S&P USA Ventilation Systems, LLC
6393 Powers Ave
Jacksonville, FL 32217
ES24V
Envirosense Ventilation Controller

The ES24V controls a ventilator to meet fresh air supply requirements while limiting operation during periods of extreme temperature and/or humidity.

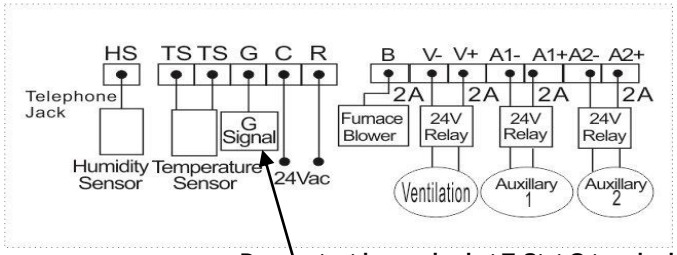
INSTALLATION & OPERATION MANUAL

CAUTION:
1. READ AND SAVE THESE INSTRUCTIONS.
2. Before installation or maintenance, disconnect the power supply.
3. This control is for 24 VAC applications only.
4. All wiring must be done by qualified person(s) in accordance with all applicable codes & standards.
5. Indoor Use Only

WIRING

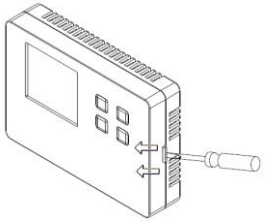
Use Copper Conductors Only

Terminal	Type	Description
R	24Vac	Input: 24Vac input (50/60 Hz)
C	24Vac	Input: 24Vac common
G	24Vac	Input: Furnace Blower (Optional)
B	24Vac	Output: Furnace Blower (2A max) (Optional)
V+	24Vac	Output: Ventilation + (2A max)
V-	24Vac	Output: Ventilation - (2A max)
A1+	24Vac	Output: Auxiliary 1+ (2A max) (Optional)
A1-	24Vac	Output: Auxiliary 1 - (2A max) (Optional)
A2+	24Vac	Output: Auxiliary 2+ output + (2A max) (Optional)
A2-	24Vac	Output: Auxiliary 2- output + (2A max) (Optional)



Dry contact is required at T-Stat G terminal

MOUNTING



Front Cover Removal

Insert a flathead screwdriver into the slot on the right side of the controller and apply gentle pressure inward and up so that the front cover disengages from the back cover. Pull the front cover up and to the left.

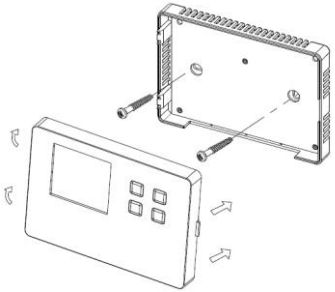
Back Cover Mounting

Locate the control on the mounting surface being sure to allow clearance for the necessary wiring connections. Mark the mounting hole locations and remove the back cover from the work space. Make the stripped/labelled wiring connections now. *CAUTION: Be sure that no exposed portions of wires are touching.*

If installing onto wood, mount the back cover with the provided screws. If installing onto drywall, drill pilot holes using a 7/32" drill bit (not provided) and tap the provided drywall anchors into place. Mount with provided screws. *NOTE: Velcro can be used to mount the control instead of screws if necessary.*

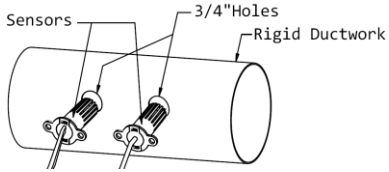
Verify that wiring connections are correct and secure.

Align the front cover with the back cover starting on the left side. Push the front cover towards the back cover in a "hinging" motion from the left to the right. *CAUTION: Make sure the front cover is aligned properly with the back cover to avoid damaging the control.* **Press down until the front cover snaps securely into place.**

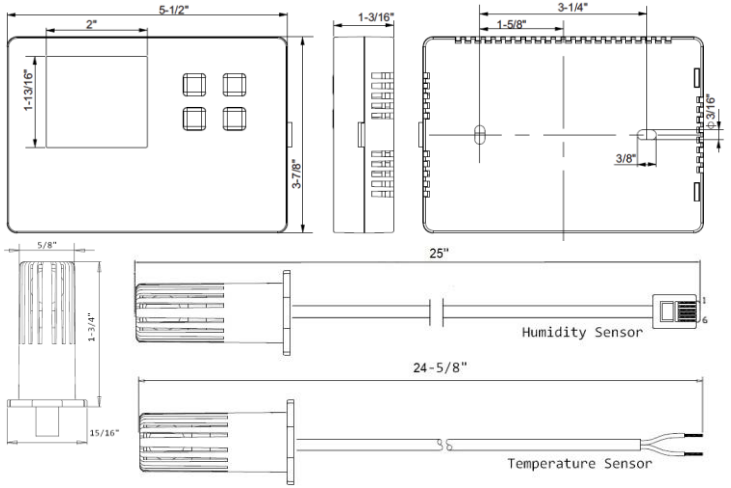


Sensor Mounting

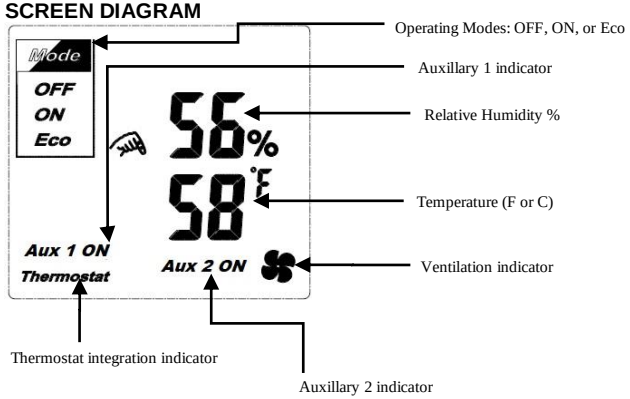
The ES24V comes with a temperature sensor (26AWG, 2 wire) and humidity sensor (6P6C, telephone wire), both 24" long. Install the sensors at a location so that they will be exposed to the fresh air intake (ex: the fresh air ductwork). Drill 2, 3/4" diameter holes, spaced appropriately and install the sensors with the provided hardware. **Use appropriate duct tape to seal joints/openings as necessary.**



DIMENSIONS (in)



SCREEN DIAGRAM



OPERATING MODES

OFF Mode: All outputs are off.

ON Mode: Ventilation, Auxiliary 1 (if enabled), and Auxiliary 2 (if enabled), Furnace Blower (if enabled) are on continuously.

Eco Mode: limits ventilation during periods of extreme temperature and/or humidity. Ventilation, Auxiliary 1 (when enabled), and Auxiliary 2 (when enabled) will follow the user settings when the outside air temperature/humidity is within the user set limits (see Function Setting below). The ventilation terminals will be activated for the user set amount of time per hour while the temperature/humidity limits are within range. The temperature/humidity sensors evaluate the fresh air conditions every 10 seconds. While the fresh air temperature/humidity is within the user set limits, ventilation, Auxiliary 1 (if enabled) & Auxiliary 2 (if enabled) will turn on per the user settings. When the fresh air temperature/humidity exceeds the user set limits, the ventilation, Auxiliary 1 (if enabled) & Auxiliary 2 (if enabled) terminals will turn off and engage a timer. The timer will activate the ventilation terminals for 5 minutes every 15 minutes in order to meet code requirements.

NOTE: the Furnace Blower (if enabled) will not run during this check procedure to prevent cycling. The fan will continue this check procedure until the temperature/humidity limits are within the user set limits.

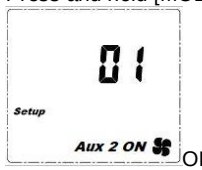
If Enabled (in SETUP):
The Furnace Blower will be on: any time there is a call from "G" Input or any time Ventilation is on (excluding the check procedure above).
Auxiliary 1 will be on anytime the fresh air fan is on.
Auxiliary 2 will be on any time the fresh air fan is on.
(*Auxiliary 1, Furnace Blower and Auxiliary 2 are required to be enabled in* **SETUP**)

BUTTONS

Keys	Description
Mode	Select the operating mode
Set	Confirm settings
▲	Increase settings
▼	Decrease settings

SETUP

Press and hold [MODE] for 3 seconds to enter setup mode.



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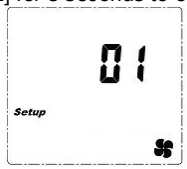
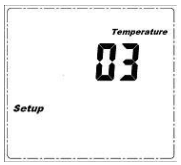


01 Optional Auxiliary 2 (Default: Auxiliary 2 disabled)
Press [▲]/[▼] to enable or disable Auxiliary 2.
Press [SET] to confirm settings.

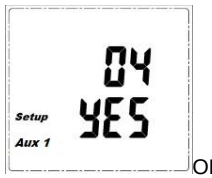
OR


02 Temperature Unit (Default: degrees F)
Press [▲]/[▼] to select degrees C or degrees F.
Press [SET] to confirm settings.

OR


OR


03 Humidity/Temperature (Default: temperature and humidity)
Press [▲]/[▼] to evaluate temperature only, humidity only or both temperature and humidity.
Press [SET] to confirm settings.



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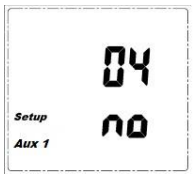


04 Optional Auxiliary 1 (Default: Auxiliary 1 disabled)
Press [▲]/[▼] to enable or disable motorized damper.
Press [SET] to confirm settings.

OR

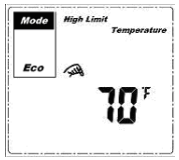

05 Optional Thermostat Integration (Default: standalone system)
Press [▲]/[▼] to enable or disable thermostat integration.
Press [SET] to confirm settings.

06 Ventilation Run per Hour (Default: 15 minutes)
Press [▲]/[▼] to adjust 5-60 Minutes/Hour (Increments of 5).
Press [SET] to confirm settings and return to normal mode.

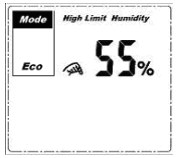
All setting screens will return to the normal mode screen automatically after 20 seconds.

FUNCTION SETTINGS

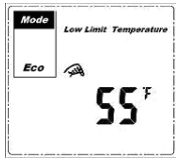
Press <Set> key to set the temperature/humidity limits.



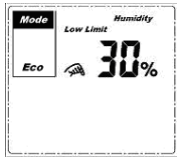
Press [▲]/[▼] to change the high limit temperature setting.
Press [SET] to confirm settings.



Press [▲]/[▼] to change the high limit humidity setting.
Press [SET] to confirm settings.



Press [▲]/[▼] to change the low limit temperature setting.
Press [SET] to confirm settings.



Press [▲]/[▼] to change the low limit humidity setting.
Press [SET] to confirm settings.

FACTORY RESET

Press and hold [▲]&[▼] buttons in OFF mode for ~5 seconds to reset the control to factory settings. will be displayed on the screen when complete.

FEATURES

- Voltage supply: 24V_{AC} +/- 15% 50/60Hz
- System mode: Off / On / Eco
- Temperature unit mode: °F or °C
- Temperature measurement range: 15°F - 130°F (-10°C to 55°C)
- High Limit Temperature settings range: 65 -105°F (18°C to 40°C)
- Low Limit Temperature settings range: 20 - 60°F (-6°C to 16°C)
- Temperature resolution: 1 °F or 0.5°C
- Temperature Accuracy: +/-1 °F or 0.5°C
- Humidity measurement range: 10-95%
- High Limit Humidity settings range: 55-90%
- Low Limit Humidity settings range: 10-50%
- Humidity resolution: 1 %
- Humidity Accuracy: +/- 5 %
- 10 inch RJ12 (6 wires) phone cable for humidity sensor
- 10 inch 26AWG (2 wires) cable for temperature sensor
- Max Sensor Wire Length: 300 feet (100m)
- Auxiliary 1 relay output (Maximum 2A)
- Ventilation relay output (Maximum 2A)
- Auxiliary 2 relay output (Maximum 2A)
- Furnace Blower Output (Maximum 2A)
- Non-volatile memory to store settings, configuration parameters
- Operating temperature: 15°F to 130°F (-10 °C to 55°C)
- Storage temperature: -20°F to 158°F (-29 °C to 70°C)
- Temperature limit of mounting surface: 130°F (55°C)
- Terminals: 2.5mm^2 cable
- Pollution Degree: 2
- Degree of protection: IP20
- Electronic control: Type 2.B
- Class II Control
- cULus listed: UL60730-1
- Housing Material: Lexan 943(f1), 1.6mm thick, V-0 (UL94 Rating)
- Time Setting Rage: 5-60 Minutes
- Power: 1.5W (Max)

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LISTED
OPERATING CONTROL
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