FCC ID: M5ZCNT

Installation and Operation Instructions for the Wireless Counter/Temperature.

Point Six, Inc.

Wireless Counter/Temperature Sensor
Model Point Sensor Counter/Temperature

Installation and Operation Instructions

The Point Sensor Counter/Temperature sensor transmits a digital temperature, relative-humidity (or light level) and a unique serial number to a 418 MHz receiver. The Point Sensor Counter/Temperature is enclosed in a high impact ABS enclosure for direct surface mounting in the environment to be measured. The Point Sensor Counter/Temperature is battery operated.

Application: Apply the sensor to the surface to be monitored with double-sided adhesive tape. Make sure that the side labeled with FCC ID is visible and away from any metal surfaces.

Service Function: The wireless sensor has an installation mode switch. A momentary push of this switch will start the convert/transmit cycles. When new and until this button is pushed the Point Sensor Counter/Temperature will not transmit. The Point Sensor Counter/Temperature will transmit a special installation status mark in the data packet immediately after the installation/start switch is pushed. After the start a push of the installation switch will result in the immediate transmission of temperature, counter, ID and installation status mark.

Battery: A 3.6 Volt lithium battery powers the Point Sensor Counter/Temperature wireless sensor. The battery will last for more than 10 years in the idle state (as shipped from the manufacturer). The Point Sensor Counter/Temperature will transmit data for as long as 5 years at a rate of once each minute once started. The Point Sensor Counter/Temperature is completely covered with a water resistant conformal coating to protect the electronics from the environment and condensation. The user can replace the battery. The Point Sensor Counter/Temperature may be placed in a quiescent state (battery life greater than 10 years) by holding the installation switch closed for more than 4 seconds.

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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 Sensor Data Format

The Point Six, Inc. 418 MHz wireless analog transmitters 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 Host** 418 MHz. Receiver.

The transmit packet from a receiver is approximately 15 milliseconds in duration and consists of 13 bytes of data:

1-byte ID/Mode field
8-byte serial number
12-bit analog in a 16 bit word
2-byte CRC-16 error check

The Point Host receiver receives and 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.

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16-bit data field	this field contains 12-bit analog data stored in stored MSByte first in 12-bit form this field is unsigned and has a range of 0 to 4095 (0000-0FFF) hex.
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 all the ASCII character values in the response but does not include the CR; the checksum is added by the HA8 and is not a part of the transmitted data.

Form: "**CountTemp"** *Wireless Counter/Temperature Transmitter*

IDSSSSSSSSooooootttttLLCCCCKK<CR>

Note: All fields are in ASCII Hex

"ID"
The device type field: CountTemp has device type 61 hex. A 60 hex when in service mode.

"SSSSSSSS"
The MS-30 bits of these 4-bytes are the serial number of the CountTemp. The LS-2 bits are the status flags for the **open and closed switch input status**. The LS bit (**bit-0) is the Open status flag** and the next most significant bit **(bit-1) is the Closed status flag.**

"oooooo"
This 24-bit field is the Open counter stored LS-byte first. **Count of switch openings**.

"tttt"
This top 16 bit of this 24-bit field is Temperature in two's compliment 16-bit data stored MSB first in 1/16 deg. C units. The least significant 8 bits of the 24-bit field are zero.

"LL"
This field is unused and will always read zero.

"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 inclusion of the "cccccc" data.

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"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>.

FCC Radio Frequency Interference Statement

Wireless Counter/Temperature Sensor **FCC ID: M5ZCNT**

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 Inc****.* could void the user's authority to operate the equipment.