FEATURES

- **10K internal thermistor**
- **Onboard calibration table provides linear output**
- **Slow response – resists short term temperature spikes**
- **Integrated 100mw, 900 MHz SSFH radio for long range performance**
- **Optional 2.4 GHz radio**
- **30-Bit unique ID**
- **Range Indoor: Up to 1300 feet**
- **Range Outdoor: Up to 1 mile with standard antenna**
- **Battery lasts up to 2 years at 5 minute transmit intervals**
- **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 Temperature**
- **External ¼ wave antenna**
- **Conformal coated**

Ideally Suited for Walk-in Freezers and Coolers

DESCRIPTION

The Point Sensor Temp-900 sensor is a battery operated digital temperature sensor with a microprocessor controlled 900 MHz. FCC certified radio transmitter. The Point Sensor Temp-900 sensor 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 internal thermistor. 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 Temp-900 sensor to consume very low energy resulting in a battery life of up to 2 years.

The 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 towards the SMA antenna connection. The Point Sensor Temp-900 sensor can be turned off by sliding the On/Off switch away from the SMA antenna connection.

Transmission rate	Preprogrammed at factory (5 minutes default)
Shelf life with battery installed	10 Years in quiescent mode
Dimensions (enclosure)	3.25 W X 3.25 H X 1.375 D (inches)
Weight	4.7 oz.
Storage Temperature	-40° to 85° C
Operating Temperature	-40° to 85° C
Accuracy (-10 to 85 Deg. C)	+/-.5° C
Battery life with transmissions	2 years with TX period of 5 minutes
Battery	(2) 3.6vdc Lithium Thionyl Chloride
FCC Certified	FCC ID: OUR9XSTREAM

Point Sensor Temperature

Installation and Operation Instructions

The Point Sensor Temperature wireless temperature sensor transmits both a digital temperature and a unique serial number to a 900 MHz receiver. The Point Sensor Temperature is enclosed in a high impact ABS enclosure for direct surface mounting in the environment to be measured. Point Sensor Temperature 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 towards 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 temperature, ID and installation status mark will occur anytime the reed switch is activated. The Point Sensor Temp-900 may be placed in a quiescent state (no transmission) by sliding the On/Off switch away from 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.

On

Off

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 Temperature Sensor Data Format

The Wireless Temperature Sensors require a compatible receiver with the ability to receive, error check and provide RS232 and RS422/485 interface. This document describes the data format provided by the **Point Transceiver** 900 MHz. Receiver.

The transmit packet consists of 13 bytes of data:

1-byte ID/Mode field
8-byte serial number
2-byte temperature data
2-byte CRC-16 error check

The Point Transceiver receiver processes this packet. The receiver performs a CRC-16 error check on the packet. If the data is not accurate it is discarded. When a packet is received that is error free it is converted to a 29-character packet and transmitted out the serial port at **19,200 Baud**. The data is transmitted serially in ASCII Hex format and terminated with a CR character. This format requires two bytes for each byte of data; 14 data bytes x 2=28 plus the CR is 29 characters

The resulting binary data format of the packet is:

1-byte ID field	this field will contain a byte whose LSBit indicates the service state of the transmitter, 0=normal, 1=service mode. **Note** that the CRC-16 is calculated with the MSBit of the ID field set low, the data is received with the MSBit of the ID field set high. Proper CRC-16 calculation requires that the MSBit be assumed to be low even though it is received set high.
8-byte serial#	this field contains the serial number of the 1-Wire sensor.
2-byte temperature	this field contains the temperature data stored MSB first in two's compliment 16-bit form of 1/16 deg. C units.
2-byte CRC-16	this is the originally received data packet CRC-16 as described above.
1-byte checksum	the checksum is a mod 256 sum of the binary data in the response but does not include the CR

Example:
542857060B000000BD01901A4F9B

542857060B000000BD01901A4F9B<CR>
This field is the mode indicator, the LS-bit which indicates the service state of the transmitter, 0=normal, 1=service mode.

54**2857060B000000BD**01901A4F9B<CR>
This field is the unique serial number of the 1-Wire temperature   sensor.

542857060B000000BD**0190**1A4F9B<CR>
This is the temperature data field; two's complement 16-bit data stored MSB first in 1/16 deg. C units. The value shown is +25 Deg. C.

542857060B000000BD0190**1A4F**9B<CR>
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 mode flags and ending with inclusion of the temperature data.

542857060B000000BD01901A4F**9B**<CR>
This field is the mod 256 sum of all the binary data in the response but does not include the <CR>.

542857060B000000BD01901A4F9B**<CR>**
This is the CR terminator, 0Dhex.