

Quick Start Guide



ZPS-A (Zone Presence Sensor - Area)

For use with AVC

 **Please read this entire document to familiarize yourself with the installation and wiring instructions for the ZPS-A Zone Presence Sensor. For additional details, refer to the individual product Submittal Drawings, User Manuals and Job-Specific Requirements.**

APPLICATION

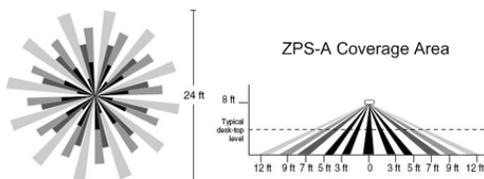
The ZPS-A Presence Sensor is an optional area sensor used with the AVC Fume Hood Control System. When de-activated, the ZPS-A signals one or more fume hoods to revert to the Setback mode, thus reducing the fume hood exhaust airflow. Upon the return of the occupants to the area, the ZPS-A will immediately signal the AVC Fume Hood Control System to return quickly to the normal working velocity set point.

COVERAGE PATTERNS

The ZPS-A has a multi-cell, multi-tier Fresnel lens with a field of view of 360° and will cover up to 500 sq ft and 12 feet from the sensor when mounted at 8 feet. Coverage shown in the diagram below is maximum and represents coverage for half-step, walking motion, with no barriers or obstacle.

STEP 1: PLACEMENT

The



effective coverage distance may be slightly less than the maximum sensing distance, depending upon obstacles such as furniture, shelving or partitions, and this must be considered when planning the number of sensors and their positioning.

Approximate coverage, for a mounting height of 8 feet:

Walking Motion

Up to 12 ft radius (500 sq ft)

Workstation (hand motion)

9 ft radius (300 sq ft)

The ZPS-A sensor can be mounted at various heights. When mounting at heights other than 8 feet, be aware that as you decrease the mounting height, you will decrease the range and increase the sensitivity to smaller motions. At heights of more than 12-14 feet, you may start to significantly reduce sensitivity.

Often the best location to install this sensor in a lab is in the area in front of the group of hoods to be set back, but not inline with a door, as it will pick up traffic in the corridor.

For an open lab area with partitions it is best to place sensors over intersections of the workstations. Also, avoid placing the sensor close to air ducts, as rapid air currents or the differences

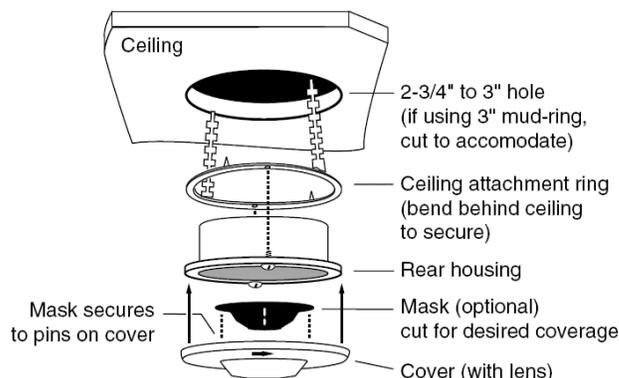
in temperatures may cause false activation. For large areas of coverage, use multiple sensors.

STEP 2: INSTALLATION

CAUTION:

- Wear eye protection, and take proper precautions for working on a ladder.
- Turn power off at circuit breaker before installing sensor.

A 4s junction box can be used with a 3" mud-ring when local building codes mandate that low voltage connections be



contained in a junction box. Otherwise a 3" mud-ring or the provided ceiling attachment ring can be used.

IMPORTANT: If masks are used on the sensor, the junction box or the mud-ring may need to be turned so that the mask is oriented properly when the sensor is installed (see Masking in Section 3).

Cut hole in ceiling tile—if using a:

- Ceiling attachment ring (provided) - cut about 2-3/4" to 3" diameter.
- 3" mud-ring - cut the hole to accommodate.

To assemble the sensor:

1. If using the ceiling attachment ring, bend the securing straps up so the sensor housing can be inserted, and attach it to the sensor with the provided screws.
2. Attach the mask, if using, into the lens recess and onto the securing pins of the cover.
3. Attach the cover to the rear housing—align tabs on inside of cover to notches on the outside perimeter of rear housing, place cover on the sensor, and twist clockwise to lock.
4. Insert the assembled sensor into the ceiling hole, and if using the mask, turn the sensor so that the unmasked part of the lens is toward and centered on the area to be monitored for traffic.
5. Bend the ceiling attachment ring straps behind the hole to secure (or attach sensor to mud-ring with screws).

STEP 3: MASKING

An insert (mask) is supplied to allow elimination of coverage in

unwanted areas. The mask is cut as needed and mounted onto anchor pins in the sensor's cover.

IMPORTANT: Do not use the mask if full coverage is desired.

IMPORTANT: Before securing the sensor in the mounting location, the assembled sensor must be turned so the unmasked portion of the lens faces the area to be monitored (the blue masked area is visible through the lens).

IMPORTANT: For an already installed sensor— If the sensor can not be turned, then the mask must be cut so that when installed, it will be oriented correctly (note the **location of the securing pins** in the cover and note that the **cover turns** as it locks into position).

Note: At the edges of the masking, there is a small area of **reduced sensitivity**, illustrated as the lighter area in the examples below.

Connect the wire necessary to the application that requires this output.

- GREEN (**Normally Closed**) - Open when occupancy is detected
- ORANGE (**Common**) - (must be used for proper operation)
- YELLOW (**Normally Open**) - Closed when occupancy is detected.

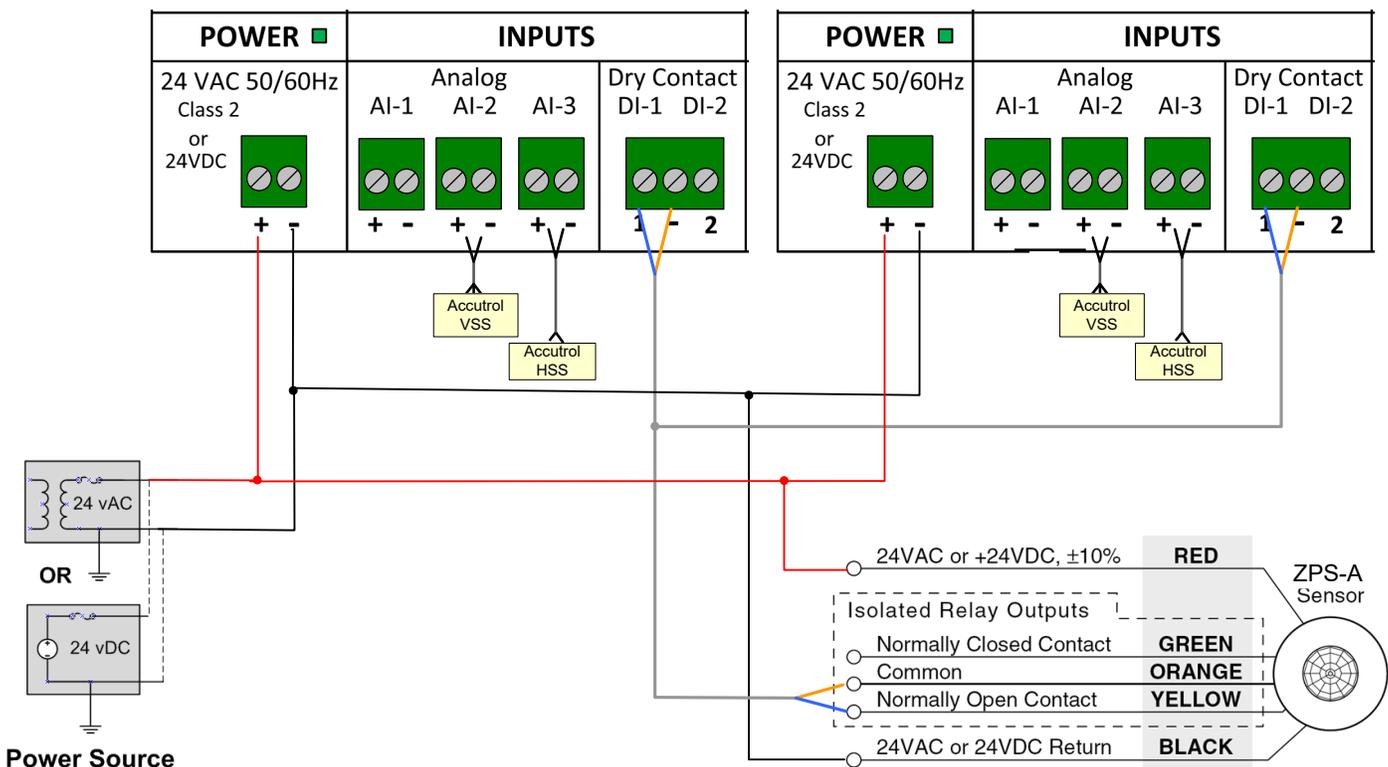
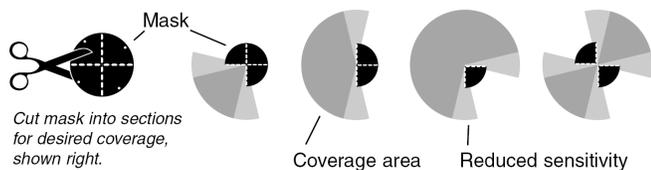
STEP 5: CONNECTING THE AVC

The benefit to the ZPS-A is that it can be wired to one or more hoods to initiate a set-back of the hood exhaust flow in a given area of a large laboratory, or can initiate the signal to all of the hoods in a given room.

To do this, all grouped AVC controllers need to be wired in parallel to the Yellow and Orange wires of the assigned ZPS-A.

STEP 4: BASIC WIRING DIRECTIONS

Isolated Relay: (rated for 1A @24VDC or 24VAC)



CAUTION!

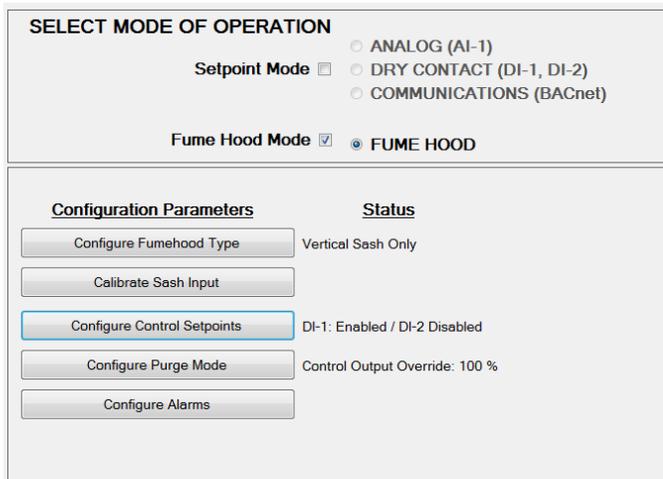
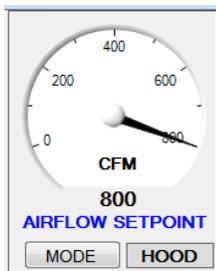
- Maintain polarity if power source is used for multiple devices otherwise equipment may be damaged.
- Turn power off at circuit breaker before wiring sensor.
- Maintain polarity on all digital inputs of the AVC and the contacts of the ZPS-A

STEP 6: CONFIGURATION

Each AVC Dry Contact Input connected to a ZPS-A needs to be configured as (normally open) N.O. when wired to the Yellow and Orange wires of the ZPS-A. Set the ZPS-A for the minimum delay of 30 secs, and if more delay is required adjust the Dry Contact Input using the *Insight Software*. Test reaction time by walking in and out of the area.

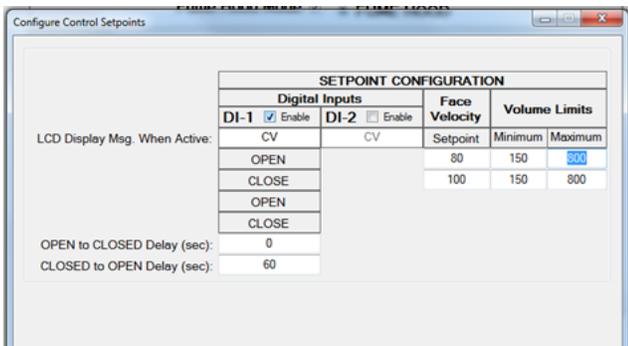
After the controller is tuned and operating at normal velocity set point, the technician should address the delays so the AVC fume hood controller switches set points safely according to the customer's requirements.

These adjustments are made in the *Insight Software* by pressing the MODE button on the AIRFLOW SETPOINT window as shown below.



When the next Window comes up select:

Configure Control Setpoints



In the Configure Control Setpoints window, Select Enable next to DI-1 and a drop down table will appear. This is where you select which velocity setpoints are used for each position of Digital Input #1. Since we are only using DI #1, there are only two conditions to be concerned about, open and closed.

In the instructions on the previous page, we have wired to the normally open contacts of the ZPS-A using the Yellow and Orange wires which are "open" when there is not a person in the area. For the "open" position of DI#1 we have selected 80 fpm as our velocity setpoint, and 150 to 800 cfm as being our minimum and maximum volume limits.

When there is a person in the area, the contacts on the ZPS-A will close, and the setpoints need to be configured to the higher of the two velocity setpoints, and we have chosen 100 fpm as our normal velocity setpoint, with 150 to 800 cfm being our minimum and maximum volume limits. (Please adjust these values to suit the requirements of your project site.)

2f. Verification

Once the ZPS-A is set up, verify that the Digital input of the AVC is configured to trigger the setback to lower flow and test entire system by walking in the area of the hood to verify that the hood responds appropriately. Repeat walking test to verify proper operation. (You may have to stand out of the area in front of the hood to give time for the AVC Fume Hood Controller to revert to the Setback of the reduced velocity setpoint.)

For additional help, please call Accutrol at 203-445-9991 for additional Technical Support