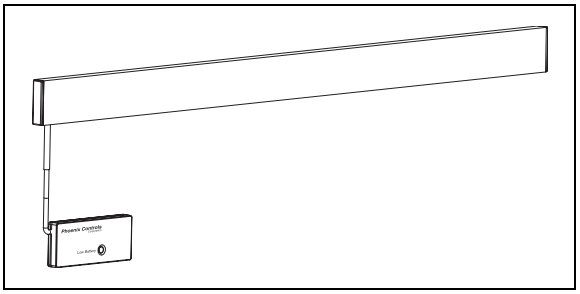
The **Phoenix Controls Wireless Sash Sensor system** detects a fume hood's sash position through a radio signal that is transmitted to a wireless receiver. Sensors can be configured to operate with the sash configurations found on most VAV fume hoods. These sash sensors help maintain a constant average face velocity at the sash opening.



Wireless Sash Sensor connected to horizontal magnet bar.

SPECIFICATIONS

Construction

Transmitter:

- Fabricated in a corrosive resistent plastic enclosure capable of withstanding harsh fumes produced in a typical fume hood
- Resistant to all chemicals that the current sash sensors are resistant to (which chemicals are the other sash sensors resistant to?)
- Color: light gray

Receiver:

- Housed in a corrosive resistant plastic enclosure
- Color: black

Power Supply

3-volt Lithium coin cell battery; nominal capacity 70 mA-hours at a nominal load of 15K ohms.

Operating Range

Provides dual voltage input capability. The supply can operate from 24 VAC or 15 VDC input.

- 24 VAC input: 18-30 VAC
- 15 VDC input: 14.5-18 VDC

Transmitter Frequency

433 MHz

Dimensions

- Transmitter: 2" W x 0.95" H x 0.25" D
- Receiver: 5.895" W x 3.114" H x 1.805" D
- Magnet bar: 1" W x 0.3" D. Bar lengths made to order; maximum length available is 75" cumulative

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75 Discovery Way • Acton, Massachusetts 02458 • Telephone (978) 795-1285 • Fax (978) 795-1111

FEATURES, APPLICATIONS AND OPERATION

The WSS uses existing sash sensing technology, replacing the two-conductor wire that runs from the horizontal sash sensor to the horizontal/vertical (H/V) card with a low-power wireless radio frequency (RF) transmitter. The transmitter detects the change in sash position and transmits the signal to a receiver that is located no more than 20 feet away. The WSS receiver replaces the H/V card, which will be responsible for calculating the proportional signal that is sent to the fume hood monitor.

Digitizing of the sash signal is accomplished by taking the current analog signal, passing it through an A/D converter, encoding it, and wirelessly transmitting to a receiver. The receiver then takes the transmitted signal, decodes it, converts it to an analog voltage, and amplifies it to a 0-10 VDC signal for the hood exhaust valve or the fume hood monitor.

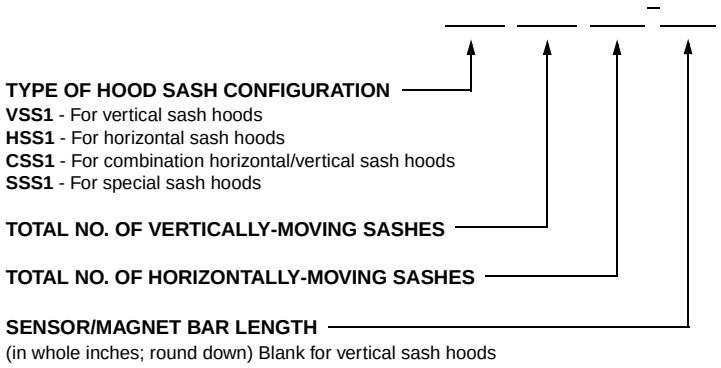
The receiver listens to multiple transmitters. Multiple transmitters can be in the same zone transmitting to multiple receivers. For example, there could be two hoods, side-by-side, in a lab with hood 1 having two sashes and hood 2 having four sashes. Hood 1 will have one transmitter and hood 2 will have two transmitters; both hoods will have their own receivers. When hood 1 sash opens, the transmitter encodes the data and transmits the data to hood 1's receiver. Only receiver for hood 1 will process the data, hood 2's receiver should discard the data.

NOTE: Need to add drawings to this section.

ORDERING GUIDE

Mike,

I inserted this as a placeholder...wasn't sure how much you'd need of this for the wireless version. I copied this from our general sash sensor product data sheet.



MOUNTING AND INSTALLATION

Mounting and Orientation

Transmitter

The wireless transmitter shall be field mounted near the current sensor bar with a distance of no more than two inches from the actual senor bar. The transmitter shall have double sticky-back tape on one side for easy mounting.

Receiver

The receiver shall be field mounted somewhere above the hood or in a sensible location. The receiver mounting location shall not exceed a total distance of 20 feet from the farthest wireless transmitter.

Installation

Transmitter

The wireless transmitter will be field mounted either underneath or above the current sash sensor bar. The sensor bar (two-conductor wire) will be field wired directly into the transmitter and the transmitter may not be more than two inches away from the sensor bar. The transmitter will also have a double sticky-back tape so that the unit may be affixed to the hood sash.

Receiver

The receiver will be field installed either above the hood or next to the fume hood monitor. In most cases, the receiver will be field mounted above the hood and no more than 20 feet away from the farthest transmitter.

NOTE: Need to add drawings to this section.

FIELD ADJUSTMENTS (CAILBRATION, CONFIGURATION, ETC.)

The wireless transmitter is uniquely identified, so that the relationship between a transmitter and a receiver is one-to-one. The Phoenix factory address each wireless transmitter so that it communicates to specific receiver.

The receiver is uniquely identified so the relationship between a receiver and a transmitter is one-to-many. Each receiver will be addressed via the front-end commissioning software.

POINTS & WIRING

The sensor bar is field wired directly to the transmitter. The transmitter is battery powered, so there is no need for additional wiring.

The receiver is field wired directly into the fume hood monitor. The receiver box has, at a minimum, two sets of 22 AWG 2-conductor wires connected to it, a 2-conductor wire for power and a 2-conductor wire for vertical sash signal.

NOTE: Need to add drawings to this section.

MAINTENANCE

For the most part, the WSS receiver and the transmitter are be maintenance free and do not require any services.

The wireless transmitter has a field replaceable battery that requires replacement once a year, depending on fume hood usage. Normal usage is four sash movements an hour, 7 hours a day, 6 days a week.

FCC COMPLIANCE FOR WIRELESS DEVICES

The FCC with its action in ET Docket 96-8 has adopted a safety standard for human exposure to radio frequency (RF) electromagnetic energy emitted by FCC certified equipment. When used with approved Phoenix Wireless Sash Sensors (WSSs), Phoenix WSS products meet the uncontrolled environmental limits found in OET-65 and ANSI C95.1, 1991. Proper installation of this radio according to the instructions found on this product data sheet and in the user's guide will result in user exposure that is substantially below the FCC recommended limits.

- Do not touch or move antenna(s) while the unit is transmitting or receiving.
- Do not hold any component containing a radio such that the antenna is very close to or touching any exposed parts of the body, especially the face and eyes, while transmitting.
- Do not operate the radio or attempt to transmit data unless the antenna is connected; otherwise, the radio may be damaged.

- Antenna use:
  - High-grain, wall-mount, or mast-mount antennas are designed to be professionally installed. Phoenix Controls recommends that you contact your professional installer, VAR, or antenna manufacturer to obtain proper installation requirements.

WARNINGS:

- Changes or modifications to this unit not expressly approved by the party responsible for compliance (Phoenix Controls) could void the user's authority to operate the equipment.
- Do not operate wireless network devices near unshielded blasting caps or in an explosive environment unless the devices have been modified to be especially qualified for such use.
- In order to comply with RF exposure limits established in the ANSI C95.1 standards, it is recommended that the wireless device's antenna is positioned more than 2 inches from your body or nearby persons during extended periods of transmitting or operating time. If the antenna is positioned less than 2 inches from the user, it is recommended that the user limit exposure time.
- In order to comply with FCC RF exposure limits, dipole antennas should be located at a minimum of 7.9 inches or more from the body of all persons.

COMPLIANCE INFORMATION

Compliance information for the Phoenix Controls Wireless Sash Sensor system is provided in the product's installation and configuration guide.