

# CONTROL LOGIC DESCRIPTION DOCUMENT

Configuration #: 6M77F0

## Input/Output Table:

Inputs	Qty	Outputs	Qty
Inside Temperature	4	Variable Speed Stage	2
Outside Temperature	1	Single Speed Stage	2
		Inlet	1
		Curtain	1
		Heater	1
		Cooling Stage	1
		Alarm	1

## Equipment Required:

Item	Description	Qty
IC-610	Intelligent Control, 6 inputs / 10 outputs	1
CIP-1/6	Curtain Inlet Position (6 Amperes)	0 to 1
AIM-1	Air Inlet Module	0 to 2
VPM-2	Variable Power Module 2 Outputs (10 Amperes)	1
2004-1K	Temperature Probe - Red (-6.0°F to 168.6°F)	5

## Configuration Versions:

Version	Date	Modification
F0	08/29/2007	New.

## 1. GENERAL

The IC-610 is a powerful control, which can be programmed to work in many types of buildings just by changing the configuration logic. The configuration logic is the software that makes the relation between the sensor readings, the parameters and the outputs. This software is stored in a chip identified with the configuration number, as shown in the title of this document, and as it appears on your left hand side label of your control. Please always provide this configuration number when you discuss with your provider.

To install properly and fully understand your IC-610, it is important to read both the **IC-610 user's manual** and this Control Logic Document. The user's manual informs you on safety issues, warranty, sensors, how to change parameters and many others characteristics of the IC-610, whereas this document explains all particularities of this configuration logic. Section 2 explains what the user can control with adjustable parameters while the section 3 contains information for the alarm.

### Definition

Throughout this document, the following terminology is used.

- **DRT** → **Desired Room Temperature**. This is the temperature goal for the room and it is also the reference temperature for all relative settings. Note that the DRT is affected by the growth curve function. See the user's guide for more detail.
- **RSP** → **Relative Set Point**. This is the number of degrees relative to the DRT where a function begins.
- **Differential** → Number of degrees changed before stopping the output. For example, with a differential = 1.0°F, the IC-610 turns on a fan at 70.0°F when temperature increases, but it will shut it off only at 69.0°F when the room is cooling down. The differential is necessary to avoid oscillations.
- **Modulation Band** → Number of degrees a variable speed fan takes to reach its full speed.

Expressions in *ITALICS* are user's parameters, expressions in *CAPITALS* are readings and cannot be modified by the user while other in *COURIER* are for supervisor only.

### Ventilation System Overview

This configuration controls 2 variable speed stages, both of which can work off a minimum ventilation timer when below their RSPs. There are 2 On/Off stages that run full time at maximum speed when above their respective RSP. There is also an inlet that will open according to stage activation and a natural curtain that will be controlled according to the temperature. A cooling output will be activated on a timer when above its RSP. A heater output will be used when temperature is too low.

Refer to the building layout and the wiring schematics in attachment for a typical installation.

## 2. PARAMETER DESCRIPTION

### Parameter # 1

#### ROOM TEMPERATURE

This parameter displays the reading of the four temperature probes. All outputs will follow this temperature. The logic also checks this parameter to determine if the temperature is too high or too low, at which point the alarm will be activated. The ROOM TEMPERATURE is displayed to the nearest 0.1°F from -6.0°F to 168.6°F.

**F3: See note 1.**

### Parameter # 2

#### OUTSIDE TEMPERATURE

This parameter displays the outside temperature probe. Curtain opening state can be restricted by this parameter if the OUTSIDE TEMPERATURE has not reached the MIN OUTSIDE TEMP FOR CURTAIN parameter. The OUTSIDE TEMPERATURE is displayed to the nearest 0.1°F from -6.0°F to 168.6°F.

**F3: See note 1.**

### Parameter # 3

#### DESIRED ROOM TEMPERATURE (DRT)

This parameter is used to establish the target room temperature. The DRT is used as the reference point for other relative settings. When the GROWTH DAY is activated, the control takes charge of this parameter so, to have access to this parameter, GROWTH DAY must be set to OFF. The DRT is adjusted in 0.1°F increments from 32.0 °F to 120.0°F.

**F2: ADJUST DAY (4 points)**

This parameter is used to establish the days on the growth curve function. The ADJUST DAY is adjusted in 1 day increments from day 1 to day 127. (For more details see User's Manual).

**F3: ADJUST TEMP (4 points)**

This parameter associates a temperature value for each day defined on the growth day function. The ADJUST TEMP is adjusted in 0.1°F increments from 32.0°F to 120.0°F. (For more details see User's Manual).

### Parameters # 4-7

#### INSIDE TEMPERATURE 1-4

These parameters display the temperature of the respective temperature probe. Each INSIDE TEMPERATURE is displayed to the nearest 0.1°F from -6.0°F to 168.6°F.

**F3: See note 1.**

**Note1:** In addition to the readout of the probe, the probe parameters can record the lowest and highest values reached. To access the Hi/Lo recorded values, press F3 at the respective probe parameter. To clear the respective Hi/Lo values, after pressing F3, press and hold the + and - buttons until CLR appears on the LED display.

### Parameter # 8

#### HEATER RSP

This parameter is used to establish the temperature RSP at which the heater begins to operate. When HEATER RSP has been reached, this will force the curtain to continuously close. HEATER RSP is adjusted in 0.5°F increments from -10.0°F to 5.0°F.

**F2: HEATER DIFF**

This parameter is used to establish the differential of the heater output. The HEATER DIFF is adjusted in 0.5°F increments from 0.5°F to 5.0°F.

## Parameter # 9

### **FAN 1 RSP**

This parameter is used to establish the temperature RSP at which fan 1 begins to modulate. When ROOM TEMPERATURE reaches FAN 1 RSP, fan 1 will start to modulate from *FAN 1 MIN SPEED* (at FAN 1 RSP) to finish at 100% (when temperature is at the end of FAN 1 MOD BAND). When the ROOM TEMPERATURE is below FAN 1 RSP, fan 1 will run according to the minimum ventilation timer at *FAN 1 MIN SPEED*. This parameter is adjusted in 0.5°F increments from -10.0°F to 30.0°F.

### **F2: FAN 1 MIN SPEED**

This parameter is used to establish the minimum speed of fan 1. When the ROOM TEMPERATURE is below the FAN 1 RSP, fan 1 will run according to the minimum ventilation timer at minimum speed. The *FAN 1 MIN SPEED* is adjusted in 1% increments from 12% to 100%.

### **F3: FAN 1 MOD BAND**

This parameter is used to establish the range of temperature where fan 1 speeds up as ROOM TEMPERATURE increases. Fan 1 increases its speed from its minimum speed (*FAN 1 MIN SPEED* at FAN 1 RSP) to its maximum speed at the end of the FAN 1 MOD BAND. The FAN 1 MOD BAND is adjusted in 0.5°F increments from 0.5°F to 10.0°F.

## Parameter # 10

### **FAN 2 RSP**

This parameter is used to establish the temperature RSP at which fan 2 begins to modulate. When ROOM TEMPERATURE reaches FAN 2 RSP, fan 2 will start to modulate from *FAN 2 MIN SPEED* (at FAN 2 RSP) to finish at 100% (when temperature is at the end of FAN 2 MOD BAND). When ROOM TEMPERATURE is below FAN 2 RSP, fan 2 will run according to the minimum ventilation timer at *FAN 2 MIN SPEED* if the FAN 2 RUN ON MIN VENT TIMER option is set to 1(YES). The FAN 2 RSP is adjusted in 0.5°F increments from -10.0°F to 30.0°F.

### **F2: FAN 2 MIN SPEED**

This parameter is used to establish the minimum speed of fan 2. When ROOM TEMPERATURE is below the FAN 2 RSP, fan 2 will run according to the minimum ventilation timer at minimum speed if FAN 2 RUN ON MIN VENT TIMER is set to 1(YES). The *FAN 2 MIN SPEED* is adjusted in 1% increments from 12% to 100%.

### **F3: FAN 2 MOD BAND**

This parameter is used to establish the range of temperature where fan 2 speeds up as ROOM TEMPERATURE increases. Fan 2 increases its speed from its minimum speed (*FAN 2 MIN SPEED* at FAN 2 RSP) to its maximum speed at the end of the FAN 2 MOD BAND. The FAN 2 MOD BAND is adjusted in 0.5°F increments from 0.5°F to 10.0°F.

## Parameter # 11

### **MIN VENT TIMER DUTY CYCLE**

This parameter is used to establish the cycle of a period of time for the minimum ventilation timer. When ROOM TEMPERATURE is below the FAN 1-2 RSP, that fan will be activated during a cycle of time (MIN VENT TIMER DUTY CYCLE) of a period (MIN VENT TIMER PERIOD). The MIN VENT TIMER DUTY CYCLE is adjusted in 1% increments from 0% to 100%.

**Ex:** See MIN VENT TIMER PERIOD for example.

**F2: MIN VENT TIMER PERIOD**

This parameter is used to establish the period for the minimum ventilation timer. When ROOM TEMPERATURE is below the FAN 1-2 RSP, that fan will be activated during a cycle of time (MIN VENT TIMER DUTY CYCLE) of a period (MIN VENT TIMER PERIOD). The MIN VENT TIMER PERIOD is adjusted in 1-minute increments from 1 minute to 20 minutes.

**Ex:**  $DRT = 70.0^{\circ}\text{F}$ ,  $MIN\ VENT\ TIMER\ DUTY\ CYCLE = 50\%$ ,  
 $FAN\ \# \ RSP = 2.0^{\circ}\text{F}$ ,  $MIN\ VENT\ TIMER\ PERIOD = 2\ \text{minutes}$ ;

When ROOM TEMPERATURE is below  $72.0^{\circ}\text{F}$ , Fan # will cycle ON 1 minute at minimum speed and OFF 1 minute.

**F3: FAN 2 RUN ON MIN VENT TIMER**

This parameter is used to determine if fan 2 will work off the minimum ventilation timer. If this option is set to (1) YES, fan 2 will cycle on minimum ventilation timer when ROOM TEMPERATURE is below its RSP. If this option is set to (0) NO, fan 2 will be inactive when ROOM TEMPERATURE is below its RSP.

**Parameter # 12**

**FAN 3 RSP**

This parameter is used to establish the RSP at which fan 3 begins to operate. When ROOM TEMPERATURE reaches  $DRT + FAN\ 3\ RSP$ , fan 3 will be activated. The FAN 3 RSP is adjusted in  $0.5^{\circ}\text{F}$  increments from  $-10.0^{\circ}\text{F}$  to  $30.0^{\circ}\text{F}$ .

**F2: FAN 3 DIFFERENTIAL**

This parameter is used to establish the differential for fan 3. When the ROOM TEMPERATURE reaches  $DRT + FAN\ 3\ RSP - FAN\ 3\ DIFFERENTIAL$ , fan 3 will be deactivated. The FAN 3 DIFFERENTIAL is adjusted in  $0.5^{\circ}\text{F}$  increments from  $0.5^{\circ}\text{F}$  to  $5.0^{\circ}\text{F}$ .

**Parameter # 13**

**FAN 4 RSP**

This parameter is used to establish the RSP at which fan 4 begins to operate. When ROOM TEMPERATURE reaches  $DRT + FAN\ 4\ RSP$ , fan 4 will be activated. The FAN 4 RSP is adjusted in  $0.5^{\circ}\text{F}$  increments from  $-10.0^{\circ}\text{F}$  to  $30.0^{\circ}\text{F}$ .

**F2: FAN 4 DIFFERENTIAL**

This parameter is used to establish the differential for fan 4. When the ROOM TEMPERATURE reaches  $DRT + FAN\ 4\ RSP - FAN\ 4\ DIFFERENTIAL$ , fan 4 will be deactivated. The FAN 4 DIFFERENTIAL is adjusted in  $0.5^{\circ}\text{F}$  increments from  $0.5^{\circ}\text{F}$  to  $5.0^{\circ}\text{F}$ .

**Parameter # 14**

**The inlet will close continuously 1 minute after the curtain has opened, this will be cancelled as soon as the curtain enters a closing state.**

**INLET POSITION FAN 1 MIN**

This parameter is used to establish the position of the inlet when only fan 1 is running at its minimum speed. The INLET POSITION FAN 1 MIN is adjusted in 1% increments from 0% to 100%.

**F2: INLET POSITION FAN 1 MAX**

This parameter is used to establish the position of the inlet when fan 1 is running at its maximum speed (ROOM TEMPERATURE is equal to or above  $FAN\ 1\ RSP + FAN\ 1\ MOD\ BAND$ ). The INLET POSITION FAN 1 MAX is adjusted in 1% increments from 0% to 100%.

### **Parameter # 15**

**The inlet will close continuously 1 minute after the curtain has opened, this will be cancelled as soon as the curtain enters a closing state.**

#### **INLET POSITION FAN 2 MIN**

This parameter is used to establish the position of the inlet when fan 2 is running at its minimum speed. The INLET POSITION FAN 2 MIN is adjusted in 1% increments from 0% to 100%.

#### **F2: INLET POSITION FAN 2 MAX**

This parameter is used to establish the position of the inlet when fan 2 is running at its maximum speed (ROOM TEMPERATURE is equal to or above FAN 2 RSP + FAN 2 MOD BAND). The INLET POSITION FAN 2 MAX is adjusted in 1% increments from 0% to 100%.

### **Parameter # 16**

**The inlet will close continuously 1 minute after the curtain has opened, this will be cancelled as soon as the curtain enters a closing state.**

#### **INLET POSITION FAN 3**

This parameter is used to establish the position of the inlet when fan 3 is activated (ROOM TEMPERATURE is equal to or above FAN 3 RSP). INLET POSITION FAN 3 is adjusted in 1% increments from 0% to 100%.

#### **F2: INLET POSITION FAN 4**

This parameter is used to establish the position of the inlet when fan 4 is activated (ROOM TEMPERATURE is equal to or above FAN 4 RSP). INLET POSITION FAN 4 is adjusted in 1% increments from 0% to 100%.

### **Parameter # 17**

#### **COOLING RSP**

This parameter is used to establish the temperature RSP at which the cooling begins to operate. When the ROOM TEMPERATURE reaches  $DRT + COOLING RSP$ , the cooling output will be activated according to its timer. The COOLING RSP is adjusted in 0.5°F increments from -20.0°F to 30.0°F.

#### **F2: COOLING DIFFERENTIAL**

This parameter is used to establish the differential for the cooling output. When the ROOM TEMPERATURE reaches  $DRT + COOLING RSP - COOLING DIFFERENTIAL$ , the cooling output will be deactivated. The COOLING DIFFERENTIAL is adjusted in 0.5°F increments from 0.5°F to 5.0°F.

### **Parameter # 18**

#### **COOLING TIMER DUTY CYCLE**

This parameter is used to establish the active cycle of a period of time for the cooling. When ROOM TEMPERATURE is equal to or above the COOLING RSP, cooling will be activated during a cycle of time (COOLING TIMER DUTY CYCLE) of a period (COOLING TIMER PERIOD). The COOLING TIMER DUTY CYCLE is adjusted in 1% increments from 0% to 100%.

**Ex:** See COOLING TIMER PERIOD for example.

**F2: COOLING TIMER PERIOD**

This parameter is used to establish the duration of the cooling period. When the ROOM TEMPERATURE is above or equal to the COOLING RSP, cooling will be activated during a cycle of time (COOLING TIMER DUTY CYCLE) of a period (COOLING TIMER PERIOD). The COOLING TIMER PERIOD is adjusted in 1-minute increments from 1 minute to 20 minutes.

**Ex:**  $DRT = 70.0^{\circ}\text{F}$ ,  $COOLING\ TIMER\ DUTY\ CYCLE = 10\%$ ,  
 $COOLING\ RSP = 12.0^{\circ}\text{F}$ ,  $COOLING\ TIMER\ PERIOD = 10\ \text{minutes}$ ;  
 $COOLING\ DIFF = 1.0^{\circ}\text{F}$ ,

When ROOM TEMPERATURE reaches  $82.0^{\circ}\text{F}$ , the cooling will cycle ON 1 minute and OFF 9 minutes. Cooling will deactivate when temperature drops to  $81.0^{\circ}\text{F}$ .

**Parameter # 19**

**The curtain will close continuously if HEATER RSP is reached or if OUTSIDE TEMPERATURE is below MIN OUTSIDE TEMP FOR CURTAIN.**

**CURTAIN OPEN RSP**

This parameter is used to adjust the temperature at which the curtain opens. When the ROOM TEMPERATURE reaches  $DRT + CURTAIN\ OPEN\ RSP + CURTAIN\ DEAD\ BAND$ , the curtain will begin to open. The control enters natural mode when # OF CYCLES OPEN TO STOP FANS is reached. This logic uses a fixed differential of  $0.3^{\circ}\text{F}$ . This parameter is adjusted in  $0.5^{\circ}\text{F}$  increments from  $-10.0^{\circ}\text{F}$  to  $30.0^{\circ}\text{F}$ .

**These next settings are used when curtain output is on IC-160 relays.**

**F2: RUN TIME OPEN**

This parameter is used to establish the duration of the run time when the curtain opens. When temperature rises to  $DRT + CURTAIN\ OPEN\ RSP + CURTAIN\ DEAD\ BAND$ , the curtain will open during RUN TIME OPEN and will keep its position for CURTAIN DELAY BETWEEN MOVE. The RUN TIME OPEN is adjusted in 1-second increments from 5 to 300 seconds.

**Ex:** See MIN OUTSIDE TEMP FOR CURTAIN for example.

**F2: RUN TIME CLOSE**

This parameter is used to establish the duration of the run time when the curtain closes. When temperature drops to  $DRT + CURTAIN\ OPEN\ RSP$ , the curtain will close during RUN TIME CLOSE and keep its position for CURTAIN DELAY BETWEEN MOVE. However, if ROOM TEMPERATURE drops below  $DRT + HEATER\ RSP$ , the curtain will close continuously. The curtain will also close continuously if OUTSIDE TEMPERATURE is not above MIN OUTSIDE TEMP FOR CURTAIN. The RUN TIME CLOSE is adjusted in 1-second increments from 5 to 300 seconds.

**Ex:** See MIN OUTSIDE TEMP FOR CURTAIN for example.

**F2: CURTAIN DELAY BETWEEN MOVE**

This parameter is used to establish the time for which the curtain will not move when it is opening or closing according to the curtain timer. The CURTAIN DELAY BETWEEN MOVE is adjusted in 1-minute increments from 1 minute to 20 minutes.

**Ex:** See MIN OUTSIDE TEMP FOR CURTAIN for example.

**F2: FIRST NATURAL MOVE**

This parameter is used to establish the time for which a curtain will open on the first opening cycle. When temperature has fallen below  $DRT + CURTAIN\ OPEN\ RSP$ , the next opening cycle will use FIRST NATURAL MOVE instead of RUN TIME OPEN. The FIRST NATURAL MOVE is adjusted in 1-second increments from 5 to 120 seconds.

**Ex:** See MIN OUTSIDE TEMP FOR CURTAIN for example.

**F2: CURTAIN DEAD BAND**

This parameter is used to establish the temperature range within which the curtain will not move. When temperature is below  $DRT + CURTAIN\ OPEN\ RSP + CURTAIN\ DEAD\ BAND$  and above  $DRT + CURTAIN\ OPEN\ RSP$ , the curtain will stay put. Above this range, curtain will open and below this range, curtain will close. This logic uses a fixed differential of 0.3°F. This parameter is adjusted in 0.5°F increments from 0.5°F to 10.0°F.

**Ex:** See MIN OUTSIDE TEMP FOR CURTAIN for example.

**F2: MIN OUTSIDE TEMP FOR CURTAIN**

This temperature is used to adjust the outside temperature at which the curtain will be allowed to open. When the OUTSIDE TEMPERATURE is above MIN OUTSIDE TEMP FOR CURTAIN, the curtain will no longer continuously close and will be allowed to open. This parameter is adjusted in 0.1°F increments from -6.0°F to 168.6°F.

**Ex:**  $DRT = 70.0^{\circ}F$ ,  
 $CURTAIN\ OPEN\ RSP = 7.0^{\circ}F$ ,  
 $CURTAIN\ DEAD\ BAND = 2.0^{\circ}F$ ,  
 $CURTAIN\ DELAY\ BETWEEN\ MOVE = 5\ min$ ,  
 $FIRST\ NATURAL\ MOVE = 120\ sec$ ,  
 $RUN\ TIME\ OPEN = 60\ sec$ ,  
 $RUN\ TIME\ CLOSE = 120\ sec$ ,  
 $HEATER\ RSP = -4.0^{\circ}F$ ,  
 $HEATER\ DIFFERENTIAL = 1.0^{\circ}F$ ,  
 $OUTSIDE\ TEMPERATURE = 72.0^{\circ}F$ ,  
 $MIN\ OUTSIDE\ TEMP\ FOR\ CURTAIN = 50.0^{\circ}F$ ;

- Considering the OUTSIDE TEMPERATURE stays above 50.0°F, otherwise the curtain will continuously close.
- When the ROOM TEMPERATURE **increases**, the curtain will react as follows:
  - until 67.0°F:** closes continuously.
  - between 67.0°F and 77.2°F:** closes on a timer; close for 120 seconds and stay put for 5 minutes.
  - between 77.3°F and 78.9°F:** does not move; this is the dead band.
  - at 79.0°F and up:** opens on a timer; open for 120 seconds and stay put for 5 minutes on the first cycle, then open for 60 seconds and stay put for 5 minutes for all other cycles.
- When the ROOM TEMPERATURE **decreases**, the curtain will react as follows:
  - until 78.7°F :** opens on a timer; open for 60 seconds and stay put for 5 minutes.
  - between 78.7°F and 77.1°F:** does not move; this is the dead band.
  - between 77.0°F and 66.1°F:** closes on a timer; close for 120 seconds and stay put for 5 minutes.
  - at and below 66.0°F:** closes continuously.

**Parameter # 20**

**These settings are used when curtain output is on IC-160 relays.**

**# OF CYCLES OPEN TO STOP FANS**

This parameter is used to adjust the number of consecutive open cycles ( $RUN\ TIME\ OPEN + CURTAIN\ DELAY\ BETWEEN\ MOVE$ ) it takes before the control enters natural mode and the fans shut down. # OF CYCLES TO STOP FANS is adjusted in 1-cycle increments from 1 to 10 cycles.



**F2: # OF CYCLES CLOSE TO START FANS**

This parameter is used to adjust the number of consecutive close cycles (RUN TIME CLOSE + CURTAIN DELAY BETWEEN MOVE) it takes before the control exits natural mode and the fans restart. # OF CYCLES TO STOP FANS is adjusted in 1-cycle increments from 1 to 10 cycles.

**Parameter # 21**

**These settings are used when curtain output is on IC-160 relays.**

**ACCELERATED OPEN ON**

This parameter is used to activate the accelerated open feature when the ROOM TEMPERATURE is above  $DRT + CURTAIN OPEN RSP + CURTAIN DEAD BAND + 3.0^{\circ}F$ . If this parameter is adjusted to 1(yes), the RUN TIME OPEN will be increased by SECONDS INCREASE. The ACCELERATED OPEN ON can be adjusted to 1(yes) or 0(no).

**F2: ACCELERATED CLOSE ON**

This parameter is used to activate the accelerated close feature when the ROOM TEMPERATURE is below  $DRT + CURTAIN OPEN RSP - 3.0^{\circ}F$ . If this parameter is adjusted to 1(yes), the RUN TIME CLOSE will be increased by SECONDS INCREASE. The ACCELERATED CLOSE ON can be adjusted to 1(yes) or 0(no).

**F3: SECONDS INCREASE**

This parameter is used to adjust the amount of time that will be added to RUN TIME OPEN/CLOSE when the ROOM TEMPERATURE is above  $DRT + CURTAIN OPEN RSP + CURTAIN DEAD BAND + 3.0^{\circ}F$  for the open run time and when ROOM TEMPERATURE is below  $DRT + CURTAIN OPEN RSP - 3.0^{\circ}F$  for the close run time. This parameter is adjusted in 1-second increments from 0 to 30 seconds.

**Parameter # 22**

**CURTAIN EXERCISE CLOSE**

This parameter is used to activate the curtain exercise feature that is used to remove the conditions (water, rodents, etc.) that can cause premature curtain failure. If this parameter is set to 1(YES), the curtain will close for CURTAIN EXERCISE DURATION **every time the CURTAIN EXERCISE DAY COUNTER reaches the CURTAIN EXERCISE FREQUENCY + 1** day. After the closing delay, if the ROOM TEMPERATURE is above  $DRT + CURTAIN RSP + CURTAIN DEAD BAND$ , the curtain will open for CURTAIN EXERCISE DURATION. Adjusting this parameter to 0(NO) will reset the day counter.

**Ex:** See CURTAIN EXERCISE FREQUENCY.

**F2: CURTAIN EXERCISE FREQUENCY**

This parameter is used to adjust the frequency at which the curtain exercise function will activate. When the CURTAIN EXERCISE DAY COUNTER reaches this parameter + 1 day, the curtain will close for CURTAIN EXERCISE DURATION. If the temperature is still above  $DRT + CURTAIN OPEN RSP + CURTAIN DEAD BAND$ , the curtain will open for CURTAIN EXERCISE DURATION. This parameter is adjusted in 1-day increments from 1 to 120 days.

**Ex:** CURTAIN EXERCISE FREQUENCY = 60 days,  
CURTAIN EXERCISE DURATION = 3 minutes;

If the control is powered or the CURTAIN EXERCISE CLOSE is set to 1(YES) at 6:26pm, every 60 days at 6:26pm the curtain will close for 3 minutes. After the closing delay, if the ROOM TEMPERATURE is above  $DRT + CURTAIN RSP + CURTAIN DEAD BAND$ , the curtain will open for 3 minutes.

**F3: CURTAIN EXERCISE DURATION**

This parameter is used to adjust the amount of time the curtain will open/close (0% or 100% for AIM-1 module) when the curtain exercise occurs. This parameter is adjusted in 1-minute increments from 1 to 10 minutes.

**Parameter # 23**

**CURTAIN EXERCISE DAY COUNTER**

This parameter displays the current day counting from the last curtain exercise. The curtain exercise is done every CURTAIN EXERCISE FREQUENCY. This parameter is displayed to the nearest day from OFF, 1 to 120 days.

**Parameter # 24**

**FAN 1 OPERATION IN NATURAL**

This parameter is used to activate or deactivate the fan 1 in natural mode. If this parameter is set to ON, the fan 1 will be allowed to function in natural mode.

**F2: FAN 2 OPERATION IN NATURAL**

This parameter is used to activate or deactivate the fan 2 in natural mode. If this parameter is set to ON, the fan 2 will be allowed to function in natural mode.

**F2: FAN 3 OPERATION IN NATURAL**

This parameter is used to activate or deactivate the fan 3 in natural mode. If this parameter is set to ON, the fan 3 will be allowed to function in natural mode.

**F2: FAN 4 OPERATION IN NATURAL**

This parameter is used to activate or deactivate the fan 4 in natural mode. If this parameter is set to ON, the fan 4 will be allowed to function in natural mode.

**Parameter # 25**

**ALARM HI TEMP RSP**

This parameter is used to establish the temperature RSP at which a high temperature alarm condition will occur. When the ROOM TEMPERATURE is greater than  $DRT + ALARM HI TEMP RSP$ , an alarm will occur. The *ALARM HI TEMP RSP* is adjusted in 0.1°F increments from 0.0°F to 40.0°F. **See also the alarm section 3 for other alarm conditions.**

**F2: ALARM LO TEMP RSP**

This parameter is used to establish the temperature RSP at which a low temperature alarm condition will occur. When the ROOM TEMPERATURE is lesser than  $DRT + ALARM LO TEMP RSP$ , an alarm will occur. The *ALARM LO TEMP RSP* is adjusted in 0.1°F increments from -30.0°F to 1.0°F. **See also the alarm section 3 for other alarm conditions.**

**Parameter # 26**

**MANUAL OVERRIDE FAN 1**

**F2: MANUAL OVERRIDE FAN 2**

These parameters are used to manually control the respective fan (1-2). When this parameter is set to AUTO, the respective fan (1-2) will follow the configuration logic. When this parameter is set to 0, the respective fan (1-2) will be deactivated. When this parameter is set to a value between 1 and 100, the respective fan (1-2) will run at the corresponding speed.

**F2: MANUAL OVERRIDE FAN 3**

**F2: MANUAL OVERRIDE FAN 4**

These parameters are used to manually control the respective fan (3-4). When this parameter is set to AUTO, the respective fan (3-4) will follow the configuration logic. When this parameter is set to 0, the respective fan (3-4) will be deactivated. When this parameter is set to ON, the respective (3-4) will be activated.

**Parameter # 27**

**MANUAL OVERRIDE HEATER**

These parameters are used to manually control the heater. When this parameter is set to AUTO, the heater will follow the configuration logic. When this parameter is set to 0, the heater will be deactivated. When this parameter is set to ON, the heater will be activated.

**F2: *MANUAL OVERRIDE COOLING***

These parameters are used to manually control the cooling. When this parameter is set to AUTO, the cooling will follow the configuration logic. When this parameter is set to 0, the cooling will be deactivated. When this parameter is set to ON, the cooling will be activated.

**F3: *MANUAL OVERRIDE CURTAIN***

These parameters are used to manually control the curtain **when it is operated by the IC-610 relays**. When this parameter is set to AUTO, the curtain will follow the configuration logic. When this parameter is set to 0, the curtain will stop moving. If the parameter is set to 1, the curtain will close and when this parameter is set to OPEN, the curtain will be open.

**Parameter # 28**

**These settings are used when curtain output is on AIM-1 module.**

***NATURAL CURTAIN OVERRIDE***

This parameter is used to manually operate the curtain to perform the calibration operations. If this parameter is set to "AUTO", the curtain will follow the calculated position. If it is set to "0", the curtain will continuously close. If it is set to "1", the curtain will maintain its position. If it is set to "OPEN", the curtain will continuously open. This parameter can be set to "AUTO", "0", "1" or "OPEN".

**F2: *NATURAL CURTAIN SET LOW LIMIT***

This parameter is used to set the low potentiometer limit for curtain calibration. This will effectively define the lowest possible value for the curtain's potentiometer and the 0% position. To obtain this value, close the curtain completely using the *NATURAL CURTAIN OVERRIDE* parameter. Once the curtain is completely closed, set this parameter to "CLR" for at least 5 seconds then set this parameter back to "ON". At this point, the LCD display will show "Curtain Lo Limit Saved", if the value was correctly saved, "Can't Save Lo Limit Curtain", if an error occurred during the operation or "Can't Save Check Curtain Pot" if the potentiometer reading is not valid. In the two last cases, calibration must be performed once the situation is corrected.

**F3: *NATURAL CURTAIN SET HI LIMIT***

This parameter is used to set the high potentiometer limit for curtain calibration. This will effectively define the highest possible value for the curtain's potentiometer and the 100% position. To obtain this value, open the curtain completely using the *NATURAL CURTAIN OVERRIDE* parameter. Once the curtain is completely open, set this parameter to "CLR" for at least 5 seconds then set this parameter back to "ON". At this point, the LCD display will show "Curtain Hi Limit Saved", if the value was correctly saved, "Can't Save Hi Limit Curtain", if an error occurred during the operation or "Can't Save Check Curtain Pot" if the potentiometer reading is not valid. In the two last cases, calibration must be performed once the situation is corrected.

**Parameter # 29**

**These settings are used when curtain output is on AIM-1 module.**

***NATURAL CURTAIN PRECISION***

This parameter is used to adjust the precision of the curtain. If the curtain moves too often, increase this setting. When this is done, the curtain will then require a greater difference between its actual position and the requested one before moving. The precision of the curtain is adjusted in 1% increments from 1% to 20%.

**F2: *NATURAL CURTAIN ALARM OPTION***

This parameter is used to determine if the alarm will activate when the curtain's potentiometer value cannot be read. If this option is set to ON and the curtain's potentiometer has an out of range reading, the alarm relay will activate. If this option is set to OFF, only an alarm message will be displayed in the case of a potentiometer problem.

**F3: NATURAL CURTAIN MAX RUN TIME**

This parameter is used to set the maximum run time of the curtain within a ten-minute period. When the curtain has moved for a time greater than the value of this parameter within a ten-minute period, the module will not activate the open or close relays until the curtain has had time to cool down until the remainder of the 10 minutes. This value should be set according to the manufacturer's specifications. Setting this value to "OFF" will deactivate the module cool down function. This parameter is adjusted in 1-minute increments from 1 minute to 9 minutes, "OFF".

**Parameter # 30**

**These settings are used when curtain output is on AIM-1 module.**

**NATURAL CURTAIN MOD BAND**

This parameter is used to establish the range of temperature where curtain's opening increases as ROOM TEMPERATURE increases. Curtain increases its opening from its minimum open (NATURAL CURTAIN MIN OPEN at CURTAIN OPEN RSP) to its maximum opening (100%) at the end of the NATURAL CURTAIN MOD BAND. The NATURAL CURTAIN MOD BAND is adjusted in 0.5°F increments from 0.5°F to 10.0°F.

**F2: NATURAL CURTAIN MIN OPEN**

This parameter is used to establish the curtain's minimum opening. When ROOM TEMPERATURE is below the CURTAIN OPEN RSP, curtain will be opened at NATURAL CURTAIN MIN OPEN. The NATURAL CURTAIN MIN OPEN is adjusted in 1% increments from 0% to 100%.

**F2: % OPEN TO SHUTOFF FANS**

This parameter is used to adjust the opening percentage it takes before the control enters natural mode and the fans shut down (see TRANSITION DIFF. parameter). % OPEN TO SHUTOFF FANS is adjusted in 1% increments from 2% to 100%.

**F2: % CLOSE TO RESTART FANS**

This parameter is used to adjust the opening percentage it takes before the control exits natural mode (see TRANSITION DIFF. parameter). % CLOSE TO RESTART FANS is adjusted in 1% increments from 2% to 100%.

**F2: TRANSITION DIFF.**

This parameter is used to adjust the differential for a natural mode transition. When curtain is used on AIM-1 module and opens at % OPEN TO SHUTOFF FANS, control enters natural mode. At this point, if curtain has a closing demand, natural mode exits when curtain closes to % OPEN TO SHUTOFF FANS - TRANSITION DIFF. or when curtain reaches its NATURAL CURTAIN MIN OPEN. If curtain continues to open after control enters natural mode and curtain reaches % CLOSE TO RESTART FANS, curtain's opening has to drop below % CLOSE TO RESTART FANS to exit natural mode. At this point, if curtain's opening doesn't drop below % OPEN TO SHUTOFF FANS, curtain percentage opening has to reach % CLOSE TO RESTART FANS + TRANSITION DIFF. or 100% to enter natural mode once again. TRANSITION DIFF. is adjusted in 1% increments from 3% to 20%.

**Parameter # 31**

**This setting is used when curtain output is on AIM-1 module.**

**NATURAL CURTAIN POSITION**

This parameter shows the actual position of the curtain. This position is readout of the AIM-1 module. The NATURAL CURTAIN POSITION is displayed to the nearest 1% from -128% to 127%.

**Parameter # 32**

**This setting is used when curtain output is on AIM-1 module.**

**NATURAL TECH PARAM DISPLAY**

This parameter is reserved for technical support personnel.

### **Parameter # 33**

**This setting is used when curtain output is on AIM-1 module.**

#### ***NATURAL TECH PARAM RESULT***

This parameter is reserved for technical support personnel.

### **Parameter # 34**

**These settings are used when inlet output is on AIM-1 module.**

#### ***INLET OVERRIDE***

This parameter is used to manually operate the inlet to perform the calibration operations. If this parameter is set to "AUTO", the inlet will follow the calculated position. If it is set to "0", the inlet will continuously close. If it is set to "1", the inlet will maintain its position. If it is set to "OPEN", the inlet will continuously open. This parameter can be set to "AUTO", "0", "1" or "OPEN".

#### **F2: *INLET SET LOW LIMIT***

This parameter is used to set the low potentiometer limit for inlet calibration. This will effectively define the lowest possible value for the inlet's potentiometer and the 0% position. To obtain this value, close the inlet completely using the *INLET OVERRIDE* parameter. Once the inlet is completely closed, set this parameter to "CLR" for at least 5 seconds then set this parameter back to "ON". At this point, the LCD display will show "Inlet Lo Limit Saved", if the value was correctly saved, "Can't Save Lo Limit Inlet", if an error occurred during the operation or "Can't Save Check Inlet Pot" if the potentiometer reading is not valid. In the two last cases, calibration must be performed once the situation is corrected.

#### **F3: *INLET SET HI LIMIT***

This parameter is used to set the high potentiometer limit for inlet calibration. This will effectively define the highest possible value for the inlet's potentiometer and the 100% position. To obtain this value, open the inlet completely using the *INLET OVERRIDE* parameter. Once the inlet is completely open, set this parameter to "CLR" for at least 5 seconds then set this parameter back to "ON". At this point, the LCD display will show "Inlet Hi Limit Saved", if the value was correctly saved, "Can't Save Hi Limit Inlet", if an error occurred during the operation or "Can't Save Check Inlet Pot" if the potentiometer reading is not valid. In the two last cases, calibration must be performed once the situation is corrected.

### **Parameter # 35**

**These settings are used when inlet output is on AIM-1 module.**

#### ***INLET PRECISION***

This parameter is used to adjust the precision of the inlet. If the inlet moves too often, increase this setting. When this is done, the inlet will then require a greater difference between its actual position and the requested one before moving. The precision of the inlet is adjusted in 1% increments from 1% to 20%.

#### **F2: *INLET ALARM OPTION***

This parameter is used to determine if the alarm will activate when the inlet's potentiometer value cannot be read. If this option is set to ON and the inlet's potentiometer has an out of range reading, the alarm relay will activate. If this option is set to OFF, only an alarm message will be displayed in the case of a potentiometer problem.

#### **F3: *INLET MAX RUN TIME***

This parameter is used to set the maximum run time of the inlet within a ten-minute period. When the inlet has moved for a time greater than the value of this parameter within a ten-minute period, the module will not activate the open or close relays until the inlet has had time to cool down until the remainder of the 10 minutes. This value should be set according to the manufacturer's specifications. Setting this value to "OFF" will deactivate the module cool down function. This parameter is adjusted in 1-minute increments from 1 minute to 9 minutes, "OFF".

**Parameter # 36**

**This setting is used when inlet output is on AIM-1 module.**

**INLET POSITION**

This parameter shows the actual position of the inlet. This position is readout of the AIM-1 module. The INLET POSITION is displayed to the nearest 1% from -128% to 127%.

**Parameter # 37**

**This setting is used when inlet output is on AIM-1 module.**

**INLET TECH PARAM DISPLAY**

This parameter is reserved for technical support personnel.

**Parameter # 38**

**This setting is used when inlet output is on AIM-1 module.**

**INLET TECH PARAM RESULT**

This parameter is reserved for technical support personnel.

**Parameter # 39**

**GROWTH DAY**

This parameter is used to program the current day of the growth curve function. The GROWTH DAY is displayed to the nearest day from day 1 to day 127. (For more details see User's Manual).

**F2: ADJUST DAY**

This is to adjust the growth day. Growth day can be turned OFF, or adjusted to any day value from 1 to 127.

**Parameter # 40**

**SELF-TEST**

This parameter is used to individually operate outputs. This can be used to make some output adjustments. Each respective output's manual override has priority over this logic. Each time this parameter setting changed, control wait approximately 2 seconds before activating the new corresponding output. Refer to the following listing for the output's association. The *SELF-TEST* can be adjusted from OFF, 1 to 16.

- |                        |                         |
|------------------------|-------------------------|
| 1) Heater              | 9) Inlet Fan 1 Maximum  |
| 2) Fan 1 Minimum Speed | 10) Inlet Fan 2 Minimum |
| 3) Fan 1 Maximum Speed | 11) Inlet Fan 2 Maximum |
| 4) Fan 2 Minimum Speed | 12) Inlet Fan 3         |
| 5) Fan 2 Maximum Speed | 13) Inlet Fan 4         |
| 6) Fan 3 On            | 14) Cooling On          |
| 7) Fan 4 On            | 15) Curtain Open        |
| 8) Inlet Fan 1 Minimum | 16) Curtain Close       |

**Parameter # 41**

**INLET ON AIM-1 OR CIP-1/6**

This parameter is used to determine which module will operate the inlet. If this parameter is set to 0, inlet will be operating by the CIP-1/6 module, if set to 1, inlet will be operating by the AIM-1 module.

**Parameter # 42**

**CURTAIN ON AIM-1 OR IC-610**

This parameter is used to determine which module will operate the curtain. If this parameter is set to 0, curtain will be operating by the IC-610 relays, if set to 1, curtain will be operating by the AIM-1 module.

**Parameter 43:**

***SUPERVISOR CODE (ACCESS TO PROTECTED PARAMETER)***

When the supervisor code is OFF, this means that the user has full access (FULL ACCESS ON) to all adjustable parameters. In other words, all possible parameters, which are adjustable by the user, including the protected parameters, will be visible and flashing.

When the supervisor code is ON, this means that the user does not have full access (FULL ACCESS OFF) to all adjustable parameters. In other words, if certain parameters are hidden in the supervisor mode, they will remain invisible to the user, and the parameters protected by the supervisor code will not flash, indicating that no modification can be performed on these parameters.

Su: OFF           =       FULL ACCESS ON  
Su: ON            =       FULL ACCESS OFF

To alter the supervisor code, follow the code entry procedure indicated below:

SUPERVISOR CODE: 1 77 0

1. The LED display of this parameter show if the supervisor is FULL ACCESS OFF (Su: ON) or FULL ACCESS ON (Su: OFF).
2. To change the state of the supervisor code, press F2 button. The LED display will shows "1: 00", at this moment, enter the **first** number of the supervisor code;
3. press F2 again, the LED display will shows "2: 00", at this moment, enter the **second** number of the supervisor code;
4. press F2 again, the LED display will shows "3: 00", at this moment, enter the **third** number of the supervisor code;
5. finally, press F3 to valid the code entered.

If the code entered is incorrect, "ERR" will appear on the LED display. At this point, verify the supervisor code and retry the code entry procedure.

### **3. ALARM**

The alarm relay is normally activated, but it will deactivate 2.6 seconds or more after a power failure or after one of the following events occurs:

- a. IC-610 is defective.
- b. ROOM TEMPERATURE exceeds the limits *ALARM HI* or *LO TEMP RSP*.
- c. ROOM TEMPERATURE is defective; open/short circuited, varies more than 20.0°F in a one-minute period.
- d. The inlet or curtain's potentiometer has an out of range reading and their corresponding INLET/NATURAL CURTAIN ALARM OPTION is set to ON.
- e. The inlet or curtain AIM-1 module has not communicated with the IC-610 for a period of 5 minutes.

### **ATTACHMENTS**

- Parameter Table
- Labels
- Wiring Diagram



# PARAMETER TABLE

DESCRIPTION		CONTROL VALUES					
		*	MIN	MAX	PRESET		
<b>1. ROOM TEMPERATURE</b>	deg. F		-6.0	168.6	*****		
	F2: Probe Input #	deg. F		-6.0	168.6	PRB 1-4	
	F3: Hi/Lo	deg. F	CLR	-6.0	168.6	*****	
<b>2. OUTSIDE TEMPERATURE</b>	deg. F		-6.0	168.6	*****		
	F2: Probe Input #	deg. F		-6.0	168.6	PRB 5	
	F3: Hi/Lo	deg. F	CLR	-6.0	168.6	*****	
<b>3. DESIRED ROOM TEMP</b>	deg. F		32.0	120.0	75.0		
	F2: Adjust Day	day	none	1	127	1	10 20 30
	F3: Adjust Temperature	deg. F	none	32.0	120.0	78.0	78.0 75.0 65.0
<b>4. INSIDE TEMP 1</b>	deg. F		-6.0	168.6	*****		
	F2: Probe Input #	deg. F		-6.0	168.6	PRB 1	
	F3: Hi/Lo	deg. F	CLR	-6.0	168.6	*****	
<b>5. INSIDE TEMP 2</b>	deg. F		-6.0	168.6	*****		
	F2: Probe Input #	deg. F		-6.0	168.6	PRB 2	
	F3: Hi/Lo	deg. F	CLR	-6.0	168.6	*****	
<b>6. INSIDE TEMP 3</b>	deg. F		-6.0	168.6	*****		
	F2: Probe Input #	deg. F		-6.0	168.6	PRB 3	
	F3: Hi/Lo	deg. F	CLR	-6.0	168.6	*****	
<b>7. INSIDE TEMP 4</b>	deg. F		-6.0	168.6	*****		
	F2: Probe Input #	deg. F		-6.0	168.6	PRB 4	
	F3: Hi/Lo	deg. F	CLR	-6.0	168.6	*****	
<b>8. HEATER RSP</b>	deg. F		-10.0	5.0	-2.0		
	F2: Heater Differential	deg. F		0.5	5.0	1.0	
<b>9. FAN 1 RSP</b>	deg. F		-10.0	30.0	0.0		
	F2: Fan 1 Min Speed	%	none	12	100	50	
	F3: Fan 1 Mod Band	deg. F		0.5	10.0	2.0	
<b>10. FAN 2 RSP</b>	deg. F		-10.0	30.0	2.0		
	F2: Fan 2 Min Speed	%	none	12	100	50	
	F3: Fan 2 Mod Band	deg. F		0.5	10.0	2.0	
<b>11. MIN VENT TIMER DUTY CYCLE</b>	%		0	100	100		
	F2: Min Vent Timer Period	min		1	20	5	
	F3: Fan 2 Run On Min Vent Timer			0 (no)	1 (yes)	0 (no)	
<b>12. FAN 3 RSP</b>	deg. F		-10.0	30.0	4.0		
	F2: Fan 3 Differential	deg. F		0.5	5.0	1.0	
<b>13. FAN 4 RSP</b>	deg. F		-10.0	30.0	5.0		
	F2: Fan 4 Differential	deg. F		0.5	5.0	1.0	
<b>14. INLET POSITION FAN 1 MIN</b>	%		0	100	10		
	F2: Inlet Position Fan 1 Max	%		0	100	20	
<b>15. INLET POSITION FAN 2 MIN</b>	%		0	100	30		
	F2: Inlet Position Fan 2 Max	%		0	100	40	

DESCRIPTION			CONTROL VALUES			
		*	MIN	MAX	PRESET	
<b>16. INLET POSITION FAN 3</b>	%	🔑	0	100	50	
F2: Inlet Position Fan 4	%	🔑	0	100	100	
<b>17. COOLING RSP</b>	deg. F	🔑	-20.0	30.0	15.0	
F2: Cooling Differential	deg. F	🔑	0.5	5.0	1.0	
<b>18. COOLING TIMER DUTY CYCLE</b>	%	🔑	0	100	10	
F2: Cooling Timer Period	min	🔑	1	20	20	
<b>19. CURTAIN OPEN RSP</b>	deg. F	🔑	-10.0	30.0	7.0	
F2: Run Time Open	sec	🔑	5	300	30	
F2: Run Time Close	sec	🔑	5	300	30	
F2: Curtain Delay Between Move	min	🔑	1	20	3	
F2: First Natural Move	sec	🔑	5	120	30	
F2: Curtain Dead Band	deg. F	🔑	0.5	10.0	5.0	
F2: Min Outside Temp For Curtain	deg. F	🔑	-6.0	168.6	50.0	
<b>20. # OF CYCLES OPEN TO STOP FANS</b>		🔑	1	10	2	
F2: # Of Cycles Close To Start Fans		🔑	1	10	3	
<b>21. ACCELERATED OPEN ON</b>		🔑	0 (no)	1 (yes)	1 (yes)	
F2: Accelerated Close On		🔑	0 (no)	1 (yes)	1 (yes)	
F3: Seconds Increase	sec	🔑	0	30	10	
<b>22. CURTAIN EXERCISE CLOSE</b>		🔑	0 (no)	1 (yes)	1 (yes)	
F2: Curtain Exercise Frequency	day	🔑	1	120	60	
F3: Curtain Exercise Duration	min	🔑	1	10	3	
<b>23. CURT. EXE. DAY COUNTER</b>	day	🚫	OFF, 1	120	*****	
<b>24. FAN 1 OPERATION IN NATURAL</b>	on/off	none	OFF	ON	ON	
F2: Fan 2 Operation in Natural	on/off	none	OFF	ON	OFF	
F2: Fan 3 Operation in Natural	on/off	none	OFF	ON	OFF	
F2: Fan 4 Operation in Natural	on/off	none	OFF	ON	OFF	
<b>25. ALARM HI TEMP RSP</b>	deg. F	none	0.0	40.0	15.0	
F2: Alarm Lo Temp RSP	deg. F	none	-30.0	1.0	-7.0	
<b>26. MANUAL OVERRIDE FAN 1</b>		none	AUTO, 0	100	AUTO	
F2: Manual Override Fan 2		none	AUTO, 0	100	AUTO	
F2: Manual Override Fan 3		none	AUTO, 0	ON	AUTO	
F2: Manual Override Fan 4		none	AUTO, 0	ON	AUTO	
<b>27. MANUAL OVERRIDE HEATER</b>		none	AUTO, 0	ON	AUTO	
F2: Manual Override Cooling		none	AUTO, 0	ON	AUTO	
F3: Manual Override Curtain 0=Stop, 1=Close		none	AUTO, 0	1, OPEN	AUTO	
<b>28. NATURAL CURTAIN OVERRIDE</b>		none	AUTO, 0	1, OPEN	AUTO	
F2: Natural Curtain Set Low Limit		none	ON	CLR	ON	
F3: Natural Curtain Set High Limit		none	ON	CLR	ON	
<b>29. NATURAL CURTAIN PRECISION</b>	%	none	1	20	1	
F2: Natural Curtain Alarm Option	on/off	none	OFF	ON	ON	
F3: Natural Curtain Max Run Time	min	🔑	1	9, OFF	OFF	

DESCRIPTION		CONTROL VALUES						
		*	MIN	MAX	PRESET			
<b>30. NATURAL CURTAIN MOD BAND deg. F</b>		*	0.5	10.0	5.0			
F2: Natural Curtain Min Open	%		0	100	5			
F2: % Open To Shutoff Fans	%		2	100	10			
F2: % Close To Restart Fans	%		2	100	80			
F2: Transition Diff.	%		3	20	5			
<b>31. NATURAL CURTAIN POSITION</b>	%		-128	127	*****			
<b>32. NATURAL TECH PARAM DISPLAY</b>		none	OFF, 1	15	OFF			
<b>33. NATURAL TECH PARAM RESULT</b>			-32768	32767	*****			
<b>34. INLET OVERRIDE</b>		none	AUTO, 0	1, OPEN	AUTO			
F2: Inlet Set Low Limit		none	ON	CLR	ON			
F3: Inlet Set High Limit		none	ON	CLR	ON			
<b>35. INLET PRECISION</b>	%	none	1	20	1			
F2: Inlet Alarm Option	on/off	none	OFF	ON	ON			
F3: Inlet Max Run Time	min		1	9, OFF	OFF			
<b>36. INLET POSITION</b>	%		-128	127	*****			
<b>37. INLET TECH PARAM DISPLAY</b>		none	OFF, 1	15	OFF			
<b>38. INLET TECH PARAM RESULT</b>			-32768	32767	*****			
<b>39. GROWTH DAY</b>	day		OFF, 1	127	OFF			
F2: Adjust day	day	none	OFF, 1	127	OFF			
<b>40. SELF-TEST</b>		none	OFF, 1	16	OFF			
<b>41. INLET ON AIM-1 OR CIP-1/6</b>		none	0 (CIP)	1 (AIM)	0 (CIP)			
<b>42. CURTAIN ON AIM-1 OR IC-610</b>		none	0 (IC)	1 (AIM)	0 (IC)			
<b>43. SUPERVISOR CODE</b>		See parameter 43 description						

* Restriction legend	
None	Parameter adjustable by the user and the supervisor
	Invisible to the user when supervisor mode is OFF
	Read only to the user when supervisor mode is OFF
	Follow a growth curve when ramping function is ON
	Cannot be changed
CLR	Press   simultaneously to clear

**6M77F0**

- 1 Room Temperature**
- 2 Outside Temperature**
- 3 Desired Room Temp. (DRT)**
- 4-7 Inside Probe 1-4**
- 8 Heater Settings**
- 9-11 Fan 1-2 Settings/MinVent**
- 12-13 Fan 3-4 Settings**
- 14-16 Inlet Position Settings**
- 17-18 Cooling Settings**
- 19-21 Curtain Settings (IC-610)**
- 22-23 Curtain Exercise**
- 24 Fan # Operation in Nat**
- 25 Alarm Settings**
- 26-27 Manual Override**
- 28-33 Curtain Settings (AIM-1)**
- 34-38 Inlet Settings (AIM-1)**
- 39 Growth Day**
- 40 Self-Test**
- 41-42 Inlet/Curt AIM-1 Opt.**
- 43 Supervisor Code**

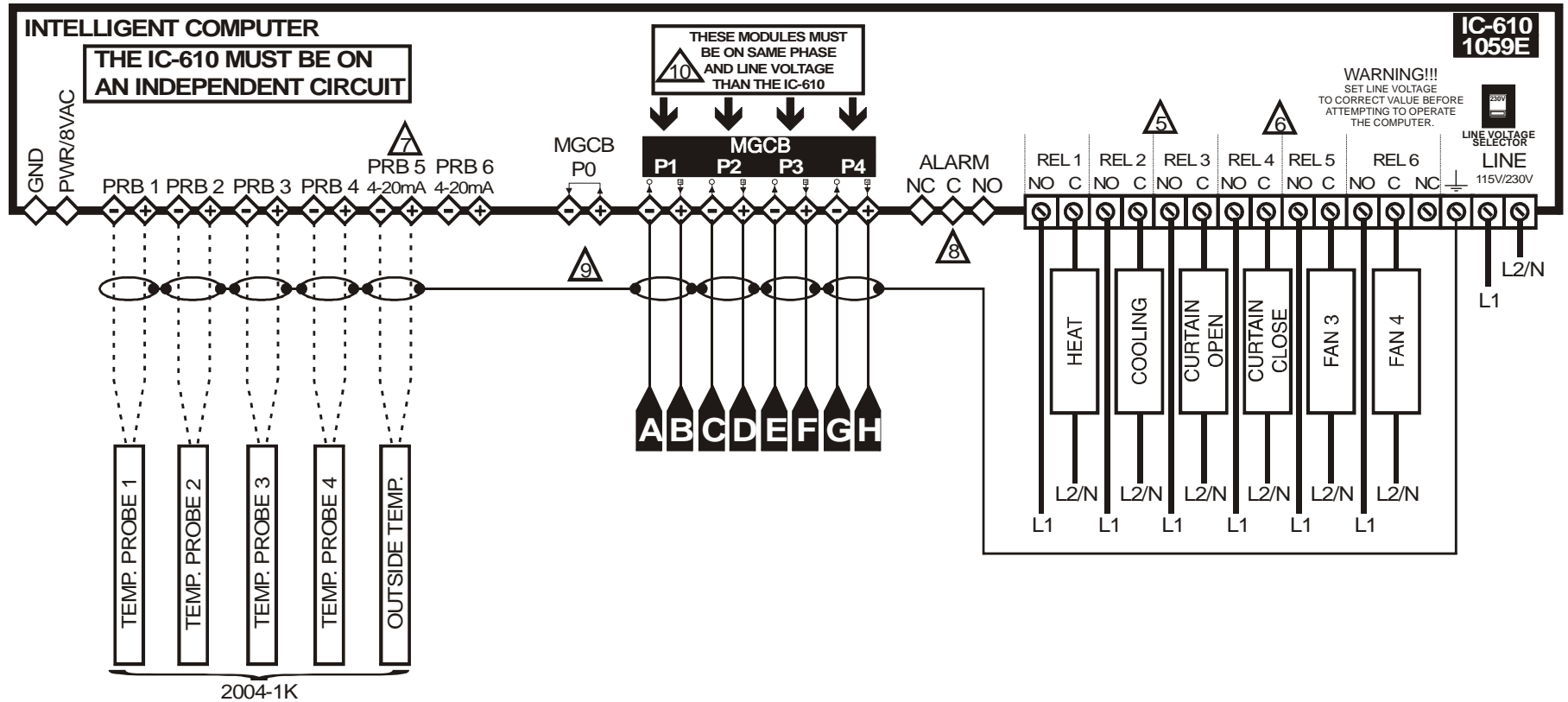
**6M77F0**

- 1 Room Temperature**
- 2 Outside Temperature**
- 3 Desired Room Temp. (DRT)**
- 4-7 Inside Probe 1-4**
- 8 Heater Settings**
- 9-11 Fan 1-2 Settings/MinVent**
- 12-13 Fan 3-4 Settings**
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- 34-38 Inlet Settings (AIM-1)**
- 39 Growth Day**
- 40 Self-Test**
- 41-42 Inlet/Curt AIM-1 Opt.**
- 43 Supervisor Code**

- 1 Curtain Open**
- 2 Curtain Close**
- 3 Fan 1**
- 4 Fan 2**
- 5 Fan 3**
- 6 Fan 4**
- 7 Heater**
- 8 Cooling**
- 9 Curtain Exercise**
- 10 Natural Mode**

- 1 Curtain Open**
- 2 Curtain Close**
- 3 Fan 1**
- 4 Fan 2**
- 5 Fan 3**
- 6 Fan 4**
- 7 Heater**
- 8 Cooling**
- 9 Curtain Exercise**
- 10 Natural Mode**

# WIRING DIAGRAM CONFIGURATION 6M77F0



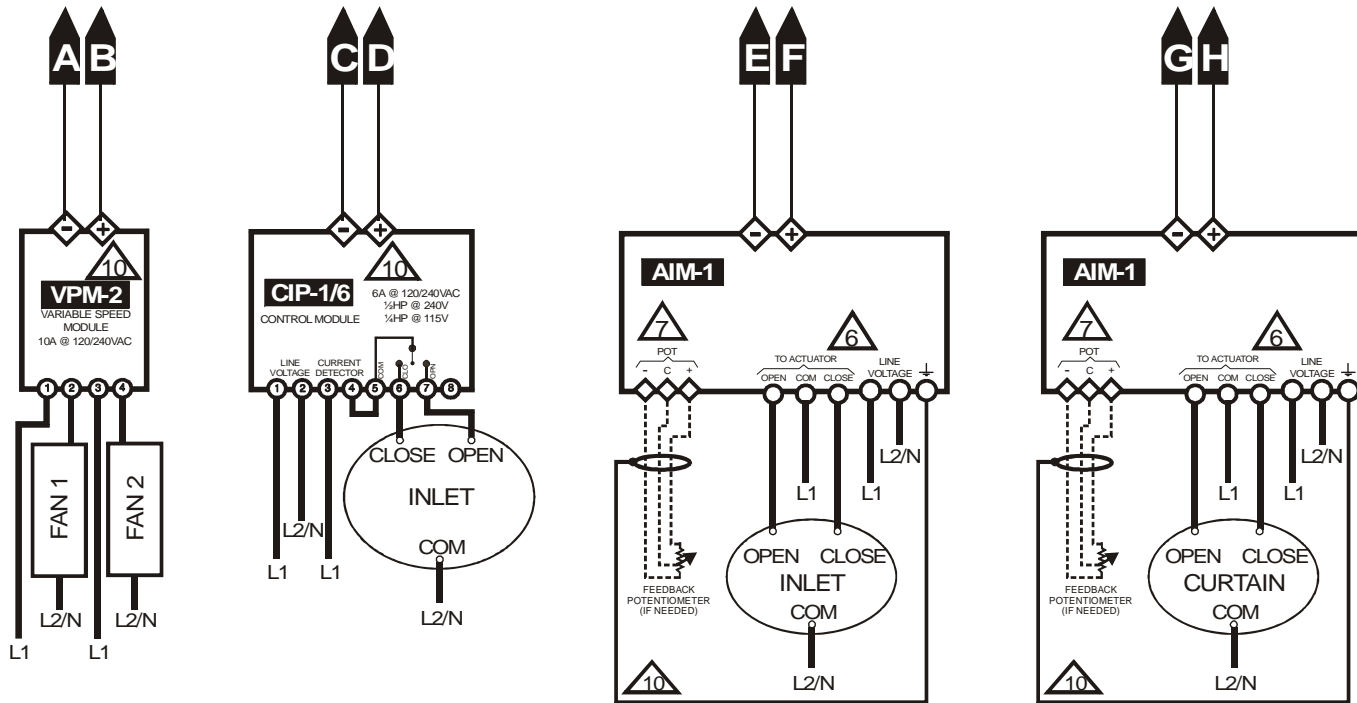
SEE NOTES ON PAGE 23

## Varifan®

WIRING DIAGRAM

30/08/07	CONFIGURATION 6M77F0	WIR	REV 0
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# WIRING DIAGRAM CONFIGURATION 6M77F0



SEE NOTES ON PAGE 23

**Varifan®**

WIRING DIAGRAM

30/08/07	CONFIGURATION	6M77F0	WIR	REV	0
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# 6M77F0

## Electrician's notes

### Wiring tips and hints (see guide for details)

1 ----- (PROBE WIRING) SHIELDED WIRE AWG #18 WITH 16/30 STRANDING, 500FT/150M MAXIMUM LENGTH. (Ex.: DECA 73-310)

For other probe, refer to specific probe manual for appropriate maximum length and wire size or use AWG #18, 500FT/150M MAXIMUM LENGTH (whichever is shorter).

2 ————— (COMMUNICATION WIRING) SHIELDED LOW CAPACITANCE WIRE, (Capacitance between conductors @ 1Khz = 24PF/FT), TWISTED PAIR (8 twist/FT), AWG #18 TO 22, 750 FT/250 M MAX LENGTH. (Ex.: BELDEN 8761)

3 ————— HIGH VOLTAGE WIRE INSTALLED ACCORDING TO LOCAL WIRING CODE.

4 INSTALL LOW VOLTAGE WIRES (PROBES, COMPUTER LINK OR POTENTIOMETER WIRES) AT LEAST 12 INCHES (30cm) AWAY FROM HIGH VOLTAGE WIRES (120/230VAC, 24VDC). ALWAYS CROSS HIGH AND LOW VOLTAGE WIRES AT A 90-DEGREE ANGLE.



RELAYS: 10A @ 250VAC RESISTIVE, MOTOR 1HP @ 250VAC, 1/2HP 120VAC AT EACH OUTPUT (OUT 1-6)



MAXIMUM 2 WIRES OF SAME SIZE PER BLACK TERMINAL, NO BIGGER THAN AWG #12, NO SMALLER THAN AWG #22.



1 WIRE ONLY PER GREEN TERMINAL. USE WIRE CONNECTOR IF YOU WANT TO CONNECT MORE THAN 1 WIRE, NO BIGGER THAN AWG #12, NO SMALLER THAN AWG #28.



CHECK INSTALLATION GUIDE FOR ALARM WIRING.



USE SHIELD FOR SHIELDING PURPOSE ONLY. CONNECT THE SHIELD TO THE CONTROL CIRCUIT COMMON END ONLY⊕. NEVER LEAVE THE SHIELD UNCONNECTED AT BOTH ENDS. NEVER CONNECT BOTH ENDS OF THE SHIELD TO COMMON⊖. THE USE OF A SHIELD FOR ALL PROBES AND POTENTIOMETERS IS MANDATORY.



THESE MODULES MUST BE ON SAME POWER PHASE AND LINE VOLTAGE AS THE CONTROLLER.