

INSTALLATION & OPERATION MANUAL



Alpha Dual-Duct VAV Controller

BAC-8007/BAC-8207

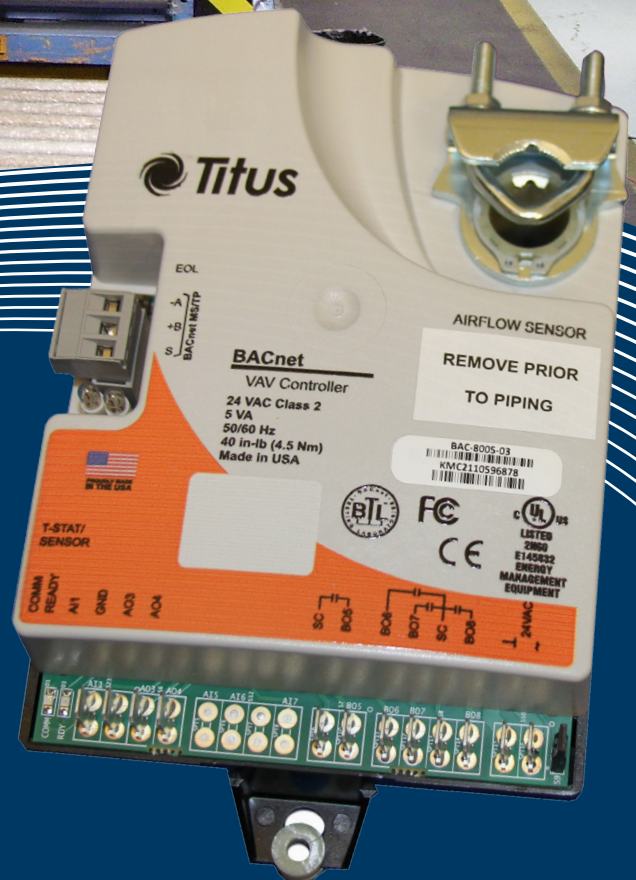


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Section 1 — About the Controllers

This section provides a description of the Titus Alpha BAC-8007 and BAC-8207 VAV controllers. It also introduces safety information. Review this material before installing or operating the controllers.

The BAC-8007 and BAC-8207 are native BACnet, direct digital controllers designed for VAV terminal units. An integrated actuator and the supplied programs make these ideal controllers for temperature setback, overrides, reheat and other HVAC sequences. Install these versatile controllers in stand-alone environments or networked to other BACnet devices. As part of a complete facilities management system, the BAC-8007 and BAC-8207 controllers provide precise monitoring and control of connected points.

- BACnet MS/TP compliant
- Standard VAV control sequences are incorporated to provide pressure independent control of a dual-duct VAV unit to control heating and cooling
- On-board airflow sensor for use with a single or multi-point differential pressure measuring station or pitot tube.
- Control indoor air quality and local lighting

Models:

BAC-8007	Dual-duct VAV controller with 90 second actuator
BAC-8207	Dual-duct VAV controller with 60 second actuator and UL 864 smoke control application

Section 1 — About the Controllers

SPECIFICATIONS

Analog inputs	All inputs are configured as analog
Active inputs	2
Passive inputs	4
Air flow sensor	1
Actuator position	1
Key features	Standard units of measure Overvoltage input protection
Connector	Spade connectors, 0.25 inch
Conversion	12-bit analog-to-digital conversion
Input range	0–12 volts DC
Outputs, analog	2
Key features	Output short protection Configured as BACnet analog objects Standard units of measure
Connector	Spade connectors, 0.25 inch
Conversion	12-bit analog-to-digital conversion
Output voltage	0–10 volts DC
Output current	30 mA per output, 30 mA total for all analog outputs
Outputs, binary	4 triacs for external equipment 2 for the internal actuator
Key features	Optically isolated triac output
Conversion	12-bit analog-to-digital conversion
Connector	Spade connectors, 0.25 inch
Output range	Maximum switching 24 VAC at 3 amperes
Communications	
BACnet MS/TP	EIA-485 operating at rates up to 76.8 kilobaud Removable screw terminal block Wire size 12–24 AWG
Sensor jack	RJ-45 jack compatible with model STE-8000 and STE-6000 models with RJ-45 jacks
Supported objects	See PIC statement for supported BACnet objects
Control Basic	5 program areas in BAC-8007 6 program areas in BAC-8207
PID loop objects	8
Value objects	60 analog, 32 binary, and 12 multistate
Memory	Programs and program parameters are stored in nonvolatile memory Auto restart on power failure

Section 1 — About the Controllers

SPECIFICATIONS (continued)

Applications programs

Titus Controls supply the BAC-8x07 with programming sequences for dual-duct VAV applications:

- Dual-duct VAV heating and cooling
- Monitor CO2 to control indoor air quality
- Control local lighting with motion sensing
- Fan control
- Balancing
- UL 864 smoke controll (BAC-8207 only)

Air flow sensor features

Configured as BACnet analog input object. CMOS differential pressure 0-2 inches of water (0-500 Pa) measurement range. Internally linearized and temperature compensated. Span accuracy 4.5% of reading. Barbed connections for 1/4 FR tubing. Range dependent upon DP pickup, tubing size/length and connections.

Actuator specifications

Torque	40 in-lb. (4.5 N•m)
Angular rotation	0 to 95° Adjustable end stops at 45° and 60° rotation
Motor timing, BAC-8007	90 sec./90° at 60 Hz 108 sec./90° at 50 Hz
Motor timing, BAC-8207	60sec./90° at 60 Hz 72 sec./90° at 50 Hz
Shaft size	Directly mounts on 3/8 to 5/8 inch (9.5 to 16 mm) round or 3/8 to 7/16 inch (9.5 to 11 mm) square damper shafts

Regulatory

UL 916 Energy Management Equipment
 FCC Class B, Part 15, Subpart B
 BACnet Testing Laboratory listed as an application specific controller (ASC)
 UL 864 smoke controls (BAC-8207 only)

Installation

Supply voltage	24 volts AC, -15%, +20% 5 VA
Weight	13.2 ounces (376 grams)
Case material	Flame retardant plastic

Environmental limits

Operating	32 to 120° F (0 to 49° C)
Shipping	-40 to 140° F (-40 to 60° C)
Humidity	5-95% relative humidity (non-condensing)

Section 1 — About the Controllers

DIMENSIONS

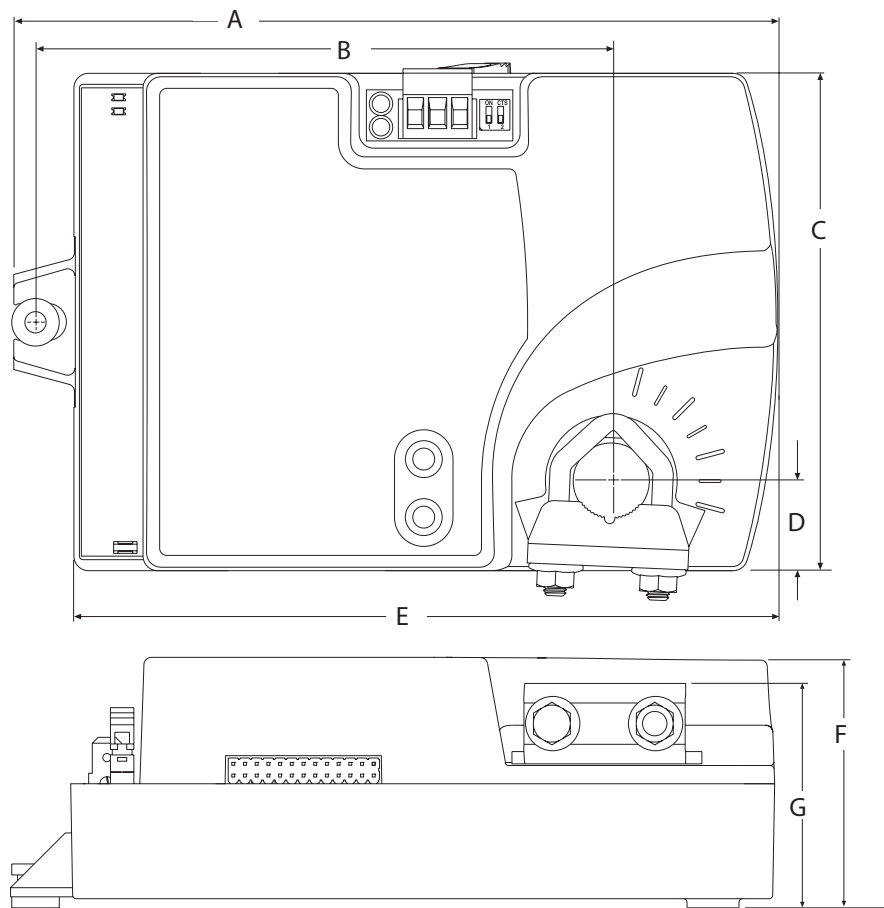


Table 1-1 BAC-8000 dimensions

A	B	C	D	E	F	G
6.53 in .	4.89 in .	4.25 in .	0.77 in .	6.00 in .	2.14 in .	1.92 in .
166 mm	124 mm	108 mm	19 mm	152 mm	54 mm	49 mm

Section 1 — About the Controllers

SAFETY CONSIDERATIONS

Titus assumes the responsibility for providing you a safe product and safety guidelines during its use. Safety means protection to all individuals who install, operate, and service the equipment as well as protection of the equipment itself. To promote safety, we use hazard alert labeling in this manual. Follow the associated guidelines to avoid hazards.

**DANGER**

Danger represents the most severe hazard alert. Bodily harm or death will occur if danger guidelines are not followed.

**WARNING**

Warning represents hazards that could result in severe injury or death.

**CAUTION**

Caution indicates potential personal injury or equipment or property damage if instructions are not followed.

**NOTE**

Notes provide additional information that is important.

**DETAIL**

Provides programing tips and shortcuts that may save time.

Section 2 — Installing the Controller

This section provides important instructions and guidelines for installing the BAC-8007 and BAC-8207 controllers. Carefully review this information before installing the controller.

Installing the VAV controller includes the following topics that are covered in this section.

- Setting the rotation limits on page 9
- Mounting on page 10
- Connecting Inputs on page 14
- Connecting Outputs on page 12
- Connecting to an MS/TP Network on page 14
- Connecting an Airflow Sensor on page 17
- Connecting Power on page 17

In addition to the topics, see the section Dual-duct connections on page 18 for connecting the controllers to a TSP-8000 actuator for dual-duct operation.

Section 2 — Installing the Controller

SETTING THE ROTATION LIMITS

Before mounting the controller, set the rotation limits with the supplied stop screw. Installing the stop screw limits the shaft rotation to either 45 or 60 degrees.

! CAUTION

Before setting the rotation limits on the controller, refer to the damper position specifications in the VAV control box to which the controller will be attached. Setting rotation limits that do not match the VAV damper may result in improper operation or equipment damage.

To set the rotational limits:

1. Turn the controller over so you have access to the back.
2. Manually rotate the actuator fully clockwise as viewed from the back.
3. Remove the stop screw from its storage location and clean any debris from the threads.
4. Insert the screw into the correct stop position hole.
5. Tighten the screw only until the head touches the plastic in the bottom of the recess.

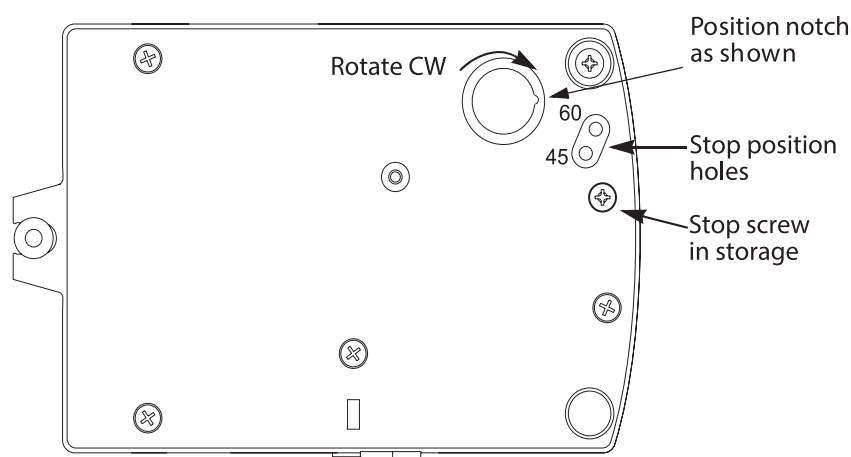


Illustration 2-1 Controller stop selections

Section 2 — Installing the Controller

MOUNTING

Mount the controller inside of a metal enclosure. To maintain RF emissions specifications, use either shielded connecting cables or enclose all cables in conduit.

Mount the controller directly over the damper shaft. A minimum shaft length of 2.0 inch (51 mm) is required.



NOTE

The controller is designed to directly mount to 3/8 to 5/8 inch (9.5 to 16mm) round or 3/8 to 7/16 (9.5 to 11mm) square damper shafts.

Mount the controller close enough to the pitot tubes to keep the tubing length to a minimum. In typical installations the controller's inputs and sensors are within 24 inches of each other.

Mount the controller as follows:

1. Loosen the nuts on the U-bolt until the shaft can fit through the collar.
2. Place the controller on the damper shaft in the approximate final position. Position the controller loosely against the mounting surface so that the mounting bushing can float freely in the mounting tab.
3. Center the mounting bushing in the slot of the mounting tab and secure it using a #8 self-tapping screw.
4. Manually position the damper in the full open position.
5. Adjust the drive hub as follows:
 - a. If the damper rotates counter clockwise to close, depress the gear disengagement button and rotate the drive hub to the full clockwise position then release the button.
 - b. If the damper rotates clockwise to close, depress the gear disengagement button and rotate the drive hub to the full counter clockwise position then release the button.
6. Lock the hub to the shaft by evenly tightening the V-bolt nuts to 30 to 35 in-lbs.

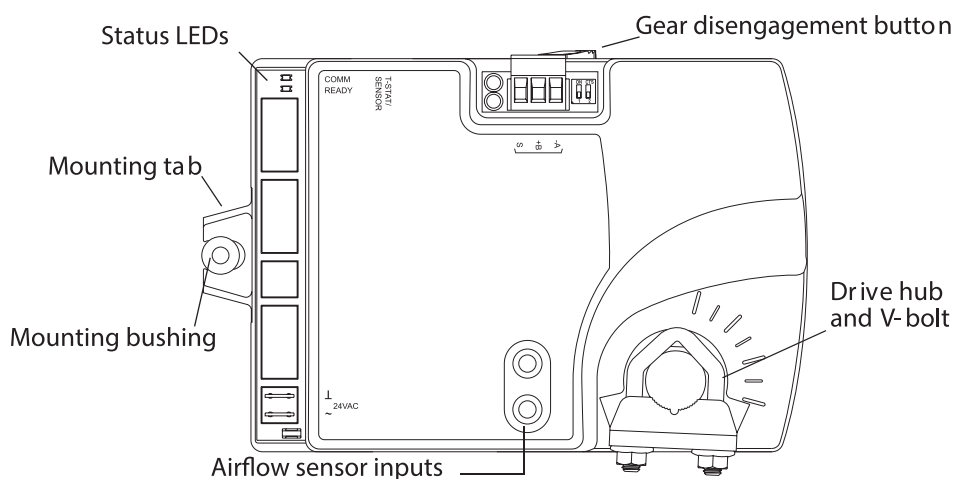


Illustration 2-2 Controls and indicators

Section 2 — Installing the Controller

CONNECTING INPUTS

The BAC-8007 and BAC-8207 controllers have preconfigured analog inputs to support the supplied programs. The inputs cannot be changed to binary or accumulator inputs. Only six inputs have externally available physical terminals. All of the inputs are preconfigured for the application programs supplied in the dual-duct controllers and are listed in Table 2-1.

Table 2-1 BAC-8007 and BAC-8207 input objects

Object	Function	Name	Unit	Location	Pull up
AI1	Discharge Air Temperature	DISCHARGE AIR	°F	Terminal block	10kΩ
AI2	Space Sensor	SPACE SENSOR	°F	RJ-45	10kΩ
AI3	Space Setpoint	SPACE SETPOINT	°F	RJ-45	10kΩ
AI4	Primary Duct Pressure	PRIMARY DUCT	wc	Internal airflow sensor	N/A
AI5	Secondary Duct Pressure	SECONDARY DUCT	wc	Terminal block	None
AI6	Secondary Damper Position	SECONDARY POS	Volts	Terminal block	10kΩ
AI7	CO2	CO2	PPM	Terminal block	None
AI8	Primary Damper Position	PRIMARY POS	Volts	Internal damper position	N/A

Discharge air temperature: Connect a 10k , Type 3 thermistor temperature probe to the discharge air temperature input. The input includes the internal pull-up resistor. An STE-1405 sensor is suitable for this application. Follow the instructions supplied with the sensor for installation. See Temperature Setpoints on page 20 for setting up discharge air temperature limiting that requires this input sensor.

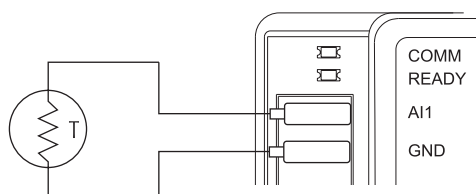


Illustration 2-3 Discharge air temperature

Space Temperature Input: The space temperature input is connected only through the RJ-45 thermostat and sensor input jack. It is configured as an analog input for STE-6010, STE-6014, and STE-6017 sensors. If an STE-8000 sensor is connected to the controller, this input is ignored. See Connecting to Sensors on page 13.

Space Setpoint: The space setpoint input is connected only through the RJ-45 thermostat and sensor input jack. It is configured for the setpoint dials on STE-6014 or STE-6017 sensors. If an STE-6010 or STE-8000 sensor is connected to the controller, this input is ignored. See Connecting to Sensors on page 13.

Primary Duct Pressure: The primary duct pressure input is an internal measurement from the airflow sensor.

Secondary Duct Pressure: The secondary duct pressure input is an analog input preconfigured to connect to the P Out terminal of a TSP-8000 series actuator for dual-duct operation. The TSP-8000 P Out represents actual airflow detected by the TSP-8000 airflow sensor. See the section Dual-duct Connections on page 18 for connection details.

Secondary Damper Position: The secondary damper position input is preconfigured to connect to the position potentiometer of an TSP-8000 series actuator for dual-duct operation. See the section Dual-duct Connections on page 18 for connection details.

CO2 input: Connect a CO2 sensor with an active output to the CO2 input. Set the sensor for a voltage output. An STE-1001 sensor is suitable for this application. Follow the instructions supplied with the sensor for sensor power, installation and calibration.

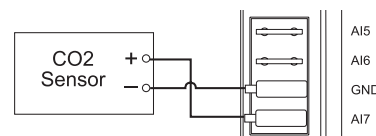


Illustration 2-4 Connections for CO2 sensor

Primary Damper Position: The primary damper position input is preconfigured as an analog input that represents the position of the internal damper. Primary Duct Pressure The primary duct pressure input is an internal measurement from the airflow sensor.

Section 2 — Installing the Controller

CONNECTING OUTPUTS

The BAC-8007 and BAC-8207 controllers have eight preconfigured outputs to support the supplied programs. Only six have externally available physical terminals. All of the outputs are preconfigured for the application programs supplied in the in the dual-duct controllers and are listed in Table 2-2.

Table 2-2 BAC-8007 and BAC-8207 output objects

Object	Function	Name	False Value	True Value	Default Value	Type
BO1	Damper Clockwise	DAMPER CW	Neutral	Clockwise	Neutral	Internal
BO2	Damper Counter Clockwise	DAMPER CCW	Neutral	Counterclockwise	Neutral	Internal
AO3	Analog Heat	ANALOG HEAT			0	0-10 VDC
AO4	Fan Speed	FAN SPEED			0	0-10 VDC
BO5	Fan Start/Stop	FAN	On	Off	Off	Triac
BO6	Secondary Damper Clockwise	SEC damper cw	Neutral	Clockwise	Neutral	Triac
BO7	Secondary Damper Counterclockwise	Sec damper ccw	Neutral	Counterclockwise	Neutral	Triac
BO8	Lighting	Heat/lite	On	Off	Off	Triac

Damper Clockwise and Clockwise: The damper outputs are binary output objects that control the motion of the internal damper.

Analog Heat: The analog heat output controls modulating analog reheat. This output is active only if the controller is set up for reheat. For staged reheat applications, use an REE-5001 relay.

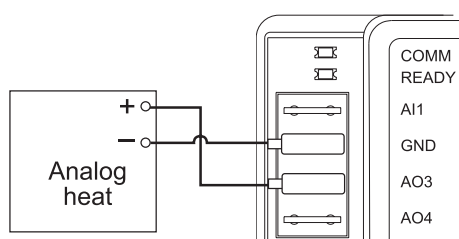


Illustration 2-5 Modulating heat output

Fan Speed: Controls the speed of a variable speed fan if the controller is set up for fan operation.

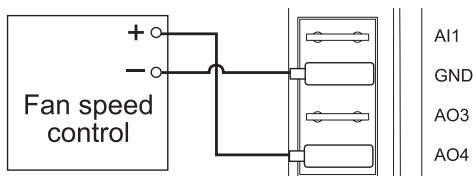


Illustration 2-6 Fan speed output

Fan Start/Stop: The fan start output is preconfigured to either start or stop a single speed fan or enable a multispeed fan. The output is a triac that can switch up to 1 ampere at 24 volts AC.

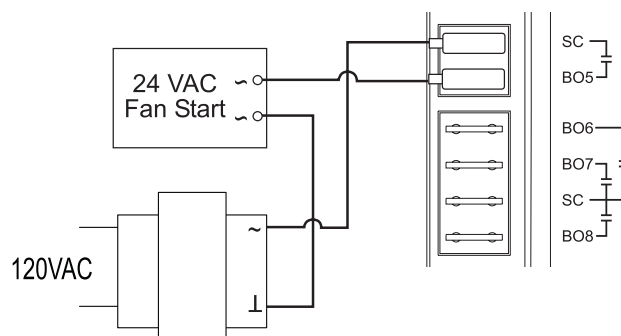


Illustration 2-7 Fan start output

Secondary Damper Clockwise and Counterclockwise: The secondary damper output terminals are preconfigured to control the position of the damper of a TSP-8000 series actuator for dual-duct operation. The outputs are triacs that can switch up to 1 ampere at 24 volts AC. See the section Dual-duct Connections on page 18.

Section 2 — Installing the Controller

Local lighting: The lighting output is preconfigured to work with the motion sensor in an STE-8201 sensor to automatically control lights located in the same space as the VAV. The output is a triac that can switch up to 1 ampere at 24 volts AC.

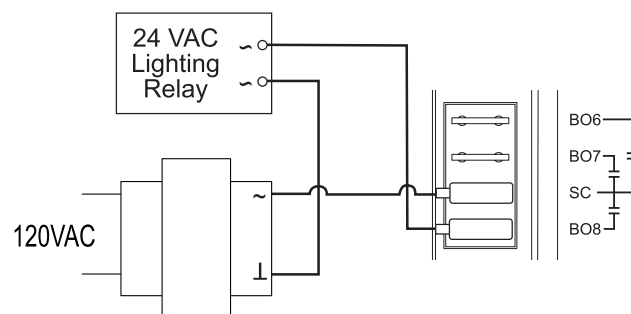


Illustration 2-8 Lighting output

CONNECTING TO SENSORS

Connect any of the following sensors to the RJ-45 thermostat and sensor jack.

- STE-8001STE-8201
- STE-6010
- STE-6014
- STE-6017

Link the controller to sensors with standard straight-through Ethernet cables up to 75 feet long. See the installation guide supplied with the sensors for complete sensor installation instructions.

No programming or configuration is required for the supported sensors. The controller is configured to automatically detect which type of sensor is connected to it.

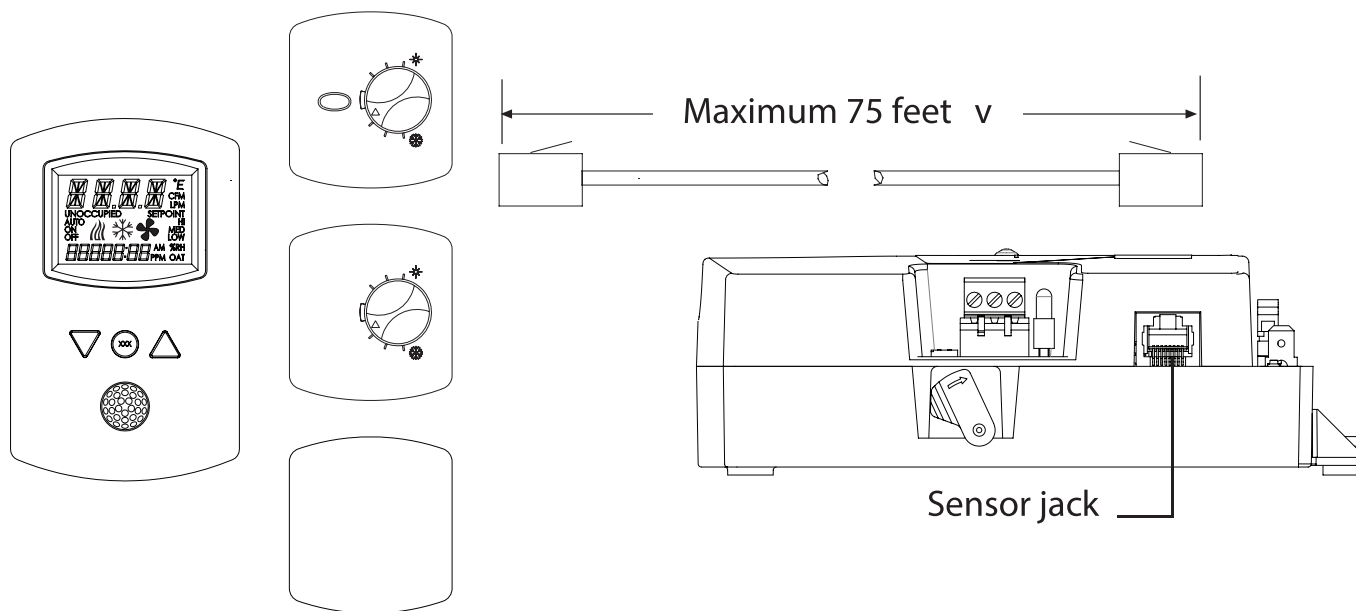


Illustration 2-9 Connecting to a sensor

Section 2 — Installing the Controller

CONNECTING TO AN MS/TP NETWORK

The BAC-8000 series controllers are BACnet MS/TP compliant controllers. Connect them only to a BACnet MS/TP network.

See Application Note AN0404A, Planning BACnet Networks for additional information about installing controllers.

Connections and wiring

Use the following principles when connecting a controller to an MS/TP network:

- Connect no more than 128 addressable BACnet devices to one MS/TP network. The devices can be any mix of controllers or routers.
- To prevent network traffic bottlenecks, limit the MS/TP network size to 60 controllers.
- Use 18 gauge, twisted pair, shielded cable with capacitance of no more than 51 picofarads per foot for all network wiring. Belden cable model #82760 meets the cable requirements.
- Connect the -A terminal in parallel with all other - terminals.
- Connect the +B terminal in parallel with all other + terminals.
- Connect the shields of the cable together at each controller. For KMC BACnet controllers use the S terminal.
- Connect the shield to an earth ground at one end only.
- Use a KMD-5575 repeater between every 32 MS/TP devices or if the cable length will exceed 4000 feet (1220 meters). Use no more than four repeaters per MS/TP network.
- Place a KMD-5567 surge suppressor in the cable where it exits a building.

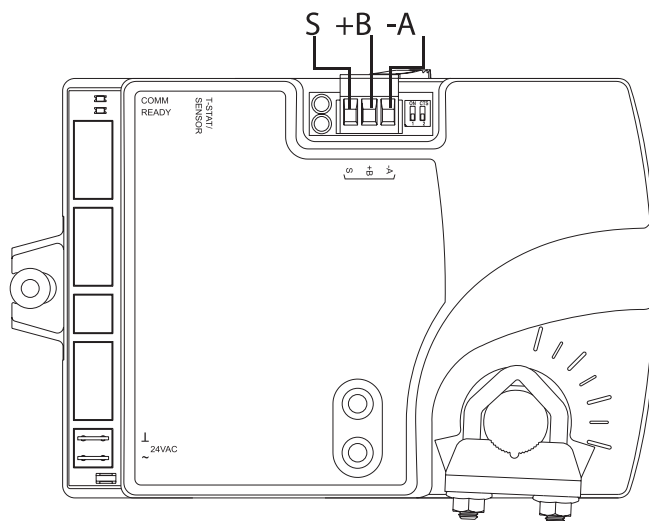


Illustration 2-10 MS/TP network connection

Section 2 — Installing the Controller



NOTE

The MS/TP terminals are labeled -A, +B and S. The S terminal is provided as a connecting point for the shield. The terminal is not connected to the ground of the controller. When connecting to controllers from other manufacturers, verify the shield connection is not connected to ground.

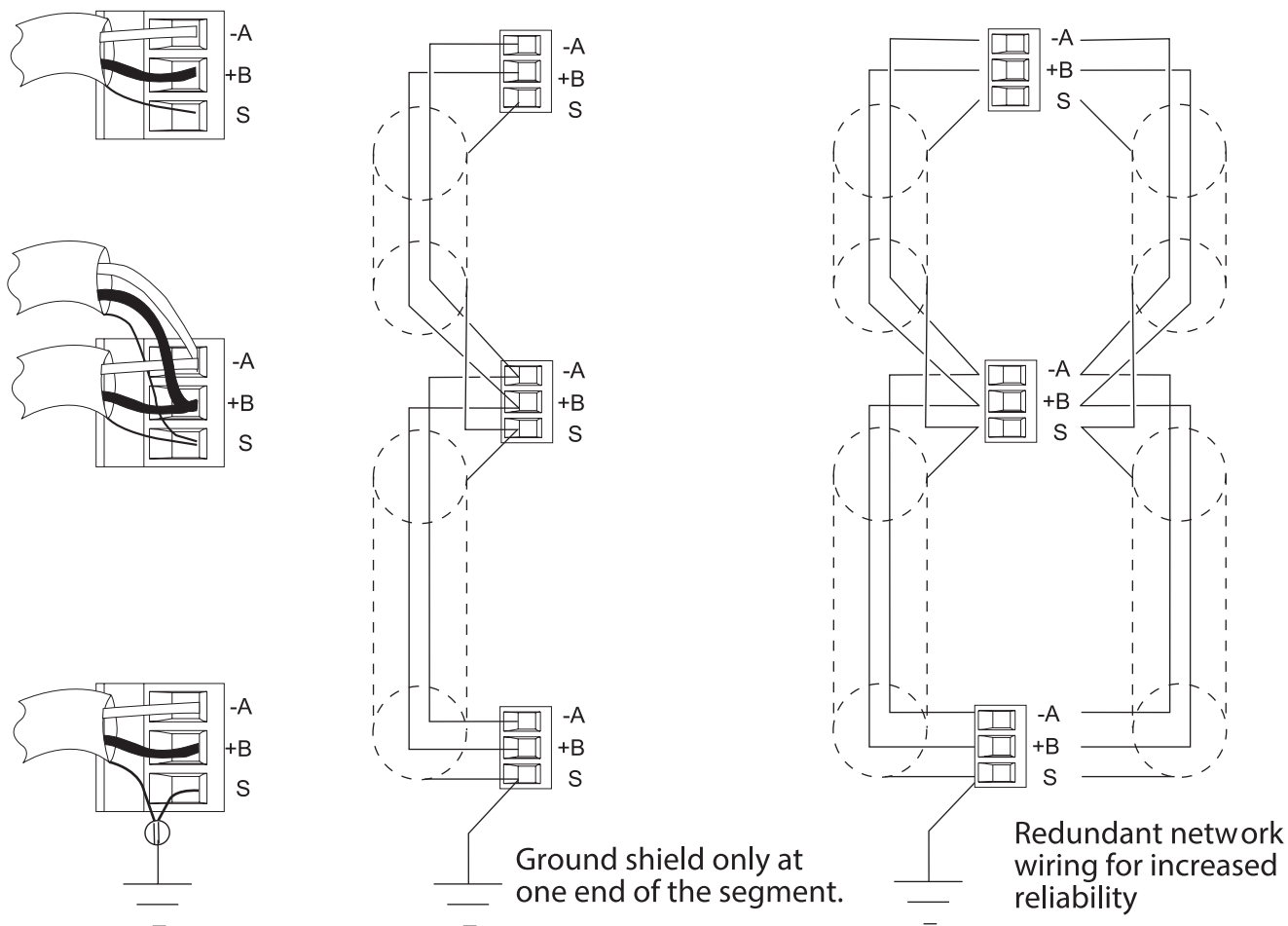


Illustration 2-11 MS/TP network wiring

Section 2 — Installing the Controller

CONNECTING TO AN MS/TP NETWORK (CONTINUED)

End of the line termination switches

The controllers on the physical ends of the EIA-485 wiring segment must have end-of-line termination installed for proper network operation. Set the end-of-line termination to On using the EOL switches.

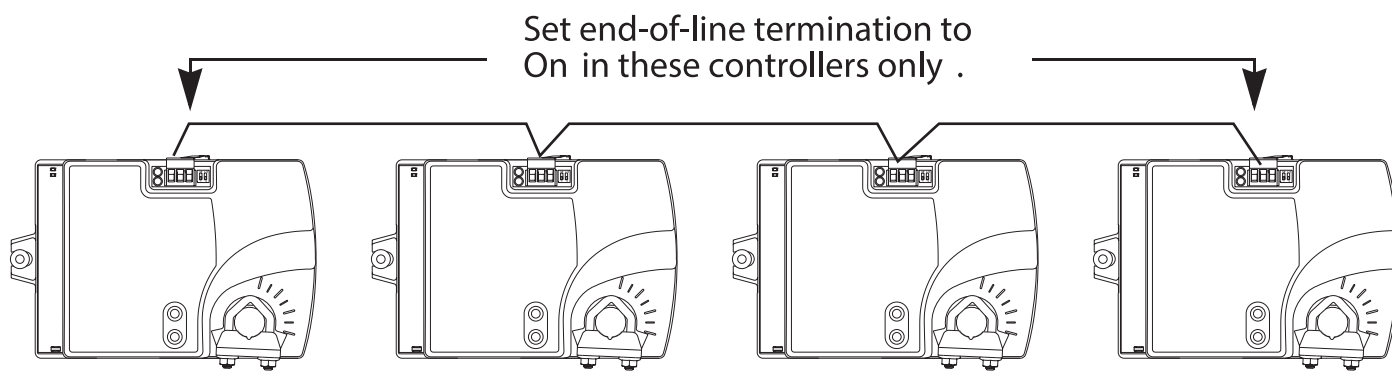


Illustration 2-12 End of line termination

Illustration 2-13 shows the position of the BAC-8000 End-of-Line switches associated with the MS/TP inputs.

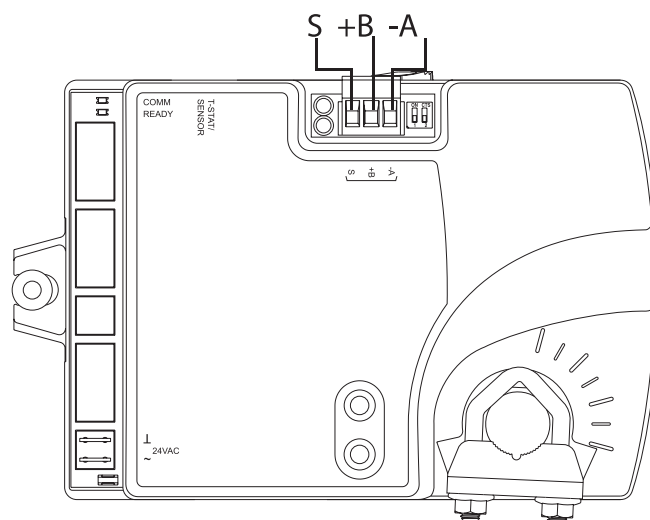


Illustration 2-13 Location of EOL switch

Section 2 — Installing the Controller

CONNECTING AN AIRFLOW SENSOR

An airflow sensor is incorporated as one of the inputs to the controller. Remove the plugs and connect the tubing from the pitot assembly to the airflow sensor inputs next to the drive hub. (See Illustration 2-14). The airflow sensor is programmed as Input 1.

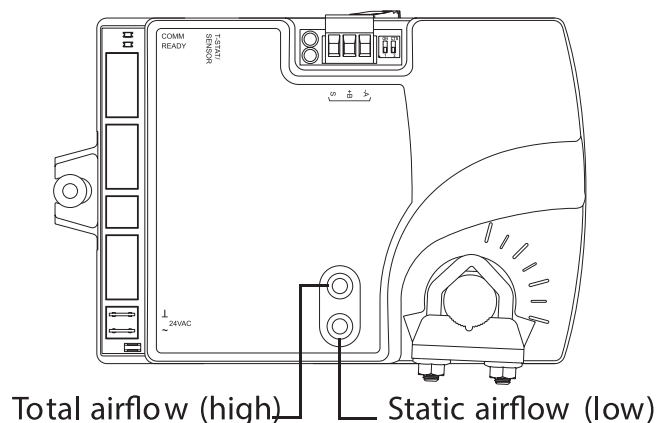


Illustration 2-14 Airflow sensor inputs

CONNECTING POWER

The controllers require an external, 24 volt, AC power source. Use the following guidelines when choosing and wiring transformers.

- Use a Class-2 transformer of the appropriate size to supply power to the controllers. Titus recommends powering only one controller from each transformer.
- Do not run 24 volt, AC power from within an enclosure to external controllers.

Connect the 24 volt AC power supply to the power terminal block on the lower right side of the controller near the power jumper. Connect the ground side of the transformer to the ground terminal $\perp$ and the AC phase to the phase $\sim$ terminal. Power is applied to the controller when the transformer is powered.

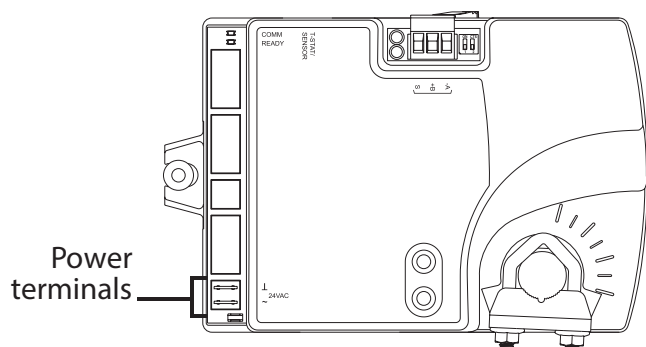


Illustration 2-15 Power terminals and jumper

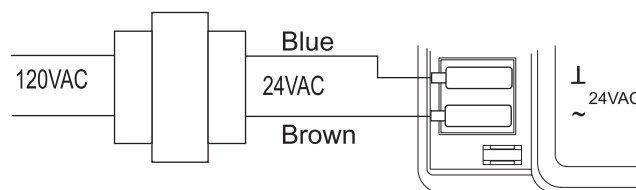


Illustration 2-16 Power connections

Section 2 — Installing the Controller

DUAL-DUCT CONNECTIONS

The BAC-8007 and BAC-8207 controllers are configured by the manufacturer for dual-duct operation. Connect the controllers to a TSP-8000 series actuator as shown in the illustration Dual-duct wiring diagram below.

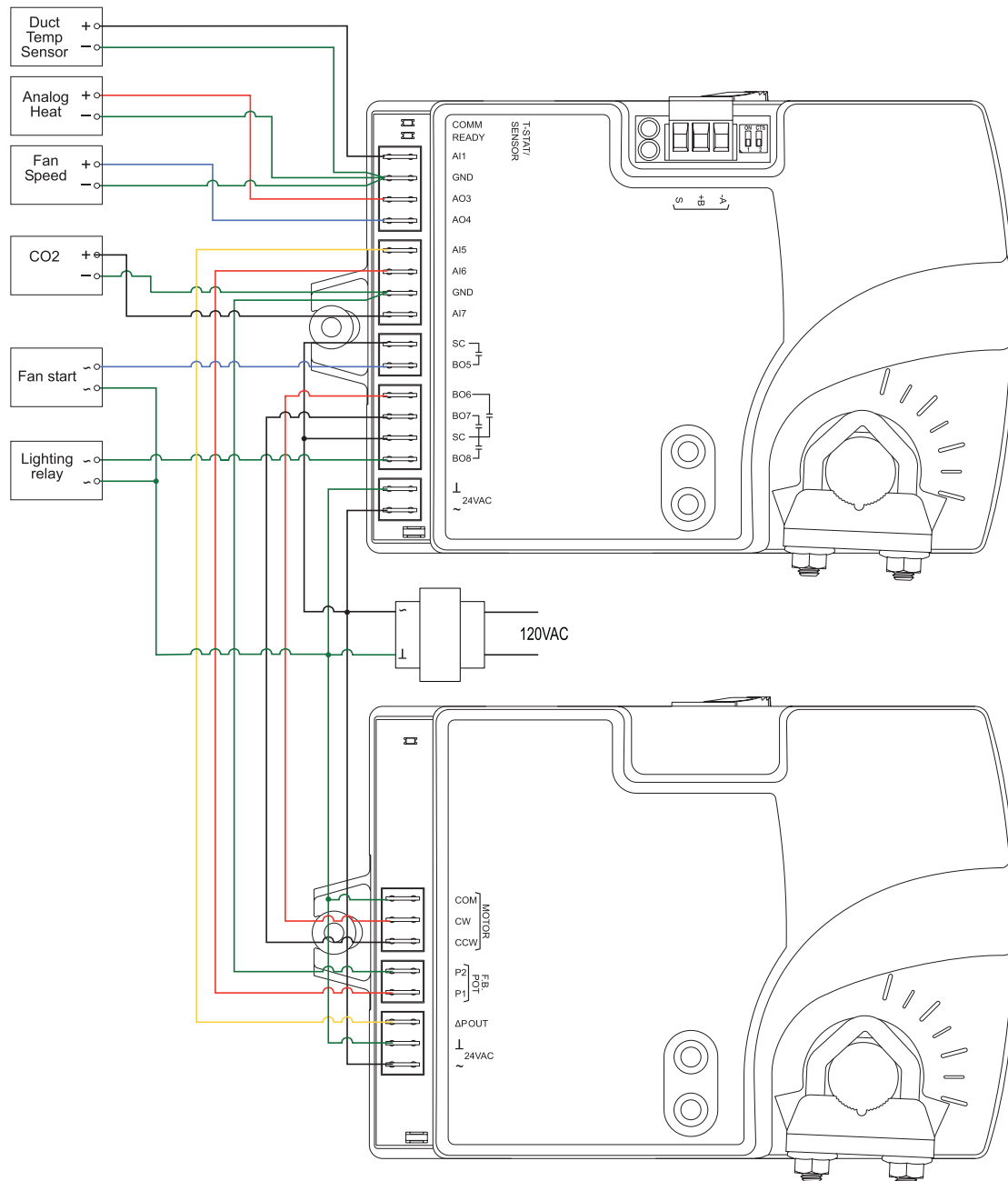


Illustration 2-17 Dual-duct wiring diagram

Section 3 — Setting up Dual-Duct Controllers

The topics in this section cover setting up the BAC-8007 and BAC-8207 for dual-duct VAV operation. These are advanced topics for controls technicians and engineers.

The BAC-8007 and BAC-8207 dual-duct VAV controllers are set up by the manufacturer to operate as soon as power is applied and connected as described in the section Installing the Controller beginning on page 9.

Setting up the dual-duct VAV controllers may include setting BACnet objects with a BACnet Operator Workstation such as TotalControl. The objects may also be set up with a STE-8001 or STE-8201. The following topics are covered in this section.

- Setting Temperature Setpoints on page 20
- Setting Airflow Setpoints on page 21
- Setting the VAV Terminal Unit Parameters on page 22
- Setting Up Local Lighting control on page 23
- Network Communications on page 19

! CAUTION

Change only the present values of the objects listed in this section. Changing any other objects or properties will result in improper operation.

NETWORK COMMUNICATIONS

Before connecting the controller to a BACnet MS/TP network, configure the following network parameters with either a BACnet operator workstation or temporarily connecting an STE-8001 or STE-8201 to the controller.

Device instance: Set from 0 to 4,194,302. A device instance number must be unique across the BACnet internetwork.

Baud: Valid baud settings are 9600, 19200, 38400, and 76800.

MAC: Set from 0 to 127. Must be unique on the MS/TP network to which the controller is connected.

Section 3 — Setting up Dual-Duct Controllers

SETTING TEMPERATURE SETPOINTS

The space temperature setpoints listed in Table 3-1, “Temperature setpoints,” below are used to control the controller VAV operation. The temperature setpoints have default values, but may be manipulated depending on which type of wall sensor is connected to the controller.

Occupied cooling and heating setpoints: These setpoints are user controlled space setpoints that originate from an attached sensor. If no sensor is attached the values for these setpoints are manually entered by a controls technician.

Unoccupied cooling and heating setpoints: The unoccupied setpoints are manually entered values to set the heating and cooling temperature when the space is unoccupied.

Minimum cooling setpoint: A manually entered value to limit the occupied cooling setpoint regardless of the value entered by the user.

Maximum heating setpoint: A manually entered value to limit the occupied heating setpoint regardless of the value entered by the user.

Minimum setpoint differential: Sets the minimum temperature separation between occupied heating and cooling setpoints.

Standby differential: This differential is added or subtracted from the occupied temperature setpoints to calculate the standby setpoints.

SAT changeover temperature: Sets the supply air temperature at which the controller will change from heating to cooling. The changeover takes place when the supply air temperature is 2° above or below the discharge air temperature setpoint.

Table 3-1 Temperature setpoints

Object	Description	Name	Default
AV5	Occupied Cooling Setpoint	OCC CL STPT	74°F
AV6	Occupied Heating Setpoint	OCC HT SPT	70°F
AV7	Unoccupied Cooling Setpoint	UNOCC CL STPT	80°F
AV8	Unoccupied Heating Setpt	UNOCC HT STPT	64°F
AV9	Minimum Cooling Setpt	MIN CL STPT	70°F
AV10	Maximum Heating Setpoint	MAX HT STPT	76°F
AV11	Minimum Setpoint Differential	MIN STPT DIFF	4°F
AV12	Standby Differential	STBY DIFF	3°F
AV37	SAT Changeover Temp	SAT CHANGEOVER	75°F

Section 3 — Setting up Dual-Duct Controllers

SETTING AIRFLOW SETPOINTS

The airflow setpoints are limits for VAV unit operation. All values are entered by a controls technician.

Minimum and maximum cooling airflow: Sets the airflow limits through the VAV unit when in the cooling mode.

Minimum and maximum heating airflow: Sets the airflow limits through the VAV unit when in the heating mode.

Minimum and maximum fan speed: Sets the limits on the fan speed. See Connecting outputs on page 12 for details for controlling a fan that is part of the VAV unit.

Minimum and maximum ventilation flow: Sets the minimum and maximum airflow limits for indoor air quality.

Table 3-2 Airflow setpoints

Object	Description	Name	Defaults
AV13	Min Cooling Airflow	MIN COOL FLOW	0 CFM
AV14	Max Cooling Airflow	MAX COOL FLOW	400 CFM
AV15	Min Heating Airflow	MIN HEAT FLOW	0 CFM
AV16	Max Heating Airflow	MIN HEAT FLOW	400 CFM
AV32	Minimum Fan Speed	MIN FAN SPEED	0%
AV33	Maximum Fan Speed	MAX FAN SPEED	100%
AV55	Minimum Vent Flow	MIN VENT FLOW	0 CFM
AV56	Maximum Vent Flow	MAX VENT FLOW	350 CFM

Section 3 — Setting up Dual-Duct Controllers

SETTING THE VAV TERMINAL UNIT PARAMETERS

Terminal unit parameters set basic operating parameters and enable options such as reheat and series or parallel fan operation.

Reheat: Enables and sets the type of reheat. Choose from the available types of reheat from the following list.

None: Reheat is not enabled.

Staged: Not available on dual-duct models)

Modulating: The reheat output varies from 0-10 volts.

Floating: Not available on dual-duct models.

Time proportional: Not available on dual-duct models.

Reheat equipment is connected to the controller as described in the topic Connecting Outputs on page 12.

Dual-duct mixing minimum airflow: Sets the minimum airflow which may be different than the minimum cooling or heating airflow.

Damper direction to close: Defines which direction the damper will turn to decrease airflow.

CCW: The actuator turns counterclockwise to close the damper.

CW: The actuator turns clockwise to close the damper.

Primary duct K-factor: A property of the specific VAV unit and airflow sensor to which the primary controller is attached. This constant is supplied by the VAV unit manufacturer.

Secondary duct K-factor: A property of the specific VAV unit and airflow sensor to which the secondary controller is attached. This constant is supplied by the VAV unit manufacturer

Fan operation: Sets the type of VAV fan in the VAV terminal unit.

None: No fan is connected to the controller.

Series: The VAV unit includes a series fan. The fan runs during a fresh air purge, when the space is occupied or in standby.

Parallel: The VAV unit includes a parallel fan. The fan runs when there is a call for heat during a fresh air purge, when the space is occupied or in standby.

Table 3-3 Unit parameters

Object	Description	Name	Default
MSV3	Reheat Type	REHEAT	None
AV17	Dual Minimum	DUAL MINIMUM	200 CFM
AV18	Primary K factor	PR K FACT	904
BV10	Clockwise Close	CLOCKWISE CLOSE	CCW
MSV2	Fantype Configuration	FAN CONFIG	None

Section 3 — Setting up Dual-Duct Controllers

SETTING UP LOCAL LIGHTING CONTROL

Automatic local lighting can be controlled by the motion sensor in an STE-8201 connected to the controller. Local lighting is set up either with software or an attached STE-8201.

Lighting control enable: When enabled, local lights will be turned on or off based on motion detected by an STE-8201.

Light off delay: Sets the interval local lights will remain turned on after the last motion is detected by an STE-8201.

Lighting equipment is connected to the controller as described in the topic Connecting Outputs on page 12.

Table 3-4 Local lighting options

Object	Description	Name	Default
BV11	Lighting Control Enable	LIGHTING CONTROL	Enable
AV42	Light off delay	LITE OFF DELAY	15 minutes

BALANCING AIRFLOW

An airflow balancing program is included in BAC-8000 series controllers. See the manual STE-8000 and STE-8201 Sensor Installation Guide for balancing instructions.



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