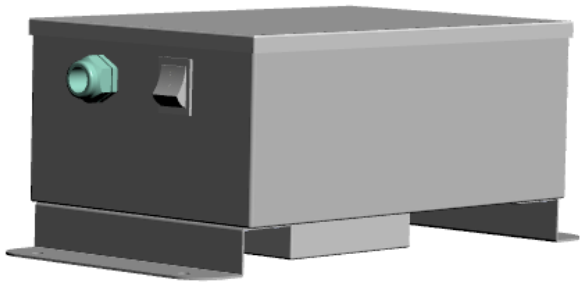
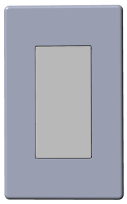
ZOO FANS®

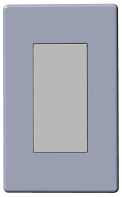
Efficiency and Performance

Installation Guide

AVST-10A-115V







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IMPORTANT SAFETY INFORMATION
READ AND SAVE THESE INSTRUCTIONS

WARNING – TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS: Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards.

CAUTION: The installation of a ZOO Fan controller must be in accordance with the requirements specified in this installation manual and with any additional requirements set forth by the national electric code (NEC), ANSI/NFPA 70-1999, and all local codes. If you are unfamiliar with wiring, use a qualified electrician.

WARNING: To prevent electrical shock and/or injury disconnect controller from power source before you move or service the controller.

For use with fans marked suitable for use with solid-state speed controls.

WARNING: To reduce the risk of fire, electric shock, and injury to persons, this controller should only be installed with ZOO Fans. Not suitable for use with other motors.

CAUTION: When service or replacement of a component in the controller requires the removal or disconnection of a safety device, the safety device is to be reinstalled or remounted as previously installed.

WARNING: Risk of fire, electric shock, or injury to persons during maintenance. Disconnect the controller from the power supply before servicing.

WARNING – TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

a) Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
b) Before servicing or cleaning unit, switch power off at service panel and lock the service disconnect to prevent power from being switched on accidentally. When the service disconnect cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.

TABLE OF CONTENTS:

ZOO FANS AVST-SERIES CONTROLLER SPECIFICATIONS

Model	Amps	Input Power	Control Input	Operates up to
AVST-10A-115V	10	115V	ZOO Fans Wall Unit 0-10VDC	18 – H25 orH30 Fans 9 – H50 or H60 Fans 16 - IC15 or IC15-Silent Fans 16 - IC20 Drop-In Fans 9 - IC30 or IC30 Silent Fans

What's in the box?

- AVST-10A-115V Advanced Variable Speed Transformer Controller
- 4-position horizontal terminal block for high voltage input power
- 4-position horizontal terminal block for high voltage output power
- 4-position horizontal terminal block for control via ZOO Fans Wall-mounted Control Unit
- 2-position horizontal terminal block for control via 0-10VDC control signal
- ZOO Fans Wall-mounted Control Unit (optional)
- ZOO Fans Remote Temperature Sensors (optional)
- ZOO Fans Wireless Remote Control (2 AAA batteries, not included)

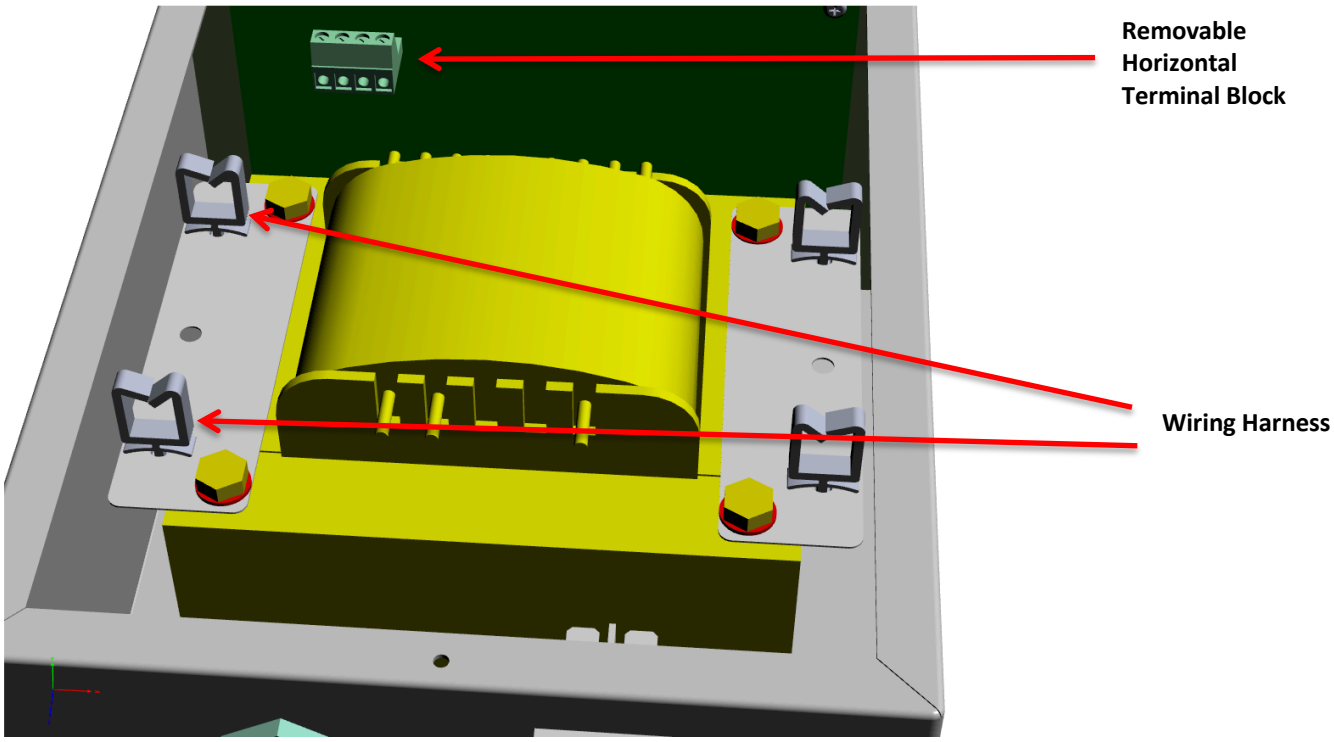
What you'll need:

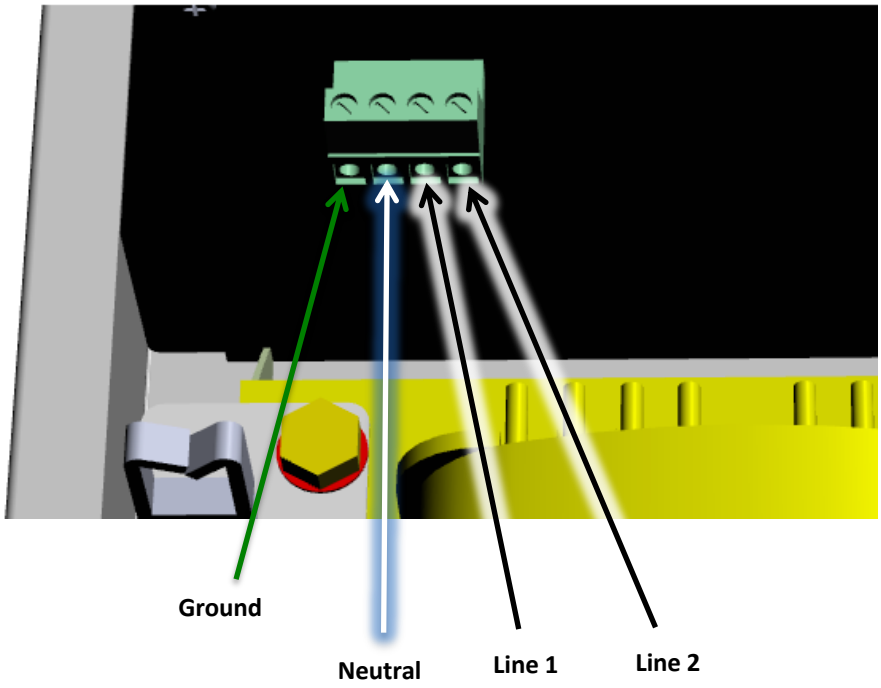
- Mounting screws
- 2.4 mm flat head screw driver
- 2x4 job box for Wall-mounted Control Unit (if ordered)
- 2x4 job box for each Remote Temperature Sensor (one per sensor, if ordered)
- 2 AAA batteries for Wireless Remote Control (if ordered)

STEP 1: WIRING INPUT

To wire the high-voltage input, follow these steps:

- Strip outside sheath of cable, leaving 8-9” of insulated wires
- Strip approximately 1/8” of insulation to prepare wires for connection to horizontal terminal block
- Run wires through each wiring harness (see picture, below)
- Terminate wires with included horizontal terminal block. For proper wire locations, see wiring instructions on following page.



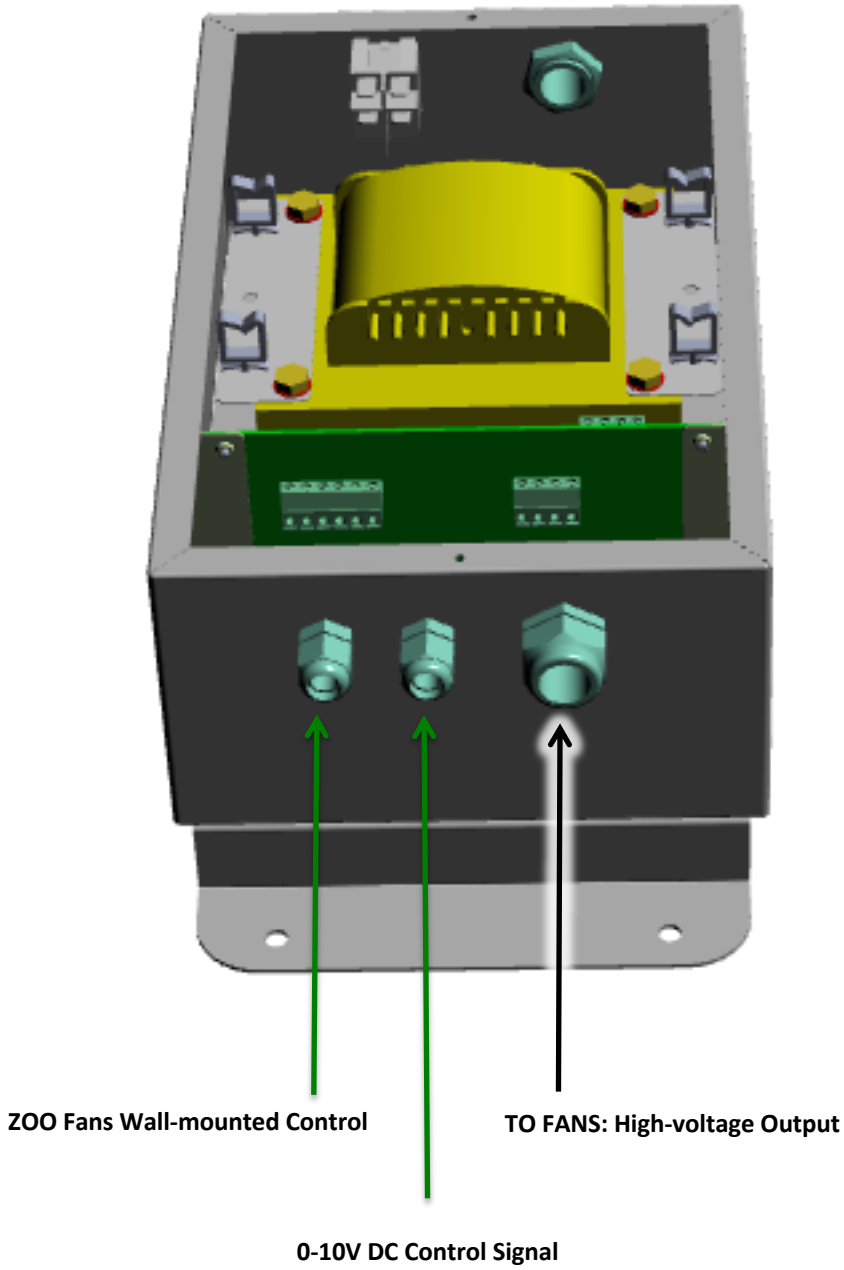


AVST-10A-115V Wiring Instruction:

Voltage	Ground	Neutral	Line 1	Line 2
115V	Ground (Green)	Neutral (White)	N/A	Line (Black)

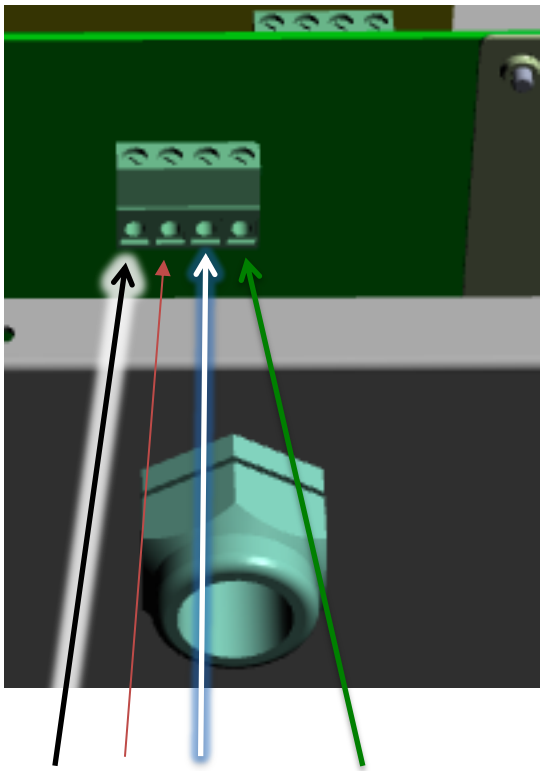
STEP 2: WIRING OUPUT and CONTROL

The AVST controller series has a high-voltage wiring port and two (2) low-voltage control-wiring ports. The controller can be controlled via a 0-10VDC control signal or manually via the ZOO Fans Wall-mounted Controller. Depending on the means of control for your installation, use the ports as shown below:



WIRING HIGH VOLTAGE OUTPUT

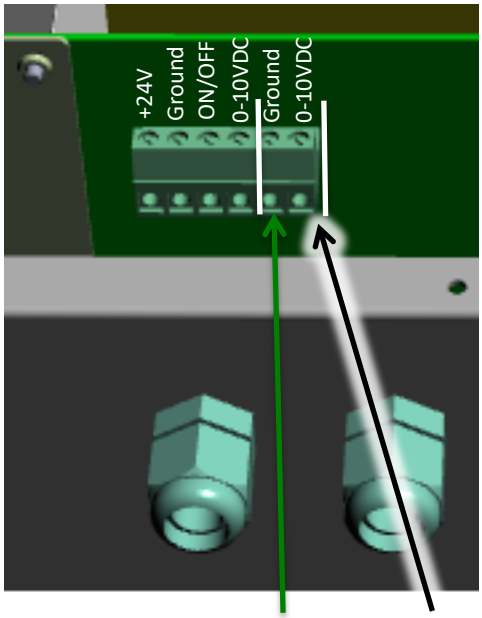
- Strip outside sheath of cable, leaving 3” of insulated wires
- Strip approximately 1/8” of insulation to prepare wires for connection to horizontal terminal block
- Connect wires to horizontal terminal block, as shown below



Model	Line	Blank	NEUTRAL	Ground
AVST-10A-115V	Line (Black)	Not Used	Neutral (White)	Ground (Green)

CONTROL VIA 0-10V DC (e.g., BMS) :

- Electrical connection should be made according to the wiring diagram, below
- Wires should be terminated using the removable horizontal terminal block (included)
- Shielded cable is recommended to reduce interference



WARNING: Dangerous voltages are present on the circuit board when connected to the power line. Power must be removed before making any connections or adjustments to avoid electrical shock or damage to the unit.

CAUTION: An incorrectly installed controller can result in component damage or reduction of the fan's life. Wiring or application errors such as under-sizing the controller, incorrect or inadequate AC supply, or excessive ambient temperatures may result in a malfunction of the fan system.

Verify correct voltage and phase before beginning installation!

This 8-step Auto Transformer will vary the speed of Zoo Fan's AC Fans. To control via BMS, use the voltage chart below to select a speed step.

BMS Signal Table

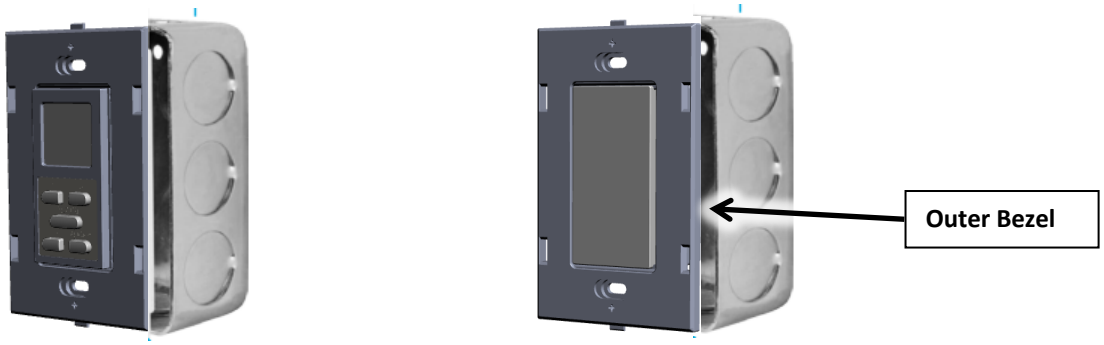
10V	**Step 8 - HIGH**
9V	**Step 7**
8V	**Step 6**
7V	**Step 5**
6V	**Step 4**
5V	**Step 3**
4V	**Step 2**
3V	**Step 1**
<2V	**Off - (LOS)**

CONTROL VIA ZOO FANS WALL-MOUNTED CONTROLLER:

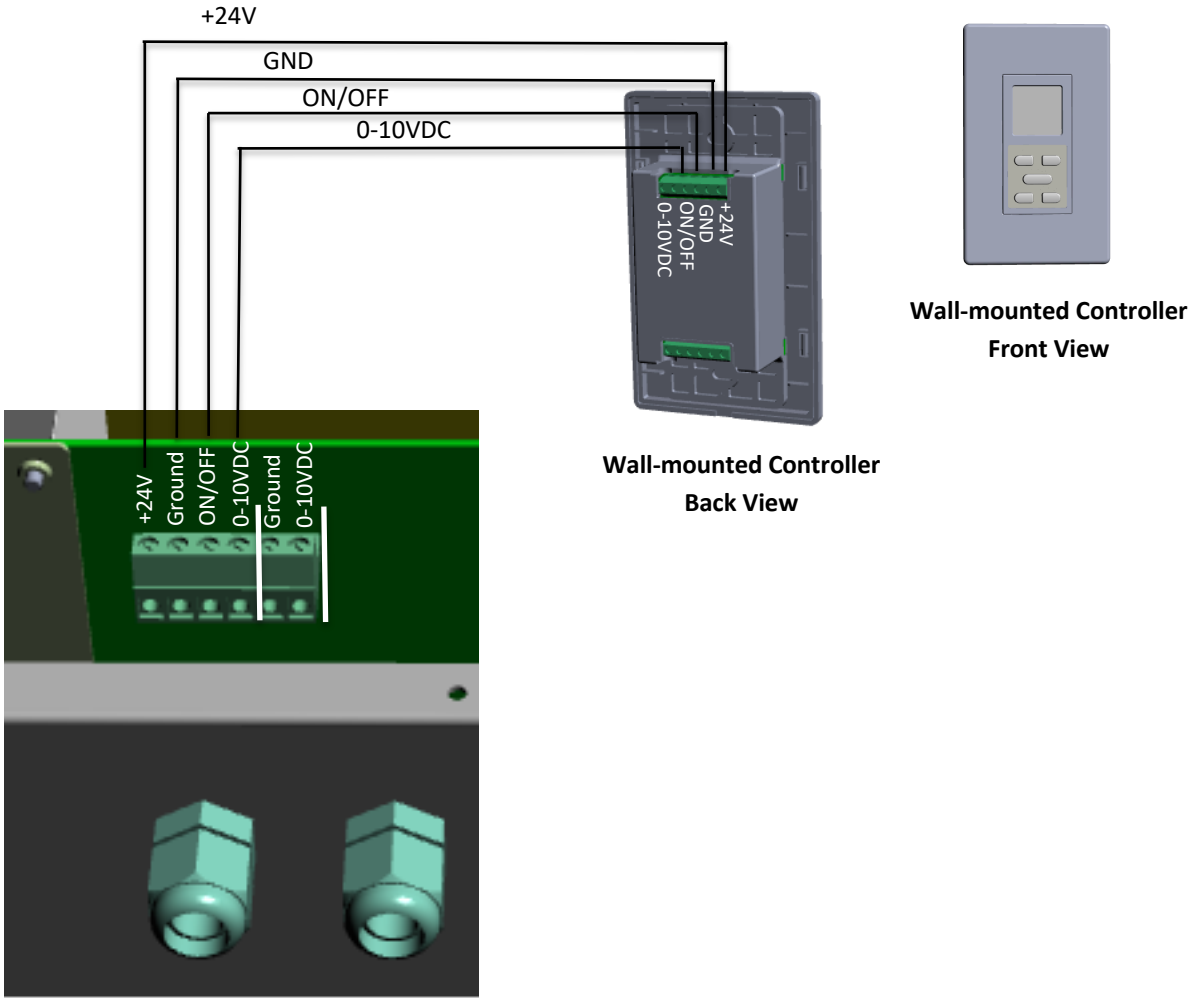
Install Wall-mounted Controller / Remote Temperature Sensor

The ZOO Fans Wall-mounted Controller installs in a standard single-gang electrical box.

1. Install the single-gang electrical box (not provided)
2. Wire each unit with the wiring diagrams below
3. Secure the controller to the enclosure using the 2 screws provided
4. Clip on outer Bezel



Wiring connections from AVST to Wall-Mounted Controller



Wall-mounted Controller Front View

Wall-mounted Controller Back View

- Electrical connection should be made according to the wiring diagram.
- Wires should be terminated using the horizontal terminal blocks (included).
- Shielded cable is recommended to reduce interference.
- Use stranded wire for the control signal wiring. DO NOT use solid wire.

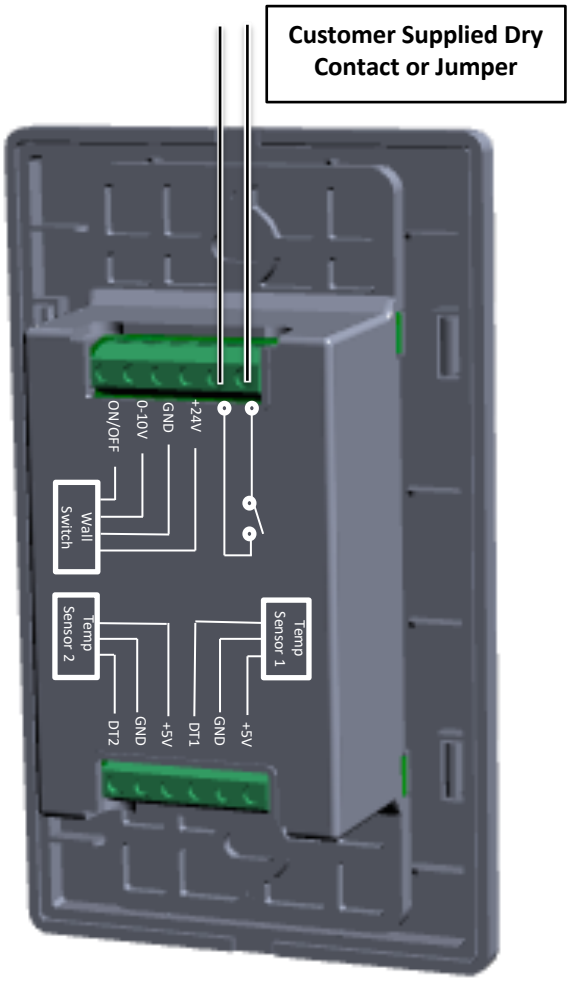
For additional information on the user interface, please visit http://www.zoofans.com/our-products/controllers/

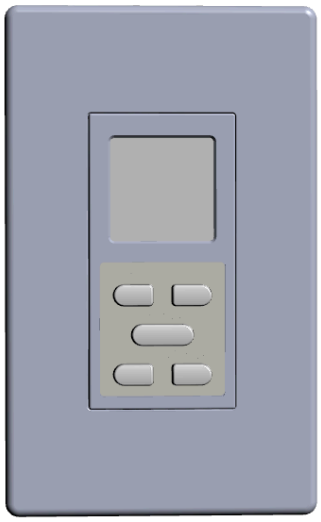
WARNING: Dangerous voltages are present on the circuit board when connected to the power line. Power must be removed before making any connections or adjustments to avoid electrical shock or damage to the unit.

CAUTION: An incorrectly installed controller can result in component damage or reduction of the fan's life. Wiring or application errors such as under-sizing the controller, incorrect or inadequate AC supply, or excessive ambient temperatures may result in a malfunction of the fan system.

Verify correct voltage and phase before beginning installation!

Wiring connections to enable Wall-Mounted Control

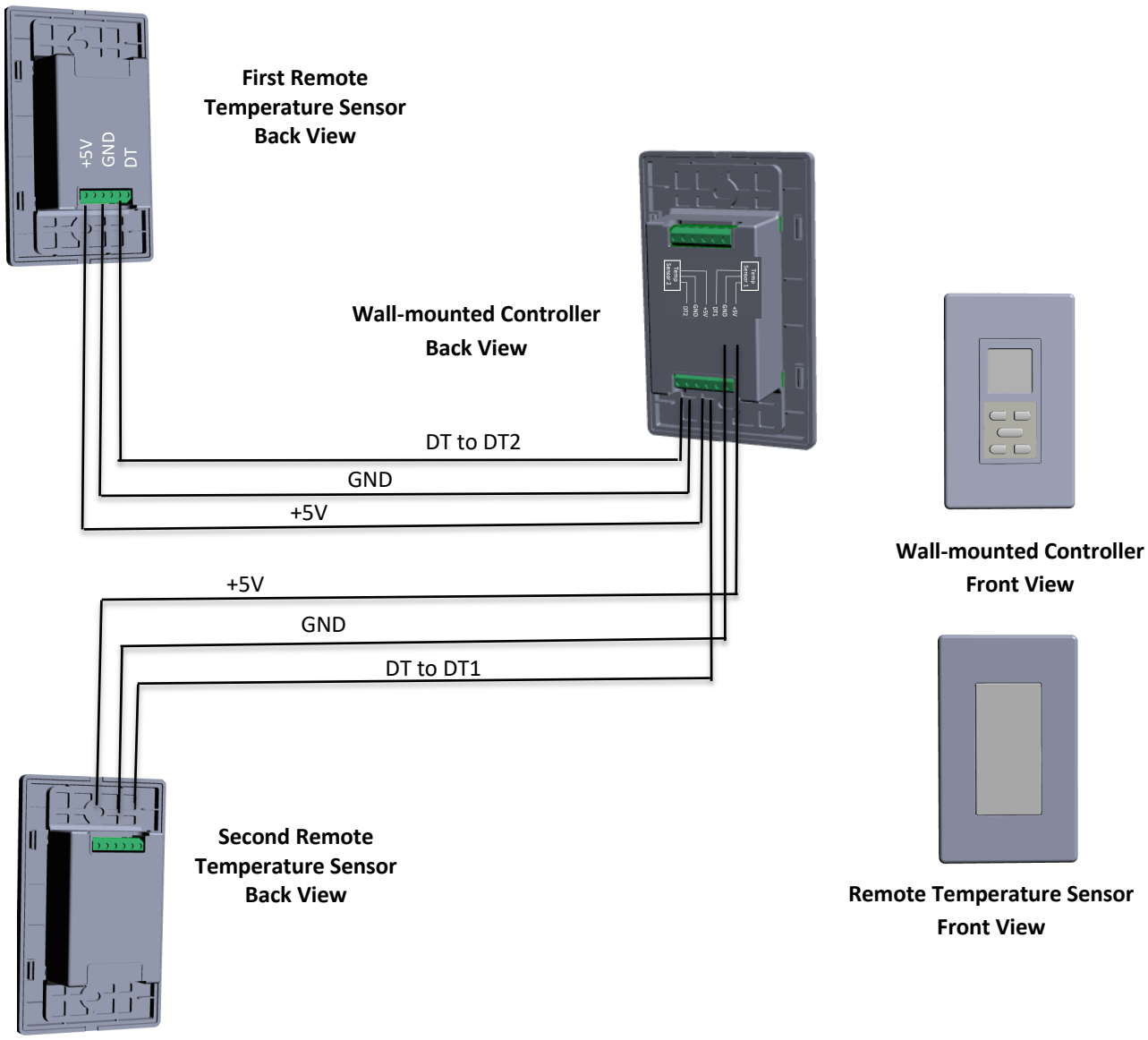




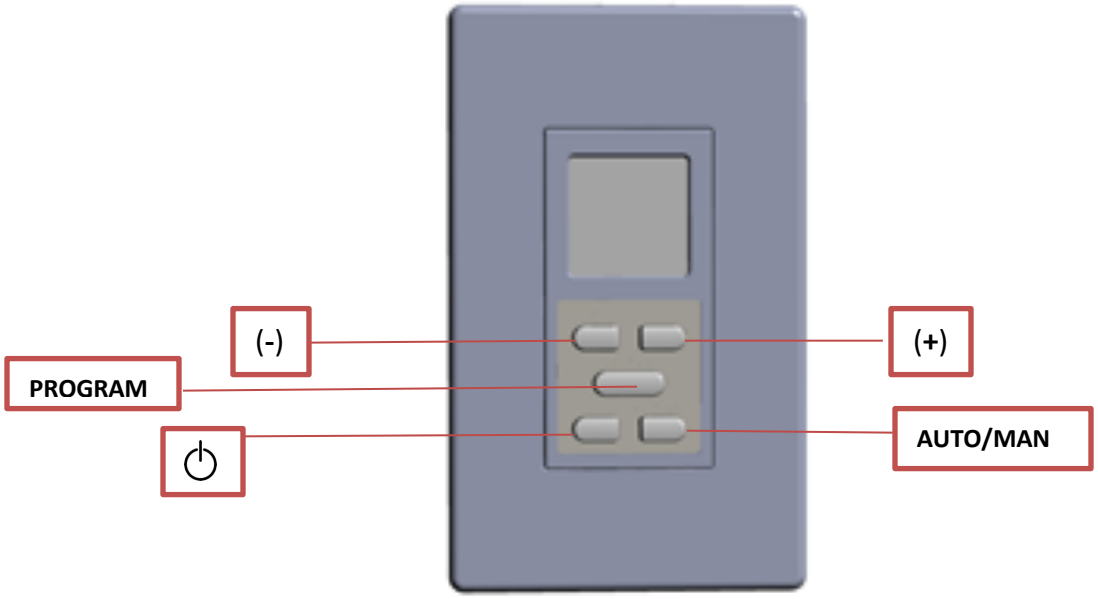
Wall-mounted Controller Front View

Wiring Wall-mounted Controller to Remote Temperature Sensor

For vertical destratification, install one temperature sensor near the ceiling approximately 18” from roof deck and another near the floor (within 12” if possible). To equalize temperatures horizontally, install one temperature sensor in each area. The controller will constantly calculate the difference in temperature between the two sensors and adjust the fan speed higher and lower as required to maintain equalization of temperatures.



OPERATION OF THE USER INTERFACE



Button Descriptions/Functions

⏻ : Power On/Off

PROGRAM: Pressing this button allows the user to monitor the different ambient temperature readings from each temperature sensor, and at the User Interface directly. The "1" displayed on the screen represents the temperature near the User Interface and the "2" and "3" represent the readings of the two temperature sensors—which sensor is which will be determined by how these sensors were wired to the User Interface.
NOTE: An "EE" will display if there is not a temperature sensor connected.

AUTO/MAN: This button allows the user to switch from Automatic mode to Manual Mode. Automatic mode only functions if there is at least one other temperature sensor connected. Auto mode increases/decreases fan airflow based on temperature difference between two temperature sensors. Manual mode overrides Auto mode permitting any desired fan speed by using the "**+**"and "**-**" buttons to increase/decrease fan speed, respectively.

Special Features/Functions

Ceiling Height: In Auto Mode, the User Interface is preprogrammed to adjust speeds at different increments based on three different ceiling height options: Low, Medium, and High. To change the ceiling height program, hold the "**PROGRAM**" button down while pressing the "**+**" to cycle through the three different settings.

Fahrenheit/Celsius: Hold "PROGRAM" down and press "**-**"to adjust Fahrenheit to Celsius.

Automatic mode will automatically change the speed of the fans based on the Delta T in the space. The Automatic Mode can be configured to 3 ceiling heights – High, Medium or Low.

Use the chart below as a guideline to select the recommended setting for your space:

Automatic Mode Settings

MODEL	LOW	MEDIUM	HIGH
H25	<15'	14' - 20'	>18'
H30	<16'	14' - 22'	>20'
H50	<20'	18' – 28'	>26'
H60	<20'	18' - 28'	>26'
IC20	<12'	10' – 18'	>16'
IC15	<12'	10' – 14'	>18
IC30	<6'	14' – 22'	>20'

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