RTD Temperature Field Unit

Integral RTD

Remote RTD

RTD 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. The standard probe is a 4 wire DIN curve 100 Ω 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 Ω platinum, SAMA 100 Ω platinum, DIN 1000 Ω 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 ± .05° C
- Custom linearization with 22-point curve

Accuracy of Electronics

- ± 0.1 % of full-scale reading
- RTD: ± 0.002 % of reading per °C for ambient temperature effect

Long-Term Stability

- Stability deviation per year is less than 0.025 %

Operating Ambient Environment

- -40° F to +185° F (-40° C to +85° C) electronics
- -4° F to +158° F (-20° C to +70° C) display with full visibility
- -40° F to +185° F (-40° C to +85° C) display with reduced visibility
- Humidity Limits: 0 to 95 %, non condensing

Local Configuration

- Integrated LCD display with membrane switch buttons
- Display rotates through tag number, temperature and RF status
- Configure sampling and RF parameters locally using membrane switch buttons

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

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. Two miles possible with high gain antennae
- 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

Physical Characteristic

- Standard process connection ½" MNPT (other options available)
- Thermowells available on request

RTD Temperature Field Unit

Technical Specifications—Continued

Operating Vibration and Shock Characteristics
- 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 – 500 Hz

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

Materials of Construction
- Type 316 stainless steel base and RTD sheath
- Split architecture junction box aluminum or stainless steel
- GE Lexan® cover. V-0 rating and UV stable

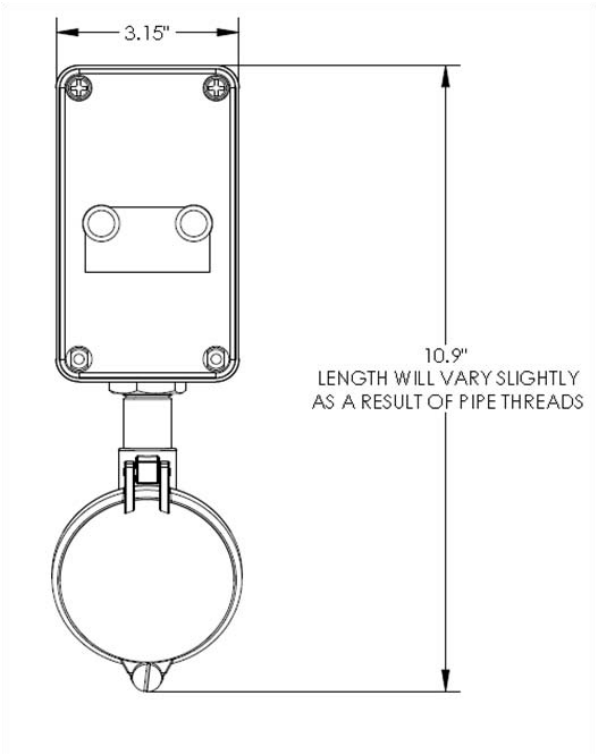
Industrial Certification
- Rated for industrial use -40° F to 185° F (-40° C to 85° C)
- FM NEMA 4 or 4X weather-proof enclosure
- FM rated intrinsically safe for Class I, II, III; Div 1, Groups A, B, C, D, E, F & G; Class I, II, III, Div 2, Groups A, B, C, D, F & G.
- CSA Type 4 or 4X weather-proof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

Intrinsic Safety Entity Parameters
- V_{Max} = 30 VDC
- I_{Max} = 100 mA Ci = 0
- P_{Max} = 900 mW Li = 0

High Gain Antenna
- High-Gain directional (Yagi) antennas are available with split sensors for increased range. See High-Gain Antenna Data-Sheet

Optional Polycarbonate Enclosure
Integral sensor lengths vary to application specifications



XP Housing version for use in locations where rugged protection is preferred. Can be supplied with integral sensor or various connection heads.

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