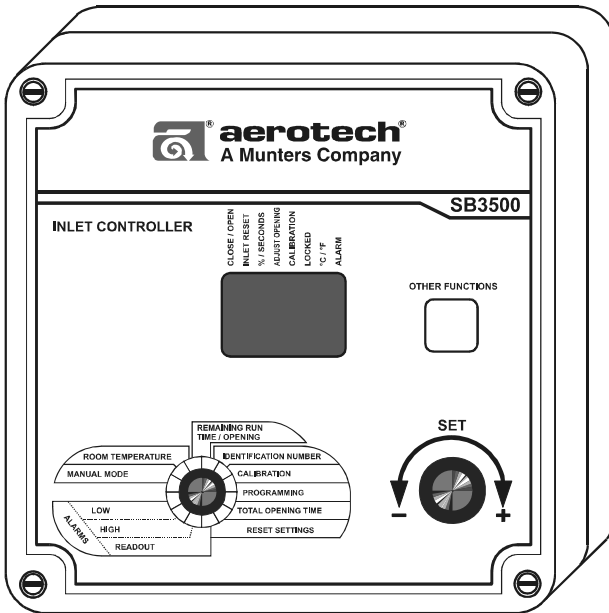


Inlet Controller

SB3500

USER'S MANUAL



NOTICE

Every effort has been made to ensure that this manual is complete, accurate and up-to-date. The information contained in it is however subject to change without notice due to further developments.

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FEATURES

The SB3500 is an electronic device used for air inlet control in livestock buildings. In combination with an environment controller, the SB3500 coordinates the movement of the air inlets with the operation of the fans. Additional units can be connected to the SB3500 for an independent control of additional air inlets.

The main features of the SB3500 are as follows:

DIGITAL DISPLAY

A digital display shows the operation parameters and alarm messages.

PILOT LIGHTS

Pilot lights indicating the state of outputs allow you to monitor the operation of the system from a distance.

ALARM OUTPUT

The controller generates an output signal that will activate any alarm system in the case of various operation problems.

PERMANENT MEMORY

Settings are retained in memory even in the event of a power failure.

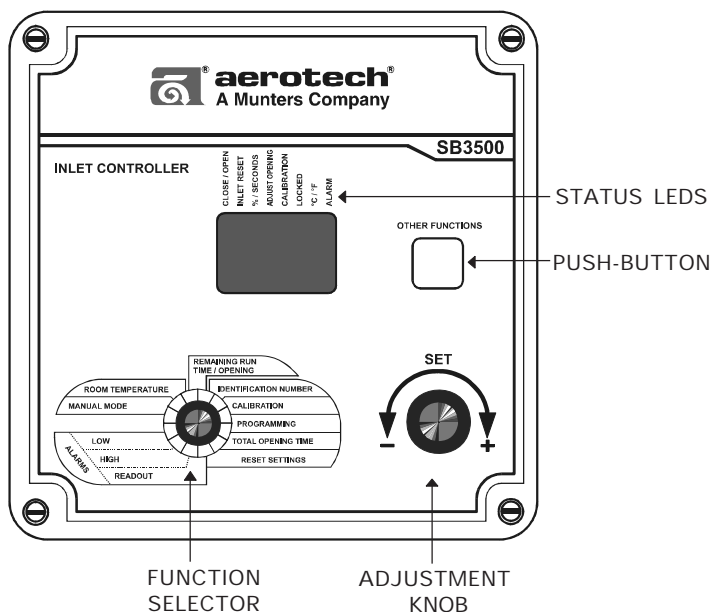
OVERLOAD AND OVERVOLTAGE PROTECTION

Fuses located at the input and outputs of the controller protect its circuitry in the case of an overload or overvoltage.

COMPUTER CONNECTION

A computer can be connected to the SB3500 to centralize information management and provide monitoring and datalogging possibilities.

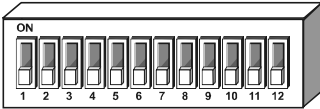
LOCATION OF THE CONTROLS



Status LEDs

LED	MEANING
CLOSE / OPEN	Turns on when the controller opens the air inlet panel. Flashes when the controller closes the air inlet panel.
INLET RESET	Turns on when the position of the air inlet is being reset.
% / SECONDS	Turns on when the value on screen is displayed in seconds. Flashes when the value on screen is a percentage.
ADJUST OPENING	Turns on when the controller waits for the user to adjust the opening of the air inlet.
CALIBRATION	Turns on when the controller is in calibration mode.
LOCKED	Turns on when the parameters are locked and cannot be modified.
°C / °F	Turns on when a temperature value is displayed in Fahrenheit. Flashes when a temperature value is displayed in Celsius.
ALARM	Turns on when an alarm is detected.

Internal Switches



Internal switches are located on the inside of the front cover.

#	OFF	ON
1	UNLOCKED PARAMETERS	LOCKED PARAMETERS
2	FAHRENHEIT DEGREES	CELSIUS DEGREES
3	SUMMER PROGRAM	WINTER PROGRAM
4	DISABLE TEMPERATURE ALARMS	ENABLE TEMPERATURE ALARMS
5	NO TEMPERATURE PROBE	TEMPERATURE PROBE PRESENT
6	SLAVE UNIT	PRIMARY UNIT
7	NO RESET	AUTO RESET THE INLET POSITION
8	RESET MIN POSITION ONLY	RESET TOWARD THE NEAREST POSITION
9	STOP THE MANUAL RESET	START THE MANUAL RESET
10	OPENING = TIME VALUE	OPENING = %
11	INLET MODE	TUNNEL MODE
12	OVER-OPENING = PROGRESSIVE MODE	OVER-OPENING = DROP MODE

INSTALLATION PROCEDURE

Equipment List

Integrating an air inlet control system into your ventilation system requires the following equipment:

- A Comlink-2 communication module added to your controller
- A SB3500 controller for each air inlet panel (up to 100 in all)
- An alarm system (optional)
- A DC power supply (optional)
- A power unit.

Mounting Instructions

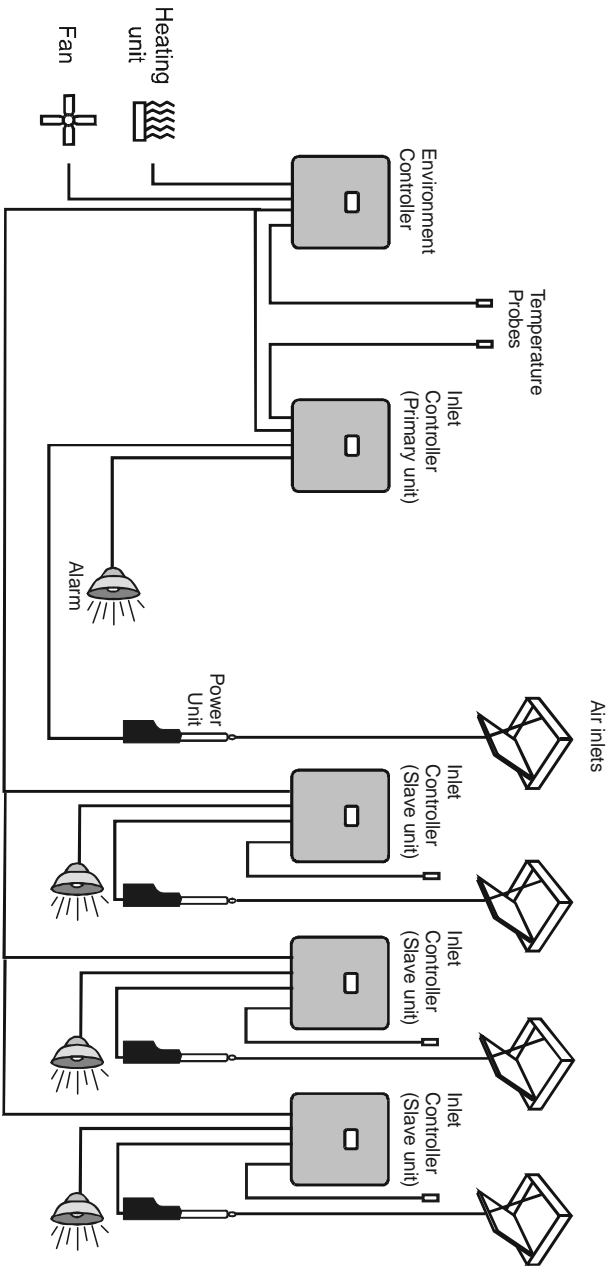
Remove the four screws on the front cover and lift the cover. Mount the enclosure on the wall using three screws. Be sure the electrical knockouts are at the bottom of the enclosure in order to prevent water from entering the controller. Insert the screws in the mounting holes provided in three corners of the enclosure and tighten. Fasten the three black caps provided with the controller onto the three mounting holes.

Connections

To connect the equipment, refer to the wiring diagrams enclosed with this user's manual. Also refer to the DC power supply wiring diagram when using a DC type motor.

- Use the electrical knockouts provided at the bottom of the enclosure. Do not make additional holes in the enclosure.
- Set the voltage switch to the appropriate line voltage.

INSTALLATION SETUP



SB3500

ALARM CONNECTION: There are two types of alarms in the industry. One type activates when current is cut off at its input, whereas the other activates when current is supplied at its input. For an alarm of the first type, use the NC terminal as shown on the wiring diagram. For an alarm of the second type, use the NO terminal.



ALL WIRING MUST BE DONE BY AN AUTHORIZED ELECTRICIAN AND MUST COMPLY WITH APPLICABLE CODES, LAWS AND REGULATIONS. BE SURE POWER IS OFF BEFORE DOING ANY WIRING TO AVOID ELECTRICAL SHOCK AND EQUIPMENT DAMAGE.

TEMPERATURE PROBES:

If your SB3500 unit is supplied with a temperature probe, connect it to the PROBE terminal and set internal switch #5 to ON. Note that the SB3500 can run without a temperature sensor; in this case, the ROOM TEMPERATURE menu will not be available.

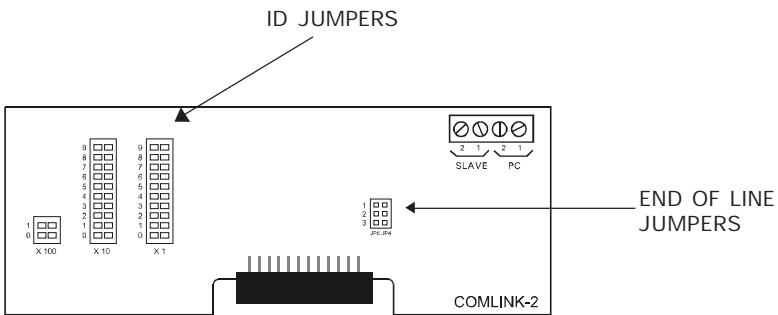
To extend the probe: This probe can be extended up to 500 ft (150 m).

- Use a shielded cable of outside diameter between 0.245 and 0.260 in (6.22 and 6.60 mm) to ensure the cable entry is liquid-tight (the cable dimension must not be under 18 AWG (1 mm²)).
- It is preferable to solder the cable joint to ensure a proper contact between the two cables.
- Do not ground the shielding.

CAUTION : The probes operate under low voltage and are isolated from the power supply. Be sure the probe cable is isolated from all high voltage sources. Do not route the probe cable and other power cables through the same electrical knockout. Do not run the probe cable next to other power cables. When crossing over other power cables, cross at 90°.

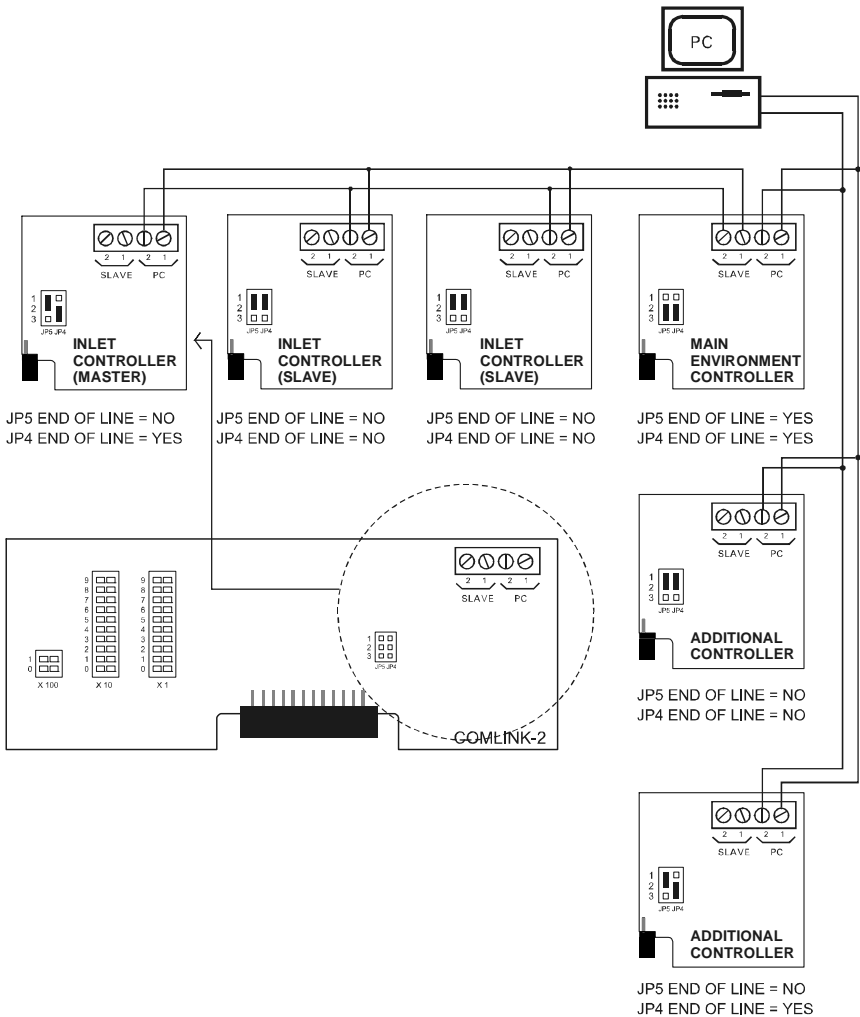
Identification Numbers & End of Line Jumpers

Each Comlink-2 card used to communicate parameters between SB3500 units and the main controller must have a unique identification number. This number is configured using jumpers on the card and should be assigned before plugging the card into each unit. To do this, use the three jumpers (marked X100, X10 and X1) on the card (i.d. numbers can go from 0 to 199). Use X1 for units, X10 for tens and X100 for hundreds. In each case, place the black jumper horizontally over the two pins corresponding to the digit required.



The SB3500 network operates on two communication lines. One line links the SB3500 units together to the main controller and the other line links temperature controllers to a computer (this second line is optional). Two jumpers on the Comlink-2 card are used to identify the end of line for each communication line. The SB3500 communication line uses jumper JP5 and the computer line uses JP4. Use pins 2 and 3 for YES and pins 1 and 2 for NO. The following diagram shows a typical connection with the appropriate jumper configurations.

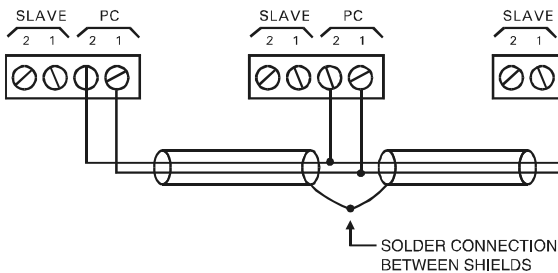
SB3500



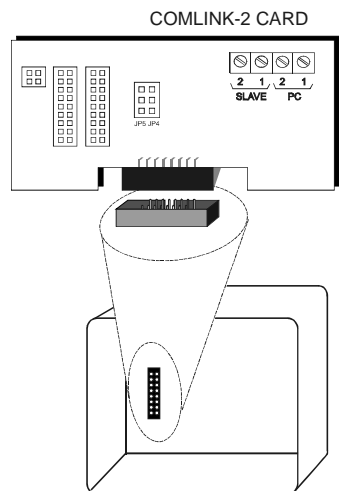
Comlink-2 Location & Connection

- a. Unplug each unit.
- b. Plug the communication card in the unit.

Open the cover. Drill a 5/16" hole through the bottom of the controller and thread the communication cable through the hole. Use the grommet provided to secure the cable. Connect the cable to the terminals of the communication card as shown below. When connecting two cable ends together, solder the joint and use a heat shrink to ensure a proper contact.



Line-up the comlink card with the connector and insert it in the upright position (see illustration beside). For communication, always use a 1 twisted pair shielded cable. The maximum length of the cable is 10 000 ft (3 000 m) and the recommended wire diameter is of 18 AWG (1.0 mm²). Use a lightning protection module when running the cable between buildings.



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Be sure the communication cable is isolated from all high voltage sources and fluorescent lights. Do not route the communication cable and power cables through the same electrical knockout. Do not run the communication cable next to power cables. When crossing power cables, cross at 90°.



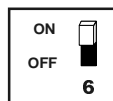
DO NOT GROUND THE SHIELD WIRE!

DISCONNECT THE POWER SOURCE BEFORE CONNECTING THE COMMUNICATION CABLE.

Identifying Primary and Slave Units

If your installation requires more than one SB3500 unit for independent control of different air inlets, one of the SB3500 will be configured as the primary unit and the others will be configured as slaves. Up to 99 slave units can be connected in this way. When programming the SB3500, the slave units take their reference temperature from the primary unit. By default, all units are set as PRIMARY units.

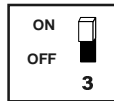
- Set internal switch #6 to ON for the primary unit or set it to OFF for a slave unit. If only one SB3500 unit is used, set internal switch #6 to ON.



Seasonal Programs

All controller parameters can be set separately for winter and for summer seasons. Select the proper season using internal switch #3 :

ON = Winter
OFF = Summer



Make sure to select the right season is selected before modifying a parameter.

Verify SB3500 Operation (Manual Mode)

- Power the SB3500 then select MANUAL MODE using the function selector.
- Use the adjustment knob to select the desired actuator status: select "OPn" to open, "CLo" to close or "OFF" to stop the actuator. Select "AUT" to return to the automatic control mode.

VERIFY THE MOTOR'S OPERATION:

- Manually open or close air inlet panels as explained above. These panels should open when the "OPn" option is selected and should close when the "CLo" option is selected. If they move the opposite way, the motor operates in the wrong direction. Turn off the power and reverse the wires connected to the actuator's open and close terminals. Verify that the motor now operates in the right direction.

VERIFY LIMIT POSITIONS OF AIR INLET PANELS:

- Select "CLo" to fully close the air inlet then place the limit switch of the actuator at this position to prevent it from closing any further; select "OPn" to fully open the air inlet then place a limit switch at this position to prevent the actuator from opening any further.

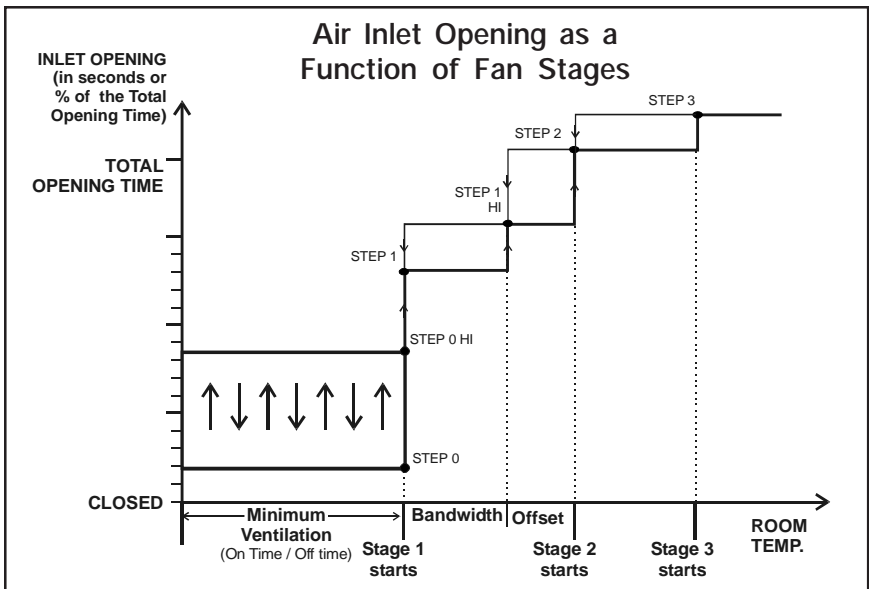
SB3500 OPERATION

Principle of Operation

The SB3500 operates in combination with an environment controller. It adjusts the opening of the air inlet according to the ventilation level provided by the environment controller. As the temperature increases and new stages are activated, the inlet is opened or closed accordingly. The user must associate a moving time or a specific position (in %) to every fan step (stage) of the environment controller.

Step 0 / Step 0 Hi: **Step 0** is the minimum inlet opening time (or position %). The inlet is at this position when the fans are OFF in minimum ventilation (OFF Time portion of the timer). **Step 0 Hi** is the opening time added to the inlet while the fans are ON in minimum ventilation (ON Time portion of the timer). Note that if the inlet position is defined as a percentage, Step 0 Hi represents the exact position of the inlet during the On Time portion of the min ventilation timer.

Opening Compensation: Some environment controllers can compensate for temperature or static pressure changes by adjusting the position of the air inlet. The compensation moving time (or %) is simply added (or removed) to the inlet position defined by the fan stages.





The SB3500 limits the compensation value that can be applied on the air inlets to 50% of their regular opening. If the environment controller sends a compensation request that exceed this limit the SB Module just won't consider it and won't move the inlet any further.

Inlet & Tunnel Modes: When the last reference point is reached, the SB3500 can either open the air inlet according to a user-defined value (internal switch #11 is in the OFF position), or it can fully open it until the actuator reaches the limit switch (internal switch #11 is in the ON position).

Opening of the Air Inlet During Variable Stages: A step is also added when a variable stage starts increasing in speed, right after the stage's differential. This step is called " Step x Hi ". The step number is not increased as we are dealing with the same ventilation stage. In the previous graph, Step 1 corresponds to the activation of Stage 1 and Step 1 Hi represents the moment where Stage 1 fans reach their full speed.

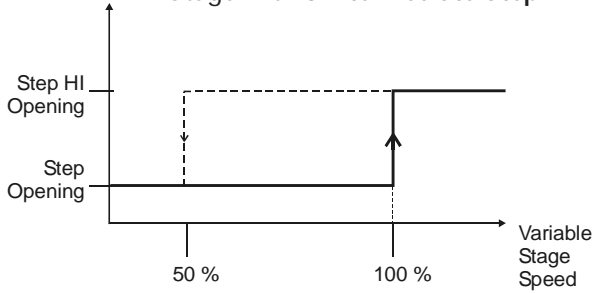
You must thus associate an inlet opening with the beginning and with the end of each ventilation stage (in time or %) and then enable the desired number of intermediate steps (intermediate steps are used to open the inlet progressively during a variable fan stage).

Intermediate steps (see graphs on next page): When intermediate steps are enabled, the controller splits up the variable stage's opening time or % evenly between the number of intermediate steps (e.g., if one intermediate step is enabled, the controller will open the inlet twice during the variable stage (50% of the stage's opening time (or %) at the first intermediary step and 50% at the end of the variable stage).

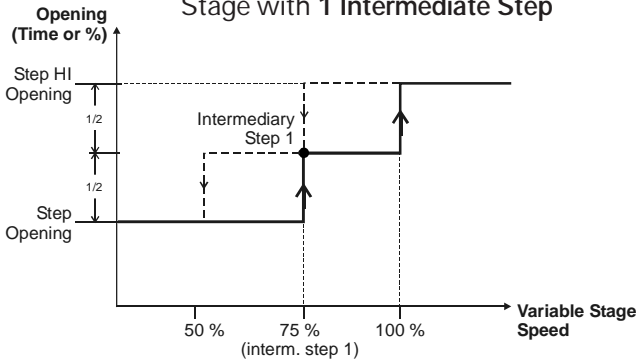
Intermediate steps are activated when the variable stage reaches pre-defined fan speeds. These fan speeds are set differently depending on the number of intermediate steps in use. For example, if 1 intermediate step is enabled, the inlet opens during half the variable stage's opening when the stage's speed is of 75 %; it reaches the stage's HI opening position when the fan speed is 100 %.

Refer to the PROGRAMMING chapter to enable the proper number of intermediate opening steps.

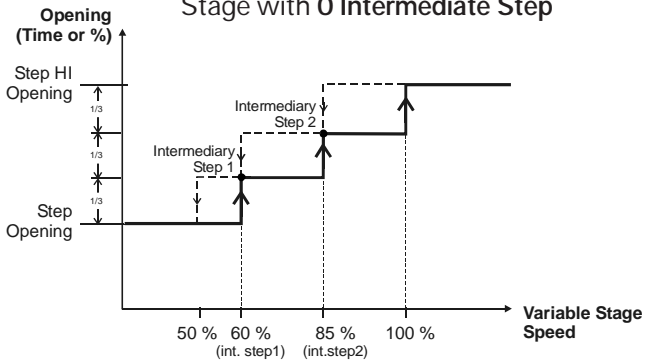
Opening (Time or %) Opening of the Inlet During a Variable Stage with 0 Intermediate Step



Opening of the Inlet During a Variable Stage with 1 Intermediate Step



Opening of the Inlet During a Variable Stage with 0 Intermediate Step



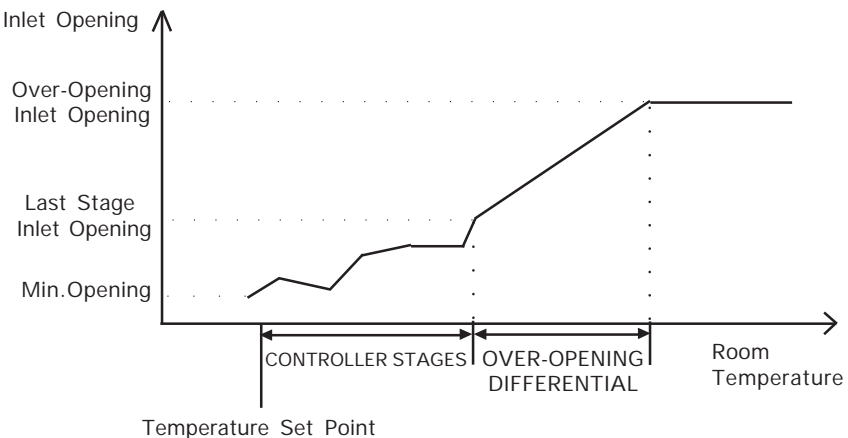
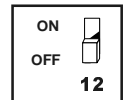
Over-Opening Stage

A supplementary stage can be calibrated in order to continue opening the air inlet beyond the last temperature controller ventilation stage. It is used to direct the airflow more efficiently during periods of warm weather. When all the reference points of the temperature controller ventilation stages have been calibrated, the SB3500 allows you to specify a temperature differential as well as an opening time (or inlet position %) for the supplementary stage.

To disable the over-opening stage, set the over-opening time to 0 second. If the inlet position is defined in percentage, set the over-opening position to the same opening as for the last fan stage.

Progressive Mode

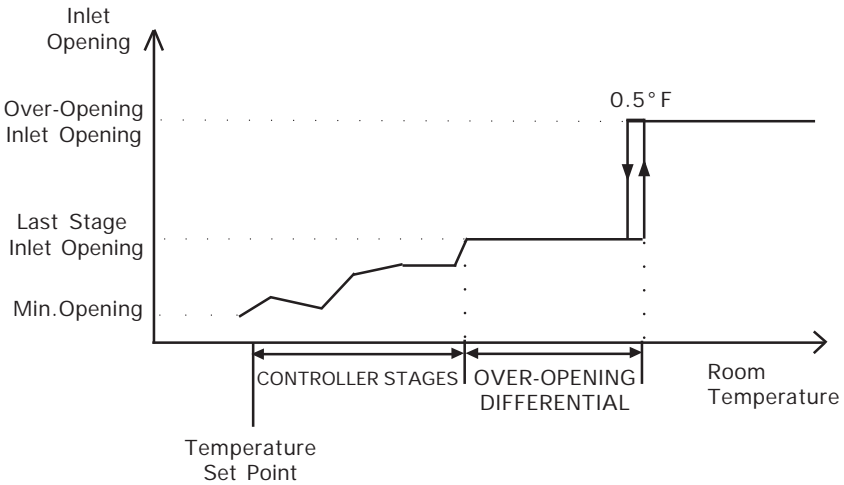
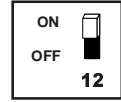
To use the progressive mode, set internal switch #12 to OFF. With this over-opening mode, the SB3500 gradually opens or closes the panels in a linear fashion as the room temperature rises above the last reference point temperature. The over-opening time is added to the inlet position when the room temperature is equal to *"temperature of the last reference point + over-opening differential"*. Note that if the inlet position is defined as a percentage, the Over-Opening parameter represents the exact position of the inlet when the room temperature is equal to *"temperature of the last reference point + over-opening differential"*.



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Drop Mode

To use drop mode, set internal switch #12 to ON. With this over-opening mode, the SB3500 maintains the inlet opening at the value of the last controller stage as the temperature rises above the last reference point temperature. When the temperature reaches *"temperature of the last reference point + over-opening differential"*, the over-opening time is added to the inlet opening. Note that if the inlet position is defined as a percentage, the Over-Opening parameter represents the exact position of the inlet when the room temperature is equal to *"temperature of the last reference point + over-opening differential"*.



Calibration

The SB3500 adjusts the opening of air inlets according to the ventilation stages provided by the environment controller. The calibration allows SB3500 units to detect how many On/Off and variable stages the environment controller uses.

When the calibration is launched on the PRIMARY SB3500 unit, the environment controller enters in test mode and starts simulating the room temperature. The controller increases the simulated room temperature in order to activate all of its ventilation stages. Each time a stage is activated, a reference point is added to the SB3500.

BEFORE CALIBRATING THE SB3500:

- It is preferable to calibrate the SB3500 while the room is empty because the calibration will cause the activation of all fan stages.
- Be sure that the circuit breakers at the service panel and all other protection devices are in a position such that the fans can be activated.
- Select the season you want to program with internal switch #3.

CALIBRATION SETTINGS:

1. Select **CALIBRATION** using the function selector.
2. Press and hold the push-button of the primary SB3500 unit for 2 seconds to start the calibration.
3. Once the calibration is launched, you must press and hold the push-button for 2 seconds on all SB3500 slave units within the next 30 seconds.
4. After 30 seconds, the environment controller enters in test mode and starts simulating the room temperature. The simulated room temperature gradually increases for SB3500 units to detect the number of On/Off and variable ventilation stages in use.
5. After the environment controller has reached the start temperature of its last ventilation stage, press and hold the push-button of the PRIMARY SB3500 unit for 2 seconds to end the calibration. You can also wait for the environment controller to reach 120° F (49° C) – the calibration will automatically end at that moment. One reference point per ventilation stage will then be added to each calibrated SB3500.
6. Refer to the programming chapter to assign an inlet opening to each reference point.

CONTROLLER FUNCTIONS

Identification Number

The IDENTIFICATION NUMBER menu gives the identification number of the SB3500 along with its primary/slave status. The ID number is set using jumpers on the COMLINK-2 communication card (see INSTALLATION PROCEDURE chapter).

To display the identification number:

- Select "**IDENTIFICATION NUMBER**" using the function selector. The identification number is displayed, alternating with "**ID**" and the letters "**PRI**" or "**SLA**" for a primary or slave unit.

Total Opening Time

You must specify the **exact time** that is required for the actuator to reach its maximum limit switch. The opening of the actuator will then be limited by this opening time.



Set this parameter before calibrating the inlets.

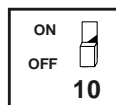
- Select "**TOTAL OPENING TIME**" using the function selector. The time that is required to fully open the air inlet is displayed (in seconds).
- Use the adjustment knob to set the total opening time to the desired value.
- Proceed in similar fashion to set the total opening time on all SB3500 units.

Opening Display (Time / %)

The user must assign an inlet position to each ventilation stage. This position can either be specified as a moving time of the actuator or as a percentage of the total run time.

Choose the desired opening display method:

- Time value: internal switch #10 is OFF
- % internal switch #10 is ON.



Note that displaying the opening as a time value gives a little more precision than the percentage display.

Programming Inlet Openings

Once you have calibrated your inlet, you must assign an inlet position to each fan stage of the environment controller. This position can either be specified as a moving time of the actuator or as a percentage of the total run time, depending on the chosen option (see OPENING DISPLAY chapter).

Before you begin :

- Install a static pressure measuring device or determine in advance the position required at each reference point by calculating, according to the fan airflow, the opening that will maintain the desired air speed at the inlet.
- Enter the total opening time of the inlet of each SB3500 unit.

Programming Inlet Openings :

- Select the "**PROGRAMMING**" menu using the function selector (note that this menu is not available during the calibration). The opening time (or the inlet position %) associated with step 0 is displayed. Moving times are displayed as follows:
 - * A negative time value signals a closing time;
 - * A positive time value signals an opening time;
 - * The word "**Off**" means that the inlet completely closes when the temperature controller reaches the selected step.
- Use the adjustment knob to specify the opening time (or the inlet position %) associated with Step 0 (Step 0 being the moment where the fans are Off in minimum ventilation).
- Press the push-button to select Step 0 Hi (Step 0 being the moment where the fans are On in minimum ventilation).

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- Use the adjustment knob to specify the opening time that needs to be added to the previous opening (or to specify the exact inlet opening % associated with the selected step).
- Press the push-button to select the next step and proceed in similar fashion to associate an opening time (or inlet positions %) to every fan stage in use.
- After having set the opening time (or position%) of the last fan stage, press the push-button once more to select the over-opening parameter. Letters "OPn" are flashing on screen, alternating with the over-opening moving time (or inlet position %).
- Use the adjustment knob to set the over-opening time (or the over-opening position %) to the desired value.
- Press the push-button once again. The over-opening differential flashes on screen (the differential being the number of degrees above the start temperature of the last fan stage at which the inlet reaches its over-opening position).
- Use the adjustment knob to set the differential to the desired value.



Note that opening times are cumulative. The total of all opening times cannot exceed the inlet's **Total Opening Time** parameter value.



If the inlet position is defined as a percentage, the inlet position associated with each step is set as an absolute position, it is not a cumulative value. In addition, the controller may have to slightly adjust inlet opening values due to some technical restrictions in the conversion process.

Selecting the Number of Intermediate Opening Steps

Follow this procedure to select the number intermediate opening steps that are performed during variable stages (see BASIC PRINCIPLE OF OPERATION chapter for further information).

- Select "**REMAINING RUN TIME / OPENING**" using the function selector.
- Press and hold the push-button for 2 seconds. The number of intermediate steps flashes, alternating with the letters "**NbS**".
- Use the adjustment knob to set the number of intermediate steps to the desired value. This value ranges from 0 to 2 steps.

Remaining Run Time / Opening Menu

If the inlet opening is displayed as a time value (internal switch #10 is OFF), the REMAINING RUN TIME / OPENING menu shows a countdown of the remaining moving time of the air inlet (opening or closing time). A negative value is displayed when the inlet is closing. The letters "StP" are displayed if the inlet is not moving.

If the inlet opening is displayed as a percentage, the REMAINING RUN TIME / OPENING menu shows the current opening (in %) of the air inlet.

Resetting the Inlet Position

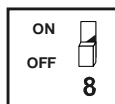
Resetting the actuator's position allows clearing all accumulated time offsets caused by the frequent openings and closings of the inlet. It is highly suggested to reset your inlet frequently to make sure it is always accurate.

Choosing a Reset Mode

The inlet reset can be done two different ways:

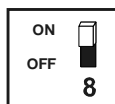
1. **Reset the minimum position only:**

The inlet closes during the **Reset Time Delay** each time a reset is performed. Once the inlet position is reset, the inlet returns to its previous position. Set internal switch #8 to OFF to use this reset method.



2. **Reset toward the nearest position:**

Each time a reset starts, the inlet panel is directed towards the closest position from its current opening: it then opens or closes during the **Reset Time Delay**. Once the reset is completed, the inlet returns to its previous position. This function prevents closing the air inlet when the room temperature already asks for a large opening of the panel. Set internal switch #8 to ON to use this reset method.



This resetting method requires the presence of limit switches at both ends of the actuator.

Adjusting the Reset Delay

This is the delay that is required to fully open / close the inlet panel in order to reset the inlet position. The reset delay of an inlet must be greater than its total opening time. This ensures the inlet panel to be completely opened or closed while its position is being reset.

The Reset Delay ranges from 60 to 900 sec in increments of 15 seconds.

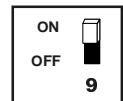
- Select the "**RESET SETTINGS**" menu using the function selector. The letters "**rES**" flash on screen, alternating with the word "**no**".
- Press the push-button once. The letters "**dEL**" flash on screen; if this message is not displayed, press the push-button once more.
- Use the adjustment knob to set the reset delay to the desired value.
- Proceed in similar fashion to set the reset delay on all SB3500 units.

Manual & Automatic Resets

The reset of an inlet can either be performed manually. Making a manual reset is useful when there is a visible offset in the actuator position for instance. The reset can also be performed at regular intervals (auto-reset).

Manual Reset:

There are 2 ways to perform a manual reset: it can either be done by toggling internal switch #9 from the OFF to the ON position or the reset can be initiated through the controller's reset menu as follows:



- Select the "**RESET SETTINGS**" menu using the function selector. The letters "**rES**" flash on screen, alternating with the word "**no**".
- To launch a manual reset, turn the adjustment knob clockwise one notch. The word "**YES**" flashes on screen. Let it flash for 10 seconds for the controller to start the resetting process. In the meanwhile, the "**YES**" answer on screen switches to "**no**".

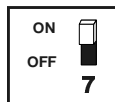
Automatic Reset

Set internal switch #7 to ON to enable the auto-reset function then program the auto-reset settings as explained in the following section.

SETTINGS:

The following procedure shows how to specify the frequency at which automatic resets are performed (once every #x days). First, make sure the auto-reset function is enabled (internal switch #7 is ON).

- Select the "**RESET SETTINGS**" menu using the function selector. The letters "**rES**" flash on screen, alternating with the word "**no**".
- Press the push-button once. If the auto-reset function is enabled (internal switch #7 is ON), the frequency at which auto-resets are performed is displayed, alternating with the letters "**PEr**".
- Use the adjustment knob to set the frequency to the desired value. The frequency can be adjusted once every 0.5 to 7 days. Select 0.5 to reset the actuator's position twice a day; select "1" to reset it every day or select 2-7 to reset the position every 2-7 days.



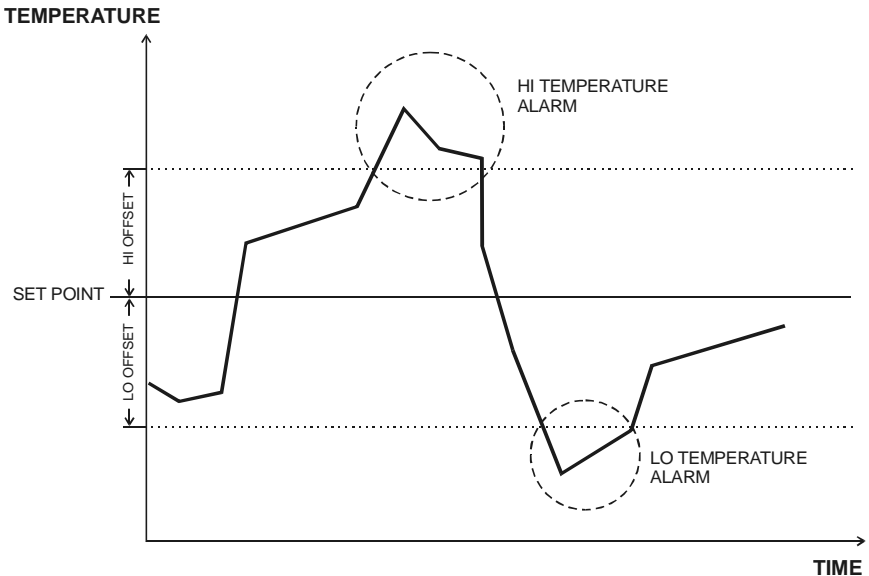
Temperature Alarms

Low Temperature Alarm:

The alarm contact is activated when the room temperature drops below "temperature set point- low alarm offset" as shown below. The Lo Offset is the temperature difference from the set point below which a low temperature alarm is set off. It can be adjusted from 0.5° F to 20° F (0.3° C to 11.1° C). Note that internal switch #4 must be set to ON for this alarm to be detected.

High Temperature Alarm:

The alarm contact is activated when the room temperature exceeds "temperature set point + high alarm offset" as shown below. The Hi Offset is the temperature difference from the set point above which a high temperature alarm is set off. It can be adjusted from 0.5° F to 40° F (0.3° C to 22.2° C). Note that internal switch #4 must be set to ON for this alarm to be detected.



ALARM SETTINGS:

- Select "**ALARM LO**" using the function selector. The Low Alarm Offset flashes on the display alternating with the letters "Lo". Note that this menu is only accessible if temperature alarms are enabled (internal switch #4 is ON).
- Use the adjustment knob to adjust the Lo Offset to the desired value.
- Select "**ALARM HIGH**" using the function selector. The High Alarm Offset flashes on the display alternating with the letters "Hi". Note that this menu is only accessible if temperature alarms are enabled (internal switch #4 is ON).
- Use the adjustment knob to adjust the Hi Offset to the desired value.

Alarms - Readout

When an alarm occurs, the SB3500 activates the alarm contact and turns on the alarm pilot light. The alarm readout function displays all currently outstanding alarm situations.

- Select "**ALARM READOUT**" using the function selector. The following codes can be displayed on screen:

ALARM CODE	MEANING
AL1	The communication between the inlet controller and the environment controller is disrupted.
AL2	The calibration is not valid.
AL3	the temperature probe is defective or is not connected properly.
AL4	Low temperature alarm.
AL5	High temperature alarm.
AL6	Reception of an unprogrammed stage
NoAL	There is no active alarm.

Room Temperature

This function gives a readout of the current room temperature. Minimum and maximum temperature values can also be displayed. Internal switch #5 must be set to ON and a temperature probe must be connected for this function to work.



If you let the display flash for more than 10 seconds, the controller resets the minimum and maximum temperature values currently in memory. In other words, the two values are reset to the current room temperature. To avoid resetting minimum and maximum values, return to the current opening display using the adjustment knob before the 10 second delay has elapsed.

- Select "**ROOM TEMPERATURE**" using the function selector. The current room temperature is displayed.
- Turn the adjustment knob clockwise once notch. The maximum temperature value is displayed alternating with the letters "Hi".
- Turn the adjustment knob one notch further. The minimum temperature value is displayed alternating with the letters "Lo".
- Turn the adjustment knob one notch further to return to the room temperature display.

TROUBLESHOOTING GUIDE

PROBLEM	SOLUTION
<p>THERE IS NO DISPLAY.</p>	<p>THE CIRCUIT BREAKER AT THE SERVICE PANEL IS OFF OR TRIPPED.</p> <p>THE WIRING IS INCORRECT.</p> <p>THE F6 INPUT FUSE IS OPEN.</p> <p>THE VOLTAGE SELECTOR SWITCH IS IN THE WRONG POSITION.</p> <p>THE DISPLAY BOARD INTERCONNECT CABLE IS UNPLUGGED FROM THE POWER SUPPLY BOARD.</p>
<p>THE ROOM TEMPERATURE DISPLAYED BY THE SB3500 SHOWS SUDDEN VARIATIONS.</p>	<p>A VARIATION IN RESISTANCE IS INDUCED ON THE SENSOR CONNECTED TO THE SB3500</p> <ul style="list-style-type: none"> - BE SURE THE SENSOR IS DRY AND MOVE IT AWAY FROM DRAFTS AND FROM ANY SOURCE OF RADIANT HEATING. <p>THERE IS ELECTRICAL NOISE NEAR THE CABLE OF THE SENSOR CONNECTED TO THE SB3500.</p> <ul style="list-style-type: none"> - DO NOT RUN THE SENSOR CABLE NEXT TO OTHER POWER CABLES. WHEN CROSSING OTHER POWER CABLES, CROSS AT 90°.
<p>THE SB3500 ALARM PILOT LIGHT IS ON BUT THE ALARM IS NOT ACTIVATED.</p>	<p>THE F4 ALARM FUSE IS OPEN.</p> <p>THE DISPLAY BOARD INTERCONNECT CABLE IS UNPLUGGED FROM THE POWER SUPPLY BOARD.</p> <p>THE WIRING IS INCORRECT.</p> <p>THE SB3500 ALARM IS DEFECTIVE.</p> <p>THE SB3500 IS DEFECTIVE.</p> <ul style="list-style-type: none"> - LISTEN TO SEE IF THERE IS A CLICKING SOUND WHEN THE ALARM PILOT LIGHT TURNS ON. IF THERE IS NO CLICKING SOUND, THE SB3500 IS DEFECTIVE. CONTACT YOUR DISTRIBUTOR TO REPAIR THE CONTROLLER.

TECHNICAL SPECIFICATIONS

Supply: - 115/230 VAC (- 18%, + 8%), 50/60 Hz, overload and overvoltage protection fuse F6-1A fast blow.

- 12 VDC for AC back-up supply, can activate the inlet and alarm if supplied with DC back-up voltage.

Power unit: 50/60 Hz, 30 VDC, 5A motor output, fuse F1-5A slow blow.

Alarm: ON-OFF output, 115/230 VAC, 50/60 Hz, 30 VDC, 3A, fuse F4-3A slow blow.

Probes: Low voltage ($< 5V$), isolated from the supply. Operating range: -40.0° to 120.0° F (-40.0° to 49° C). Accuracy: 1.8° F (1° C) between 41° and 95° F (5° and 35° C).

Enclosure: ABS, humidity and dust-tight.

The room temperature where the controller is located **MUST ALWAYS REMAIN BETWEEN 32° AND 104° F (0° AND 40° C).**
For indoor use.

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