g's, 15 minutes per axis from 9 – 500Hz

### Electromagnetic Compatibility (CE Compliance)

Operates within specification in fields from 80 to 1,000 MHz with field strengths to 30 V/m. Meets EN 50082-1 general immunity standard and EN 55011 compatibility emissions standard

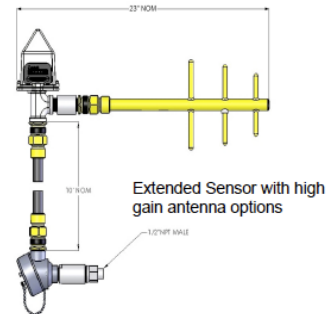
### Industrial Certification

Rated for industrial use -40° F to 185° (-40° C to 85° C)  
FM NEMA 4 or 4X weather-proof enclosure FM rated intrinsically safe for Class I, II, III; Div 1, Groups A, B, C, D, E, F & G; Class I, II, III, Div 2, Groups A, B, C, D, F & G. CSA Type 4 or 4X weather-proof enclosure CSA rated intrinsically safe for Class I, Div 1, Groups A, B, C & D. Class II, Div 1, Groups E, F & G; Class III, Div 1 ATEX II1G, EEx1a IIC T4

### Intrinsic Safety Parameters

FM Class T4 for max operating temp ≤ +85° C CSA Temp Code T3, operating temp ≤ +85° C CSA Class I, Div 2 Temp Code T4, operating temp ≤ +85°

Extended sensor option allows remote placement of electronics for improved mechanical and radio performance. High gain antennas can also be supplied to increase range.



Model	Gauge Pressure Field Unit			
RT	Resistive Thermal Device			
	Code	Sensor Mounting		
	I	INTEGRAL SENSOR MOUNTING		
	S	REMOTE SENSOR; S=ALUMINUM, M=STAINLESS STEEL NEMA 4X		
	B	BOTTOM ENTRY NEMA 4X EPOXY COATED CAST ALUMINUM		
	M	STAINLESS STEEL NEMA 4X REAR ENTRY		
	X	EXPLOSION PROOF INTEGRAL SENSOR		
	Y	EXPLOSION PROOF REMOTE SENSOR		
	Code	Yagi Antenna Option		
	Y6	HIGH GAIN YAGI ANTENNA (only available with remote sensor mounting)*		
	Code	Pressure Range PSI		
	X	B (SPRING LOADED FITTING OR D (DIRECT INSERTION WELDED)		
	N	N (NIPPLE ONLY - NO UNION)		
	XXX	PROBE LENGTH 025(2.5"), 045(4.5"), 060(6.0"), 090(9.0")**		
	XXXX X	P (4 WIRE PT. DIN RTD); B,E,J,K,N,R,S,T (THERMOCOUPLE)**		
	XXXXX X	E (EXTRA PRECISION) OR U (ULTRA PRECISION)		
	XXXXXX X	L (LOW TEMP <400F) OR H (HI TEMP >400F)		
RT	I-Y	Y6-	BN060PEL	TYPICAL MODEL NUMBER