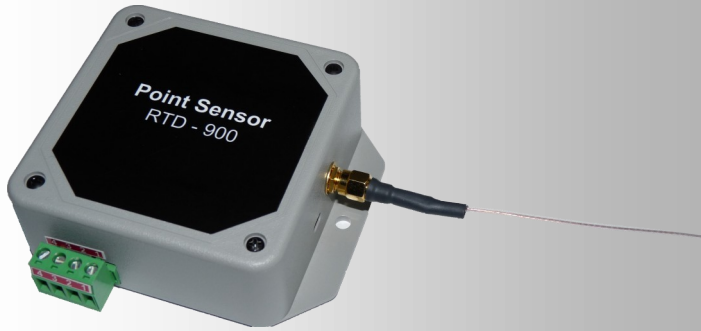


# Point Sensor RTD-900 3005-140



## 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
- Integrated 100mw, 900 MHz SSFH radio for long range performance
- Range Indoor: Up to 1300 feet
- Range Outdoor: Up to 1 mile with standard antenna
- Battery lasts up to 2 years with 5 minute transmit rate
- Very small (3.25" X 3.25" X 1.375") ABS Enclosure
- Complies with part 15 of the FCC rules
- CRC-16 error checked Status, ID and thermistor data
- Conformal coated
- External ¼ wave antenna

## DESCRIPTION

The Point Sensor RTD 900 wireless transmitter is a battery operated digital temperature sensor with a microprocessor controlled 900 MHz. FCC certified radio transmitter. The Point Sensor RTD 900 has an on board time of day 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. Onboard 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 RTD sensor to consume very low energy resulting in a battery life of up to 2 years.

The Point Sensor RTD 900 electronics are coated with a conformal material that provides a moisture barrier against condensation. Submersion in water is not recommended. An internal reed switch permits a user to activate the service switch with a magnet. A quick swipe of a magnet across the "Service" label will activate the service switch. When you perform this operation, 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). The sensor is started by sliding the On/Off Switch away from the SMA antenna connection. The Point Sensor RTD 900 sensor can be turned off by sliding the On/Off switch towards the SMA antenna connection.

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	Preprogrammed at factor (5 minute default)	Preprogrammed at factor (5 minute default)
Battery Life	Up to 2 years	Up to 2 years
Dimensions (enclosure)	3.25"x3.25"x1.375"	3.25"x3.25"x1.375"
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: OUR9XSTREAM	FCC ID: OUR9XSTREAM

**Point Six Wireless**  
*Unique, High Value Wireless Solutions*

# Installation and Operation Instructions

## Point Sensor RTD 900

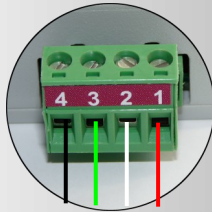
The Point Sensor RTD wireless sensor transmits a digital temperature value and a unique serial number to a 900 MHz receiver. The Point Sensor RTD is enclosed in a high impact ABS enclosure for direct surface mounting in the environment to be measured. Point Sensor RTD is battery operated. Transmission times are preprogrammed at the factory (default rate is every 5 minutes).

**Application:** Apply the sensor to the surface to be monitored with double-sided adhesive tape or with screws through the flanges.

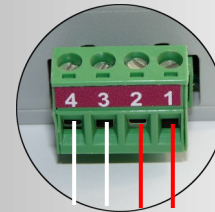
**Start/Stop Function:** The sensor is started when the On/Off switch is moved away from the SMA antenna connector. The Sensor has an internal reed switch (indicated as "Service" on product label). Momentarily placing a magnet next to this switch will cause the device to transmit a special installation status mark in the data packet immediately after the magnet is removed. The immediate transmission of thermistor value, ID and installation status mark will occur anytime the reed switch is activated. The Point Sensor RTD 900 may be placed in a quiescent state (no transmission) by sliding the On/Off switch towards the SMA antenna connector.

**Battery:** Two 3.6 Volt lithium batteries powers the wireless temperature sensor. The device will transmit data for as long as 2 years at a transmission rate of once every 5 minutes. The electronic components are completely covered with a water resistant coating to protect from condensation. The user can replace the batteries.

Connections for standard RTD Probe (P2842)



Connections for extended range RTD Probe (P2973)



FCC ID: OUR9XSTREAM  
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

# 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 =44CBEH; 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