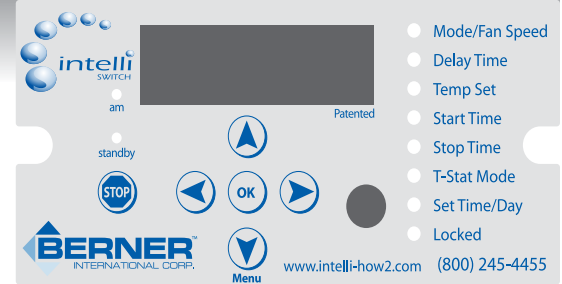




No. **II-300**  
Date: **August, 2010**



**READ AND SAVE THESE INSTRUCTIONS**

# Installation & Maintenance Instructions For the In-Ceiling Mount Air Curtain *with Intelliswitch*®

## TABLE OF CONTENTS

### IN-CEILING MOUNT AIR CURTAIN

- I. UNCRATING..... 2
- II. MOUNTING PREPARATION..... 2
- III. MOUNTING ..... 3
- IV. ELECTRICAL CONNECTIONS ..... 3
- V. FIELD CONNECTIONS ..... 4
- VI. AIRFLOW ADJUSTMENTS ..... 4
- VII. MAINTENANCE AND CLEANING ..... 4
- VIII. SERVICE ..... 5
- TROUBLESHOOTING..... 19

### INTELLISWITCH®

- QUICK START PROGRAMMING..... 8-9
- FAQ's (FREQUENTLY ASKED QUESTIONS)..... 10-11
- INTELLISWITCH® DETAILED PROGRAMMING..... 12-18

**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 any questions, contact the manufacturer.
- B. Before servicing or cleaning unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.
- C. Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction. (See page 4 V. ELECTRICAL CONNECTIONS (NEC Code ANSI/NFPA No. 70)
- D. Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel burning equipment to prevent back drafting. Follow the heating equipment manufacturer's guideline and safety standards such as those published by the National Fire Protection Association (NFPA), and the American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), and local code authorities.
- E. When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.

## I. UNCRATING

Carefully examine the carton(s) for damage. If the carton is damaged, immediately notify the shipping company. **Do not delay in filing claim.** If the air door(s) were shipped on wooden skids, remove protective wood and banding straps securing the carton(s) to the skid. Open the carton(s) and remove all protective packaging. Immediately verify that the electrical rating nameplate located on the cover matches electrical power supply available. Retain the shipping carton(s) until the air door(s) are installed and properly operating.

**ACCESSORIES:** If the air door(s) were ordered with optional electrical accessories, the accessories will be found in the carton containing the air door or in a separate carton(s) accompanying the air door(s). Check all of the cartons/skids for accessories before discarding.

## II. MOUNTING PREPARATION

INDOOR MOUNTING ONLY - Environmental/Insect/Dust Control

- A. The In-Ceiling Mount air curtain is designed to be an effective barrier against cold drafts in the winter and hot air in the summer. To achieve optimum protection, the unit should be mounted on the inside of the building, flush with the ceiling, so that the airstream can pass as close to the top of the door opening as possible. To ensure peak performance keep the air stream free of obstructions.
- B. **The air door will not perform properly if negative air pressure exists in the building. Under these conditions, a means for makeup air to the building must be provided so that the air pressure on both sides of the opening is in balance.**
- C. Before mounting the air door, check the supporting structure to verify that it has sufficient load-carrying capacity to support the weight of the unit(s). The mounting hardware (supplied by others) should be capable of supporting a minimum of three (3) times the weight of the unit. **See Table 1.**
- D. When determining the mounting location for the unit(s), make sure that nothing interferes with the curtain of air

Model	Total Net Weight - Ambient	Total Net Weight - Electric Heat	Total Net Weight - Steam/ Hot Water Heat
ICA/FCA1036A	100	104	115
ICA/FCA1042A	107	111	124
ICA/FCA1048A	113	117	133
ICA/FCA1060A	133	137	160
ICA/FCA2060A	170	178	197
ICA/FCA2072A	177	185	205
ICA/FCA2084A	202	210	237
ICA/FCA2096A	215	223	255
ICA/FCA3096A	252	264	292
ICA/FCA2108A	232	240	279
ICA/FCA3108A	269	281	316
ICA/FCA3120A	269	281	316
ICA/FCA3132A	291	303	346
ICA/FCA3144A	304	316	364
ICA/FCA4144A	341	357	401

Table 1

developed when the discharge vanes are directed from 0° to 20° toward the door opening. If the air stream strikes any obstruction (the top edge of the doorway, a door opening device, etc.), the effectiveness of the unit will be greatly reduced. **See Figure 1.**

- E. For optimum performance, the bottom of the discharge nozzle should be located in such a manner that it is spaced

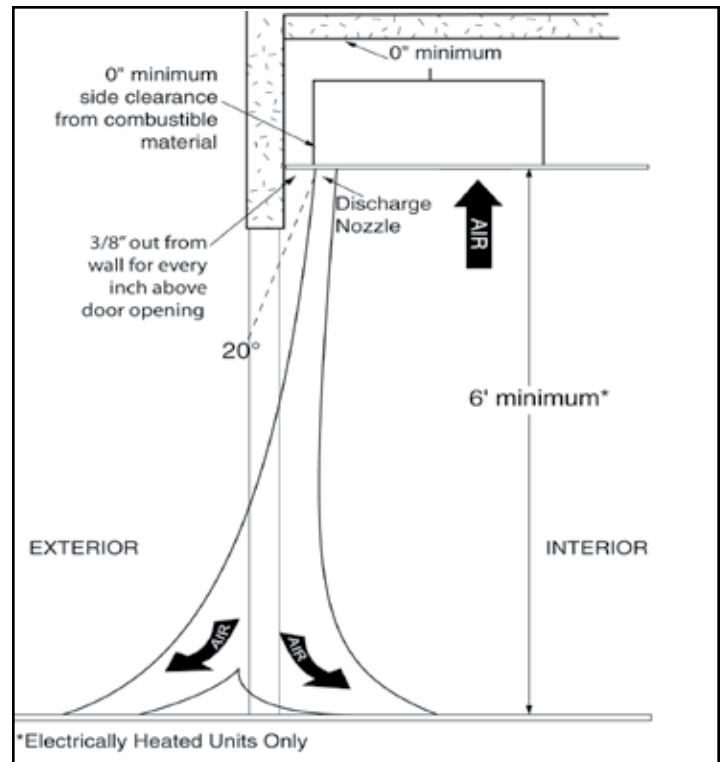


Figure 1

out from the wall 3/8" for every inch the unit is above the door opening.

- F. Electric heated unit(s) shall:
  1. Have a minimum clearance of at least 6' between the bottom of the unit and the floor.
  2. Be installed Indoors Only.
  3. The unit is shipped without the front and back trim installed to protect it from shipping damage. This trim need not be installed until after the unit is hung. **See Figure 2.**

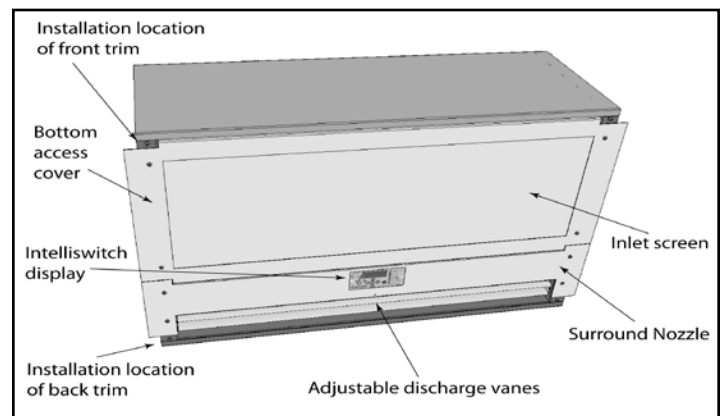


Figure 2

### III. MOUNTING

- A. The ICA/FCA series air door enclosure is equipped with four 5/16"-18 threaded inserts on the top of the unit for suspended mounting. **See Figure 3.**

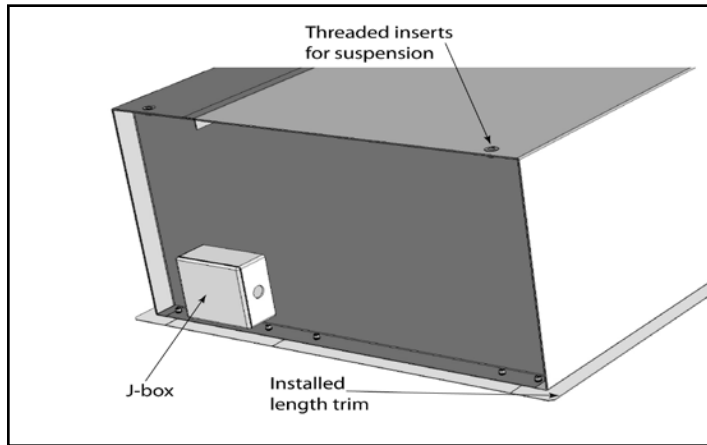


Figure 3

**For lighter lifting the blower assembly may be removed so that the enclosure can be easily installed. See Section VIII: SERVICE for instruction on removing the blower assembly.**

- B. The electrical junction box is located on the outside of the enclosure on the left side of the unit.  
 C. Determine the exact mounting location of the air door unit.  
 D. Create structural attachment points to suspend the unit above the ceiling so that the unit is centered and parallel with the door opening.  
 E. Suspend air door cabinet by attaching threaded rods to the unit and support structures. Adjust unit position so the bottom of the cabinet is flush with the underside of the ceiling.  
 F. Install the front and back trim using the provided fasteners. **See Figure 3.**  
 G. Finish off ceiling edge as required.

**NOTE: Finishing materials must not overlap the bottom of the cabinet to allow the intake screen to open freely.**

- H. If the blower assembly was removed, re-install it along with nozzle surround and bottom access cover.

### IV. ELECTRICAL CONNECTIONS

All electrical wiring and connections **MUST** be performed by qualified personnel in accordance with the latest edition of the National Electrical Code ANSI/NFPA No. 70 or, in Canada, the Canadian Electrical Code, Part 1-C.S.A. Standard C22.1 and local codes and regulations.

- A. Check the rating nameplate on the unit for supply voltage and current requirements. A separate line voltage supply with a suitable branch circuit protection device should be run directly from the main electrical panel to the unit. A disconnect switch for each branch circuit is a required part of this installation. **See Table 2 & 3** for component electrical loads. See the voltage label on the unit for circuiting and total electrical load.

Motor Voltages/Amp Draws											
Volts	120	208	240	480	600	208	240	480	600	110	220
Phase	1	1	1	1	1	3	3	3	3	1	1
Hertz	60	60	60	60	60	60	60	60	60	50	50
Amps per Motor	6.5	3.5	3.5	1.4	1	3.5	3.5	1.4	1	6.5	3.5

Table 2

Heater Amp Draws for Selected kW						
Heater kW	Heater kW Amp Draws					
	208/1	240/1	208/3	240/3	480/3	600/3
6 kW	28.9	25.1	1637.0	14.5	7.2	6.0
8 kW	38.5	33.5	22.2	19.3	9.6	8.0
10 kW	48.1	41.9	27.8	24.1	12.0	10.0
12 kW	57.7	50.3	33.4	28.9	14.4	12.0
14 kW	67.3	58.7	38.9	33.7	16.8	14.0
16 kW	77.0	67.0	44.5	38.6	19.2	16.0
18 kW	86.6	75.4	50.0	43.4	21.6	18.0
20 kW	96.2	83.8	55.6	48.2	24.0	20.0
24 kW	115.4	100.6	66.7	57.8	28.8	24.0
28 kW	134.7	117.3	77.8	67.5	33.6	28.0
30 kW	144.3	125.7	83.4	72.3	36.0	30.0
32 kW	153.9	134.0	88.9	77.1	38.4	32.0
40 kW	192.4	167.6	111.2	96.4	48.0	40.0
42 kW	202.0	176.0	116.8	101.2	50.4	42.0
56 kW	269.4	234.6	155.7	135.0	67.2	56.0
Amps per kW	4.81	4.19	2.78	2.41	1.20	1.00

Table 3

- B. All field wiring must be copper with a minimum insulation of 60°C within approved conduit. If any of the wire supplied with the unit must be replaced, it must be replaced with copper wiring with a minimum insulation of 90°C.  
 C. Electric, steam and hot water heated air doors are factory equipped with an air curtain mounted solid state temperature sensor cable (for Intelliswitch® thermostat) located on the outside of the left endplate. Depending on where the temperature is to be measured, the sensor may be left on the endplate or positioned elsewhere. Do not put any clamps on the rubber coated tip.  
 D. Remove the junction box cover.  
 E. Connect all supply and control circuit wires according to the wiring diagram provided.

**NOTE: For Electric heated air doors provided with the optional remote thermostat, mount and wire the thermostat according to instructions and wiring diagram.**

- F. Master/Slave connection, if two or more air doors are to be linked together for Master/Slave operation, continue, otherwise, skip to Step G.

**NOTE: The air door must have been ordered from the factory with this option.**

**NOTE: One Intelliswitch® serial cable assembly (part # 505SC\*\*\*INT485-A) is required for every air door that is to**

**be used as a Master/Slave. "\*\*\*\*" denotes length of cable in feet "008"= 8 ft. long.**

For Master/Slave operation, a serial cable connection must be made between the Intelliswitch® control boards of each air door to be linked.

1. Disconnect power to all the air doors
2. Find the (RS485) phone jack couplers protruding through the hole in the endplate next to the j-box.
3. The serial cable ordered for each air door will be coiled up and attached to the left endplate.

**NOTE: There will be one less serial cable than the number of air doors ordered. E.g. Two air doors together will need only one cable; three air doors together will need two cables, etc. Any extra cables can be kept as spares.**

4. Plug the (RS485) male phone jack on the end of the serial cable into the empty coupler on the next air door.
5. Continue process for all air doors that are to be connected serially.
6. Serial cable connections are capable of two way communication. It does not matter to which coupler the cables are connected.
7. The first and last air door in the group will each have an empty coupler after all connections are made. If there are only two air doors connected, each will have an empty cable coupler.

**NOTE: If a longer cable is required than was supplied, it can be ordered from the factory or made by using standard 4 wire flat telephone cable, phone jack connectors and the proper crimping tool.**

- G. Remote Mounted Display Faceplate – If operation of the Intelliswitch® is to be through a Factory Ordered Remote Mounted Display Faceplate, continue, otherwise, skip to step H.

**NOTE: Maximum mounting distance between the Display Faceplate and the air door is 20'.**

1. When the remote faceplate option is ordered from the factory, the air door comes equipped with the blank faceplate already installed and the 20' ribbon cable attached. The Display Faceplate is shipped loose, ready for field installation.
2. Locate the male end of the conductor ribbon cable and run it to the remote display location. The cable is minimum CL2 rated and should not need to be in conduit.
3. Connect the female end of the ribbon cable to the 14-pin socket on the back of the display board with the cable approaching from the top and the red ribbon indicator to the right (when facing the front of the display board).
4. Mount Display Faceplate to the wall.

- H. For Electric, Steam and Hot Water air doors proceed to **Section V - Field Connections** otherwise proceed to **Section VI - Airflow Adjustments**

## V. FIELD CONNECTIONS

### A. ELECTRICALLY HEATED MODELS

The heater circuit may be controlled by a remote thermostat or manually through the Intelliswitch® located on the discharge side of the air door. Overheating protection is provided by auto reset thermal cutouts built into the heater coil assembly (see the wiring diagram).

### B. STEAM AND HOT WATER HEATED MODELS

Piping should be done in accordance with local codes, regulations and standard practices. Connect the building system supply and return to the ¾" MPT nipples on the heating coil. **See Figure 4.**

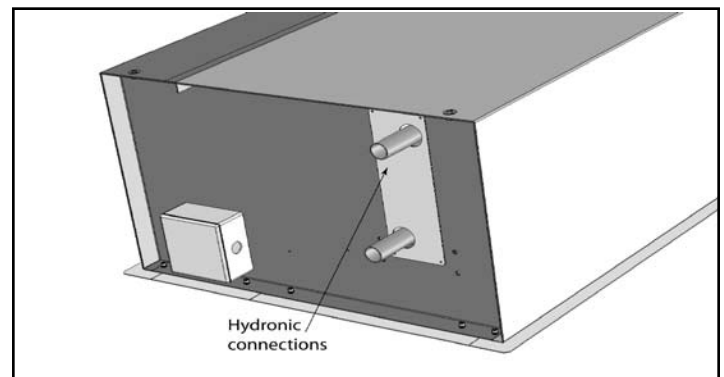


Figure 4

## VI. AIRFLOW ADJUSTMENTS

- A. With the air door operating and the door in its full open position, check to see that nothing is obstructing the air flow at the discharge nozzle vanes.
- B. Find the air stream split location. Hold a handkerchief, by its corners, approximately 12" above the floor. Gently move the handkerchief back and forth in the doorway. Make sure the air is being directed to both the inside and the outside. The split location is indicated where the handkerchief is vertical with minimal or no fluttering. **See Figure 5.**
- C. Adjust the discharge nozzle vanes so the split location is approximately 3" outside the doorway. Loosen the nozzle vane locking screws and adjusting the vanes.

## VII. MAINTENANCE AND CLEANING

**CAUTION: ELECTRIC SHOCK HAZARD Disconnect power when ever servicing unit. More than one disconnect may be required to de-energize unit.**

Keep your air door operating at peak efficiency by cleaning the blower wheels, motor(s) and intake grille. Buildup of dust on the blower wheels can cause vibration, noise and excessive wear on the motor bearings. The frequency of cleaning will

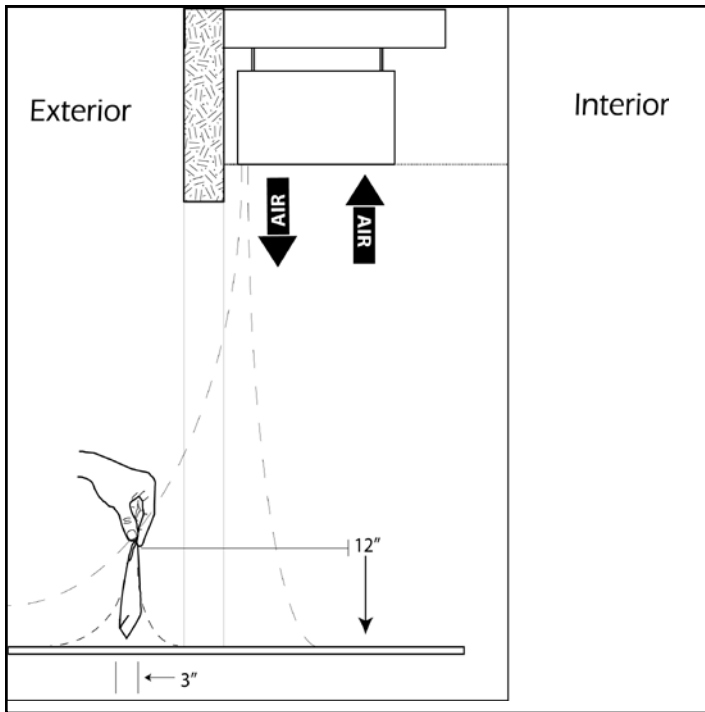


Figure 5

depend on the environment where the unit is operating.

Dirty, dusty or greasy environments could require a cleaning schedule of once every two months. Otherwise, the unit(s) should be scheduled for cleaning a minimum of once every (6) months. To access the interior of the unit:

- A. Disconnect and lockout power to the unit. If necessary remove the blower assembly. **See Section VIII: Service** for instructions on how to remove blower module.
- B. Remove the bottom access cover by removing (4) Phillips head machine screws located at the cover's corners. **See Figure 6.**
- C. Vacuum and scrape (if necessary) to remove the buildup of dirt and debris from the interior of the air door. The motor(s) are permanently lubricated and require no additional lubrication.
- D. Pull the filter out from underneath the struts of the bottom access cover. It is easiest to work from the middle, pulling one side out and then the other. Spray the filter with warm, soapy water, rinse, and pad dry.
- E. Replace Filter.
- F. Reinstall the bottom access cover.
- G. Switch the power on after cleaning.

**CAUTION: STAND CLEAR of the unit or wear safety goggles as loose debris may be present and may exit the nozzle.**

## VIII. SERVICE

**CAUTION: ELECTRIC SHOCK HAZARD Disconnect power when ever servicing unit. More than one disconnect may be required to de-energize unit.**

*Any service performed on the ICA/FCA air door MUST be done by qualified personnel.*

Berner air doors require very little servicing. All parts are easily accessible for periodic inspection and maintenance. Units should be cleaned at least twice a year. Your particular application (the amount of dirt and dust in the air) and location of the unit(s) will determine how often your unit(s) will need to be cleaned and serviced. All motors have permanently lubricated, sealed, sleeve bearings and require no maintenance.

- A. To remove the blower module and clean or replace the fans and motor:

1. Disconnect and lockout power to the unit.
2. Remove the bottom access cover by removing (4) Phillips head machine screws located at the cover's corners.

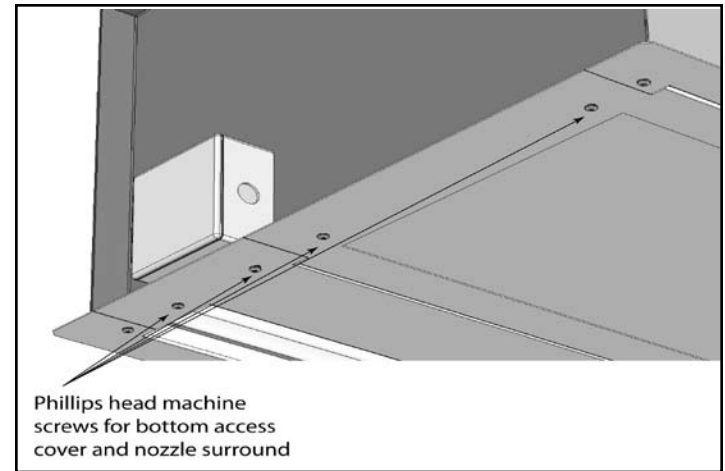


Figure 6

**See Figure 6.**

3. If desired, the nozzle surround may be removed to provide more working room. To remove the nozzle surround, remove the (4) Phillips head machine screws from the corners. The Intelliswitch® ribbon cable must also be disconnected from the back of the display circuit board before the nozzle surround can be set aside.
4. Disconnect motor power wires/harness from motor.
5. If the unit has electric heat, the heaters need to be disconnected from supply wiring. Each fan housing will have a heating element on both of its sides, spanning the inlet venturi. Each heating element will have (2) ¼" quick disconnects for power supply wiring. In addition, the heating elements located on the outside of the module will have (2) ¼" quick disconnects for the auto reset

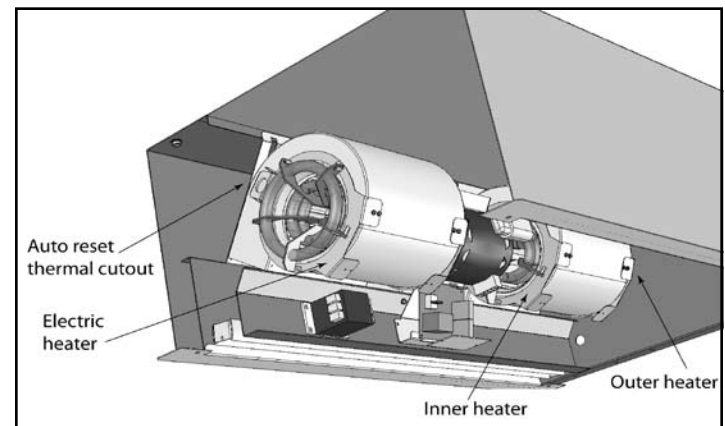


Figure 7

thermal cutouts. Label and separate all of those connections. **See Figure 7.**

- Using a 5/16" hex driver, loosen and remove the (4) self drilling screws that hold the blower plate to the frame of the unit. Remove the two screws at the top of the product last, as after they are removed, the module will be free to drop out of the cabinet. **See Figure 8** for location of all screws.
- Wearing protective gloves, hold the module by the mo-

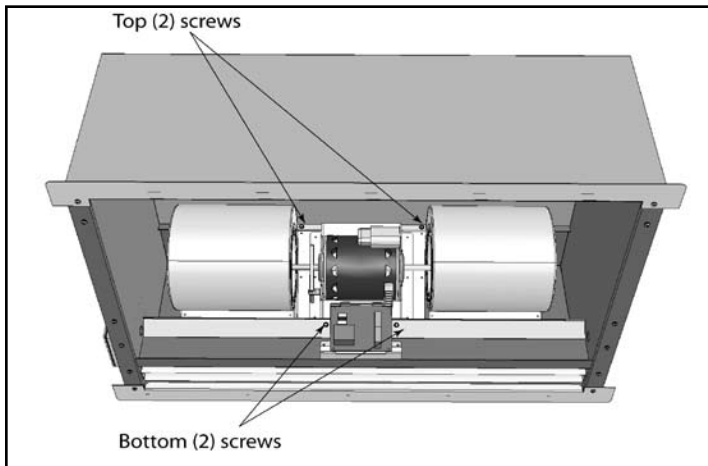


Figure 8

tor, and rotate the module top forward and drop it down through the bottom of the unit. **See Figure 9.**

- To remove the fans and/or motor, loosen the set screws in the fan wheel hubs by using a 5/32" Allen wrench that is at least 6" long. The set screw can be accessed up through the fan's discharge.
- Next, remove the two blower housings by removing the (8) screws that attach the fan housings to the blower plate. When the fan housings are free, slide them and their fan wheels off to each side.
- Remove the motor clips from the motor mounts, disconnect the motor ground wire if necessary, and lift the motor up and out of its cradle.
- Reinstall in reverse order of removal.

#### B. To Replace the Electric Heater:

- Disconnect and lockout power to the unit.
- Remove the bottom access cover.
- The blower module does NOT need to be removed from the unit to replace electric heaters, unless you have one of the following models: ICA1036, ICA2060, or ICA3096. If you have one of these models, you will need to remove the blower module to replace the outer heaters. If you need to remove the blower module, see **Section VIII Service, A.**

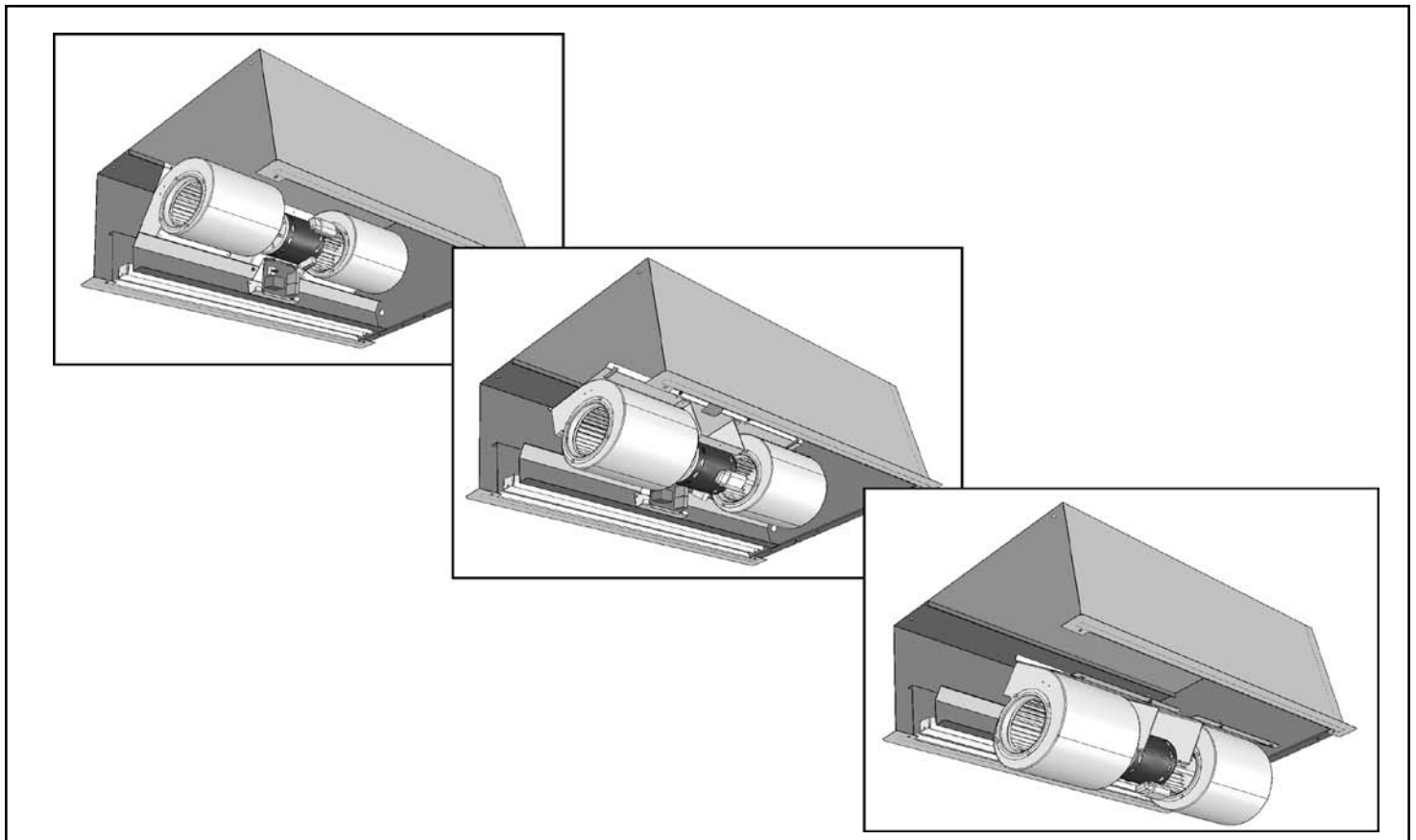


Figure 9

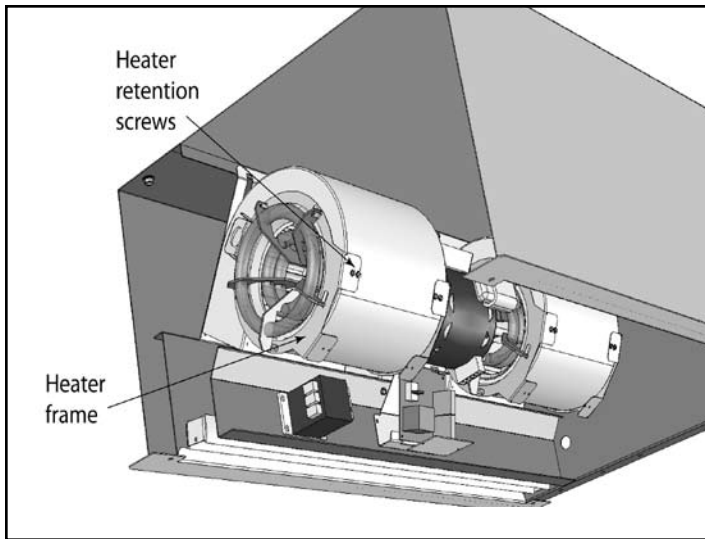


Figure 10

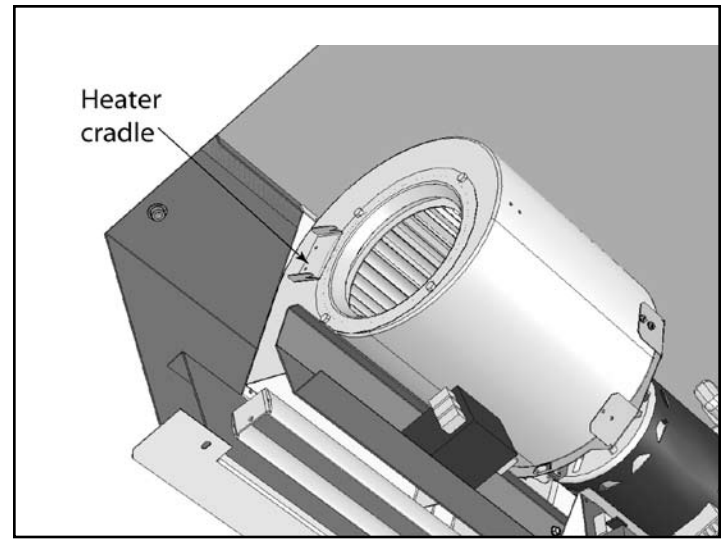


Figure 11

4. Label and detach the heater connections for supply power and for the auto reset thermal cutout.
5. Remove the (2) self drilling, heater retention screws holding the electric heater frame to the fan housing. **See Figure 10.**
6. Carefully maneuver the heater out from the fan and around the motor shaft.
7. Remove the pigtails from the old heater thermal cutout, and place them on the new heater.
8. To install the new heater, maneuver it into position making sure the frame of the heater sits in its cradle, which is attached to the fan. **See Figure 11.**
9. Reinstall the (2) self drilling screws using the existing holes in the fan housing. As the fan housings are constructed of thin gauge steel, be careful not to strip these holes.
10. Reconnect supply power and thermal cutout wiring.

End of Section

---

**See the following pages for information on the Intelliswitch<sup>®</sup>, including:  
Quick Start Operation Guide, FAQ's, and Detailed Programming Guide.**

**How to operate your In-Ceiling Mount Air Door  
that comes with a factory installed digital programmable controller called the Intelliswitch®**



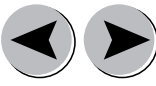

# INTELLISWITCH® QUICK START OPERATION

www.intelli-how2.com





When power is turned on to the Air Door, all of the lights on the display will light briefly while the Intelliswitch® starts up. After startup the clock will then display. The Intelliswitch is now ready to set.

NOTE: To adjust the clock, refer to section 4.5 Appendix A.

## To operate the air door:





	<p>Press the Down Arrow (Menu) button once. NOTE: If the Down Arrow button is pressed twice, the function will change from "Mode" to "Fan Speed".</p>	 Mode/Fan Speed indicator will light
	<p>Using either the Left or Right Arrow buttons, scroll through the <b>Modes of Operation</b> until you reach the desired mode. <i>See below to determine which mode is right for you.</i></p>	
<p>For detailed information of the Intelliswitch® Navigation and Operation please refer to Appendix A (see pages 12-18)</p>		
	<p>Once the Mode of Operation is selected, press "OK" button to set and return to the clock or the down arrow to select and adjust any of the other available settings.</p>	

## Mode of Operation:

<p align="center"><b>OFF</b></p>	<p>The unit will not run.</p>	
<p align="center"><b>ON</b></p>	<p>The unit will run continuously unless a start and stop time is programmed.</p>	
<p align="center"><b>The following modes can be customized see "Programming the Intelliswitch®" for more info.</b></p>		
<p align="center"><b>AUTO</b></p>	<p>For use with a door switch, the unit will operate only when the door is open.</p>	
<p align="center"><b>"delu" DELUXE</b></p>	<p>For use with a door switch, the unit will operate only when the door is open with a minimum 1 minute delay before turning off when it closes.</p>	

## Modes of Operation continued:

The following modes can be customized see "Programming the Intelliswitch®" for more info.

<p><b>"Plus" COMFORT PLUS</b></p>	<p>For use on heated units only, requires a door switch. When the temperature drops below the thermostat set point and the door is closed, the unit will activate on a low speed and provide supplemental heating to the space. The unit will change to normal speed when the door is open. If the thermostat is still not satisfied when the door closes the unit will return to low speed until the set point is reached.</p>	
<p><b>"Pro1" PROGRAM 1</b></p>	<p>Recommended for unheated units. This setting will enable the air door to operate on Deluxe mode with a 1 minute time delay, 24 hours a day, 7 days a week. See Appendix A page 18 for more detailed information.</p>	
<p><b>"Pro2" PROGRAM 2</b></p>	<p>Recommended for heated units. This setting will enable the air door to operate on Deluxe mode with a 1 minute time delay from 8:00 am – 5:00 pm.  From 5:01 pm – 7:59 am, the unit will operate on Comfort Plus with a 30 second time delay. See Appendix A page 18 for more detailed information.</p>	
<p><b>"Pro3" PROGRAM 3</b></p>	<p>Recommended for heated units. This setting will enable the air door to operate on Auto mode with a 30 second time delay, 24 hours a day, 7 days a week. See Appendix A page 18 for more detailed information.</p>	



# INTELLISWITCH® FAQ's (Frequently Asked Questions)

www.intelli-how2.com

**WARNING: TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR INJURY TO PERSONS, OBSERVE THE FOLLOWING: Before servicing or cleaning unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.**

**Even though every In-Ceiling Mount unit is individually tested at the factory before shipment, on occasion improper functionality may be experienced. Here is a list of common questions:**

## **Q. Why can't I change my settings?**

**A.** The Intelliswitch® may be locked. If the Lock light is illuminated, the control is locked. To unlock, press and hold the left & right arrows simultaneously for 5 seconds. The Lock mode can also be protected with a PASScode. If the PASScode option is on, an attempt to unlock the control will display PASS and then a 0000 prompt. A four-digit code (available in the installation instruction book Appendix) must then be entered to unlock the control. Use the up and down arrows to select a number and the left and right arrows to select the digit to edit. Press OK when done. Note: If the AutoLock setting is on, the control will re-lock if there is no activity after 5 minutes.

## **Q. Why won't my heat work, even though fans are running?**

**A.** The thermostat(s) or speed sensor may need adjusted or replaced.

- 1.) Make sure that the thermostat probe and/or remote thermostat are in the "On" position and set above ambient (room) temperature.
- 2.) Check internal and external thermostat status in the Diagnostics Menu for a faulty thermostat. To do this, hold the right arrow for five seconds until DIAG appears, then arrow down to the ts setting, if it displays "1" then the thermostat(s) is working (there is a call for heat).
- 3.) If no external thermostat is used, check to see if the internal probe is attached to the control board. Disconnect power to the unit, remove the display board and check that the beige sheathed cable is attached at both ends. If the thermostat(s) and settings are correct and you are still not getting heat, then check to see the fan speed. To do this, press the down arrow to reach the Mode/Fan speed setting. Use the right and left arrow to change the fan speed.
- 4.) Check to see if you can adjust the fan speed. If the speed sensor is bad there will be no speed control and the Intelliswitch® will not let the heat come on. If it is too difficult to determine a change in speed, the speed sensor can be checked by entering the DIAG menu and checking the first error code. If ER 10 displays, the speed sensor is recognized by the Intelliswitch®. If the code ER 11 is displayed, the Intelliswitch® does not recognize the sensor, and it may be faulty or need adjusted closer to the trigger bar. Turn off the power to the unit and remove the screen to check the distance between the sensor and the trigger located on the left side of the motor (use the bottom access cover for steam/hot water heated units). The sensor should be less than 1/16" from the trigger face. Check distance at both ends of trigger. Adjust if necessary.
- 5.) If there is still no heat or speed control, you may need a new speed sensor: consult factory.

## **Q. Why won't the Intelliswitch® light up?**

**A.** There may not be power to the control.

- 1.) Check to see if the main power is turned on to the unit. Your air curtain may have multiple disconnects, be sure all are turned on.
- 2.) Verify that there is power to the board. **NOTE: ONLY QUALIFIED PERSONS SHALL CHECK POWER IN THE UNIT WITH THE POWER ON.** The power terminals are located directly behind the display. Remove two Phillips screws from the Intelliswitch® display to expose the power terminals and check the line voltage at spade terminals L2 and 120, 208 or 240 (depending on the voltage supplied to the unit).
- 3.) Check the ribbon cable connections to the display board for a loose connector or improperly connected cable (see Installation Instructions for correct cable connection).
- 4.) If there is line voltage power at the board terminals, the ribbon cable is correctly connected, and it is still not working, you may need a new circuit board: consult factory.

## **Q. Why won't my fans shut off?**

**A.** The Intelliswitch® may be in the wrong mode or mis-wired.

- 1.) Check to see if the control is in the "ON" mode, if it is, then change the Mode to another setting.
- 2.) The T-Stat Mode may be set to the "both" setting and the thermostat is calling for both Fan and Heat, change the T-Stat Mode to "HEAT".
- 3.) If there is a door switch and the unit is in a mode that is activated by it, there could be a short, mis-wiring or mixup in components. Close the door and check the door switch status in the Diagnostics menu. Hold the right arrow for five seconds until DIAG appears, then arrow down to the ds setting, if it displays "1" then the door switch signal is closed (there is a call for fan). If the door is closed, the signal should be "0" or open.
- 4.) There could be a short in the field connections to the door switch or the door switch leads could be mis-wired. To test, disconnect the door switch connection at the unit. Opening the wiring tray on top of the unit and be cautious of high voltage connections. Disconnect the blue wires labeled 9 & 10 from the field wiring to the door switch or make sure they are not tied together. There is no danger of getting shocked because the signal is 5 volt dc. Be sure not to touch the blue wires to anything metal (or grounded). The unit should shut off when it is in any mode that is activated by the door switch.
- 5.) If the air curtain is heated, make sure that the thermostat isn't wired to the door switch leads. Door switch leads are blue and labeled 9 & 10.

# INTELLISWITCH® FAQ's Continued (Frequently Asked Questions)

www.intelli-how2.com

## **Q. How can I check the door switch to be sure it's working?**

**A.** The Intelliswitch® may be in the wrong mode, be mis-wired or have a faulty door switch.

- 1.) Test the wiring and controller function at the same time first. Locate the door switch and open its wiring compartment by removing the two screws holding on the back cover. There should be two wires connected to screws inside the switch. There is no danger of getting shocked because the signal is 5 volt dc. Be sure not to touch the wires to anything metal (or grounded). Either disconnect both wires from the screws (noting which screws the wires are under) and touch them together (with air curtain in "Auto" mode) or make a short jumper wire and touch the jumper to both screws at the same time to see if air curtain comes on. If it does, the controller and wiring work.
- 2.) If the wiring and unit pass the function test, the problem could be either misalignment or a faulty door switch. On a magnetic reed switch check for magnet alignment, for plunger/roller type switch, check contact engagement with door.
- 3.) If you have access to an electrical test meter, the door switch contacts can be tested for continuity when the door switch wires are disconnected from the unit.

## **Q. Why won't my heat shut off?**

**A.** The Intelliswitch® may need adjusted, have been mis-wired or have a faulty thermostat.

- 1.) Heat is activated by one of two thermostat connections. To test the internal thermostat set the external thermostat to OFF. The settings of the unit mounted thermostat probe are accessed through the display. Press the down arrow until the Temp Set indicator lights up; check if the temperature setting and unit of measure are correct. Test to see if it shuts off by setting the thermostat temperature to OFF or lower than the room temperature.
- 2.) If an external thermostat is connected to the unit, there could be a short in the field connections or the thermostat leads may be mis-wired. To test the external thermostat set the internal thermostat to OFF. Disconnect the external thermostat connections at the unit. Open the wiring tray on top of the unit and be cautious of high voltage connections. Disconnect the orange wires labeled 6 & 7 from the field wiring to the thermostat or make sure they are not tied together. There is no danger of getting shocked because the signal is 5 volt dc. Be sure not to touch the orange wires to anything metal (or grounded). The heat should shut off when the wires are separated. For more complex troubleshooting of either thermal cutouts or heater contactors, please consult a qualified electrician or the factory.

## **Q. Why didn't the Intelliswitch® save the changes I made to a program?**

**A.** If a program is active (a dot is illuminated by one of the clock digits), changes can be made to any settings on the User Menu. These changes however will only remain in effect until the program changes to the next time zone. To make changes permanent, settings must be changed in the program from the Program Menu. Access the Program Menu by holding down the left arrow for 5 seconds until "PRO" is displayed. Arrow down to select programming and arrow left to select the program to edit. Use the down arrow to step through the options and make changes as desired. Continue to press the down arrow until Stor is displayed. Press OK or down to keep or store the changes.

## **Q. How do I undo a change that I made to a program in the Program Menu?**

**A.** Changes to programs cannot be undone. The programs can however be reset to the factory default settings. This must be done on the Factory Menu. Access to the Factory Menu is attained through the Diagnostics Menu. Press and hold the right arrow for 5 seconds until "DIAG" is displayed. From the "DIAG" display press and hold the up and down simultaneously for 10 seconds until "FACT" is displayed. Use the down arrow to select "DEFn" on the display then use the right arrow to select "DEFP". Press "OK" to reset. The control display will go blank then blink as confirmation.

## **Q. My air curtain won't turn on?**

**A.** Check the AM/PM setting on the Start and Stop times or the clock (considering the AM indicator light when setting values). Note: set the start time and stop time to the exact time for the unit to be active full time. Check to see if a program is active that may have different start/stop times than those expected.


## **Q. My building has a Building Management System, can the Intelliswitch® work with a BMS?**

**A.** The Intelliswitch® can be controlled by a Building Management System (BMS) but currently does not have the ability to communicate with them. Dry contacts on the BMS may be used to control the unit activation through the door switch connections (blue wires 9 & 10) and the heat activation through the remote thermostat connections (orange wires 6 & 7). Consult factory.

## A. PROGRAMMING THE INTELLISWITCH®

**To reduce the risk of injury and ensure proper operation all Notes and Instructions shall be read!**



**Note: The STOP button  is available at all times and immediately stops the unit for an emergency situation. The IntelliSwitch® will display STBY for Stand By when selected. To release the control from STBY press STOP again. When the control is released from STOP it will be in the OFF Mode. Press the left or right arrows to select new Mode or OK to return to the clock.**

**Note: When changing options, if there is no activity for 15 seconds, the control will save changes and default back to the User Menu display clock.**

**Note: The OK button  always saves the current entered value and returns you to the User Menu display clock.**

**Section 1:** Quick Start Reference

**Section 2:** Arrow Navigation

**Section 3:** Menu Structure

**Section 4:** User Menu

**Section 5:** Program Menu

**Section 6:** Diagnostic Menu

**Section 7:** Factory Menu



**Section 8:** External Connections

### 1. Quick Start Reference

- 1.1 Press the Menu button (down Arrow).
- 1.2 Using the left and right arrows, select the operating Mode: Off, On, Auto, Deluxe, Comfort Plus or Program Number 1, 2 or 3.
- 1.3 Press OK.

### 2. Arrow Navigation

The up and down arrows   select the menu options.

The left and right arrows   change values for single-level menu options (Mode, Speed, Temp Degree, Temp Set, T-stat Mode and Day) or are used to enter into multi-level menu options (Delay Time, Temp Set, Start Time, Stop Time and Set Time).

Arrow sequence and available settings are illustrated under each option.

### 2.1. Single Level Options

Single level options can change values directly with the left and right arrows. No additional actions are necessary to access these option settings.

### 2.2. Multi-level Options

Multi-level options require additional actions to access an option's settings. The right or left arrow is required to enter into an option.

If the multi-level option has one value to edit it may be changed directly with the up or down arrow.

If the multi-level menu option has two values (such as a time value) the first option value flashes upon selection. Use the left or right arrow to select which value to change and then use the up and down arrows to change the option value. See the Menu Options section for the option increment i.e. hours/minutes, minutes/seconds.

To leave a multi-level option, use the left or right arrow to cycle through the option value until it stops flashing. The up or down arrow may now be used to navigate to the other options.

### 3. Menu Structure

The IntelliSwitch® has four menus:

- User Menu (Section 4)
- Program Menu (Section 5)
- Diagnostic Menu (Section 6)
- Factory Menu (Section 7)

The **User Menu** is the top level menu where values for each option is entered based on the Mode selected. Each option is identified by a green light when selected. The clock display is the default home position for the User Menu when OK is selected or there is no activity for 15 seconds.

**Note: Access to all Secondary Menus must originate from the User Menu. Secondary menus are identified by the menu title upon successful entry, e.g. PRO, DIAG and FACT.**

The **Program Menu** is used to edit all program option parameters.

The **Diagnostic Menu** is used to diagnose and troubleshoot errors with the IntelliSwitch®.

The **Factory Menu** is only to be used when directed to reset or change factory default settings.

### 4. User Menu

To enter into the User Menu press the down arrow (menu). Use the down or up arrow to step through each option. Each option is identified by a green light when selected. Options available from the User Menu are:

- Mode
- Fan Speed
- Time Delay
- Thermostat degree type
- Thermostat Set Point
- Start Time
- Stop Time
- Thermostat Control Mode
- Time Set
- Day Set
- Lock/PASScode

#### 4.1. Mode: single-level

↶ OFF-ON-AUTO-DELU-PLUS-PRO1-PRO2-PRO3 ↷

Use left & right arrows to select the desired operating Mode.

- OFF – unit off.
- ON – unit will run when start/stop time is satisfied.
- AUTO – unit will run when terminals 9 & 10 are connected through a switch and start/stop time is satisfied, ALL menu options available.
- DELU – unit will run when terminals 9 & 10 are connected through a switch and start/stop time is satisfied, MUST set time delay from 1-10 minutes, T-Stat Mode NOT available.
- PLUS - unit will run when terminals 9 & 10 are connected through a switch and start/stop time is satisfied, when door is closed and temperature drops below the set point the unit will run on low speed with heat (low speed set on the Program Menu), unit will run at higher user level set speed when door opens.
- PRO1 – Runs Program #1 see Program Menu Section, 1st digit indicator light when active.
- PRO2 – Runs Program #2 see Program Menu Section, 2nd digit indicator light when active.
- PRO3 – Runs Program #3 see Program Menu Section, 3rd digit indicator light when active.

**NOTE: When Program Modes are selected changes can only be made to the Mode, Time Delay, Temperature, Time and Day settings. Changes will only remain in effect until the program changes between active time zones.**

**NOTE: AutoLock, Comfort + Low Speed and PASScode are global options and their settings are the same for any Mode selected. They will not change when the Mode or Program changes.**

#### 4.2. Fan Speed: single-level

SP ↶ 1-2-3-4-5-6-7-8-9-10 ↷

Use left or right arrows to select fan speed. Depending on the Air Curtain Series, the ranges will be either 1-10, 1-3 or 1-2 with 1 = low, and the highest number = high speed.

#### 4.3. Delay Time: multi-level – min/sec

↶ OFF – 00:01 thru 10:00 ↷

Select option with right arrow, use up & down arrows to set the amount of time that the unit will delay shutting off after terminals 9 & 10 are opened.

#### 4.4. Temp Set (units): single level

↶ °F – °C ↷

Use left & right arrows to select the temperature degree type, Fahrenheit or Celsius, for thermostat set point.

Note: This option is only available for heated units with a built-in thermostat.

#### 4.5. Temp Set : single level

↶ OFF – 34°F thru 90°F ↷

or

↶ OFF – 1°C thru 32°C ↷

Use left & right arrows to select the temperature set point when the heat is to be activated.

**Note: This option is only available for heated units with a built-in thermostat.**

#### 4.6. Start Time: multi-level – hours/min

Select this option with right arrow, use up & down arrows to set the time that the unit is to turn on in the ON Mode or become active for AUTO, DELU and PLUS Modes.

**Note: to turn off this feature the Start Time must be set equal to Stop Time (including am/pm).**

#### 4.7. Stop Time: multi-level – hours/min

Select this option with right arrow, use up & down arrows to set the time that the unit is to turn off in the ON Mode or become active for AUTO, DELU and PLUS Mode.

**Note: to turn off this feature the Start Time must be set equal to Stop Time (including am/pm).**

#### 4.8. Thermostat Mode: single level

↶ HEAT-BOTH ↷

Select the control mode for the built-in and remote thermostats.

The **HEAT** mode only cycles the heater when there is a call for heat from either internal or external thermostats when the fan is running. The **BOTH** mode cycles both the fan and the heater on a call for heat from either internal or external thermostats.

**Note: This option is only available for electric heated units with built-in thermostat or units with external remote mount thermostat connected between terminals 6 & 7.**

#### 4.9. Set Time: multi-level – hours/min

Select option with right arrow, use up & down arrows to set the clock. Note: time does not adjust for daylight savings time.

#### 4.10. Set Day: single level

↵ DAY1-DAY2-DAY3-DAY4-DAY5-DAY6-DAY7 ↵

Use left & right arrows to select day of the week, where Sunday = DAY1, Monday = DAY2 etc. Used as reference by programs.

#### 4.11. Lock/Unlock

The Intelliswitch® can be locked to prevent unauthorized tampering of the settings.

When locked, only the options on the User Level may be viewed. Only the Mode can be changed between OFF and the Mode that was active when it was locked, all other options may NOT be changed.

To lock or unlock, press and hold the left and right arrows simultaneously for 5 seconds, the Locked light will illuminate when locked.

If the PASScode option is ON, an attempt to unlock the control will display PASS and then a 0000 prompt to enter a four digit unlock code. Use the up & down arrows to change the numbers and the left & right arrows to move between positions.

**Note: When the AutoLock option is set to ON in the Program Menu, the Intelliswitch® will automatically lock after 5 minutes without any activity. Default setting – OFF. See Section 5.2.**

**Note: When the PASScode option is set to ON in the Factory Menu, the Intelliswitch® will require a code be entered to unlock the control. Default setting – OFF. See Section 7.4.**


### 5. Program Menu

To enter into the Program Menu hold down the left arrow for 5 seconds. PRO will display when the Program Menu is available.

Use the Program Menu to set the following options:

- Program 1, 2 & 3 settings
- AutoLock setting
- Comfort Plus low speed setting
- Master/Slave Stand By setting

↵ PRO-AULC-PLUS-STBY ↵

Program Menu – single level 

Use left & right arrows to select the option to change.

#### 5.1. Program

The Intelliswitch® can store up to three Dual-Zone programs.

Use the Program option to select and save User Menu settings to be recalled at anytime.

A time zone is the period of time defined by the user for the unit to be active. Both zones may operate one after the other or with a gap between them.

The Program menu allows parameters for the following options to be set:

- Number of Zones: 1 or 2
- Days of the week to operate per zone
- Mode (Off-On-Auto-Deluxe-Plus)
- Speed
- Time Delay
- Thermostat Set Point
- Start Time
- Stop Time
- Thermostat Mode

To enter into the Program menu press the down arrow (menu button) at the PRO display. Use the left & right arrows to select the program to be edited.

↵ PRO1-PRO2-PRO3 ↵

**Note: After setting the number of zones and active days all parameters are set the same as the User Menu. Use the Up and Down arrows to accept changes and OK to return to User Menu.**

#### 5.1.1. Zone: single level

↵ Zn 01-Zn 02 ↵

Select the number of Zones for the program. If one zone is selected a prompt will ask to save settings after the last option. If **two** zones are selected, Zone 1 parameters will be set first and then parameters for Zone 2 will be set. A prompt will ask to save settings after the last option of Zone 2.

#### 5.1.2. Day: multi-level

↵ day-day1-day2-day3-day4-day5-day6-day7 ↵

Select the days of the week that the program is to operate for each zone.

When **day** is displayed, press the right arrow to enter into the day parameters.

Once in the day parameters each day is identified by the day number, use the right or left arrows to select **yes** to activate a day or **no** to deactivate a day.

↵ dy 1n-dy 1y ↵

↓

↵ dy 2n-dy 2y ↵

↓  
↶ dy 3n-dy 3y ↷

Use the up and down arrows to move to the next day or skip days until **day** is displayed.

From this point enter right to re-enter day settings or down to continue.

Note: The top seven LED's will light from the top down representing days 1 thru 7 that have been activated.

### 5.1.3. Mode: single level

Select operating mode for Zone. Only Off, On, Auto or Plus are available.

### 5.1.4. Fan Speed: single level

Select the fan speed for Zone being programmed.

### 5.1.5. Time Delay: multi-level

Set the time delay for Zone being programmed.

### 5.1.6. Temperature Set: single level

Set the temperature set point for internal thermostat for Zone being programmed. Degree type is based on degrees selected on the User Menu.

### 5.1.7. Start Time: multi-level

Set the start time for Zone program to activate including am/pm.

**Note: Zone 1 has priority over Zone 2 and if conflicting times are entered Zone 1 will always activate and take precedence over Zone 2.**

### 5.1.8. Stop Time: multi-level

Set the stop time for Zone program to activate including am/pm.

**Note: Zone 1 has priority over Zone 2 and if conflicting times are entered Zone 1 will always activate and take precedence over Zone 2.**

### 5.1.9. Thermostat Mode: single level

Set thermostat mode for Zone.

### 5.1.10. Store: single level

↶ str y-str n ↷

Use the right or left arrows to select **yes** to save program or **no** to abandon changes.

A single zone program will prompt to save all options after the first set of parameters; a dual zone program will prompt to save after the second set of parameters.

**Note: Upon saving, the LED on the digit light corresponding to the program number will blink.**

## 5.2. AutoLock: multi-level

↶ ON-YES ↷

To enter into the AutoLock menu press the down arrow (menu button) at the **AULC** display. Use the left or right arrows to select **ON** to have control automatically lock if there is no activity for 5 minutes or **OFF** to deactivate.

## 5.3. Comfort Plus (fan speed): multi-level

SP ↶ 1-2-3-4-5-6-7-8-9-10 ↷ see Note\*

To enter into the Comfort Plus low speed setting, press the down arrow (menu button) at the PLUS display. Use the left or right arrows to select the low fan speed for the unit when in the PLUS mode, when the door is closed and the thermostat set point is reached.

**\*Note: the speed range is limited to be equal to or less than that of the User Menu speed setting.**

## 5.4. Master/Slave Stand By: multi-level

↶ ind-ALL n ↷

To enter into the Master/Slave stand by setting press the down arrow at the **STBY** display. Use the left or right arrows to select the STOP button behavior when units are connected together in a Master/Slave configuration. Select "ind" or independent to stop only the unit where STOP is pressed. Select "ALL" to stop all connected units.

## 6. Diagnostic Menu

To enter into the Diagnostic Menu hold down the right arrow for 5 seconds. **DIAG** will display when the Diagnostic Menu is available.

The Diagnostic Menu is used to diagnose and troubleshoot Intelliswitch® errors. Only "live" parameter settings are displayed, there are no options to change.

The Diagnostic Menu displays the following parameters:

- Software version release
- Internal Thermostat reading – Celsius
- Internal Thermostat reading – Fahrenheit
- Motor rpm reading
- Supply Voltage Frequency

- Door Switch status
- External Thermostat status
- Heater Relay status
- Error Code 1 – Speed Sensor
- Error Code 2 – Line Frequency
- Error Code 3 – Power Issue
- Error Code 4 – Motor Off Fault

**6.1. Software Release Version** – Format: r0.00

**6.2. Internal Thermostat** – °C (np = no probe)

**6.3. Internal Thermostat** – °F (np = no probe)

**6.4. Motor RPM** – measured speed in rpm

**6.5. Supply Voltage** – measured frequency in Hz

**6.6. Door Switch Status** – 0=open, 1=closed

**6.7. External T-stat Status** – 0=open, 1=closed

**6.8. Heater Relay Status** – 0=open, 1=closed

## 6.9. Error Codes

The Intelliswitch® has six error codes, 1 through 6, to help troubleshooting. The status of 1-4 can be observed from the Diagnostic Menu. The format for displaying the error code is the “Er” descriptor and a two digit code. The first digit is the error number and the second digit is the status using international convention. 0 = inactive, 1 = on or active.

### 6.9.1. Error Code 1 – Speed Sensor

Er 10 – Prox Sensor or Speed feedback exists

Er 11 – NO Prox Sensor or Speed feedback

Solution – check to see if the proximity sensor (located next to the motor) is connected to the control board and check distance between tip and trigger bar is approximately 1/16 of an inch.

### 6.9.2. Error Code 2 – Line Frequency

Er 20 – power supply line frequency exists

Er 21 – undetermined supply line frequency

Solution – The Intelliswitch® automatically senses line frequency. In the event that it can not determine the proper line frequency, it will run at full speed and flash error. Manually set the line frequency in the FACT menu. See Section 7.5.

### 6.9.3. Error Code 3 – Zero Cross/Power Issues

Er 30 – clean power exists

Er 31 – poor power exists, electrical noise

Solution – When the control encounters “noise” in the electrical power supply it will run at full speed and flash error code. There are no internal changes available. Have the electrical system checked for problems.

### 6.9.4. Error Code 4 – Speed Feedback

Er 40 – proper motor and sensor operation

Er 41 – Motor off but receiving prox/speed sensor feedback

Solution – this is usually the result of a failing motor control component on board that cannot be serviced. A replacement board is required.

### 6.9.5. Error Code 5 – Corrupted Memory Setting

Er 51 – Status of this error is not available. It only appears when there has been an event that has corrupted the settings in memory. When corrupted settings are identified the control will reset all settings (except for Speed Range) back to Factory default values. Because some speed ranges are not compatible with all motors, the proper value cannot be automatically

set and therefore requires user input. This is prompted by the scrolling “Set FACt SPEEd” on the display.

Solution – press the “OK” button. This will open the range setting identified by “rn”. Select the correct speed range (see Section 7.1) based on the Series/Model. Press “OK” button.

### 6.9.6. Error Code 6 – Incompatible Speed Range for Master/Slave Operation

Er 61 – Status of this error is not available. It only appears when unit are connected in a Master/Slave configuration that do not have identical Speed Range settings.

If two units are connected without equivalent speed ranges, every time a button is pressed on the Master unit (the unit used to make setting selections) the Slave unit will display an “Er 61” and the Slave will ignore the command to protect the control from damaging the motor.

**Solution** – Enter the Factory Menu to select the proper Speed Range (See Sections 7 and 7.1)

**Note: This error does not monitor if the correct speed range has been selected for a Series/Model. Only that two or more units have been connected that do not have equivalent speed ranges.**

**Note: Once the correct speed ranges are selected and the controls accept commands from one another, the controls should be synchronized by simply cycling through all of the settings on the User Menu using the up or down arrows. None of the settings need to be changed.**

## 7. Factory Menu – Service Personnel Only

The Factory Menu must be entered from the DIAG header. To enter into the Factory Menu hold down the right arrow for 5 seconds. DIAG will display when the Diagnostic Menu is available. From the DIAG display, press and hold the up and down arrows simultaneously for 5 seconds. FACT will display when the Factory Menu is available.

**Note: When the Factory Menu is accessed it automatically shut the unit off by changing the Mode to OFF.**

The Factory Menu is used to change or reset core settings to change base functions or resolve Intelliswitch® errors.

The Factory menu allows parameters for the following options to be set:

- Speed Range Setting
- Restore Factory Default Settings
- Reboot Software
- PASScode
- Supply Voltage Frequency

To enter into the Factory Menu from the header press the down arrow. Use the left & right arrows to change setting values. Use the OK button select action and return to the User Menu.

### 7.1. Speed Range: single level

rn ↵ 0 – 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10 – 11 – 99 ↵

Select the fan speed range from 0 to 11 using the left or right arrows. The speed range for each unit is located on the unit wiring diagram called out in a box in the Intelliswitch® schematic by “SPEED rn \_\_\_”.

**Note: Selecting the incorrect speed range can damage the motor(s) beyond repair and potentially create abnormally high temperatures.**

Speed ranges are dependent upon the Air Curtain Series, motor type and heat option.

**ICA/FCA** (1/2 hp) – 120, 208 or 240 voltages use range 8 or 9. 480 and 600 volts use ranges 6 or 7.

**Motor Control Panel** – only 120 volt, use range 3-4

Available ranges are:

- 0 = ambient – variable 10-speed, 600 rpm to full
- 1 = ambient – variable 10-speed, 1050 rpm to full
- 2 = heated – variable 10-speed, 1250 rpm to full
- 3 = ambient – full on, no adjustment
- 4 = heated – full on, no adjustment (monitored)
- 5 = heated – full on, no adjustment (not monitored)
- 6 = ambient – multiple 3-speed, ITC relay control
- 7 = heated – multiple 3-speed, ITC relay control
- 8 = ambient – variable 3-speed, 1250 rpm to full
- 9 = heated – variable 3-speed, 1250 to full
- 10 = ambient – multiple 2-speed, ITC relay control
- 11 = heated – multiple 2-speed, ITC relay control
- 99 = lock out – scrolling request for user input

### 7.2. Restore Factory Default: single level

DEF ↵ n – U – P – A – t ↵

If it is necessary to restore any of the controls settings back to the factory defaults, select DEF using the down arrow. Select the factory setting restore type using the left or right arrows. This will reset the option settings back to the factory default settings. Available selections are:

- DEFn – no changes
- DEFU – reset User Menu ONLY settings
- DEFP – reset Programs ONLY settings
- DEFA – reset ALL settings (user and program)
- DEFt – set controller to factory TEST parameters

### 7.3. Reboot Software: single level

↵ reb y – reb n ↵

If an error occurs that can be fixed by rebooting the control

software, select REB using the down arrow. Select YES or NO to reboot the control.

### 7.4. PASScode multi-level

↵ PAS y – PAS n ↵

Select y to enable the PASScode feature and n to disable. When active, the PASScode feature requires that a four digit code be entered to unlock the control. The code is: 2376

### 7.5. Line Frequency: single level

↵ Fr Au – Fr 60 – Fr 50 ↵

The Intelliswitch® default is to automatically sense the line voltage frequency. If it cannot be determined automatically, the line frequency may be manually selected.

- Au – Automatically Sense
- 60 – 60 Hz power supply
- 50 – 50 Hz power supply

## 8. External Connections

There are three types of external connections available on the Intelliswitch®.

- Door Switch
- External Thermostat
- Serial Connection

### 8.1. Auto Mode Activation

When terminals 9 and 10 in the junction box are connected (closed), the Auto, Deluxe, Plus and Programmable Modes are activated. The Intelliswitch® uses a low 5 volt DC voltage signal to monitor contact closure.

#### 8.1.1. Door Switch (limit switch)

The door or limit switch is used in conjunction with the Auto, Deluxe, Plus and Programmable Modes to signal that the door is open. Connect door or limit switch to terminals 9 and 10 in the unit junction box.

#### 8.1.2. Building Management System

A building management system or dry contact closure can be used to activate the unit through the Auto, Deluxe, Plus and Programmable Modes. Connect applicable contacts to terminals 9 and 10 in the unit junction box.

### 8.2. Heat Mode Activation

When terminals 6 and 7 in the junction box are connected (closed), the Heat Mode is activated for all Operating (On, Auto, Deluxe, Plus and Programmable) Modes. The Intelliswitch® uses a low 5 volt DC voltage signal to monitor contact closure.

If the internal thermostat is left on, the external heat mode will operate in parallel to contact closure, allowing either one to activate the heat. If the internal thermostat is turned off the external heat mode will activate independently to activate the heat.

### 8.2.1. External Thermostat

An external (remote) thermostat connection can be used to sense temperature independent of the built-in thermostat. Connect thermostat to terminals 6 and 7 in the unit junction box.

### 8.2.2. Building Management System

A building management system or dry contact closure can be used to activate the Heat Mode for all Operating Modes. Connect applicable contacts to terminals 6 and 7 in the unit junction box.

### 8.3. Master/Slave Operation

For Master/Slave Operation a serial cable connection must be made between all Intelliswitch® controls of each unit to be linked.

Once units are linked all Menu settings made through any unit display or remote control will transfer to all other linked units.

Parameter changes made on any linked unit will update all other boards “live” upon menu selections.

## 9. Infra-red Remote Control

The handheld infra-red remote control buttons layout and operation are the same as that on the Intelliswitch® unit display (including multiple button presses) with one exception, the Lock Button.

There is no need for multi-button press and hold for lock/unlock activation. The Lock button will lock/unlock display in one press.



## B. USER MENU DEFAULTS

NOTE: AutoLock, Comfort+ Low Speed and PASSCode are global options and their settings are the same for any Mode selected. They will not change when the Mode or Program changes.

### User Menu Default Settings Restore for DEFu:

- Mode: OFF
- Fan Speed: 10
- Time Delay: 15 sec (00:15)
- Thermostat degree type: °F
- Thermostat Set Point: 68
- Start Time: 8:00am
- Stop Time: 8:00am
- Thermostat Control Mode: HEAT
- Lock: unlocked
- AutoLock: OFF
- Comfort+ Low Speed: 3
- PASScode: n = OFF

NOTE: does not change Speed Range, Time or Day

## C. PROGRAM DEFAULTS

### Program Default Settings for Restore for DEFp:

#### Program #1

##### (recommended for unheated units):

- Number of Zones: 1
- Days of the week to operate per zone: 1 – 7 (all)
- Mode (Off-On-Auto-Deluxe-Plus): Deluxe
- Speed: 10
- Time Delay: 1 min (01:00)
- Thermostat degree type: °F
- Thermostat Set Point: OFF
- Start Time: 8:00am
- Stop Time: 8:00am
- Thermostat Mode: HEAT

#### Program #2

##### (recommended for heated units):

- Number of Zones: 2
- Days of the week to operate per zone: 1 – 7 (all)
- Mode (Off-On-Auto-Deluxe-Plus): Zone 1 – Deluxe; Zone 2 – Comfort+
- Speed: Zone 1 – 10; Zone 2 – 10
- Time Delay: Zone 1 – 1 min (01:00); Zone 2 – 30 sec (00:30)
- Thermostat degree type: °F
- Thermostat Set Point: Zone 1 – 68; Zone 2 – 62
- Start Time: Zone 1 – 8:00am; Zone 2 – 5:01pm
- Stop Time: Zone 1 – 5:00am; Zone 2 – 7:59am
- Thermostat Mode: HEAT

#### Program #3

##### (recommended for heated units):

- Number of Zones: 1
- Days of the week to operate per zone: 1 – 7 (all)
- Mode (Off-On-Auto-Deluxe-Plus): AUTO
- Speed: 10
- Time Delay: 30 sec (00:30)
- Thermostat degree type: °F
- Thermostat Set Point: 60
- Start Time: 8:00am
- Stop Time: 8:00am
- Thermostat Mode: HEAT

# TROUBLESHOOTING

SYMPTOMS	CAUSE	REMEDY
<b>NO AIR</b>	<ul style="list-style-type: none"> <li>• Power supply line open (no power)</li> <li>• Fuse blown/circuit breaker tripped</li> <li>• Motor overload tripped</li> </ul>	<ul style="list-style-type: none"> <li>• Check power source, check method of control in ON position</li> <li>• Replace fuse(s)/reset breaker</li> <li>• Internally protected motor - should reset automatically after cool-down, if not, replace motor.</li> <li>• Replace switch</li> </ul>
	<b>MOTOR RUNNING/FANS ARE NOT ROTATING</b>	
	<ul style="list-style-type: none"> <li>• Broken fan hub</li> <li>• Shaft rotating inside fan</li> </ul>	<ul style="list-style-type: none"> <li>• Replace fan</li> <li>• Tighten set screws/tighten fan on shaft</li> </ul>
<b>ELECTRICAL CONTROLS NOT FUNCTIONING WHEN DOOR IS OPEN</b>		
	<ul style="list-style-type: none"> <li>• Door limit switch not operating</li> </ul>	<ul style="list-style-type: none"> <li>• Repair or replace limit switch</li> </ul>
<b>MINIMUM AIR</b>	<ul style="list-style-type: none"> <li>• Air directional discharge vanes mis-adjusted</li> <li>• Inadequate intake clearance</li> <li>• Blower motor operates below speed</li> <li>• Fan rubbing against housing</li> <li>• Fan wheels clogged with dirt</li> <li>• Fan in backwards</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust vanes to proper position, see instructions</li> <li>• Move air curtain or remove obstruction</li> <li>• Provide adequate space for air curtain</li> <li>• Improper voltage</li> <li>• Free fan from housing</li> <li>• Clean and vacuum fan wheels</li> <li>• Check fans for blade curve toward discharge</li> </ul>
<b>NO SPEED ADJUSTMENT</b>	<ul style="list-style-type: none"> <li>• Speed sensor not detecting trigger rotation</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust gap between sensor &amp; trigger/replace sensor</li> </ul>
<b>AIR IS NOT HITTING FLOOR</b>	<ul style="list-style-type: none"> <li>• Air stream too weak</li> <li>• Air steam hits obstruction</li> <li>• Negative pressure</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust nozzle to proper position, adjust motor speed; see installation instructions</li> <li>• Remove obstruction or reposition air curtain (move out 3/8" for every 1" up from the door)</li> <li>• Relieve negative pressure by providing makeup air</li> </ul>
<b>UNEVEN AIR</b>	<ul style="list-style-type: none"> <li>• Shaft rotating inside fan</li> <li>• One motor not operating</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten set screws</li> <li>• Repair or replace motor</li> </ul>
<b>ELECTRICALLY HEATED MODELS</b>		
<b>NO HEAT</b>	<ul style="list-style-type: none"> <li>• Thermostat not set properly</li> <li>• Coils burned out due to lack of air</li> <li>• Automatic reset thermal cutout failed in open position</li> <li>• Speed sensor not detecting trigger rotation</li> <li>• Without speed adjustment, failed speed sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Change thermostat setting</li> <li>• Correct airflow problem; replace coils</li> <li>• Replace automatic thermal cutout</li> <li>• Adjust gap between sensor and trigger</li> <li>• Replace speed sensor</li> </ul>
<b>MINIMAL HEAT</b>	<ul style="list-style-type: none"> <li>• Thermostat in wrong location - thermostat too close to discharge</li> <li>• Improper voltage</li> <li>• Thermostat not set properly</li> <li>• Speed sensor not detecting trigger rotation</li> </ul>	<ul style="list-style-type: none"> <li>• Move thermostat away from air stream</li> <li>• Supply proper voltage</li> <li>• Change temperature setting</li> <li>• Adjust gap between sensor &amp; trigger/replace sensor</li> </ul>
<b>EXCESSIVE HEAT</b>	<ul style="list-style-type: none"> <li>• Thermostat in wrong location</li> <li>• Thermostat not set properly</li> <li>• Insufficient air over coil</li> <li>• Improper voltage</li> </ul>	<ul style="list-style-type: none"> <li>• Move the thermostat closer to air stream</li> <li>• Change temperature setting</li> <li>• Remove restriction on intake</li> <li>• Supply proper voltage</li> </ul>
<b>STEAM/HOT WATER HEATED UNITS</b>		
<b>EXCESSIVE HEAT</b>	<ul style="list-style-type: none"> <li>• Too high steam/hot water pressure</li> <li>• Inadequate air flow, fins plugged up, dirty coils</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce steam pressure/hot water flow</li> <li>• Clean intake and coils</li> </ul>
<b>MINIMAL HEAT</b>	<ul style="list-style-type: none"> <li>• Insufficient removal of condensation (steam)</li> <li>• Not enough steam pressure/water temperature too low</li> <li>• Intake air below design temperature</li> </ul>	<ul style="list-style-type: none"> <li>• Increase trap size</li> <li>• Raise pressure for steam/increase water flow</li> <li>• Increase steam pressure/increase water flow</li> </ul>

# WARRANTY

Berner International warrants all new equipment to be free of defects in workmanship and material for a period of five years (5 years) on unheated models and two years (2 years) on heated models from the original date of shipment, provided the equipment has been properly cared for, installed and operated in accordance with the limits specified on the nameplate and The Company's instructions.

The Company will correct by repair or replacement, at its option and expense, any proven defects in said apparatus, subject to the above conditions, provided that immediate written notice of such defects is given to The Company. The warranty does not include any labor incurred for the removal or installation of defective part(s). The Company reserves the right to inspect, or have inspected by a qualified representative, any apparatus at the place of installation before authorizing repair or replacement. Repair or replacement will be made F.O.B. factory with any applicable transportation charges to be borne by the customer. Merchandise not of The Company's manufacture supplied in piece, or in component assemblies, is not covered by the above warranty, but The Company will give the customer the benefit of any adjustment as made with the Manufacturer.

This warranty is void if the apparatus has been tampered with in any way or shows evidence of misuse.

The Company will not assume any expense or liability for repairs made outside its factory without proper written consent from its service manager, nor for any transportation charges on apparatus returned to the factory without written authorization by The Company.

Nothing in the above warranty provisions, however, shall impose any liability or obligation of any type, nature or description upon Berner International if Berner has not received payment in full for the apparatus in question.

**THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HERE OF INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

## LIMITATION OF DAMAGES

**Notwithstanding anything to the contrary above, customer's exclusive remedy for any and all losses or damages resulting from the sale of The Company's equipment under this agreement, including but not limited to, any allegations of breach of warranty, breach of contract, negligence or strict liability, shall be limited, at The Company's option, to either the return of the purchase price or the replacement of the particular equipment for which a claim is made and proved. In no event shall The Company be liable for any special, consequential, incidental or indirect losses or damages from the sale of The Company's equipment under this agreement.**

SERIAL NUMBER	MODEL NUMBER	DATE PURCHASED
---------------	--------------	----------------



**BERNER INTERNATIONAL CORPORATION**  
New Castle, Pennsylvania

**724-658-3551 • 1-800-245-4455 • [www.berner.com](http://www.berner.com) • [airdoors@berner.com](mailto:airdoors@berner.com)**

*Berner reserves the right to alter specifications without prior notice.*