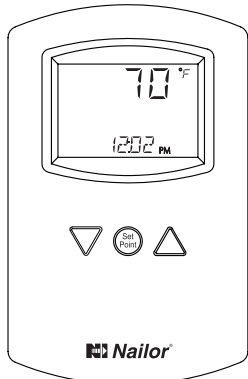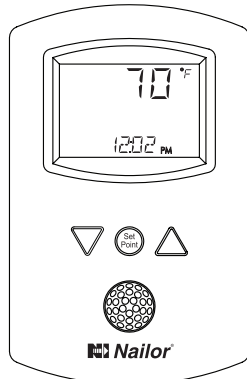# Quick Start Installation Guide – EZvav Sensors & Controllers

EZvav Sensors:

STE-8001W36
Digital Display

STE-8201W36
Digital Display with Occupancy Sensor

This installation guide applies to EZvav digital display wall sensors connected to EZvav controllers.

For complete details, download IOM "IOM-EZVAVINST" from Nailor website.

www.nailor.com

Choosing a sensor location

Install the sensor on an inside wall where it can sense the average room temperature. Avoid locations with direct sunlight, heat sources, windows, air vents, and air circulation obstructions such as curtains or furniture.

For models with motion sensing, see the topic on the following page, *Planning for motion sensing*.

Rough-in preparation

Complete rough-in wiring at each sensor location prior to sensor installation. This includes the following items:

• If required, install an appropriate backplate.

• Route an Ethernet connecting cable from the sensor to the controller location.

• Maximum cable length is 75 feet (22.9 meters). Plenum-rated preassembled cables are recommended.

Ethernet Connecting Cable

Maximum 75 feet (22.9 meters)

Mounting Base
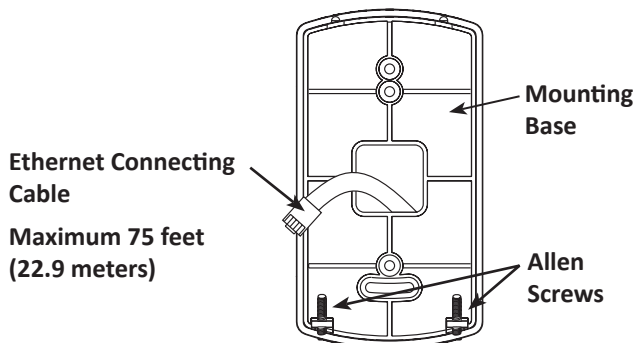
Allen Screws

Mount the sensors

To install the sensor on a mounting base, do the following:

1. Turn the Allen screws in the base of the sensor clockwise until they clear the case. Swing the sensor away from the mounting base to remove it.
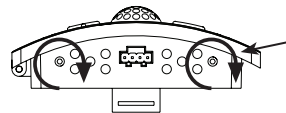
Turn screws clockwise to remove sensor case from base.

2. Route the Ethernet cable through the mounting base.

3. Fasten the mounting base directly to a 2 x 4 inch (51 x 102 mm) outlet box or a backplate with the Allen screws toward the floor.

4. Insert the Ethernet cable coming from the base into the sensor.

5. Place the top of the sensor over the top of the mounting base and swing it down over the Allen screw brackets. Be careful not to pinch any wiring.

6. Turn the Allen screws counterclockwise until they back out of the mounting base and engage the case of the sensor.
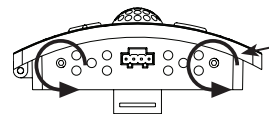
Turn counterclockwise until the screws engage the case.

Operation

The sensor will become operational as soon as it is connected to an operational controller. See the following pages to change room set points or configure a EZvav controller with the sensor.

Maintenance

Remove dust as necessary from holes in top and bottom. Clean the display with soft, damp cloth and mild soap.

Planning for motion sensing

For motion sensing models only — Mount the sensor on a wall that will have an unobstructed view of the typical traffic in the coverage area. When choosing a location, do not install the sensor in the following areas.

- Behind curtains or other obstructions.
- In locations that will expose it to direct sunlight or heat sources.
- Near a heating or cooling inlet or outlet.

The effective detection range is approximately 33 feet (10 meters). Factors that may reduce the range may include the following items.

- The difference between the surface temperature of the object and the background temperature of the room is too small.
- Object movement in a direct line toward the sensor.
- Very slow or very fast object movement.
- Obstructions in the shaded area of the diagram *Typical motion sensing coverage*.

False detections may be triggered by any of the following conditions.

- The temperature inside the detection range suddenly changes because of the entry of cold or warm air from an air-conditioning or heating unit.
- The sensor being directly exposed to sunlight, an incandescent light, or other source of far-infrared rays.
- Small animal movement.
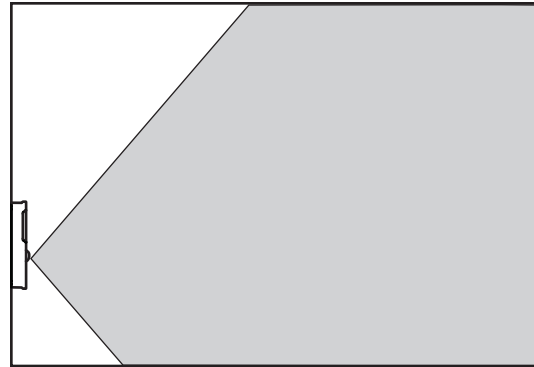
Typical motion sensing coverage
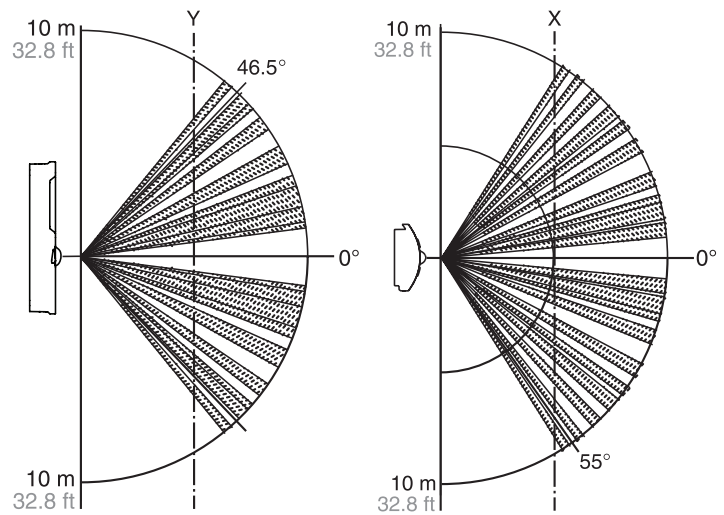
Side view   **Top view**
Motion sensor vertical and horizontal patterns

Changing room set points

Room set points are changed using the buttons and display on the front of the sensor.

1. Press any button to begin changing set points.
2. If required, enter Password 1. New installations do not have a password.
3. When the display advances to the cooling set point, press the up Δ or down ∇ button to change the cooling set point.
4. Press the set point button to save the cooling set point and advance to the heating set point.
5. Press the button to save the value or advance to the next function.
6. When the display advances to the heating set point, press the up Δ or down ∇ button to change the heating set point.
7. Press the set point button to save the heating set point and return to the temperature display.
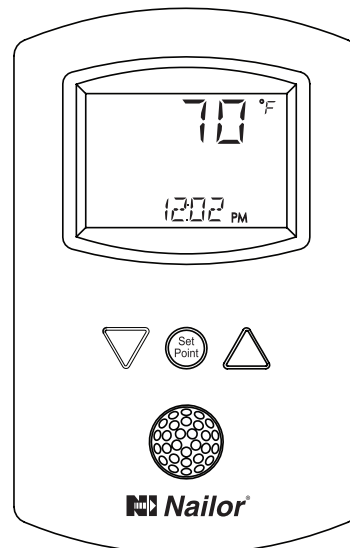
EZvav Controllers:

These are brief instructions for installing a EZvav controller.

For complete details, download IOM "IOM-EZVAVINST" from Nailor website.

www.nailor.com

1   Align the damper and drive hub

Manually rotate the damper on the VAV box to the fully closed position.

Press the gear clutch button and rotate the drive hub in the same direction that closed the damper. Turn the hub until it reaches a stop, then rotate the hub back 2 degrees and release clutch.

2   Mount the controller to the VAV box

Place the controller over the damper shaft.

Finger tighten the nuts on the V-bolt to position the shaft in the drive hub.

Center the mounting bushing in the mounting tab and fasten it with a #8 sheet metal screw.

Evenly tighten the V-bolt nuts on the drive hub to 30-35 in-lbs.

3   Connect the room sensor cable

Connect a EZvav sensor to the controller with a standard Ethernet cable. Plug the controller end of the cable into the T'stat connector.

4   Connect the airflow sensors

Connect the airflow sensor on the VAV box to the airflow ports on the controller. Use 0.25 in. FR tubing.

5   Connect auxiliary equipment (optional)

Other VAV equipment such as fans, heaters, reheat valves, and discharge air temperature sensors connect at the green terminals.

If the controller is part of a BACnet network, wire it to the gray MS/TP network terminals.

6   Connect 24 volt power

Connect the controller to a 24 volt, Class 2 transformer at the black power terminals. As soon as power is connected, the controller begins operation.

Drive Hub and V-bolt

Airflow Sensor Ports

Black Power Terminals

Gray Network Terminals

Mounting Tab and Bushing

Gear Clutch Button

Room Temp. Sensor/ T'stat connector

Green Terminals for Fan, Reheat and Other Equipment
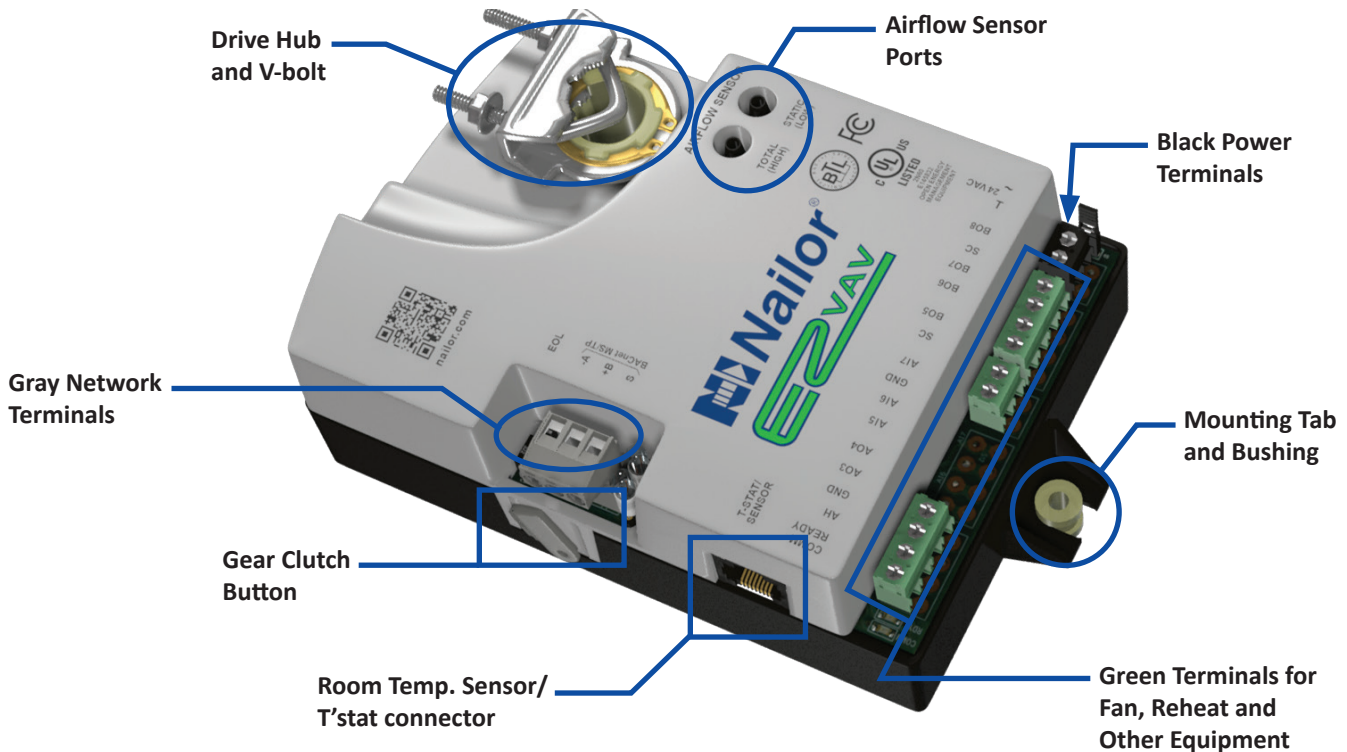
Quick Start Configuration Guide – EZvav Sensors & Controllers

Nailor Industries Inc. ®

Use an STE-8001W36 or STE-8201W36 sensor to configure the EZvav controller. If another type of sensor is installed as the room sensor, temporarily connect an STE-8001W36 as a service tool.

To get started:

Press together the up △ and down ▽ buttons to start configuration or balancing.

Enter Password 2 if required. New installations do not have a password.

Press the up △ or down ▽ buttons to move between functions or change values.

Press the set point ⊙ button to choose a selection or save a value.

CNFG The main configuration parameters for the VAV terminal unit.

COMM Set BACnet device instance, MAC address and network baud.

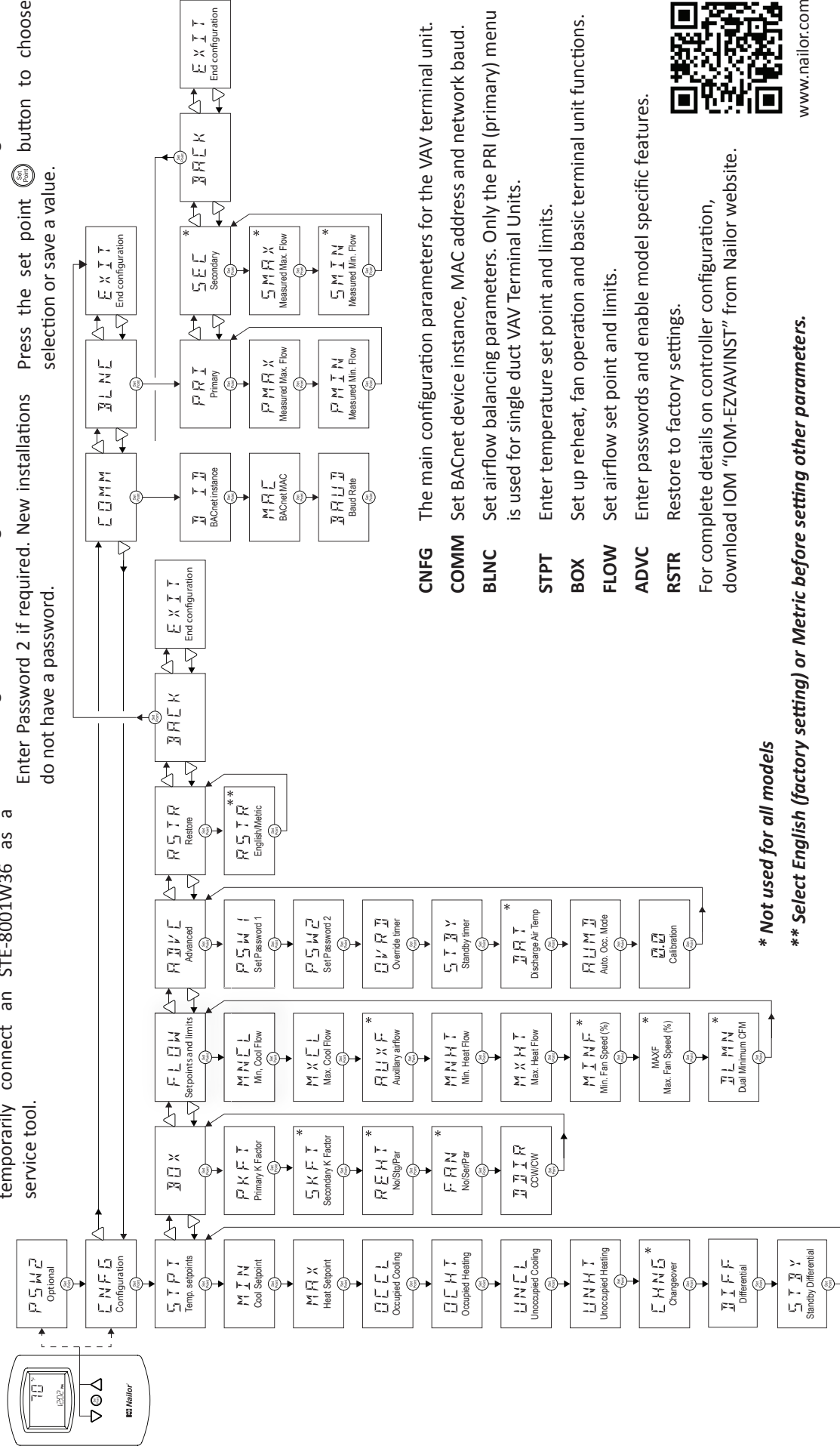**BLNC** Set airflow balancing parameters. Only the PRI (primary) menu is used for single duct VAV Terminal Units.

STPT Enter temperature set point and limits.

BOX Set up reheat, fan operation and basic terminal unit functions.

FLOW Set airflow set point and limits.

ADVC Enter passwords and enable model specific features.

RSTR Restore to factory settings.

For complete details on controller configuration, download IOM "IOM-EZVAVINST" from Nailor website.

* Not used for all models

** Select English (factory setting) or Metric before setting other parameters.

Diagram menu items

- PSW2 — Optional
- CNFG — Configuration
- STPT — Temp. setpoints
  - MTIN — Cool Setpoint
  - MRX — Heat Setpoint
  - OCCL — Occupied Cooling
  - OCHT — Occupied Heating
  - UNCL — Unoccupied Cooling
  - UNHT — Unoccupied Heating
  - CHNG* — Changeover
  - DIFF — Differential
  - STBY — Standby Differential
- BOX
  - PKFT — Primary K Factor
  - SKFT* — Secondary K Factor
  - REHT* — No/Stg/Par
  - FRN* — No/Ser/Par
  - DDIR — CCW/CW
- FLOW — Setpoints and limits
  - MNCL — Min. Cool Flow
  - MXCL — Max. Cool Flow
  - RUXF* — Auxiliary airflow
  - MNHT — Min. Heat Flow
  - MXHT — Max. Heat Flow
  - MTNF* — Min. Fan Speed (%)
  - MAXF* — Max. Fan Speed (%)
  - DLMN* — Dual Minimum CFM
- RDVC — Advanced
  - PSW1 — Set Password 1
  - PSW2 — Set Password 2
  - OVRD — Override timer
  - STBY — Standby timer
  - DAT* — Discharge Air Temp
  - RUMD — Auto. Occ. Mode
  - CAL — Calibration
- RSTR — Restore
  - RSTR** — English/Metric
- BACK
- EXIT — End configuration
- COMM
  - DEV — BACnet Instance
  - MAC — BACnet MAC
  - BRUD — Baud Rate
- BLNC
  - PRI — Primary
    - PMRX — Measured Max. Flow
    - PMIN — Measured Min. Flow
  - SEC* — Secondary
    - SMRX* — Measured Max. Flow
    - SMIN* — Measured Min. Flow
- EXIT — End configuration
- BACK
- EXIT — End configuration

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