JMS-SE WIRELESS

Thermocouple Field Unit

Integral Single Thermocouple Remote Dual Thermocouple

Thermocouple Field Unit Description

The Thermocouple 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. Two sensor inputs are available with the split Thermocouple 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 unit can operate for up to 20 years using the original factory supplied battery.

Technical Specifications

Thermocouple Options

- The Thermocouple is included in the integrated version of the Thermocouple Field Unit. You may specify any of the common Thermocouple types. Probes are available with either spring loaded or direct insertion fitting with probe lengths of 2.5," 4.5", 6" or 9". Custom Thermocouple lengths can be provided on a special order basis, however non standard probes should use the split architecture. Probe temperature range must also be specified. With the split architecture, the Thermocouple (s) are not included with sensor unit. The Thermocouple (s) must be ordered separately and can be easily replaced in the field.
- Several Thermocouple curves are embedded in the microprocessor including types B,C,E,J,K,L,M.R.S,T and U. A 22 point offset function is available for non standard curve programming and precision trimming of temperature value.

Accuracy of Electronics

- ± 0.1 % of full-scale reading plus 1.8° F (1° C) for thermocouple cold-junction effect at reference conditions
- ± 0.01 % 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

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

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Physical Characteristic

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

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

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 Ex

Materials of Construction

- Polycarbonate enclosure
- Split architecture junction box aluminum or stainless steel
- V-0 rating and UV stable

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

Digital Output Option

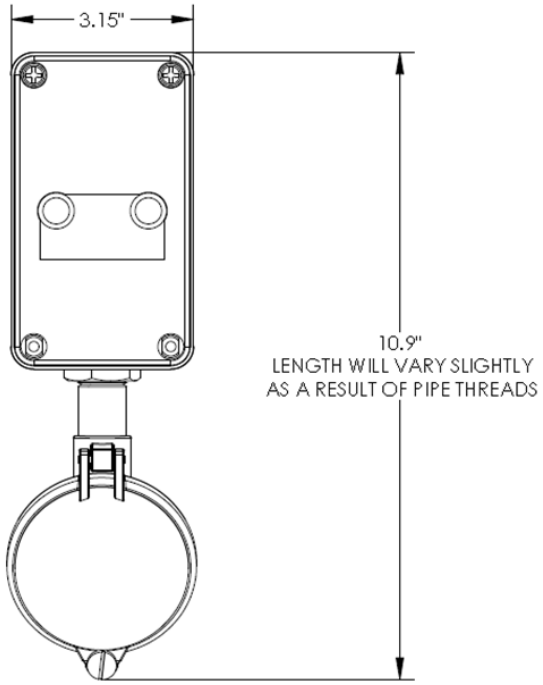
- Dual digital output switched available for on/off control. Switch activation can be configured based on input signal or remote command from Base Radio

High Gain Antenna Option

- Integral or remote antenna options include yagi directional and omni-directional models of various gain ratings.

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.

JMS Thermocouple 110512

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