

FCC ID: M5ZLSX1

Installation and Operation Instructions for the Limit Switch Transmitter model LSX-1.

Point Six, Inc.

Wireless Engine Parameter Transmitter Model WOW-LSX1

Installation and Operation Instructions

The WOW-LSX1 wireless limit switch transmitter transmits opened-closed status and counter data with a unique serial number to a 418 MHz receiver. The LSX1 is enclosed in a metal limit switch enclosure with a plastic dome lid. The LSX-1 is a Lithium battery powered device that is mounted as a conventional limit switch on an automatic or manual valve actuator. The status and opened/closed counter values are transmitted once each minute.

Application: Attach the LSX-1 as a conventional limit switch package to the valve actuator to be monitored. The LSX-1 is battery operated so no power connection is required. Remove the lid by backing out the four corner screws. Press the pushbutton located next to the limit switch package momentarily to start the adjustment LED function. For a period of four minutes two LEDs on the PCB will indicate the status of the opened/closed limit switches, this is provided as an adjustment aid for alignment of the magnetic limit switch actuators. During this four-minute adjustment period the LEDs will reflect the status of the limit switches. After this time period the LEDs will be turned off and will not follow the status of the limit switches.

Battery: A 3.6 Volt lithium battery powers the WOWLSX1 wireless limit switch transmitter. The battery will last for more than 10 years in the. The user can replace the battery.

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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 Temperature Sensor Data Format

The Point Six, Inc. 418 MHz wireless 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 **HA8-WOW, HA9-WOW or HA10-WOW** 418 MHz. Receivers.

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
- 2-byte temperature data
- 2-byte CRC-16 error check

The WOW receivers process this packet. The receivers perform 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. |
| 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 complement 16-bit form of 1/16 deg. C units. |
| 2-byte CRC-16 | this is the originally received data packet CRC 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 |

Example: “LSX” Wireless Limit Switch Transmitter

91F1D61300050000070000BD2DE1<CR> *string from an HA8*
11F1D61300050000070000BD2DE1<CR> *string from an HA9*

The device type field: LSX has device type 91/11 hex. A 90/10 hex when in service mode.

91F1D61300050000070000BD2DE1<CR> *string from an HA8*
11F1D61300050000070000BD2DE1<CR> *string from an HA9*

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

91F1D61300050000070000BD2DE1<CR> *string from an HA8*
11F1D61300050000070000BD2DE1<CR> *string from an HA9*

This 24-bit field is the Open counter stored LS-byte first the value shown is a count of 5 open cycles.

11F1D61300050000070000BD2DE1<CR> *string from an HA8*
11F1D61300050000070000BD2DE1<CR> *string from an HA9*

THIS 24-BIT FIELD IS THE CLOSED COUNTER STORED LS-BYTE FIRST, THE VALUE SHOWN IS A ACCOUNT OF 7 CLOSED CYCLES.

91F1D61300050000070000BD2DE1<CR> *string from an HA8*
11F1D61300050000070000BD2DE1<CR> *string from an HA9*

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 temperature data.

91F1D61300050000070000BD2DE1<CR> *string from an HA8*
11F1D61300050000070000BD2DE1<CR> *string from an HA9*

This field is the mod 256 sum of all the ASCII character values in the response but does not include the <CR>.

91F1D61300050000070000BD2DE1<CR> *string from an HA8*
11F1D61300050000070000BD2DE1<CR> *string from an HA9*

This is the CR terminator, 0Dhex.

FCC Radio Frequency Interference Statement

Wireless Limit Switch Transmitter

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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.