

Point Sensor RTD 3006-44



FEATURES

- Supports 4-wire remote 100-Ohm Platinum RTDs
- Onboard calibration table provides linear output
- Low current/duty cycle for reduced self heating
- 30-Bit unique ID
- Up to 600-foot range
- Transmission rates from 10 to 17 seconds random
- Up to 100 sensors can coexist
- Battery lasts up to 2 years
- Very small (2.5" X 2.0" X 1.0") ABS Enclosure
- Complies with part 15 of the FCC rules
- Water resistant coating for wet environments
- CRC-16 error checked Status, ID and Temperature
- Internal Loop antenna
- Low Cost

DESCRIPTION

The Point Sensor RTD-100 sensor is a battery operated digital temperature sensor with a microprocessor controlled 418 MHz. FCC certified radio transmitter. The sensor has an on board clock that allows it to spend most of the time in a low power quiescent state. At predetermined time intervals the clock will wake up the onboard microprocessor. On-board calibration tables provide a linear temperature output using an external 100-Ohm Platinum RTD. This information is combined with a CRC-16 error check and transmitted in a very short data packet that results in a very short transmitter on-time. This architecture allows the Point Sensor Temperature sensor to consume very low energy resulting in a battery life of up to 2 years.

A button on the top of the ABS cover permits a user to activate the service switch. When the service switch is pushed a data transmission occurs immediately and a special mark is introduced in the ID field of the transmitted data packet to indicate which sensor is in service or installation. The Sensor is shipped with the transmitter turned off (anytime the Sensor is to be shipped the transmitter should be turned off or must be placed in a shielded container to prevent interference that might cause shipping problems). Start the Sensor by inserting a battery or by removing the battery pull-tab. The Point Sensor Temperature can be turned off by re-inserting the battery pull-tab or by removing the battery.

| Parameter | Standard RTD | Extended Range RTD |
|-----------------------------|--------------------------------|--------------------------------|
| Measuring Current | 300 micro Amp. @ 2% duty cycle | 300 micro Amp. @ 2% duty cycle |
| RTD Power on Duty Cycle | 2% | 2% |
| Resolution | .1° C | .1° C |
| Accuracy 60-125 ° C | +/- .5° C | +/- 1.3° C |
| Accuracy 30-60 ° C | +/- .3° C | +/- 1.1° C |
| Accuracy 0-30 ° C | +/- .1° C | +/- .9° C |
| Accuracy (-50)-0 ° C | +/- .3° C | +/- 1.1° C |
| Accuracy(-200)-(-50) ° C | N/A | +/- 1.3° C |
| Transmission rate | 10-17 seconds | 10-17 seconds |
| Battery Life | Up to 2 years | Up to 2 years |
| Dimensions (enclosure) | 2.375"x1.875"x1.0" | 2.375"x1.875"x1.0" |
| Weight | 5.0 oz. | 5.0 oz. |
| Storage Temperature | -40° to 85° C | -40° to 85° C |
| Probe Operating Temperature | -50° to 125° C | -200° to 125° C |
| Battery | 3.6vdc Lithium | 3.6vdc Lithium |
| FCC Certified | FCC ID: M5ZP6EZIO | FCC ID: M5ZP6EZIO |

Point Six Wireless
Unique, High Value Wireless Solutions

Installation and Operation Instructions

Point Sensor RTD-100

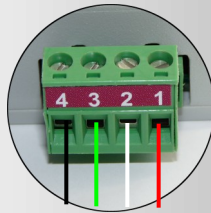
The Point Sensor Remote RTD-100 wireless temperature sensor transmits both a digital temperature and a unique serial number to a 418 MHz receiver. The sensor electronics is enclosed in a high impact ABS enclosure for direct surface mounting near the environment to be measured with the remote 4-wire 100 Ohm Platinum RTD. The sensor is battery operated with a low duty cycle 300 uA. excitation current for low self heating. Transmission times are variable from 10 to 17 seconds random.

Application: Apply the sensor to the point to be monitored. Make sure that the side with the product label is away from any metal surfaces. Connect a 4-wire 100 Ohm Platinum RTD.

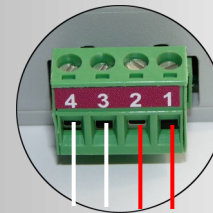
Service Function: The sensor has an installation mode switch (pushbutton located in center of enclosure lid). When the pushbutton is momentarily pressed, the device will transmit a special installation status mark in the data packet immediately after the service switch is released. The immediate transmission of temperature, ID and installation status mark will occur anytime this switch is pressed. The Point Sensor Temperature may be placed in a quiescent state by re-installing the battery pull-tab or removing the battery.

Battery: A 3.6 Volt lithium battery powers the wireless temperature sensor. The battery will last for more than 5 years in the quiescent state (as shipped from the manufacturer). The device will transmit data for as long as 2 years at a rate of once every 10 to 17 seconds once started. The electronic components are completely covered with a water resistant coating to protect from condensation. The user can replace the battery.

Connections for standard RTD Probe (P2842)



Connections for extended range RTD Probe (P2973)



FCC ID: M5ZP6EZIO
MADE IN USA

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES, OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESERED OPERATION

FCC Radio Frequency Interference Statement

Remote RTD-100 wireless temperature sensor FCC ID: M5ZP6EZIO

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15, Subpart B, of the FCC Rules. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause interference to radio communications.

The limits are designed to provide reasonable protection against such interference in a residential situation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna of the affected radio or television
- Increase the separation between the equipment and the affected receiver.
- Connect the equipment and the affected receiver to power outlets on separate circuits.
- Consult the dealer or an experienced radio/TV technician for help.

MODIFICATIONS

Changes or modifications not expressly approved by **Point Six Wireless** could void the user's authority to operate the equipment.

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Wireless Transmitter Packet-Data Specification

Dual Analog Data Format

“DualAnalog” (75/76)

IDSSSSSSSSnneeaaaaAAAACCCCKK<CR>

Note: All fields are in ASCII Hex

“ID”

The device type field: DualAnalog has device type 76 hex. A 75 hex when in service mode.

“SSSSSSSS”

The MS-30 bits of these 4-bytes are the serial number of the DualAnalog device. The LS-2 bits are set to zero.

“nn”

Bits 0 and 1: The number of I/O points (1 byte field: 1 or 2). Bits 2 –7: enumerated Engineering units for 2nd Analog.

“ee”

Bits 0-5: enumerated Engineering units for 1st Analog. Bits 6 and 7: reserved (always 0).

“aaaa”

This is the second analog data field and is populated when the number of I/O points is 2. This field is signed 16 bits stored MSB first (bits 15-8) and LSB last (bits 7-0) from left to right. This field has a possible range of –32768 to 32767. This is a general purpose field and may contain 8 bit or 12 bit data.

“AAAA”

This is the first analog data field and always exists. This field is signed 16 bits stored MSB first (bits 15-8) and LSB last (bits 7-0) from left to right. This field has a possible range of –32768 to 32767. This is a general purpose field and may contain 8 bit or 12 bit data.

“CCCC”

This field is the CRC-16 error check as was originally received and checked. This CRC is over the first 11 bytes of the packet starting with the device type and ending with but not including CRC-16.

“KK”

This field is the mod 256 sum of all the binary data values as represented by the ASCII hex values in the response but does not include the <CR>.

1 Channel Example:

766035501C0100052708104CBEC6

SN = 6035501CH ; No of I/O = 01H; EEU1 = 0; EEU2 = 0; Channel1 = 0810H = 6.3%; CRC16 =4CBEH; C6 - Checksum

Enumerated Engineering Units

“DualAnalog” and “CounterAnalog” have attributes as part of their packets that are an enumerated value that describes the scale/offset and engineering units of an analog I/O point. These attributes are 6 bits and therefore can describe up to 64 enumerations. Point Six reserves enumerated values 0 and 33 through 63. Enumerated values 1 through 32 are user defined. If a host application does not recognize an enumeration, then it should default to the scale/offset/engineering units as defined by enumeration 0. The follow table defines the Point Six enumerations.

| Enum | Bin1 | Engr1 | Bin2 | Engr2 | Scale | Offset | Units | Description |
|------|------|-------|------|-------|----------|--------|-------|-------------------------|
| 0 | 0 | 0 | 4095 | 100 | 0.0244 | 0 | % | Generic |
| 63 | 0 | -40 | 4095 | 85 | 0.030525 | -40 | degC | Temperature |
| 62 | 0 | -40 | 4095 | 185 | 0.0549 | -40 | degF | Temperature |
| 61 | 0 | 0 | 4095 | 100 | 0.0244 | 0 | %RH | Humidity |
| 60 | 0 | -200 | 4095 | 200 | 0.0977 | -200 | DegC | Temperature (+/- 200 C) |
| 59 | 0 | 0 | 4095 | 2000 | 0.488 | 0 | ppm | CO2 |
| 58 | 0 | 0 | 4095 | 25 | 0.00610 | 0 | % | O2 |

Wireless Transmitter Packet-Data Specification

Temperature Sensor Data Format (Legacy Packet)

“Temp” (54/53)

IDSSSSSSSSSSSSSSSSSTTTTCCCCKK<CR>

Note: All fields are in ASCII Hex

“ID”

This field is the device ID; 54 indicates normal mode, 53 indicates service mode; (service mode button has been pushed).

“SSSSSSSSSSSSSSSS”

This field is the 64 bit unique serial number of the 1-Wire temperature sensor.

“TTTT”

This is the temperature data field; two's compliment 16-bit data stored MSB first in 1/16 deg. C units.

“CCCC”

This field is the CRC-16 error check as was originally received and checked. This CRC is over the first 11 bytes of the packet starting with the device type and ending with but not including CRC-16.

“KK”

This field is the mod 256 sum of all the binary data values as represented by the ASCII hex values in the response but does not include the <CR>.

Example:

53282764080000003F0160716483

SN=282764080000003F; Temp=0160 – 22.0 degC; CRC16 =7164; Checksum=83