PROGRAMMING THE INTELLISWITCH™ DIGITAL CONTROLLER

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.

Programming the Intelliswitch

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).

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 options setting. 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 and down arrows.

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 are 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) or up arrow. 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
- Delay Time
- 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 or right arrows to select the desired Mode of Operation. Press "OK" to accept selection.

OFF	Air curtain off.
ON	Air curtain will run when start/stop time is satisfied.
AUTO	Air curtain will run when terminals 9 & 10 are connected through a switch (i.e. door switch) and the start/stop time is satisfied, ALL menu options available.
DELU	Air curtain will run when terminals 9 & 10 are connected through a switch (i.e. door switch) and the start/stop time is satisfied, MUST set time delay from 1-10 minutes, T-Stat Mode NOT available.
PLUS	Air curtain will run when terminals 9 & 10 are connected through a switch (i.e. door switch) and the start/stop time is satisfied; when door is closed and temperature drops below the set point the air curtain will run on low speed with heat (low speed set on the Program Menu), air curtain will run at higher user level set speed when the 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 & right arrows to select fan speed from 1 to 10. (1=low, 10 = high)

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 air door will delay shutting off after terminals 9 & 10 or door switch are opened.

4.4. Temp Set (Fahrenheit or Celsius): 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 on call for heat from either internal or external thermostats when the fan is running. 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 heated air curtains with built-in thermostat or air curtains 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 a 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.

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
- Serial Network Connection (Primary/Secondary) 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 Time Zone programs. Use the Program option to select and save User Menu settings to be recalled at any time. A time zone is the period of operation

defined by the user for the unit to be active. Both zones may operate one after the other or have gaps 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, Zone1 parameters will be set first and then parameters for Zone2 will be set. A prompt will ask to save settings after the last option of Zone2.

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 active 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 the time zone being programmed.

5.1.5. Delay Time: multi-level

Set the time delay for the time zone being programmed.

5.1.6. Temperature Set: single level

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

5.1.7. Start Time: multi-level

Set 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 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 fan speed for 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. Serial Network Connection (Primary/Secondary) Stand By: multi-level

```
ind-ALL n
```

To enter into the Serial Network Connection standby 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 serial network 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
- Speed Range Setting
- 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: rX.XX

6.2. Fan Speed Range

rn XX ()

6.3. Thermostat Probe

Pr XX ()

6.4. Internal Thermostat

ºC (np = no probe)

6.5. Internal Thermostat

ºF (np = no probe)

6.6. Motor RPM

measured speed in rpm

6.7. Supply Voltage

measured frequency in Hz

6.8. Door Switch Status

0=open, 1=closed

6.9. External T-stat Status

0=open, 1=closed

6.10.   Heater Relay Status

0=open, 1=closed

6.11. 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.

6.11.1. 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.

6.11.2. 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 cannot 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](#).

6.11.3. 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.

6.11.4. 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.

6.11.5. 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.

6.11.6. Error Code 6 – Incompatible Speed Range for Serial Network (Primary/Secondary) Operation

Status of this error is not available. It only appears when units are connected in a serially networked configuration that does not have identical Speed Range settings.

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

Solution – Enter the Factory Menu to select the proper Speed Range (See Section 7 and Section 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 10 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
```

Select the fan speed range from 0 to 10 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.

ALC08(1/5 hp) – all voltages use ranges 0-2

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 rpm 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. Thermostat Probe Mode: single level

In **"St" (Standard) mode** the lowest operating point for the thermostat probe is 34°F (1°C). Below this temperature there will be no call for heat and "nP" (no Probe) will display on the diagnostics menu.

In **"Cd" (Cold) mode** the thermostat will operate below 34°F (1°C) but disables the "nP" (no Probe) feature and will call for heat on a probe failure or if it is disconnected.

St	Standard mode, locks out below 34°F (1°C).
Cd	Cold mode, works below 34°F (1°C).

7.3. Restore Factory Default: single level

```
DEFn – DEFU – DEFP – DEFA – DEFt
```

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

7.4. 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.

7.5. 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**

7.6. 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 four types of external connections available on the Intelliswitch™.

- Door Switch
- Building Management System
- 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 the door or limit switch to terminals 9 and 10 in the air curtain junction box.

8.1.2. Building Management System

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

8.3. Serial Network Connection (Primary/Secondary) Operation

For Serial Network Operation a serial cable connection must be made between all Intelliswitch™ controls of each air curtain to be linked. Once air curtains are linked, all Menu settings made through any air curtain display or remote control will transfer to all other linked air curtains. Parameter changes made on any linked air curtain 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™ air door 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.

For additional help, contact Berner during normal business hours – 800.245.4455