



**PRODIGY 2.0  
(M3 UNIT CONTROLLER)  
SETUP GUIDE**

507241-07

10/2019

Supersedes 4/2019

**PRODIGY®  
CONTROL SYSTEM**



## WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life.  
Installation and service must be performed by a licensed professional HVAC installer (or equivalent) or service agency

1019  
507241-07

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## 1. Prodigy 2.0 – M3 Unit Controller Overview

For all available Prodigy 2.0 documentation, go to the Lennox Commercial website.

[www.lennoxcommercial.com](http://www.lennoxcommercial.com)

The M3 unit controller:

- Provides control functions for both Emergence® and Strategos® Rooftop Units,
- Includes a 4 x 20 LCD display, USB port, menu selection LED and various navigation tools,
- Provides status and diagnostic information for troubleshooting,
- Allows adjustment of time delays and setpoints that enable advanced features,
- Is controlled by a standard room thermostat, direct digital controller (DDC), or a room sensor,
- Can be configured as a device on the network when daisy-chained to the L Connection® Network,

- May be connected to a PC which has been loaded with unit controller software,
- Accepts add-on controls to build variations according to application or equipment type. Unit Sizes
- USB verification and profile sharing.

## 2. Start-Up Procedure

- a. Turn on unit and dismiss alarm messages as necessary by pressing the **BACK** button.
- b. Press the **SCROLL** button down arrow repeatedly to navigate to the **SETUP** option and press the **SELECT** button. Press the **SELECT** button again for the **INSTALL** option. This will start the configuration process.

**NOTE:** *The system needs to be in a normal operating mode as seen on display (NO DEMAND, COOLING, HEATING, IDLE, etc).*

- c. To verify operation navigate to **SERVICE > TEST** menu.

See “24. Quick Start Guide” on page 84 for additional start up information.

## 3. M3 Unit Controller - Connections, Inputs / Outputs, Jumpers, and LEDs Locations

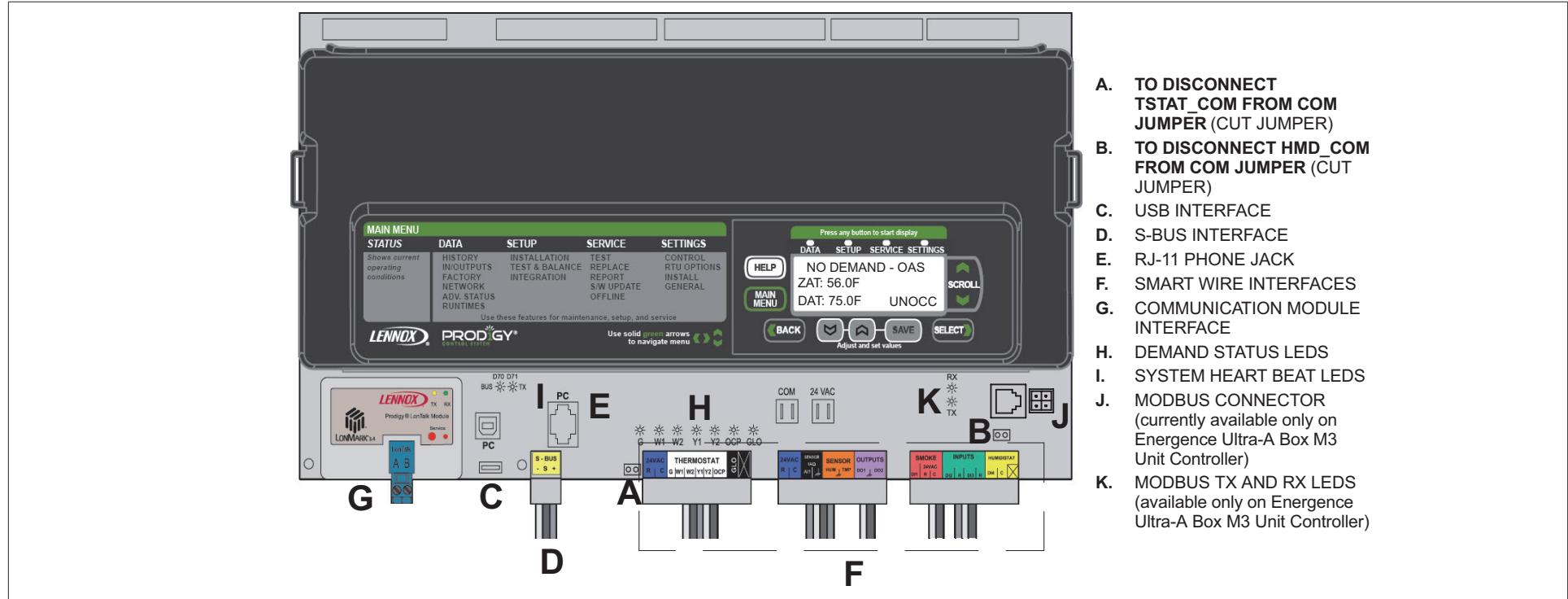


Figure 1. M3 Unit Controller Interfaces and LEDs Locations

## A. THERMOSTAT COMMON ISOLATION - TSTAT\_COM Jumper

Thermostat (TSTAT) sensor commons are located on connector P298 and may be isolated if they are powered remotely. Remove jumper.

This jumper is located to the left of P297 connector. This jumper would be removed only in unique situations where the device supplying the thermostat signals to the M3 unit controller has its own power source and does not share a common reference voltage with the M3 unit controller. Otherwise the jumper would remain installed across both pins, as shipped from the factory.

## B. HUMIDISTAT COMMON ISOLATION - HMD\_COM Jumper

The humidity (HUM) sensor commons are located on connector P298 and may be isolated if they are powered remotely. Remove jumper. This jumper is located to the right of P299 connector. This jumper would be removed only in unique situations where the device supplying the thermostat/humidistat signals to the M3 unit controller has its own power source and does not share a common reference voltage with the M3 unit controller. Otherwise the jumper would remain installed across both pins, as shipped from the factory.

## C. USB FLASH DRIVE INTERFACE USAGE

The M3 interface uses a USB A to B male cable for PC connection. This USB port is used for verifying service, downloading reports, transferring unit profiles and performing firmware updates. On-site data collection requires use of a USB flash drive. Data written to the drive includes date, time, serial number, catalog number, basic data, error code buffer, and unit configuration.

## D. S-BUS

This is the L-connection connection interface. This is a R485 network connection with other devices (NCP, comfort sensors, other RTU, etc.).

## E. RJ-11 PHONE JACK:

S-Bus connection is for factory tests. It is RS485 connection to the RJ-11 phone jack. Some DDC controllers may also be connected.

A list of service connection kits is listed on “Table 14. Parts and Kits Available for M3 Unit Controller” on page 36.

## F. SMARTWIRE™ FIELD WIRING CONNECTIONS (P297, P298 AND P299)

These connectors allow for easy field wiring connection points. The M3 unit controller connects to the rooftop unit using SmartWire™ connectors. Each connector is keyed so that no connector can be installed in the incorrect location. Be sure all connectors are in place and completely inserted. See “21. M3 Unit Controller Signal References” on page 73 for connector information.

## G. COMMUNICATION MODULE INTERFACE

This connection is used for either BACnet® or LonTalk® communication modules.

## H. DEMAND STATUS LEDS - Thermostat Input LED Indicators

Indicates active state for G, W1, W2, Y1 and Y2 demands. Indicators are also available for occupied/unoccupied (OC) or global input (GLO). The indicators and their meanings are described in “Table 1. LED Operation Indicators”.

## I. HEART BEAT LED INDICATORS

Some indicators on the circuit board are visible with the cover in place; others are not. The indicators and their meanings are described in “Table 1. LED Operation Indicators”.

## MODBUS CONNECTION (P358)

This is a TIA-485 serial line over MODBUS (messaging structure) communication. This is currently used only in the Energie Ultra-A Box models. This connection is used for communication between the M3 unit controller and inverter. See “Table 31. P358 (Ultra-A Box Only M3 Unit Controller)” on page 80 for pin-out information.

## J. MODBUS LEDs

There is a transmit (TX) and receive (RX) activity indicated near the MODBUS connector.

Table 1. LED Operation Indicators

LED	Status	Indication	Meaning
Heartbeat (HB) (D33)	Green	Slow Flash	Normal Operation
	Green	Fast Flash	Bootloader / firmware update mode
	No light	Steady Off	No voltage to M3 board or defective board
	Green	Steady On	Unit in configuration / test mode (not in normal mode)
S-BUS / PC Connection (D70 and D71)	BUS (green)	Flickering ON	Network traffic present
	TX (yellow)	Flickering ON	Unit controller is transmitting
BACnet (option) - LEDs located on module	RX (green)	Flickering ON	Unit controller is receiving
	TX (yellow)	Flickering ON	Unit controller is transmitting

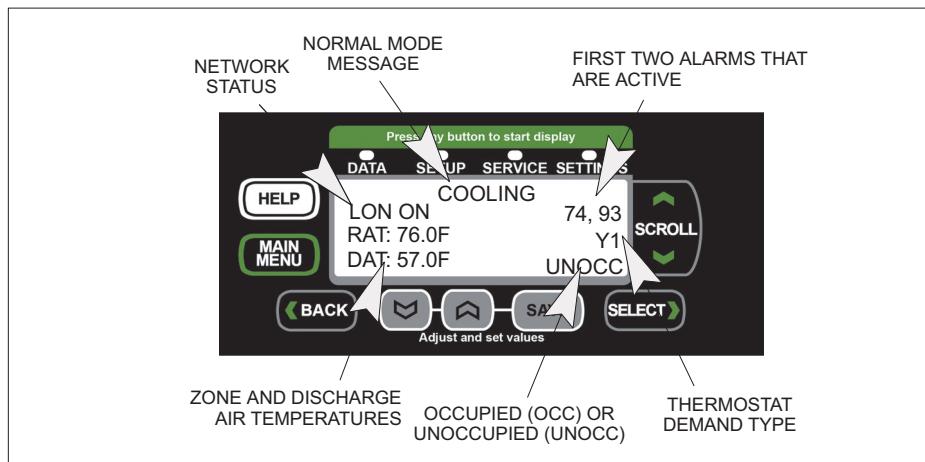
**Table 1. LED Operation Indicators**

LED	Status	Indication	Meaning			
LonTalk (option) - LEDs located on module	RX (green)	Flickering ON	Unit controller is receiving			
	TX (yellow)	Flickering ON	Unit controller is transmitting			
	SERVICE (red)	Flashing 1 sec. on; 1 sec. off	Node is not configured; application loaded			
	SERVICE (UNLIT)	Steady off	Node is completely configured			
	SERVICE (red)	Constant on	Node is configured; no application loaded			
	SERVICE (red)	Quick flashes during initialization	Messages being passed to M3; normal operation			
Thermostat Input	Yellow	Indicates a thermostat demand	G - Blower on (D17)			
			W1 - First-Stage Heating (D20)			
			W2 - Second -Stage Heating (D23)			
			Y1 - First-Stage Cooling (D26)			
			Y2 - Second-Stage Cooling (D29)			
			OCP - Occupied (D32)			
			GLO - Global input (D38)			
			MODBUS			
Two LEDs that indicate transmit (TX) and receive (RX) activity.						
Thermostat LEDs indicate only with incoming thermostat connection via SmartWire™ connectors.						
Slow Flash = 1 second on; 1 second off.						
Fast Flash = ½ second on; ½ second off.						
A "flickering" LED flashes significantly faster than a "fast flash".						
<b>NOTE:</b> LEDs are energized by 24VAC thermostat inputs.						

#### 4. System Status Screen

The display shows operating mode if in normal operation. Alarms will interrupt the display.

Alarm messages will appear on the display and remain there until dismissed. Dismissing an alarm is just clearing the alarm from using the entire screen to display the condition(s). The alarm condition still exists and up to two alarm codes are displayed along the right side of the screen above the thermostat demand type status. To dismiss an alarm, press the **BACK** button.



**Figure 2. System Status Display**

## 4.1. Network Types

The second line on the left side (see "Figure 3. Alarm Code Readout Example") is used for displaying network status. The status will indicate either ON or OFF for the network employed.

**Table 2. Network Types**

Screen Label	Network Type
LON	LonTalk
BACNET	BACnet
LCONN	L-Connection
RTU	Rooftop Unit stand-alone mode status indicator

## 4.2. Unit Operation

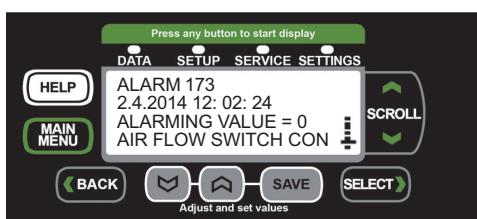
This section describes the display and control buttons, how to configure the unit, and how to read stored configuration data, status, and alarms.

The M3 unit controller is an input and output junction point. If in the thermostat mode, thermostat inputs at P297 result in an output to unit components. If the heartbeat LED is not flashing, see "Table 1. LED Operation Indicators" on page 4 for heartbeat operation. If the display shows an alarm. If the thermostat input indicating lights are not responding appropriately, check the thermostat or a DDC control acting as thermostat inputs into P297.

Basic cooling and heating functions may be energized to test major unit components by using the M3 unit controller testing function or by using jumper wires on the Field Wiring Termination plug P297.

## 4.3. Alarm Status Display

Figure 33 shows how alarms are displayed. Alarming value may indicate the condition which triggered the alarm (temperature, voltage, pressure, time, etc.).



Alarms are present - alarm code, alarming value, and date / time stamp (hour, minute and seconds) of alarm event.

While the alarm is displayed on the screen, press the help button for further details.

The down arrow on the screen indicates for information is available by scrolling down.

## 4.4. Normal Mode and Status Messages

The format of the message is mode and set point (see table 61).

**Table 3. Possible Mode and Status Messages**

SCREEN NAME	DESCRIPTION
COMP LOAD SHEDDING	Unit is running at lower power capacity.
COOLING	Cool demand present; unit is in mechanical cooling.
DEHUMIDIFICATION	Unit is dehumidifying.
FREE COOLING	Cooling demand is present, no compressor cooling.
FRESH AIR COOLING	Cool ventilation air to neutral value.
FRESH AIR HEATING	Heat ventilation air to neutral value.
HEATING	Heat demand present; unit is heating.
CONTROLLER LOCKOUT	User has disabled controller operation.
LOW AMBIENT LOCKOUT	Outdoor air is too cold to allow compressors to run.
MORNING WARMUP	Outdoor air damper closed.
OFF ON ALARM	Unit is off due presence of alarm(s) that the system has determined will halt system operations. NOTE: Not all alarms will halt system operation. The first two active alarms are displayed on the main system status screen.
DELAY UP TO 5 MIN	If the system has cleared the alarm there is usually a five minute delay before resuming system operations.
DELAY UP TO 20 SEC	In certain models, the compressor turns on a few seconds after the outdoor fan is energized.
PRE-COOL	Compressor not allowed—free cooling. (During the first 30 minutes of the first cooling demand following a change from unoccupied to occupied, calls for mechanical [compressor] cooling are ignored if an economizer is installed and if outdoor air is suitable for free cooling.)
PREINSTALL	Unit has not been set up for operation. Must follow installation menus.
START UP	Default start up delay before servicing demands. Go to M3 user interface: SETUP > INSTALL
SMOKE ALARM	Smoke input detected.
TEST	Network has unit in test mode.
BLOWER ON	Indoor blower is on.
BLOWER ON - OAS	Indoor blower is on and outdoor air is suitable.
NO DEMAND	System not receiving a demand for cooling or heating.
NO DEMAND - OAS	System not receiving a demand for cooling or heating and outdoor air is suitable.
COOL + MAX OPEN ECON	Mechanical cooling is operating with maximum free cooling.
COOL + MODULATE ECON	Mechanical cooling is operating with variable free cooling.

**Figure 3. Alarm Code Readout Example**

## 5. Firmware Update

The firmware on the M3 unit controller can be updated by inserting a USB thumb drive containing the update.

**NOTE:** Flash drive media must be formatted using the either FAT or FAT32 file systems.

### 5.1. Unit Controller USB Flash Drive Update Capability

Firmware updating is available using the USB port. To display the current firmware version:

Go to DATA > FACTORY > SOFTWARE VERSION.

### 5.2. Files Needed for Firmware Updating

Files needed to upgrade M3 unit controller from USB thumb drive:

M3XXXXXXXXX.P2F

(ALL UPPERCASE IS RECOMMEND, BUT NOT MANDATORY)

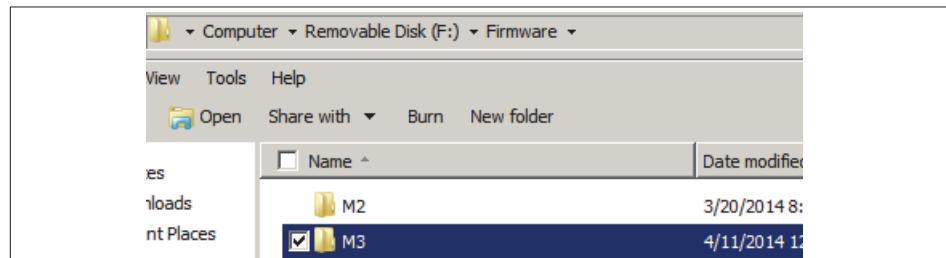
The xxxxxxxx are place holders for major and minor versions and build number information in the actual file name, and varies from one version to the next.

### 5.3. Where to Place the .P2F File on the USB Thumb Drive.

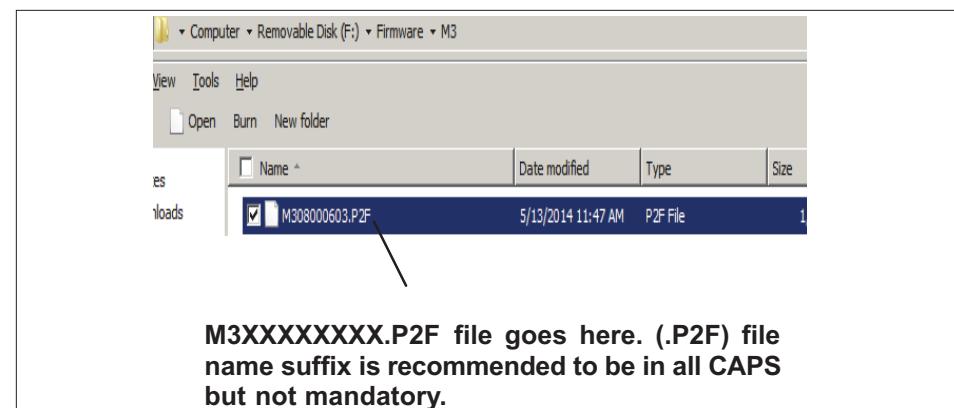
- Create folder name Firmware folder on the root directory of the USB thumb drive.

**NOTE:** Drive letter may differ from the one illustrated below.

- Create a M3 folder under the Firmware folder.



- Place a copy of the .P2F file into the M3 folder.



### 5.4. Updating Firmware

- After inserting the USB thumb drive:

Go to SERVICE > SOFTWARE UPDATE.

- Press the SELECT button, then use the adjust values (up/down) arrows to select a firmware version.

**NOTE:** If you get a message indicating "software update failed - sw update file not found", check to make sure the P2F file is located in the Firmware > M3 folder.

**NOTE:** If you get the message "Not Applicable Equipment not Present", may indicate the Prodigy Unit Controller does not recognize the USB thumb drive inserted. Try a different thumb drive.

- Press SAVE.

The following update sequence should occur:

- SOFTWARE UPDATE STARTING
- SOFTWARE UPDATE ERASING FLASH
- SOFTWARE UPDATE PROGRAMMING FLASH

- SOFTWARE UPDATE PROGRAMMING FLASH PROGRESS xx% (xx% indicates update percentage completed)
  - SOFTWARE UPDATE RESETTING CONTROLLER.
- d. After the unit controller resets, the first screen to appear will display the following (xx.xx.xxxx indicates the software version number):

**PRODIGY 2.0**  
**M3 CONTROLLER**  
**xx.xx.xxxx**

- e. You may remove the USB thumb drive anytime after the reset is completed.  
f. Firmware version can also be verify

Go to DATA > FACTORY > SOFTWARE VERSION.

**NOTE:** *Firmware updates do not alter the unit controller configuration settings. All settings will be retained after the firmware has been updated.*

## 6. Saving and Loading User Profile

When saving the user profile, all information concerning model number, configuration ID1 / ID2, parameters modified using the EDIT PARAMETER option and Test & Balance information are all stored to a non-volatile location in memory.

The reference tasks are available from the M3 unit controller user interface:

- a. To SAVE a user profile:

Go to SERVICE > REPORT > SAVE USER PROFILE = YES

- b. To LOAD a user profile:

Go to SERVICE > REPORT > LOAD USER PROFILE = YES

## 7. Saving and Loading USB Profile

The USB Profile utility allows a copy of the profile to be save to a USB storage device. Only **EDIT PARAMETER** changed settings and Test & Balance information is saved. The installer will need to configure the Model Number, and Configurations ID 1 / ID 2 first before loading the saved USB profile. The USB Profile is typically used when replacing the M3 unit controller with a new one.

The reference tasks are available from the M3 unit controller user interface:

- a. To save a USB Profile:

Go to SERVICE > REPORT > USB PROFILE SAVE  
> enter a unique name for the profile and press SAVE.

- b. To load a USB Profile:

Go to SERVICE > REPORT > USB PROFILE LOAD

**NOTE:** *Use the adjust and save values arrows to select highlight the desired profile and press SAVE.*

## 8. Model Number and Configuration ID 1 and 2

This section addresses the requirement that specific configuration information must be completed using the SETUP / INSTALL feature if a new unit controller was being installed. Other requirements are the addition of accessories that were not factory-installed. Model number, configuration ID 1 and 2, catalog number, serial number and RTU description are all key items required to be completed for the system to operate correctly. Running the SETUP / INSTALL wizard allows the installer to verify that all fields have been completed as required.

### 8.1. Model

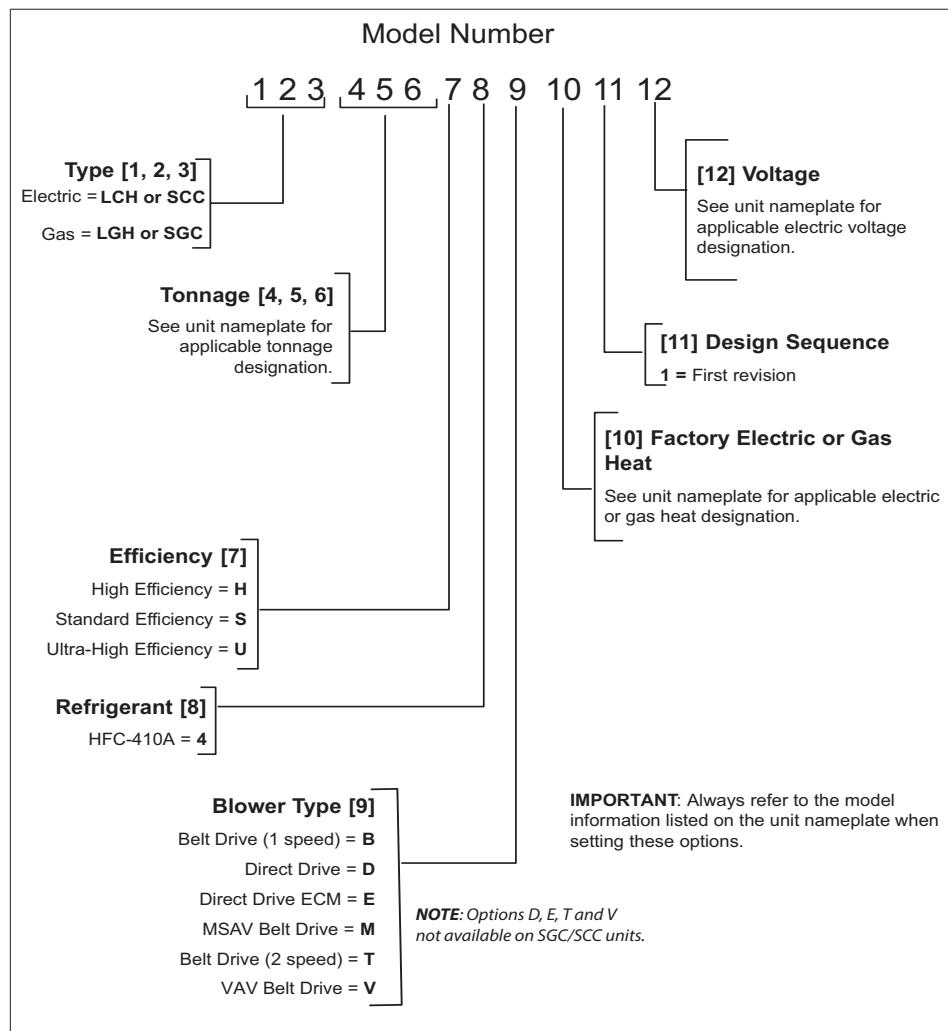


Figure 4. Model Number

## 8.2. Configuration ID 1

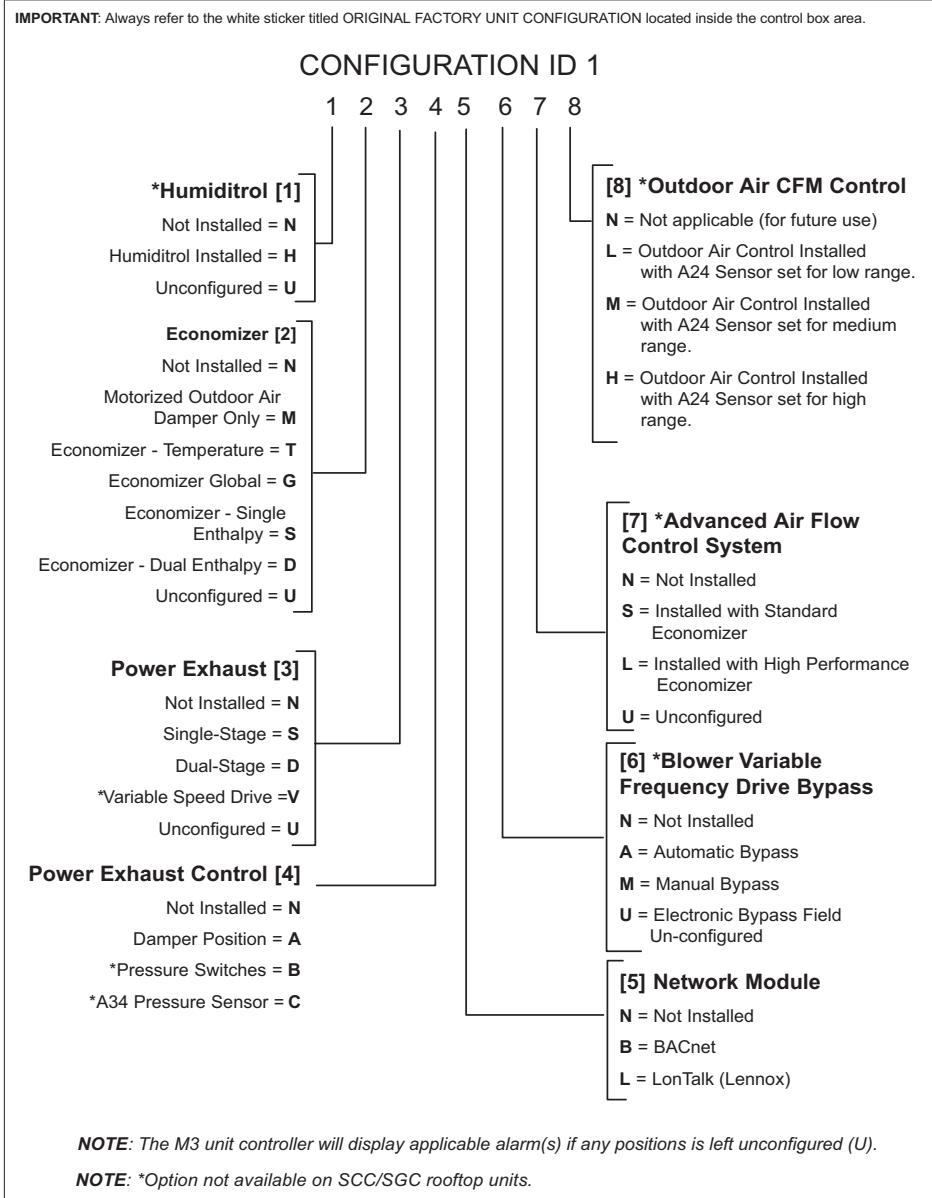


Figure 5. Configuration ID 1

## 8.3. Configuration ID 2

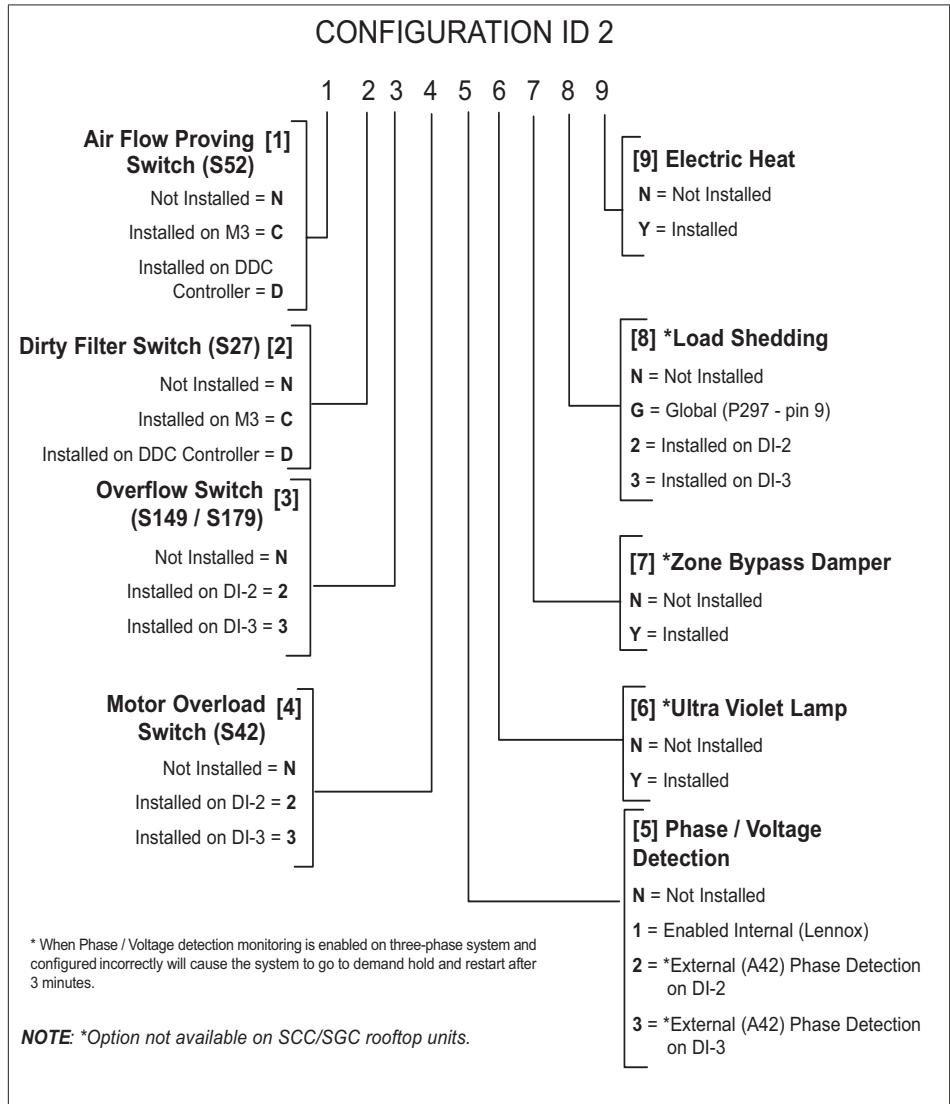
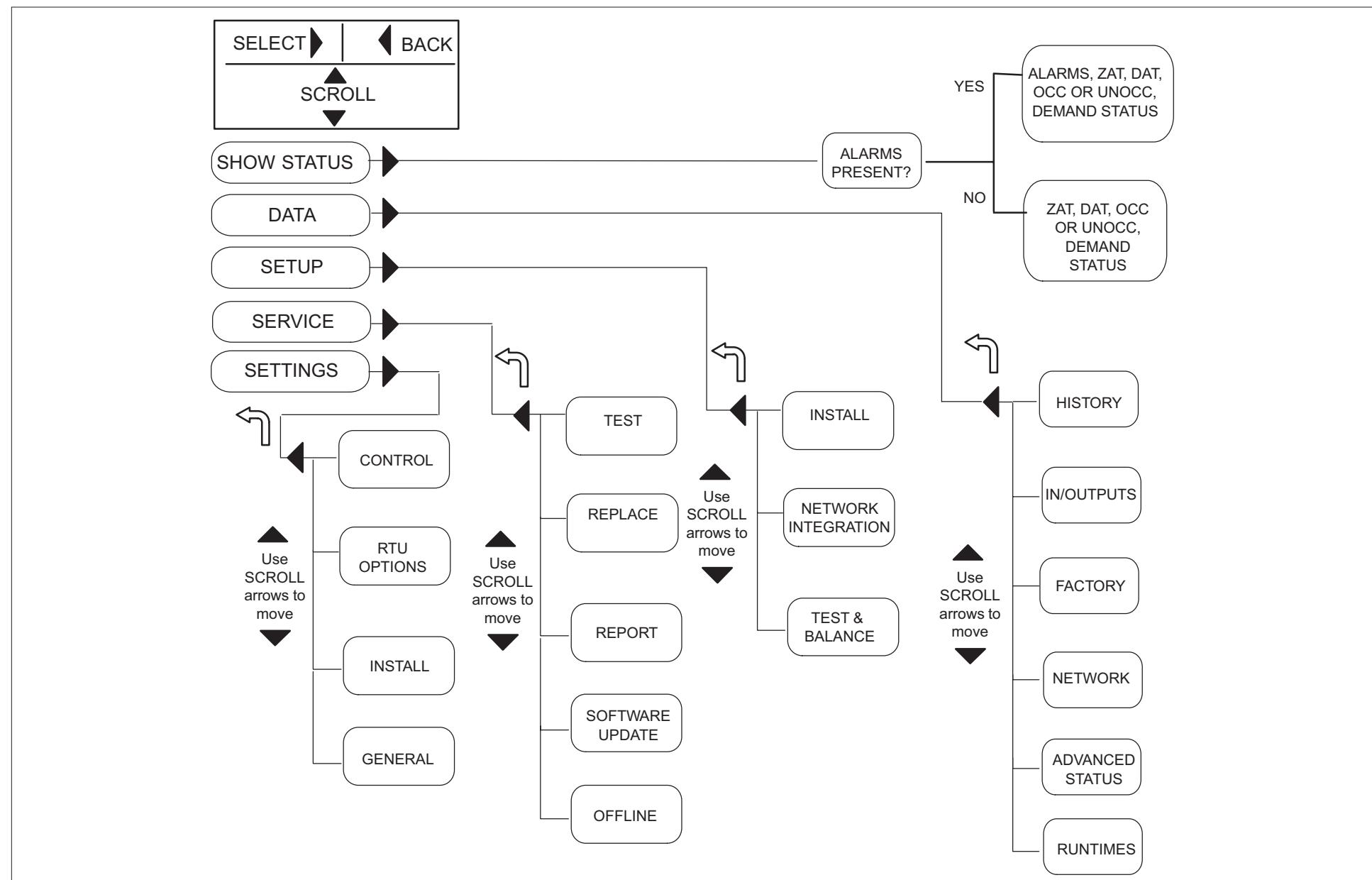


Figure 6. Configuration ID 2

## 9. Menu Selection Overview



## 10. Menu Navigation

The following tables indicate all levels of the menu interface. Many of these options have more levels which are described in the following sections that detail the major categories of DATA, SETUP, SERVICE, and SETTINGS.

- Use the SELECT button to progress to the next menu level (i.e. level 1 to level 2).
- Use the SCROLL arrows ▲▼ to move (scroll) within a menu level.
- Use the BACK button to return to the previous menu level.
- Use the Adjust and set value arrows ▲▼ to change values of selected item.

### 10.1. Data

**Table 4. Menu Interface (Level 1 - DATA)**

NOTE: AVAILABLE MENU OPTIONS ARE DEPENDENT ON MODEL AND CONFIGURATION 1 AND 2 SETTINGS. USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.				
Level 2	Level 3	Level 4	Level 5	Level 6
HISTORY	ALARMS			
	CLEAR ALARM HISTORY = NO or YES			
	LAST SERVICE (time stamp of last service)			
IN/OUTPUTS	SENSORS	LOCAL	THERMOSTAT	G: ON/OFF
				W1: ON/OFF
				W2: ON/OFF
				Y1: ON/OFF
				Y2: ON/OFF
				BLOWER SPEED: X
				OAT: xx F
				RAT: xx F
				DAT: xx F
				ZAT (A2): xx F
				C02: xx PPM
				OAV: xx ft/min
				BP: xx in h20
				RH: xx %
				IE
				OE
				GLO: ON/OFF
				OCP: ON/OFF
				SMOKE: ON/OFF
				D12: ON/OFF
				D13: ON/OFF
				REHEAT D14: ON/OFF

**Table 4. Menu Interface (Level 1 - DATA)**

NOTE: AVAILABLE MENU OPTIONS ARE DEPENDENT ON MODEL AND CONFIGURATION 1 AND 2 SETTINGS. USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.

Level 2	Level 3	Level 4	Level 5	Level 6
			SUCTION1: xx PSIG SUCTION2: xx PSIG C1 SUMP: xx F C2 SUMP: xx F C3 SUMP: xx F C4 SUMP: xx F DUCT PRESSURE: When a reading is available it will be displayed here. If nothing is read a “-” will be displayed.	
		NETWORK	THERMOSTAT G: ON/OFF W1: ON/OFF W2: ON/OFF Y1: ON/OFF Y2: ON/OFF ZAT (A2): xx F C02: xx PPM RH: xx %	
	OUTPUTS		COMPRESSOR 1: ON/OFF COMPRESSOR 1: ON/OFF COMPRESSOR 3: ON/OFF COMPRESSOR 4: ON/OFF BLOWER: ON/OFF EXHAUST: ON/OFF FAN 1: ON/OFF FAN 2: ON/OFF FAN 3: ON/OFF FAN 4: ON/OFF FAN 5: ON/OFF FAN 6: ON/OFF HEAT 1: ON/OFF HEAT 2: ON/OFF HEAT 3: ON/OFF HEAT 4: ON/OFF REHEAT COIL 1: ON/OFF REHEAT COIL 2: ON/OFF SERVICE RELAY: ON/OFF	

**Table 4. Menu Interface (Level 1 - DATA)**

NOTE: AVAILABLE MENU OPTIONS ARE DEPENDENT ON MODEL AND CONFIGURATION 1 AND 2 SETTINGS. USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.

Level 2	Level 3	Level 4	Level 5	Level 6
		LCD HEATER: ON/OFF CRANKCASE HEATER 1: ON/OFF CRANKCASE HEATER 2: ON/OFF CRANKCASE HEATER 3: ON/OFF CRANKCASE HEATER 4: ON/OFF MGV: "CLOSED" (NOTE: BLOWER SPEED IS SHOWN AS A PERCENTAGE ONLY ON VAV BLOWER CASE UNITS.)		
FACTORY	SOFTWARE VERSION RTU DESCRIPTION CATALOG NUMBER MODEL NUMBER SERIAL NUMBER CONFIGURATION ID 1 CONFIGURATION ID 2			
NETWORK	BACNET  LONTALK  L-CONNECTION	MAC ADDRESS: XXX BAUD RATE: XXXXX DEVICE INSTANCE: X  PROGRAM ID NEURON ID  LCONN ADDRESS: X		
ADVANCED STATUS	CURRENT ALARMS  SETPOINTS  APP MODE  BLOWER  DAMPER  VAR SPEED COMPRESSOR	ACTIVE ALARMS xxx  OCC HEATt UNOCC HEAT OCC COOL UNOCC COOL  BLOWER STATUS  DAMPER STATUS  COMPRESSOR SPEED	BLOWER SPEED SUPPLY TARGET SUPPLY ACTUAL  TARGET: x% ACTUAL x% ACTUAL OA CFM TARGET OA CFM ECON DIFF PRESSURE  TARGET: x% ACTUAL: x%	x % x CFM x CFM

**Table 4. Menu Interface (Level 1 - DATA)**

NOTE: AVAILABLE MENU OPTIONS ARE DEPENDENT ON MODEL AND CONFIGURATION 1 AND 2 SETTINGS. USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.

Level 2	Level 3	Level 4	Level 5	Level 6
	EXHAUST	EXHAUST STATUS  (For more information concerning relationships between pressure switch, sensor and power exhaust, refer to the Prodigy Application Guide).	EXHAUST: OFF or ON EXHAUST1: OFF or ON EXHAUST2: OFF or ON PRESWITCH37: OFF or ON PRESWITCH39: OFF or ON SPEED: 0% BLDGP: -0.30 IN H2O	
RUNTIMES	BELT x HRS			
	BLOWER x HRS			
	BLOWER x CYC			
	COOLING	COMP 1: XX HRS - XX CYCLES COMP 2: XX HRS - XX CYCLES COMP 3: XX HRS - XX CYCLES COMP 4: XX HRS - XX CYCLES		
	EXHAUST x HRS	STAGE 1: XX HRS - XX CYCLES STAGE 2: xx HRS - XX CYCLES		
	FANS	FAN 1: xx HRS - CYCLES FAN 2: xx HRS - CYCLES FAN 3: xx HRS - CYCLES FAN 4: xx HRS - CYCLES FAN 5: xx HRS - CYCLES FAN 6: xx HRS - CYCLES		
	FILTER x HRS	FILTER x HRS		
	FREE COOL x HRS	FREE COOL x HRS		
	FREE COOL x CYC	FREE COOL x CYC		
	HEATING	HEAT 1: xx HRS - XX CYCLES HEAT 2: xx HRS - XX CYCLES HEAT 3: xx HRS - XX CYCLES HEAT 4: xx HRS - XX CYCLES		
	DEHUMID x HRS	DEHUMID x HRS		
	DEHUMID x CRC	DEHUMID x CRC		
	POWER ON x CYC	POWER ON x CYC		
	POWER ON x HRS	POWER ON x HRS		
	PREINSTALL x HRS	PREINSTALL x HRS		
	UV LAMP xxx HRS	UV LAMP xxx HRS		

## 10.2. Setup

**Table 5. Menu Interface (Level 1 - SETUP)**

NOTE: AVAILABLE MENU OPTIONS ARE DEPENDENT ON MODEL AND CONFIGURATION 1 AND 2 SETTINGS. USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.

LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7
INSTALL	LANGUAGE	ENGLISH, ESPANOL, OR FRANCAIS			
	DATE/TIME	DAY, MONTH, YEAR, HOURS, MINUTES, SECONDS			
	DISPLAY UNITS F/C	FAHRENHEIT OR CELSIUS			
	MODEL NUMBER	LOCATED ON UNIT NAMEPLATE.			
	CONFIGURATION ID 1	SEE WHITE STICKER TITLED "ORIGINAL FACTORY UNIT CONFIGURATION" LOCATED ON THE RIGHT SIDE OF THE CONTROL BOX NEAR THE M3 CONTROLLER.			
	CONFIGURATION ID 2				
	CATALOG NUMBER	LOCATED ON UNIT NAMEPLATE			
	SERIAL NUMBER	LOCATED ON UNIT NAMEPLATE			
	RTU DESCRIPTION	UP TO 18 ALPHA/NUMERIC CHARACTERS			
	DEHUMIDIFIER MODE (OPTIONS ARE DEPENDENT OF CONFIGURATION).  FOR MORE INFORMATION CONCERNING DACC AND DACH AND MGV, REF TO THE PRODIGY APPLICATION SECTION ON MODULATING GAS VALVE.	BLOWER, OCCUPIED  NO CONDITIONS  REPORT RH ONLY  DISABLED  BLWR, OCC, PREV COOL  PREVIOUS COOLING	LOCAL SENSOR, NETWORK SENSOR	DEHUMIDIFIER DEHUMID SETPOINT = X.XX %	
	DEHUMIDIFIER DEHUMID DEADBAND = X.X %				
	REHEAT DI4				
	LOCAL SENSOR OR NETWORK SENSOR		DEHUMIDIFIER DEHUMID SETPOINT = X.XX %		
			DEHUMIDIFIER DEHUMID DEADBAND = X.X %		
	REHEAT DI4				
	REPORT RH ONLY		LOCAL SENSOR OR NETWORK SENSOR	DISCHRG AIR CONTROL ENABLE = NO	
	DISABLED				
	LOCAL SENSOR OR NETWORK SENSOR		DEHUMIDIFIER DEHUMID SETPOINT = X.XX %		
			DEHUMIDIFIER DEHUMID DEADBAND = X.X %		
	REHEAT DI4				
	LOCAL SENSOR, OR NETWORK SENSOR		DEHUMIDIFIER DEHUMID SETPOINT = X.XX %		
			DEHUMIDIFIER DEHUMID DEADBAND = X.X %		
	REHEAT DI4				

**Table 5. Menu Interface (Level 1 - SETUP)**

NOTE: AVAILABLE MENU OPTIONS ARE DEPENDENT ON MODEL AND CONFIGURATION 1 AND 2 SETTINGS. USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.

LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7
		DACC ENABLE	ENABLED OR DISABLED		
		DACH ENABLE	YES OR NO (NOTE: IF MGV IS NOT PRESENT, DACH IS NOT AN OPTION.)		
		DACH OCC SETPOINT	110 F (RANGE 80 F TO 140 F)		
		DACH UNOCC SETPOINT	95 F (RANGE 80 F TO 140 F)		
		SPMKT REHT W STAT			
		SPNJT REGT W SENS R			
NETWORK INTEGRATION	NETWORK = L-CONNECTION	LCONN ADDRESS = X			
		CONTROL MODE = ROOM SENSOR, MONITOR ONLY OR NETWORK THERMOSTAT	NETWORK SENSOR CO2 = YES OR NO		
			NETWORK SENSOR RELATIVE HUMIDITY = YES OR NO		
			NETWORK SENSOR TEMPERATURE = YES OR NO		
			ROOM SENSOR OCC BLOWER MODE= AUTO CYCLES OR ON-CONTINUOUS 1, 2 OR 3 *		
			BACKUP MODE = NONE, ROOM SENSOR, RETURN AIR BACKUP OR THERMOSTAT		
			BACKUP SETPOINTS OCCUPIED HEAT = XX.X F		
			BACKUP SETPOINTS UNOCCUPIED HEAT = XX.X F		
			BACKUP SETPOINTS OCCUPIED COOL = XX.X F		
			BACKUP SETPOINTS UNOCCUPIED COOL = XX.X F		
		OCC (OCCUPIED) BLOWER MODE DESCRIPTION:			
		AUTO CYCLE: BLOWER CYCLES WITH DEMAND			
		ON-CONTINUOUS 1: BLOWER IS ON WITH EITHER THE OCCUPANCY SENSOR OR OCCUPANCY SCHEDULER INDICATES OCCUPIED.			
		ON-CONTINUOUS 2: BLOWER IS ON ONLY WITH BOTH THE OCCUPANCY SENSOR AND OCCUPANCY SCHEDULER, BOTH INDICATES OCCUPIED.			
		ON-CONTINUOUS 3: BLOWER IS ON ONLY WHEN BOTH THE OCCUPANCY SENSOR AND OCCUPANCY SCHEDULER INDICATES OCCUPIED. IN ADDITION, BLOWER WILL BE ON A MINIMUM OF 25% OF THE TIME WHEN OCCUPANCY SCHEDULER INDICATES OCCUPIED HOWEVER THE OCCUPANCY SENSOR INDICATES NOT OCCUPIED. THE 25% MINIMUM IS ACHIEVED BY TURNING BLOWER ON FOR 30 MINUTES AND OFF FOR 90 MINUTES.			
	NETWORK = BACNET	BACNET MAC ADDRESS = X			
		BACNET BAUD RATE = 9.6, 19.2, 38.4 OR 76.8 K			
		CONTROL MODE = ROOM SENSOR, MONITOR ONLY OR NETWORK THERMOSTAT	NETWORK SENSOR CO2 = YES OR NO		
			NETWORK SENSOR RELATIVE HUMIDITY = YES OR NO		
			NETWORK SENSOR TEMPERATURE = YES OR NO		
			ROOM SENSOR OCC BLOWER MODE= AUTO CYCLES OR ON-CONTINUOUS 1, 2 OR 3 (SEE DESCRIPTION ABOVE)		

**Table 5. Menu Interface (Level 1 - SETUP)**

NOTE: AVAILABLE MENU OPTIONS ARE DEPENDENT ON MODEL AND CONFIGURATION 1 AND 2 SETTINGS. USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.

LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7
			BACKUP MODE = NONE, ROOM SENSOR, RETURN AIR BACKUP OR THERMOSTAT BACKUP SETPOINTS OCCUPIED HEAT = XX.X F BACKUP SETPOINTS UNOCCUPIED HEAT = XX.X F BACKUP SETPOINTS OCCUPIED COOL = XX.X F BACKUP SETPOINTS UNOCCUPIED COOL = XX.X F		
	NETWORK = LONTALK	CONTROL MODE = ROOM SENSOR, MONITOR ONLY OR NETWORK THERMOSTAT	NETWORK SENSOR CO2 = YES OR NO NETWORK SENSOR RELATIVE HUMIDITY = YES OR NO NETWORK SENSOR TEMPERATURE = YES OR NO ROOM SENSOR OCC BLOWER MODE= AUTO CYCLES OR ON-CONTINUOUS 1, 2 OR 3 (SEE DESCRIPTION ABOVE) BACKUP MODE = NONE, RETURN AIR BACKUP OR THERMOSTAT BACKUP SETPOINTS OCCUPIED HEAT = XX.X F BACKUP SETPOINTS UNOCCUPIED HEAT = XX.X F BACKUP SETPOINTS OCCUPIED COOL = XX.X F BACKUP SETPOINTS UNOCCUPIED COOL = XX.X F		
	NETWORK = RTU STANDALONE	BACKUP MODE = NONE OR RETURN AIR BACKUP	SETPOINTS HEAT = XX.X F SETPOINTS COOL = XX.X F		
TEST & BALANCE	BLOWER	BLOWER HEATING HIGH = XXXX CFM BLOWER COOLING HIGH = XXXX CFM BLOWER COOLING LOW = XXXX CFM BLOWER VENTILATION = XXXX CFM ON (TARGET XXXX CFM) ADJUST BLOWER RPM = XXXX RPM A BOX (NON-EP) - HEATING, HIGH SPEED AND LOW SPEED	HEATING HIGH = % HEATING LOW = % <i>NOTE: Depending on configuration, HEATING LOW speed may be an option and is used for low heat.</i> COOLING HIGH = % COOLING LOW = % ADJUST BLOWER % = xx		

**Table 5. Menu Interface (Level 1 - SETUP)**

NOTE: AVAILABLE MENU OPTIONS ARE DEPENDENT ON MODEL AND CONFIGURATION 1 AND 2 SETTINGS. USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.							
LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7		
TEST & BALANCE	BLOWER	ADVANCED AIRFLOW A BOX AND B BOX OR BIGGER HEATING, COOLING HIGH, COOLING MED, COOLING MED HIGH, COOLING MED LOW, COOLOW LOW and VENTILATION	BLOWER CALIBRATION (HEATING, HIGH SPEED, LOW SPEED OR VENTILATION = CALIBRATION DONE OR TURN BLOWER ON. IF TURN BLOWER ON IS SELECTED, BLOWER ON XXXXX > TURN BLOWER OFF= NO OR YES.				
		AUTO CALIBRATE = START CALIBRATION OR CALIBRATION DONE	STARTING BLOWER > BLOWER ON > CLOSING DAMPER > PROGRESS % WILL BE DISPLAYED. WILL RETURN TO AUTO CALIBRATE SCREEN AFTER REACHING 100%. PRESS THE ADJUST AND SET VALUE BUTTON FOR THE OPTION = CALIBRATION DONE. PRESS SAVE TO CONTINUE. RESULTS OF CALIBRATION ARE AVAILABLE IN SERVICE REPORT.				
		ZONE BOXES OPEN?	=NO OR YES	YES SELECTED	ENSURE CALIBRATION DONE OR TURN BLOWER ON.  TURN BLOWER ON = BLOWER ON = 51% (RANGE 35 TO 100%)  STATIC PRES SP = 1.0 IN H2O (RANGE 0.1 TO 5.0)		
DAMPER	DAMPER	DAMPER FDBK CALIB > IS DAMPER CLOSED?	=NO OR YES = IF YES, THEN PRESS SAVE  <b>NOTE:</b> <i>Installer will need to visually inspect the damper to ensure that it is closed.</i>	IS DMPR FULLY OPEN?"	=NO OR YES = IF YES, PRESS SAVE.  <b>NOTE:</b> <i>Installer will need to visually inspect the damper to ensure that it is opened.</i>		
		MIN DAMPER POSITION > ZONE BOXES OPEN = NO OR YES (START BLOWER)	YES = BLOWER ON HIGH = 0% (RANGE 0 TO 100%)				
		MIN DAMPER POSITION > BLOWER ON HIGH = XX %					
		MIN DAMPER POSITION > BLOWER ON LOW= XX %					
		ECONOMIZER TEMP ECON TYPE = TEMPERATURE OFFSET OR TEMPERATURE SETPT	<b>NOTE:</b> <i>This option is dependant on configuration ID 1 setup.</i>				
		ECONOMIZER OAT SETPOINT = XX.X F.					
		ECONOMIZER ENTHALPY SETPOINT = XX MA					
		<b>NOTE:</b> <i>These options are dependant on configuration ID 1 setup.</i>					
		ECONOMIZER ENTHALPY OFFSET = XX MA					
		FREE COOLING SUPPLY AIR SETPOINT = XX.X F					
		DAMPER OUTDOOR AIRFLOW = XXX CFM					

**Table 5. Menu Interface (Level 1 - SETUP)**

NOTE: AVAILABLE MENU OPTIONS ARE DEPENDENT ON MODEL AND CONFIGURATION 1 AND 2 SETTINGS. USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.

LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7
		ADVANCED AIRFLOW ALARMS = ENABLED OR DISABLED (ONLY VISIBLE IF CONFIGURATION ID 1, POSITION 2 IS SET CORRECTLY).	ADV AIRFLOW ALARMS LO SPLY AIRFLOW ALM = XX%		
			ADV AIRFLOW ALARMS LO OD AIRFLOW ALM = XX%		
			ADV AIRFLOW ALARMS HI OD AIFLOW ALM = XX%		
			ADV AIRFLOW ALARMS ALM TRIGGER PERIOD = XXXX SEC		
		VENTILATION OPTIONS	= NONE = DEMAND CONTROL VENTILATION = BUILDING PRESSURE CONTROL		
		IF DCV	DEMAND CONTROL VENT > DAMPER START OPEN = XXX PPM DEMAND CONTROL VENT > DAMPER FULL OPEN = XXXX.X PPM DEMAND CONTROL VENT > DAMPER MAX OA CFM = X CFM (ONLY VISIBLE IF CONFIGURATION ID 1, POSITION 2 IS SET CORRECTLY). DEMAND CONTROL VENT > DAMPER MAX OPENING = XXX.X %.		
		IF BPC	BUILDING PRESS CTROL > PRESSURE SETPOINT = X.X IN H20.		
		OUTDOOR AIR CONTROL (ONLY VISIBLE IF CONFIGURATION ID 1, POSITION 8 IS SET CORRECTLY)	VELOCITY SETPOINT = XXX FT/MIN		
			POWER EXHAUST ON BY ECON TRAVEL = XX.X %		
			POWER EXHAUST MODE = BLOWER ON, EXTERNAL ENABLE, OCCUPIED AND ALWAYS EXHAUST PRESSURE SETPOINT = 0.05 IN H20 (RANGE -0.49 TO 0.50 IN H20)		
		FRESH AIR HEATING ENABLE FAH = NO OR YES	FRESH AIR HEATING FAH SETPOINT = XX F		
		FRESH AIR COOLING ENABLE FAC = YES OR NO	FRESH AIR COOLING AFC SETPOINT = XX F		

## 10.3. Service

**Table 6. Menu Interface (Level 1 - SERVICE)**

NOTE: AVAILABLE MENU OPTIONS ARE DEPENDENT ON HARDWARE CONFIGURATION. USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.			
LEVEL 2	LEVEL 3	USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.	WHEN SELECTED (PRESS BACK TO RETURN TO THE PREVIOUS MENU)
TEST	COOL	OPTIONS ARE COOL 1, COOL 2, COOL 3 AND COOL 4.	COOL X ODN
			RAT: XX.X F
			DAT: XX.X F
			(IF ADVANCED AIRFLOW IS ENABLED THEN ACTUAL CFM IS DISPLAYED OR NOT APPLICABLE EQUIPMENT NOT PRESENT.)
	HEAT	OPTIONS ARE HEAT 1, HEAT 2, HEAT 3 AND HEAT 4.  <i>NOTE: HEAT 3 and heat 4 are not supported for MGV.</i>	HEAT X ON
			RAT: XX.X F
			DAT: XX.X F IF ADVANCED AIRFLOW IS ENABLED THEN ACTUAL CFM IS DISPLAYED OR NOT APPLICABLE EQUIPMENT NOT PRESENT)
	BLOWER	BLOWER HI	BLH ON/OFF SET POINT
		BLOWER LOW	BLL ON/OFF SET POINT
		PROVING SWITCH	PSW CLOSED/OPEN SET POINT
	BLOWER	FILTER SWITCH	FSW CLOSED/OPEN SET POINT
		RPM XX RPM	FSW CLOSED/OPEN SET POINT
		SPEED XX RPM	TD: XX (IF COMPRESSOR IS TURNED ON)
	DAMPER	POSITION	ACTUAL: 0.1%.  <i>NOTE: This function is only available if configuration ID 1, position 2 has been configured.</i>
		EXHAUST 1 OR 2	SET ON/OFF SETPOINT (EX1 OR EX2 ON/OFF ACTUAL)
	FANS	FAN 1 (OR FAN L)	FN1 (OR FL) ON/OFF SETPOINT
		FAN 2 (OR FAN H)	FN2 (OR FH) ON/OFF SETPOINT
		FAN 3 THROUGH 6.	ON/OFF
	DEHUMIDIFIER	OPTIONS ARE HUM 1 AND HUM 2	WHEN SELECTING OPTION, RESPONSE WILL BE EITHER DEHUMIDIFIER X ON OR NOT APPLICABLE EQUIPMENT NOT PRESENT.
	OUTPUTS	SERVICE RELAY	SERVICE RELAY ON
REPLACE	FILTER	RESET RUNTIME? = NO OR YES	
	BELT (ONLY AVAILABLE BASED ON MODEL NUMBER)	RESET RUNTIME? = NO OR YES	
	UV LAMP	RESET RUNTIME? = NO OR YES OR NOT APPLICABLE EQUIPMENT NOT PRESENT	
	FANS (1 THROUGH 6)	RESET RUNTIME? = NO OR YES OR NOT APPLICABLE EQUIPMENT NOT PRESENT	
	BLOWER	RESET RUNTIME? = NO OR YES	
	COMPRESSOR (1 THROUGH 4)	RESET RUNTIME? = NO OR YES OR NOT APPLICABLE EQUIPMENT NOT PRESENT	

**Table 6. Menu Interface (Level 1 - SERVICE)**

NOTE: AVAILABLE MENU OPTIONS ARE DEPENDENT ON HARDWARE CONFIGURATION. USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.			
LEVEL 2	LEVEL 3	USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.	WHEN SELECTED (PRESS BACK TO RETURN TO THE PREVIOUS MENU)
REPORT	USB SERVICE REPORT	USB SERVICE REPORT = DEFAULT NAME IS THE SERIAL NUMBER IF SET. OTHERWISE IT WILL BE 123456789. CAN BE RENAMED BY USER. MAXIMUM 18 CHARACTERS. WHEN COMPLETED A MESSAGE WILL APPEAR INDICATING "USB ACCESS COMPLETE")	
	USB ADV AIRFLOW RPT	USB ADVANCED AIRFLOW REPORT = START USB REPORT or USB REPORT DONE.	START USB REPORT = SAF RPT (DEFAULT) AND CAN BE RENAMED BY USER. MAXIMUM 18 CHARACTERS. WHEN COMPLETED A MESSAGE WILL APPEAR INDICATING "USB ACCESS COMPLETE")
	SAVE USER PROFILE	SAVE USER PROFILE = YES or NO	
	LOAD USER PROFILE	LOAD USER PROFILE = YES or NO	
	USB PROFILE SAVE	USB PROFILE SAVE = 1234 UNLESS CATALOG NUMBER IS SET. DEFAULT IS CATALOG NUMBER. CAN BE RENAMED BY USER. MAXIMUM 18 CHARACTERS.	
REPORT	USB PROFILE LOAD	USB PROFILE LOAD = 1234XXXXXXXXXXXX (USER ASSIGNED NAME AS SPECIFIED. TYPICALLY CATALOG NUMBER.)	WILL LOAD PREVIOUSLY SAVED USB PROFILE.
	LOAD FACTORY PROF	LOAD FACTORY PROF = YES OR NO	
	LOG SERVICE EVENT	LOG SERVICE EVENT = YES OR NO	
SOFTWARE UPDATE	SOFTWARE UPDATE	SOFTWARE UPDATE (EITHER THE UPDATE WILL BE SUCCESSFUL OR THE FOLLOWING MESSAGES WILL APPEAR. SW UPDATE FAILED OR SW UPDATE FILE NOT FOUND. <i>NOTE: If a USB flash drive is not installed or the M3 unit controller cannot read the flash media, a message will appear "NOT APPLICABLE EQUIPMENT NOT PRESENT."</i>	
OFFLINE	CLEAR DELAYS	CLEAR DELAYS = YES OR NO.	
	RESET CONTROLLER	RESET CONTROLLER = YES OR NO. <i>NOTE: This reboots the M3 controller. No configuration settings are changed.</i>	
	CONTROLLER LOCKOUT	CONTROLLER LOCKOUT = YES OR NO.	

## 10.4. Settings

**Table 7. Menu Interface (Level 1 - SETTINGS)**

**NOTE:** AVAILABLE MENU OPTIONS ARE DEPENDENT ON HARDWARE CONFIGURATION. USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.

LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7
CONTROL	CONTROL TYPE = NETWORK OR WIRED THERMOSTAT	WIRED THERMOSTAT			
		NETWORK > BACNET	BACNET MAC ADDRESS = X		
			BACNET BAUD RATE = 9.6, 19.2, 38.4 OR 76.8 K		
			CONTROL MODE = ROOM SENSOR OR NETWORK THERMOSTAT		
			CONTROL MODE = MONITOR		
				NETWORK SENSOR C02 = YES OR NO	
				NETWORK SENSOR RELATIVE HUMIDITY = YES OR NO	
				NETWORK SENSOR TEMPERATURE = YES OR NO	
				ROOM SENSOR OCC BLOWER MODE = AUTO - CYCLES OR ON - CONTINUOUS 1, 2, 3	
				BACKUP MODE = NONE, ROOM SENSOR, RETURN AIR BACKUP OR THERMOSTAT	
				RAT OR ROOM	BACKUP SETPOINTS OCCUPIED HEAT = XX.X F
					BACKUP SETPOINTS UNOCCUPIED HEAT = XX.X F
					BACKUP SETPOINTS OCCUPIED COOL = XX.X F
					BACKUP SETPOINTS UNOCCUPIED COOL = XX.X F
		NETWORK > L-CONNECTION	LCONN ADDRESS = X		
			CONTROL MODE = MONITOR		
				CONTROL MODE = ROOM SENSOR OR NETWORK THERMOSTAT	NETWORK SENSOR C02 = YES OR NO
					NETWORK SENSOR RELATIVE HUMIDITY = YES OR NO
					NETWORK SENSOR TEMPERATURE = YES OR NO
					ROOM SENSOR OCC BLOWER MODE=ON-CONTINUOUS 1, 2, 3 OR AUTO CYCLES
					BACKUP MODE = NONE, ROOM SENSOR, RETURN AIR BACKUP OR THERMOSTAT
				RAT OR ROOM	BACKUP SETPOINTS OCCUPIED HEAT = XX.X F
					BACKUP SETPOINTS UNOCCUPIED HEAT = XX.X F
					BACKUP SETPOINTS OCCUPIED COOL = XX.X F
					BACKUP SETPOINTS UNOCCUPIED COOL = XX.X F
		NETWORK > LONTALK	CONTROL MODE = MONITOR		

**Table 7. Menu Interface (Level 1 - SETTINGS)**

**NOTE:** AVAILABLE MENU OPTIONS ARE DEPENDENT ON HARDWARE CONFIGURATION. USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.

LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7
			CONTROL MODE = ROOM SENSOR OR NETWORK THERMOSTAT	NETWORK SENSOR C02 = YES OR NO  NETWORK SENSOR RELATIVE HUMIDITY = YES OR NO  NETWORK SENSOR TEMPERATURE = YES OR NO  ROOM SENSOR OCC BLOWER MODE=ON-CONTINUOUS 1, 2, 3 OR AUTO CYCLES  BACKUP MODE = NONE, ROOM SENSOR, RETURN AIR BACKUP OR THERMOSTAT	
				RAT OR ROOM	BACKUP SETPOINTS OCCUPIED HEAT = XX.X F  BACKUP SETPOINTS UNOCCUPIED HEAT = XX.X F  BACKUP SETPOINTS OCCUPIED COOL = XX.X F  BACKUP SETPOINTS UNOCCUPIED COOL = XX.X F
RTU OPTION	BLOWER	SPEEDS	BLOWER HEAT = XXXX CFM  BLOWER COOLING HIGH = XXXX CFM  BLOWER COOLING LOW = XXXX CFM  BLOWER HEATING HIGH = XXXX CFM  BLOWER VENTILATION = XXXX CFM  ON (TARGET XXXX CFM) ADJUST BLOWER RPM - XXXX RPM	A BOX (NON-EP) - HEATING, HIGH SPEED AND LOW SPEED	HEATING HIGH = %  HEATING LOW = %  <i>NOTE: Depending on configuration, HEATING LOW speed may be an option and is used for low heat.</i>  COOLING HIGH = %  COOLING LOW = %  ADJUST BLOWER % = xx
		VFD BYPASS	ADVANCED AIRFLOW A BOX AND B BOX OR BIGGER HEATING, COOLING HIGH, COOLING MED, COOLING MED HIGH, COOLING MED LOW, COOL LOW AND VENTILATION		BLOWER CALIBRATION (HEATING, HIGH SPEED, LOW SPEED OR VENTILATION = CALIBRATION DONE OR TURN BLOWER ON. IF TURN BLOWER ON IS SELECTED, BLOWER ON XXXXX > TURN BLOWER OFF= NO OR YES.

**Table 7. Menu Interface (Level 1 - SETTINGS)**

**NOTE:** AVAILABLE MENU OPTIONS ARE DEPENDENT ON HARDWARE CONFIGURATION. USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.

LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7
	DAMPER	ECONOMIZER ENTHALPY OFFSET = X MA ECONOMIZER TEMP ECON TYPE = TEMPERATURE OFFSET OR TEMPERATURE SETPT ECONOMIZER OAT SETPOINT = XX.X F FREE COOLING SUPPLY AIR SETPOINT = XX F OUTDOOR AIRFLOW = XXX CFM			
		ADVANCED AIRFLOW ALARMS = ENABLED OR DISABLED (ONLY VISIBLE IF CONFIGURATION ID 1, POSITION 2 IS SET CORRECTLY).	ADV AIRFLOW ALARMS LO SPLY AIRFLOW ALM = XX% ADV AIRFLOW ALARMS LO OD AIRFLOW ALM = XX% ADV AIRFLOW ALARMS HI OD AIFLOW ALM = XX% ADV AIRFLOW ALARMS ALM TRIGGER PERIOD = XXXX SEC		
		MIN DAMPER POSITION BLOWER ON HIGH = X.X % MIN DAMPER POSITION BLOWER ON LOW = X.X %			
		VENTILATION OPTIONS	= NONE = DEMAND CONTROL VENTILATION = BUILDING PRESSURE CONTROL		
		IF DCV	BUILDING PRESSURE CONTROL DEMAND CONTROL VENT DAMPER START OPEN = XXXX.X PPM DEMAND CONTROL VENT DAMPER FULL OPEN = XXXX.X PPM DEMAND CONTROL VENT > DAMPER MAX OA CFM = X CFM (ONLY VISIBLE IF CONFIGURATION ID 1, POSITION 2 IS SET CORRECTLY). DEMAND CONTROL VENT DAMPER MAX OPENING = XXX.X%		
		IF BPC	BUILDING PRESS CTRL > PRESSURE SETPOINT = X.X IN H2O		
		OUTDOOR AIR CONTROL (ONLY VISIBLE IF CONFIGURATION ID 1, POSITION 8 IS SET CORRECTLY)	VELOCITY SETPOINT = XXX FT/MIN		
		POWER EXHAUST ON BY ECON TRAVEL = XX.X %			
		FRESH AIR HEATING ENABLE FAH = YES OR NO	FRESH AIR HEATING FAH SETPOINT = XX F		
		FRESH AIR COOLING ENABLE AFC = YES OR NO	FRESH AIR COOLING AFC SETPOINT = XX F		

**Table 7. Menu Interface (Level 1 - SETTINGS)**

**NOTE:** AVAILABLE MENU OPTIONS ARE DEPENDENT ON HARDWARE CONFIGURATION. USE THE ADJUST AND SET VALUES ARROWS TO SCROLL UP OR DOWN FOR SELECTION OPTIONS.

LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7					
DEHUMIDIFIER MODE	BLOWER OCCUPIED	LOCAL SENSOR, NETWORK SENSOR	DEHUMIDIFIER DEHUMID SETPOINT = X.XX %							
			DEHUMIDIFIER DEHUMID DEADBAND = X.X %							
			REHEAT DI4							
	NO CONDITION	LOCAL SENSOR, NETWORK SENSOR	DEHUMIDIFIER DEHUMID SETPOINT = X.XX %							
			DEHUMIDIFIER DEHUMID DEADBAND = X.X %							
			REHEAT DI4							
	REPORT RH ONLY	LOCAL SENSOR OR NETWORK SENSOR								
	DISABLED	BLWR, OCC, PREV COOL	LOCAL SENSOR, NETWORK SENSOR	DEHUMIDIFIER DEHUMID SETPOINT = X.XX %						
				DEHUMIDIFIER DEHUMID DEADBAND = X.X %						
				REHEAT DI4						
	PREVIOUS COOLING	LOCAL SENSOR, NETWORK SENSOR	DEHUMIDIFIER DEHUMID SETPOINT = X.XX %							
			DEHUMIDIFIER DEHUMID DEADBAND = X.X %							
			REHEAT DI4							
EDIT PARAMETER		ENTER DATA ID								
INSTALL	NEW UNIT SETUP	SEE TABLE 57 FOR SETUP PROMPTS FOR NEW SETUP. (THIS IS THE SAME AS SETUP > INSTALL DEHUMIDIFIER MODE PORTION OF THE WIZARD.)								
	INSTALL NEW M3	CLEAR ALL CONFIG=YES OR NO. IF YES IS SELECTED. ARE YOU SURE?=YES OR NO. SEE TABLE 57 FOR SETUP PROMPTS FOR NEW M3 UNIT CONTROLLER.								
GENERAL	LANGUAGE	ENGLISH, FRANCAIS OR ESPANOL								
	DATE/TIME	DAY, MONTH, YEAR HOURS, MINUTES AND SECONDS NOTE: HOURS IN 24 HOUR CLOCK FORMAT (MILITARY)								
	DISPLAY UNITS F/C	FAHRENHEIT OR CELSIUS								
	RTU DESCRIPTION	ENTER A 18 POSITION ALPHA / NUMERIC NAME								
	CATALOG NUMBER	LOCATED ON UNIT NAMEPLATE.								
	MODEL NUMBER									
	SERIAL NUMBER									
	CONFIGURATION ID 1	WHITE STICKER TITLED "ORIGINAL FACTORY UNIT CONFIGURATION" LOCATED ON THE RIGHT SIDE OF THE CONTROL BOX NEAR THE M3 CONTROLLER.								
	CONFIGURATION ID 2									

## **11. Thermal Protection Switches (S5, S7, S8, S31 and S180)**

**NOTE:** Not all models use all of the reference switches. Verify with unit wiring diagram to confirm switch(es) used. Also refer the unit installation instruction for switches used and operation.

Thermal protection switches open on a temperature rise to de-energize the corresponding compressor. Switches automatically reset when temperature drops.

The corresponding compressor is locked out after three occurrences (default) of either high pressure or high temperature conditions during a demand cycle. The number of occurrences can be changed using for Parameter 98. Adjustable range is 1 to 7 occurrences.

On certain compressors, these switches are in series with the high pressure switches, and will cause a 300 second delay (default) which is set using Parameter 110. This will also set off an alarm. Adjustable delay range is 64 to 1800 seconds.

**Go to SETTINGS > RTU OPTION > EDIT PARAMETER = 98 (MAX HP OCCURRENCES)**

**Go to SETTINGS > RTU OPTION > EDIT PARAMETER = 110 (ERR TIME OFF DELAY)**

**NOTE:** Thermal protection switch alarms will not indicate an OFF ON ALARM state.

### **11.1. Emergence Ultra-High Efficiency Units (3- to 6-ton)**

This model has a thermal protection switch connected to S7. When the compressor is de-energized due to an open thermal switch, alarm 192 is issued. When the compressor is locked out after three occurrences, alarm 193 is issued.

### **11.2. Tandem Compressors — Emergence Ultra-High Efficiency Units (7-1/2 to 12-1/2-ton)**

This model has two temperature switches (S5 and S8) in series with one pressure switch (S4). If only one temperature switch is tripped, only the applicable compressor will be de-energized. If pressure switch trips, both compressors are de-energized.

### **11.3. Tandem Compressors — Emergence Ultra-High Efficiency Units (15- and 20-ton)**

This model has two thermal protection switches (S5 and S8) in series with two pressure switches (S4 and S28). If only one compressor shuts-off, this usually indicates that the problem is related to a temperature switch. If a pressure switch opens, both compressors in tandem will shut-off.

## **12. Blower Operation with Effective Occupancy**

This section describes how network occupancy signals are combined to produce effective occupancy.

The blower runs to service heat and cool demands, regardless of the space occupancy. However when there is no heating or cooling demand there are options for how the blower should operate in conjunction with occupancy signals to keep the space ventilated, or the air stirred.

### **a. California Energy Commission Title 24**

The legacy option settings for OCC Blower Mode are AUTO CYCLES or ON-CONTINUOUS 1. These settings govern whether the blower runs continuously when the space is considered occupied, or cycles on/off with the heating and cooling demand.

To comply with the California Energy Commission Title 24 standard there are two additional values for OCC Blower Mode which are ON-CONTINUOUS 2 and ON-CONTINUOUS 3. See "Table 8. Blower Operation Description" for their descriptions.

### **b. LonTalk, BACnet and L Connection:** These two new options are available when using these networks types that supplies a room occupancy signal (in addition to the scheduled occupancy).

**NOTE:** For L Connection the same two options are also available when using an optional room occupancy sensor. If a room occupancy sensor is not physically installed and configured for the network, then the only options available for OCC Blower Mode are AUTO CYCLES or ON-CONTINUOUS 1.

### **c. RTU Standalone:** Since a room occupancy sensor cannot be used in this configuration, then the only options for OCC Blower Mode are AUTO CYCLES or ON-CONTINUOUS 1.

### **d. Enabling Network Type**

To enable the network module, go to SETUP > INSTALL and run the setup wizard. When Configuration ID 1 appears on the screen, configure position 5 to one of the applicable network types. N = Not Installed, B = BACnet and L = LonTalk.

### **e. Menu Setup Procedure Method for OCC Blower Mode**

These blower control options are handled by the OCC Blower Mode. These setting and be changed using the following menu path:

Go to SETUP > NETWORK INTEGRATION > NETWORK = "BACNET, LONTALK or L CONNECTION" > (additional prompts concerning network configuration and sensor types will be asked) CONTROL MODE = ROOM SENSOR > ROOM SENSOR OCC BLOWER MODE = "Table 8. Blower Operation Description"

**Table 8. Blower Operation Description**

OCC Blower Mode	Description
AUTO CYCLES	Blower cycles on/off with demand. (Legacy usage.)
ON-CONTINUOUS 1	Blower runs when either the occupancy sensor or schedule, or both, indicates occupied. (Legacy usage.)
ON-CONTINUOUS 2	Blower runs when both the occupancy sensor and schedule indicate occupied.
ON-CONTINUOUS 3	The same as option 2, but blower runs for 30 minutes and is off for 90 minutes when schedule is occupied but the occupancy sensor is not occupied.

**Table 9. BACnet Occupancy Objects**

Input	BACnet	Value
Manual	Occupancy Override Control AO 103	0: space occupied 1: space unoccupied 2: refresh space occupied override timer 3255: auto; clear timer and return to scheduler
Schedule	Occupancy Scheduler Control AO 104	0: space occupied 1-255: space unoccupied
Sensor	Occupancy Sensor Input AO 107	0: space occupied 1: space unoccupied 2-255: auto; return to occupancy scheduler state
Effective Occupancy	Effective Occupancy AI 241	0: space occupied 1: space unoccupied 2: space occupied (timed override)

**Table 10. LonTalk Occupancy Objects**

Input	BACnet	Value
Manual	nviOccManCmd Index = 11	0: space occupied 1: space unoccupied 2: refresh space occupied override timer 3255: auto; clear timer and return to scheduler
Schedule	nviOccSched1 Index = 10	0: space occupied 1-255: space unoccupied
Sensor	nviOccSensor Index = 12	0: space occupied 1: space unoccupied 2-255: auto; return to occupancy scheduler state
Effective Occupancy	nvoEffectOccup Index = 26	0: space occupied 1: space unoccupied 2: space occupied (timed override)

**Table 11. Blower Operation Schedule**

Manual	Schedule	Sensor	Effective Blower Occupancy	OCC Blower Mode	Blower Operation
0, 2	n/a	n/a	OCCUPIED	AUTO-CYCLES ON-CONTINOUS 1 ON-CONTINOUS 2 ON-CONTINOUS 3	Cycles On On On
1	n/a	n/a	UNOCCUPIED	AUTO-CYCLES ON-CONTINOUS 1 ON-CONTINOUS 2 ON-CONTINOUS 3	Cycles
3-255	0	0, 2-255	OCCUPIED	AUTO-CYCLES ON-CONTINOUS 1 ON-CONTINOUS 2 ON-CONTINOUS 3	Cycles On On On
3-255	0	1	OCCUPIED	AUTO-CYCLES ON-CONTINOUS 1 ON-CONTINOUS 2 ON-CONTINOUS 3	Cycles On Cycles Cycles w/Stir
3-255	1-255	n/a	UNOCCUPIED	AUTO-CYCLES ON-CONTINOUS 1 ON-CONTINOUS 2 ON-CONTINOUS 3	Cycles

## 13. Economizer

The economizer, when configured, controls:

- Damper position, which determines how much outdoor air is used to meet free cooling or indoor air quality requirements, and
- Optional power exhaust fans.

On a cooling demand, outdoor air is used for free cooling instead of first-stage compressor(s) when outdoor air is suitable.

### 13.1. Enabling Economizer and Settings

To enable the economizer if installed:

**Go to SETUP > INSTALL**

See “Table 5. Menu Interface (Level 1 - SETUP)” on page 15 and go through the wizard. When reaching Configuration ID 1, position 2 will need to be set to the applicable type of economizer. Valid types are:

- **M** = Motorized Outdoor Air Damper Only
- **T** = Economizer - Temperature (Note: Used for both set point and offset temperature control.)
- **G** = Economizer - Global
- **S** = Economizer - Single Enthalpy
- **D** = Economizer - Dual Enthalpy

### 13.2. Damper Feedback Calibration

Use the following procedure to perform a damper feedback calibration.

**Go to SETUP > TEST & BALANCE > DAMPER > IS DAMPER CLOSED?**

This drives the damper to the fully closed position. Visually inspect that the damper has stopped moving in the closed position, and answer **YES** to calibrate damper closed position feedback value.

Then the next screen will ask **IS DMPR FULL OPEN?**

This will drive the damper to fully open position. Visually inspect that the damper has stopped moving in the full open position, and answer **YES** to calibrate damper full open position feedback value.

### 13.3. Damper Operation During Free Cooling

These are operating profile options for the economizer damper (Parameter 164 - ECONOMIZER PROFILE) during free cooling when any compressor is on and can be selected as follows:

- **Option 0:** Damper continues to modulate while compressors are on, but the effect of mechanical cooling may force the damper closed to its minimum position. After compressor starts, the free cooling set point is lowered to fixed temperature setting of 45°F.

- **Option 1:** Damper opens to its max open position (Parameter 131 - FREE CL MAX DAMPER) when any compressors start.

**NOTE:** When using Option 1 and after the compressor is stopped, the M3 shall resume damper modulation.

- **Option 2:** Is as follows:

- > Holds off compressor on Y2 call until damper has modulated to maximum position (Parameter 131 - FREE CL MAX DAMPER) for three minutes.
- > After three minutes, the compressor starts and the free cooling set point is lowered to 45°F. Damper is not locked at maximum open while compressor is on, but modulates to maintain 45°F discharge air temperature.
- > When Y2 is satisfied, compressor goes off and free cooling set point is restored to 55°F (Parameter 159 - FREE COOL SUPPLY SP).
- **Option 3:** Same as Option 2, but with a 10 minute delay instead of a three minute delay.

### 13.4. Free Cooling Compressor Lockout Mode and Low Ambient Set Point

**Go to SETTINGS > RTU OPTION > EDIT PARAMETER = 285  
(FRCL COMP LCKOUT MD).**

Default value is 2. Range is 0 to 2.

- **0** = Disable Compressor Lockout
- **1** = Lockout Compressor if outdoor air is suitable regardless of outdoor air temperature.
- **2** = Lockout Compressor if outdoor air temperature is below Parameter 108 setting and Outdoor Air is Suitable (Default).

**Go to SETTINGS > RTU OPTION > EDIT PARAMETER = 108  
(FREE LO AMB LCKT SP).**

Default value is 55.0°F. Range is 45.0 to 80.0°F.

### 13.5. Outdoor Air Suitable for Free Cooling

The M3 unit controller displays the outdoor air suitability information on the status screen.

The appropriate sensors are provided when the economizer is factory-configured. When the economizer is field-installed and configured, the single or dual enthalpy modes require additional field-provided sensor(s).

### 13.6. Enthalpy Set Point

This setting pertains to the single enthalpy free cooling mode only. The M3 unit controller will enable free cooling when outdoor air enthalpy (A7) is less than the enthalpy set point (Parameter 162 - ECON FREECL ENTH SP). Figure 6 shows the approximate enthalpy sensor output at various temperatures and percentage of relative humidity.

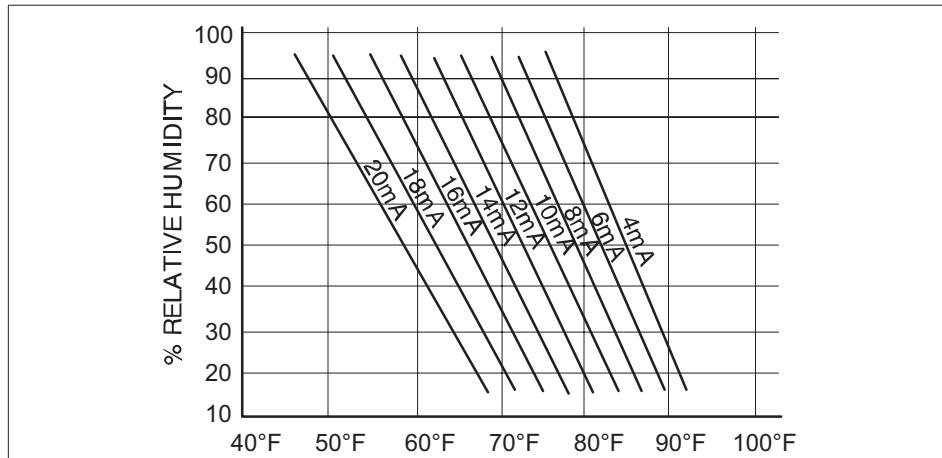


Figure 7. Enthalpy Sensor Output Current Honeywell C7400

### 13.7. Free Cooling Damper Maximum Position

Damper Maximum position for free cooling is by default set to 100%. To modify this settings, use the following path:

SETTINGS > RTU OPTION > EDIT PARAMETER - 131 (FREE CL MAX DAMPER)

### 13.8. Minimum Damper Position

Use the following menu path to modified the minimum damper positions for both high and low operations.

SETUP > TEST & BALANCE > DAMPER > MIN DAMPER POSITION BLOWER ON HIGH = .%

SETUP > TEST & BALANCE > DAMPER > MIN DAMPER POSITION BLOWER ON LOW = .%

### 13.9. Motorized Outdoor Air Damper

Set damper position according to "Minimum Damper Position" section for normal operation, make sure the motorized outdoor air damper is set correctly in Configuration ID 1, position 2 needs to be set to M. The damper will open to the specified position during the occupied time period and close during the unoccupied time period.

**NOTE:** When equipped with Motorized Outdoor damper Air Damper, Prodigy 2.0 provides only Demand Control Ventilation. Free Cooling/Economizer function is not available.

### 13.10. Economizer Checkout

The following checkout procedures are completed with unit energized. Confirm proper operation of the heartbeat LED. Step 1 will determine whether the economizer is allowing full damper travel. Use step 2 when the damper does not respond to step 1.

Steps 3, 4, 5, and 6 checkout the operating modes; checkout only the mode that applies to the unit being worked on.

## CAUTION

Power exhaust fans will be functional. To prevent operation of power exhaust fans, disconnect power to unit and then PED jack/plug P/J18.

#### STEP 1. ECONOMIZER OUTPUT VOLTAGE

The M3 unit controller monitors P262 (DPOS) and operates as reference in Section Damper Diagnostics in the Prodigy 2.0 (M3 unit controller) Application Guide (Advance Features).

Go to SERVICE > TEST > DAMPER > POSITION > DAMPER POSITION ACTUAL: 0.0%

- The motor will slowly modulate to the closed position.
- Change DAMPER POSITION ACTUAL to 100.0%. The motor will slowly modulate to the fully opened position.
- If the motor does not respond, go to **step 2**. If the motor does respond properly, go to the appropriate mode of operation checkout.

#### STEP 2. OUTPUT VOLTAGE CHECK

Go to SERVICE > TEST > DAMPER > POSITION > DAMPER POSITION ACTUAL: 0.0%

- Adjust the DAMPER POSITION ACTUAL to 0.0% position.
- Measure the voltage on P262 between pin 3 (VOT damper control) and pin 2 (GND) using pin 1 as common. Voltage should read approximately 2 VDC.
- Adjust the DAMPER POSITION ACTUAL to 100.0% position.

**NOTE:** Allow approximately 90 seconds for actuator to react.

- Measure the voltage between P262 between pin 3 (VOT damper control) and pin 2 (GND) using pin 1 as common. Voltage should read approximately 10 volts DC. If not, check wiring and trouble shoot system.

### STEP 3. SINGLE ENTHALPY OPERATION (ODE)

In the single enthalpy mode, dampers open for free cooling when the outdoor enthalpy is less than the enthalpy set point (Parameter 162 - ECON FREECL ENTH SP); dampers will try to modulate discharge air temperature (RT6) to (Parameter 159 - FREE COOL SUPPLY SP) which has a default setting of 55.0°F (13°C).

- Go to **SETUP > INSTALL** > press **SAVE** until you get to the Configuration ID 1, position 2 needs to be set to **S** for Economizer Single Enthalpy and press **SAVE**.
- To simulate low outdoor enthalpy. Disconnect A7 outdoor enthalpy sensor jack/plugs J/P104. Connect a 750 ohm resistor across plug J104-1 and J104-2. J104 is located in the filter access area.
- Check all connections and wiring between J104 and the control.

### STEP 4. DUAL ENTHALPY MODE OF OPERATION

In dual enthalpy mode, dampers open for free cooling when the outdoor air enthalpy is lower than the return air enthalpy by difference value of (Parameter 163 - ECN FRCL ENTH OFFST); dampers will modulate discharge air temperature (RT6) to (Parameter 159 - FREE COOL SUPPLY SP) which has a default setting of 55.0°F (13°C).

- Go to **SETUP > INSTALL** > press **SAVE** until you get to the Configuration ID 1 position 2 needs to be set to **D** for Economizer Dual Enthalpy and press **SAVE** if performing an economizer field-install.
- Use two resistors to simulate outdoor air enthalpy suitable.
- Disconnect A62 return air enthalpy sensor jack/plug J/P105. Place a 1500 ohm resistor between J105-1 and J105-3. J/P105 is located in the filter access area.

- Disconnect A7 outdoor enthalpy sensor jack/plugs J/P104. Connect a 750 ohm resistor across J104-1 and J104-2.

### STEP 5. ALL TEMPERATURE MODES OF OPERATION

In the Economizer – Temperature mode, the damper opens for free cooling when the outdoor air temperature is:

- Less than return air temperature by at least a difference of (Parameter 161 - ECON FRCL TMP OFFST) if Temperature Offset mode is selected
- Less than (Parameter 160 - ECON FREECL TEMP SP)

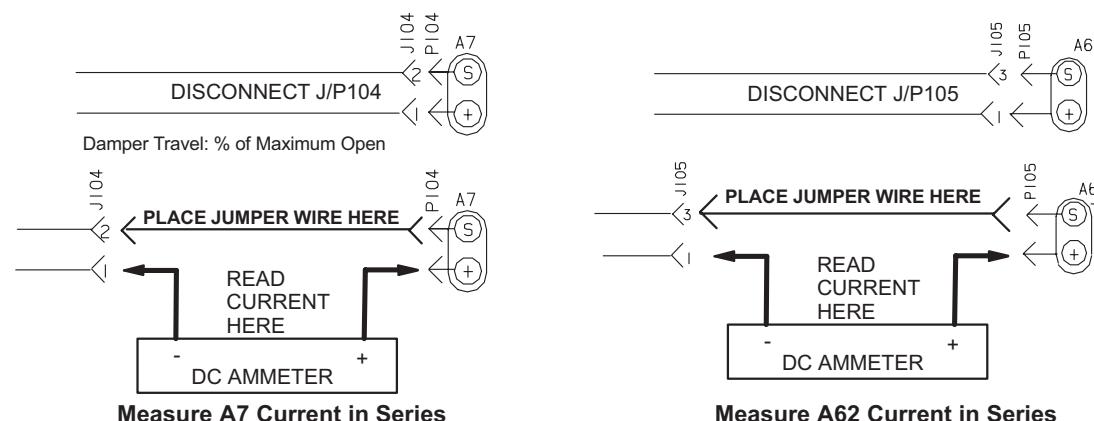
In all modes, dampers will try to modulate discharge air temperature (RT6) to (Parameter 159 - FREE COOL SUPPLY SP) which has a default setting of 55.0°F (13°C).

Refer to the “Displaying Sensor Inputs” section to read return air (RT16) and outdoor air (RT17) temperatures. If outdoor air is not cooler than return air, simulate a colder outdoor air temperature with a resistor. Select a resistor value that corresponds to a temperature:

- Locate RT17 sensor in unit. Disconnect 1/4" quick connect terminals on wires leading from sensor.
- Jumper RT17 wires leading back to control with the appropriate resistor.
- Check all connections and wiring between RT17 and the M3 unit controller, and between RT16 and the M3 unit controller.

**Table 12. TMP Mode Resistor Values**

Temp. °F (°C)	Size Resistor						
30 (-1)	34,566	50 (10)	19,904	70 (21)	11,884	90 (32)	7,332
40 (4)	26,106	60 (16)	15,313	80 (27)	9,298	100 (38)	5,826



**Figure 8. Measure A7 and A62 Current in Series**

## STEP 6. SGLOBAL MODULATING (GLO) MODE OF OPERATION

In the GLO (modulating) mode, dampers modulate open for free cooling when the global input is energized; dampers will try to modulate discharge air temperature (RT6) to (Parameter 159 - FREE COOL SUPPLY SP) which has a default setting of 55.0°F (13°C).

**NOTE:** The global input turns on the blower.

- a. Set global mode using the Configuration ID 1, position 2, and set to character G.
- b. Connect a jumper between A55\_P297-1 (24VAC) and A55\_P297-9 (global). The blower is energized and the damper will slowly open if discharge air temperature (RT6) is greater than (Parameter 159 - FREE COOL SUPPLY SP) which has a default setting of 55.0°F (13°C).
- c. Disconnect 24VAC to A55\_P297-9. The blower will turn off and the damper will close.
- d. If the damper does not actuate then check all connections and wiring between P262A and B.

## STEP 7. ENTHALPY SENSOR OPERATION (A7 AND A62)

If enthalpy sensors are configured, current sensor reading by M3 controller can be verified through the user interface:

- a. Connect a direct current ammeter as shown in figure 4 to measure current output of A7 or A62.
- b. The reading will be between 4 and 20 ma. depending on outdoor temperature and humidity. Refer to figure 3 to approximate reading.

Go to DATA > IN/OUTPUTS > SENSORS > LOCAL  
(scroll down to IE: x.x mA and OE: x.x mA)

- c. If the meter reads zero, check sensor wiring harness for continuity and/or check polarity of sensor wiring.

## 14. Demand Control Ventilation

A field-provided and installed indoor air quality (IAQ) sensor can be used with the modulating economizer or OADM to control carbon dioxide levels in the conditioned space. The carbon dioxide level in a space is an indicator of the number of people occupying a room. As the carbon dioxide level rises (indicating the occupancy of a room has increased), dampers modulate open - regardless of outdoor air suitability. Likewise, as the carbon dioxide level falls (indicating the occupancy has decreased), dampers modulate further closed.

Standard economizer installations have a minimum fresh air ventilation requirement based on maximum room occupancy. With standard economizer use, the amount of air required for maximum room occupancy is heated or cooled with each heating or cooling cycle. IAQ installations use the maximum amount of required ventilation air only with maximum room occupancy; less outdoor air needs to be heated or cooled when fewer people are in the conditioned space.

If the economizer is operating in the free cooling mode and the indoor air quality control requires the damper to open further, the indoor air quality demand will override the free cooling demand.

The IAQ function is not energized during the unoccupied or night time period.

**NOTE:** The IAQ sensor may also be used with systems containing a motorized outdoor air damper.

### 14.1. Default Operation

The M3 unit controller has a 0-10VDC indoor air quality input for a standard 0 - 2000ppm carbon dioxide sensor. The economizer starts opening at a carbon dioxide level of 700 ppm (default) (start open set point) and reaches full open at a carbon dioxide level of 1200ppm (default) (full open set point).

The damper opens to a default position of 50% (see Parameter 117). Determine damper travel position using the following formula:

$$\frac{\% \text{ Damper Travel}}{5} = \frac{\text{carbon dioxide ppm} - \text{Start Open ppm}}{5}$$

Example: At a carbon dioxide level of 750ppm, the damper will be approximately 50% open:

$$\frac{\% \text{ Damper Travel}}{5} = \frac{750-500}{500} = 50\%$$

Use the menu interface to read carbon dioxide ppm. DATA > IN/OUTPUTS > SENSORS > C02. Figure 5 shows default or proportional operation.

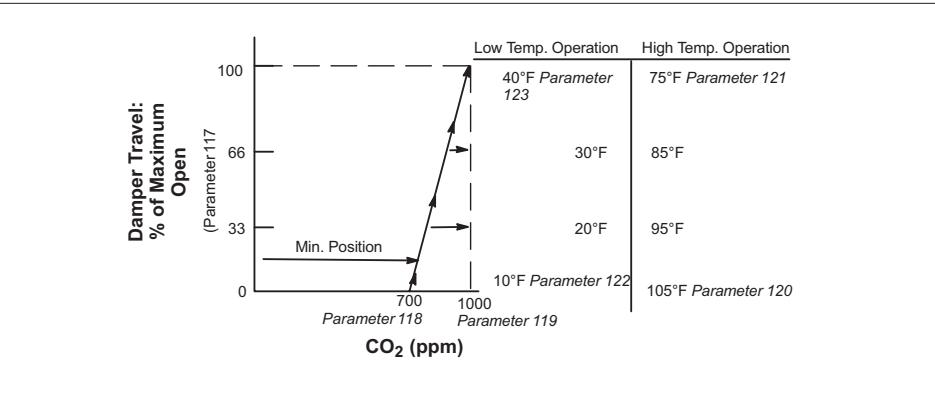
### 14.2. Maximum and Minimum Demand Control Ventilation Damper Settings

Maximum position is set using the following menu path:

Go to SETTINGS > RTU OPTIONS > DAMPER > DAMPER CONTROL VENTILATION OPTIONS and select DEMAND CONTROL VENTILATION.

Options are:

- DEMAND CONTROL VENT > DAMPER START OPEN = XXXX PPM
- DEMAND CONTROL VENT > DAMPER FULL OPEN = XXXX PPM
- DEMAND CONTROL VENT > DAMPER MAX OA CFM = X CFM (only visible if configuration id 1, position 2 is set correctly).
- DEMAND CONTROL VENT > DAMPER MAX OPENING = XXX.X %.



**Figure 9. Default Demand Control Ventilation (DCV) Operation**

### 14.3. Parameter Adjustments

Default indoor air quality economizer operation is based on common or average applications. Adjustments may be made to the indoor air quality Parameters to alter operation or meet required specifications. Use the user interface to change Parameter 117 through 123.

#### Go to SETTINGS > RTU OPTIONS > EDIT PARAMETER

Select a demand control ventilation mode with Parameter 134. Modes 3 and 4 will bring on the unit blower when demand control ventilation calls for maximum damper open, and returns to auto-blower when demand control ventilation damper returns to 0. The other modes only operate when the unit blower is on, but will not bring it on themselves.

Some applications require a different carbon dioxide set point range than default settings. Damper start open (Parameter 118) and full open (Parameter 119) carbon dioxide set points may be adjusted from 0 to 2000 ppm. Use the following formula to determine damper travel.

**NOTE:** When changing carbon dioxide set point range, “start open” set point should be less than “full-open” set point.

% Damper Travel = carbon dioxide ppm - Start Open ppm X Max Open (Parameter 117) Full Open - Start Open

**Example:** An application requires the dampers open at 800 CO<sub>2</sub> ppm and reach full open at 1200. If the carbon dioxide level in the space reads 1000 ppm, calculate the damper percent open as follows.

$$\% \text{ Damper Travel} = \frac{1000 - 800}{1200 - 800} \text{ or } \frac{200}{400} \text{ or } .5 = 0.5 \times 100 = 50\%$$

$$1200 - 800 = 400$$

### 14.4. Set Point Control Option

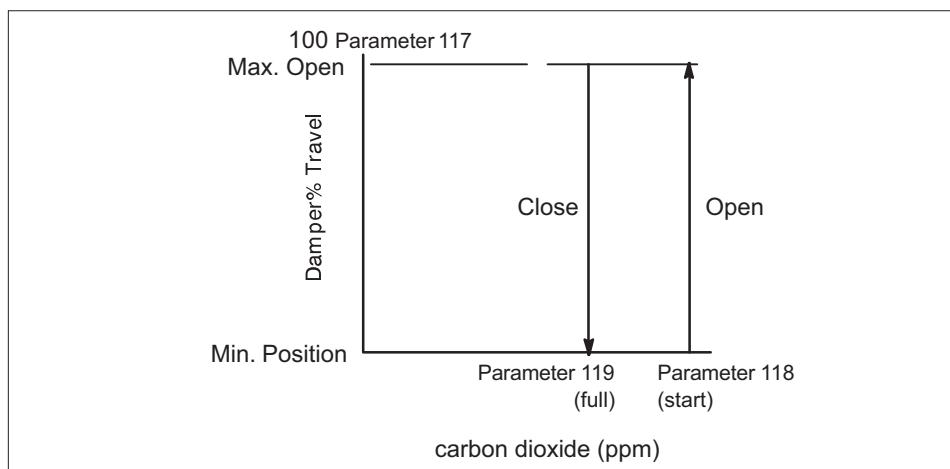
Set point control mode is commonly used in areas with high occupancy and frequent change out such as classrooms or conference rooms.

In applications requiring this on/off damper response to airborne dioxide levels, set the start open (Parameter 118 - DCV DAMP START OPEN) set point higher than the full open (Parameter 119 - DCV DAMP FULL OPEN) set point. The dampers will drive to fully-open position immediately. Figure 6 shows the set point control option. Change Parameters 122 and 123 to set the minimum outdoor temperature limits.

Change Parameters 120 and 121 to set the maximum temperature limits.

## IMPORTANT

Mixed air temperatures less than 45°F (7°C) on units with an aluminized heat exchanger or less than 30°F (-1°C) on stainless steel heat exchangers will void the manufacturer’s warranty.



**Figure 10. Set point Control Indoor Air Quality Option**

### 14.5. Determining Indoor Air Quality Inputs

Selection from the M3 unit controller menu display.

#### Go to DATA> IN/OUTPUTS > SENSORS

## 14.6. BACNET

The configuration shown in figure 7 has terminations on the M3 unit controller BACnet modules at both ends and ONLY at both ends of the chain.

The configuration shown to the right in figure 7 has a termination at the controller/router on one end and a termination at the M3 unit controller BACnet module on the other end; terminations are ONLY at the ends of the chain.

Cable type - twisted pair with shield, 22 awg minimum, Belden #88761 or #8761 (Lennox 27M19, 94L63, 68M35).

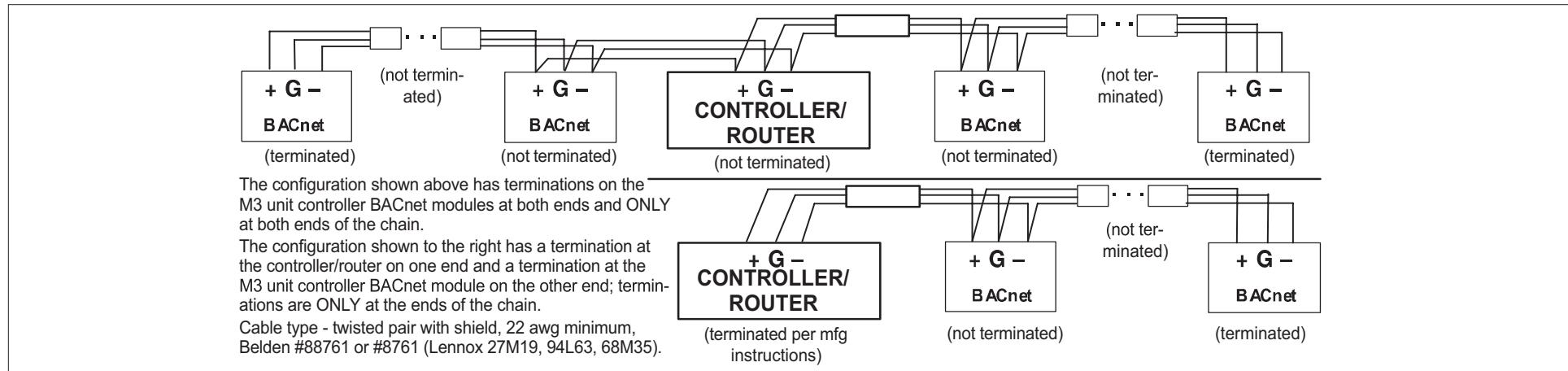


Figure 11. Terminating Ends of a Daisy-Chained Network

## 14.7. L CONNECTION

The network control panel is an L Connection direct digital controller used on units which are not equipped with an M3 unit controller. The Building Controller (BC) is used to control building functions such as lights and signs. Use L connection specific network cable and daisy chain as shown in the following figure. L Connection daisy chains also need termination at the end nodes of the chain.

Cable type - twisted pair with shield, 22 awg minimum, Belden #88761 or #8761 (Lennox 27M19, 94L63, 68M35).

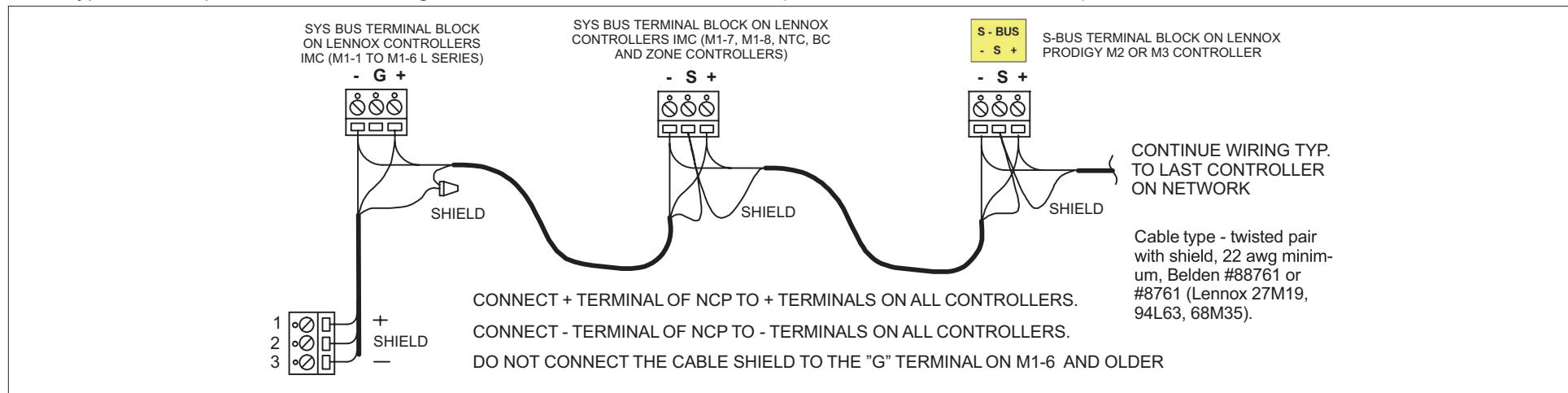


Figure 12. L Connection® Network Daisy-Chain Communication Wiring

## 15. Abbreviations

**Table 13. Abbreviations**

Abbreviation	Definition
A55	M3 board. Main RTU control board
AI	Analog input
AO	Analog output
BL	Blower
C3	Add on board for third and forth compressor and second-stage heat (A178).
C1	1st stage cooling
C2	2nd stage cooling
C3	3rd stage cooling
C4	4th stage cooling
CAI	Combustion air inducer
CAVB	Constant air volume with bypass damper
COM	Electrical common
CL	Cooling
CP1	Compressor 1
CP2	Compressor 2
CP3	Compressor 3
CP4	Compressor 4
CSP	Cooling setpoint
DAC	Discharge (supply) air control
DACC	Discharge (supply) air control cooling
DACH	Discharge (supply) air control heating
DAP	Discharge (supply) air pressure
DAT	Discharge (supply) air temperature
DB	Deadband
DCV	Demand controlled ventilation
DDC	Direct digital control
DI	Digital input
Diff	Differential
DO	Digital output
FAC	Fresh air cooling control
FAH	Fresh air heating control
FAT	Fresh air tempering control. See FAC & FAH
FC	Free cooling
G	Thermostat demand, blower
GLO	Global mode or input (economizer)

**Table 13. Abbreviations**

Abbreviation	Definition
H1	1st stage heating
H2	2nd stage heating
H3	3rd stage heating
H4	4th stage heating
HP	High pressure
HSP	Heating setpoint
HT	Heating
IAQ	Indoor air quality. Often synonymous with CO2 level in ppm
IDE	Indoor enthalpy. Depends on temperature and humidity
"w.c.	Inches of water column
LED	Light emitting diode. An indicator light, found either as individual elements or grouped together as segments to form characters
LP	Low pressure
LT	Limit
M3	M3 Unit Controller - main controller board (A55)
MGV	Modulating gas valve
MSAV	Multi Stage Air Volume
OAC	Outdoor air control
OAS	Outdoor air suitable for free cooling
OAT	Outdoor air temperature
OCP	Thermostat demand, occupied mode
ODE	Outdoor enthalpy. Depends on temperature and humidity
PID	Proportional, integral and derivative based control loop
PPM	Parts per million (mostly used for CO2 measurements)
RAP	Return air pressure
RAT	Return air temperature
RH	Relative humidity
RS	Reset
RTU	Roof top unit
RT6	Discharge air temperature sensor
RT16	Return air temperature sensor
RT17	Outdoor air temperature sensor
SMK	Smoke detection mode (alarm)
SP	Setpoint
Stg	Stage
TB	Terminal block
UnOCP	Unoccupied

**Table 13. Abbreviations**

Abbreviation	Definition
<b>W1</b>	Thermostat demand, heat stage 1
<b>W2</b>	Thermostat demand, heat stage 2
<b>W3</b>	Thermostat demand, heat stage 3
<b>W4</b>	Thermostat demand, heat stage 4
<b>VAC</b>	Alternating current voltage
<b>VAV</b>	Variable air volume. Accomplished with a variable frequency drive (VFD)
<b>VDC</b>	Direct current voltage
<b>VFD</b>	Var. frequency drive. An AC inverter used to vary motor speed
<b>VT</b>	Ventilation
<b>Y1</b>	Thermostat demand, cooling stage one
<b>Y2</b>	Thermostat demand, cooling stage two
<b>Y3</b>	Thermostat demand, cooling stage three
<b>Y4</b>	Thermostat demand, cooling stage four
<b>ZAT</b>	Zone air temperature

## 16. Parts and Kits

**Table 14. Parts and Kits Available for M3 Unit Controller**

Description	Catalog number	Description	Catalog number	Description	Catalog number
M3 Unit Controller Replacement kit	14V60	USB service kit tube	59W52	SmartWire™ Field Termination kit	59W57
LCD Display Replacement Kit	10X85	M3 unit controller battery (10-pack)	59W53	Lennox Prodigy 2.0 USB Memory Stick (5-pack)	59W59
M3 unit controller cover	10X86	BACnet Replacement kit	59W51		

## 17. USB Service Report Example

```
=====
USB SERVICE REPORT
=====
Service Date 04:03:2014
Service Time 19:26:35
Serial No.
Software Version 08.00.0009
Hardware Version
Unit Number UNIT 1
SBUS Address 2
BACnet Address 2
Catalogue Number
Model Number LGH060H4EH1Y
CONFIGURATION ID 1 NTTNNNNNLN
CONFIGURATION ID 2 NNNNNNNNNN
Status IDLE
=====
Runtime Data
Total Power On 23 HRS 8 CYCLES
Before Install 0 HRS -----
Filter 12 HRS -----
Belt 11 HRS -----
Blower 12 HRS 50 CYCLES
Compressor 1 3 HRS 40 CYCLES
Compressor 2 4 HRS 27 CYCLES
Compressor 3 0 HRS 2 CYCLES
Compressor 4 0 HRS 3 CYCLES
Outdoor Fan 1 7 HRS 28 CYCLES
Outdoor Fan 2 2 HRS 22 CYCLES
Outdoor Fan 3 0 HRS 2 CYCLES
Outdoor Fan 4 0 HRS 3 CYCLES
Outdoor Fan 5 0 HRS 3 CYCLES
Outdoor Fan 6 0 HRS 3 CYCLES
POWER EXHAUST 0 HRS 0 CYCLES
Heat Stage 1 0 HRS 1 CYCLES
Heat Stage 2 0 HRS 1 CYCLES
Humiditrol 0 HRS 0 CYCLES
Free Cooling 0 HRS 4 CYCLES
UV Lamp 0 HRS -----
=====
Sensor Data
OAT 66 degF
RAT 72 degF
DAT 73 degF
ZAT 78 degF
RH 50 %
CO2 460 ppm
=====
SmartAirflow System Data
Calibrated On 04/03/2014 19:12:56
Supply Airflow Calibration Table
PWM(%) Speed(rpm) Airflow(cfm)
20 480 1031
30 570 1274
40 660 1493
50 750 1687
60 840 1857
70 930 2004
80 1020 2126
90 1110 2223
100 1200 2297
Supply Airflow Targets
Mode Desired Airflow(cfm) PWM(%)
=====
Cool High 1800 57
Cool Low 1300 31
Heat 2000 70
Ventilation 1200 27
Smoke 2000 70
Economizer Differential Pressure(@ 2000 Supply Airflow(cfm))
Damper Position (%) Diff.Pressure(in.H2O)
0 0.39
50 0.23
100 0.06
Outside Airflow Targets
Minimum Outside Air/Minimum DCV: 200 cfm
Maximum DCV: 0 cfm
Minimum CO2: 700 ppm
Maximum CO2: 1200 ppm
=====
Alarm/Status Log
(143) 04:03:2014 19:26:13 RESET DAMPER PRESSURE
(141) 04:03:2014 19:26:13 RESET CFM TARGET TOO
HIGH
(143) 04:03:2014 19:06:19 SET DAMPER PRESSURE
(141) 04:03:2014 19:06:19 SET CFM TARGET TOO
HIGH
(82) 04:03:2014 19:06:18 RESET CONTROLLER RESET
(82) 04:03:2014 19:06:18 SET CONTROLLER RESET
(143) 04:03:2014 18:59:41 SET DAMPER PRESSURE
(141) 04:03:2014 18:59:41 SET CFM TARGET TOO
HIGH
(82) 04:03:2014 18:59:40 RESET CONTROLLER RESET
(82) 04:03:2014 18:59:40 SET CONTROLLER RESET
(143) 04:03:2014 18:35:19 SET DAMPER PRESSURE
(141) 04:03:2014 18:35:19 SET CFM TARGET TOO
HIGH
(148) 04:03:2014 18:21:36 RESET SMARTAIRFLOW
CONFIG ERROR
(170) 04:03:2014 18:21:36 RESET POWER EXHAUST
UNCONFIGURED
(165) 04:03:2014 18:21:36 RESET ECONOMIZER
UNCONFIGURED
(85) 04:03:2014 18:21:36 RESET INCORRECT
HUMIDITROL SETTINGS
(132) 04:03:2014 18:21:24 RESET VFD BYPASS
UNCONFIGURED
(148) 04:03:2014 18:21:23 SET SMARTAIRFLOW
CONFIG ERROR
(132) 04:03:2014 18:21:23 SET VFD BYPASS
UNCONFIGURED
(170) 04:03:2014 18:21:23 SET POWER EXHAUST
UNCONFIGURED
(165) 04:03:2014 18:21:23 SET ECONOMIZER
UNCONFIGURED
(85) 04:03:2014 18:21:23 SET INCORRECT
HUMIDITROL SETTINGS
(82) 04:03:2014 18:20:31 RESET CONTROLLER RESET
(82) 04:03:2014 18:20:31 SET CONTROLLER RESET
(82) 04:03:2014 18:16:32 RESET CONTROLLER RESET
(82) 04:03:2014 18:16:32 SET CONTROLLER RESET
(82) 04:03:2014 18:14:10 RESET CONTROLLER RESET
(82) 04:03:2014 18:14:10 SET CONTROLLER RESET
(82) 04:03:2014 18:14:09 RESET CONTROLLER RESET
(82) 04:03:2014 18:14:09 SET CONTROLLER RESET
=====
END OF REPORT
=====
```

## 18. USB SmartAirflow Report

USB SMARTAIRFLOW REPORT							
Service Date	04:03:2014	0%	0.30	0			
Service Time	19:32:49	5%	0.29	104			
Serial No.		10%	0.28	184			
Software Version	08.00.0009	2004	0.27	70			
Hardware Version		15%	0.26	261			
Unit Number	UNIT 1	20%	0.25	325			
SBUS Address	2	25%	0.24	70			
BACnet Address	2	30%	0.23	437			
Catalogue Number		2004	0.23	561			
Model Number	LGH060H4EH1Y	2004	0.23	70			
CONFIGURATION ID 1	NTNNNNNLN	2004	0.23	70			
CONFIGURATION ID 2	NNNNNNNNNN	2004	0.23	70			
Status	IDLE	END OF REPORT					
Calibrated On 04/03/2014 19:12:56							
Supply Airflow Calibration Table							
PWM(%)	Speed(rpm)	Airflow(cfm)					
20	480	1031					
30	570	1274					
40	660	1493					
50	750	1687					
60	840	1857					
70	930	2004					
80	1020	2126					
90	1110	2223					
100	1200	2297					
Supply Airflow Set Points							
	Desired	Actual					
Airflow(cfm)	Airflow(cfm)	PWM(%)	(With Damper				
Mode Closed	Econ dP						
Cool Low	1300	31	1687				
	0.21						
Cool High	1800	57	1297				
	0.13						
Heat	2000	70	1809				
	0.25						
Ventilation	1200	27	2004				
	0.30						
Smoke	2000	70	1204				
	0.11						
Outside Airflow Targets							
Minimum Outside Air/Minimum DCV:	200 cfm						
Maximum DCV:	0 cfm						
Minimum CO2:	700 ppm						
Maximum CO2:	1200 ppm						
Ventilation Calibration(@ 2000 Supply Airflow(cfm))							
Damper Position(%)	Outdoor Airflow(cfm)	Supply PWM(%)					
Supply Airflow(cfm)							

## 19. Alarms

### 19.1. Phase - Voltage Detection

The M3 unit controller has the ability to detect that the rooftop unit power source has the correct frequency, phasing and voltage levels. When this feature is enabled, the detection of frequency and phasing is determined at power-on and the voltage level is continuously monitored. If any of these is out of range, then an alarm is logged and the rooftop unit operation is locked out.

#### a. Alarms Detected at Power-On Start up:

- 121 - LINE FREQ DOES NOT MATCH UNIT CONFIG
- 126 - LINE PHASING DOES NOT MATCH UNIT CONFIG

#### b. Alarms - Continuously Monitoring

- 122 - 24VAC PRIMARY VOLTAGE LOW
- 123 - 24VAC PRIMARY VOLTAGE HIGH
- 134 - 24VAC SECONDARY VOLTAGE LOW
- 125 - 24VAC SECONDARY VOLTAGE HIGH

Alarms 122 through 125 are auto-resetting. The rooftop operation will be restored five (5) minutes after the proper voltage levels are restored. Alarms 121 and 126 requires removing the power and correcting the issue before restoring the rooftop operation.

The frequency (60 or 50 Hz) and the phasing (single or three-phase) of the power source is determined by the model number stored in the M3 unit controller. This model number and enabling/disabling the Phase-Voltage Detection feature can be modified through the M3 unit controller user interface. See the Installation and Setup Guide for instructions on how to configure the CONFIGURATION ID 2, Position 5. Options are:

- N = NOT INSTALLED
- 1 = ENABLED INTERNAL (LENNOX)
- 2 = EXTERNAL (A42) PHASE DETECTION ON DI-2
- 3 = EXTERNAL (A42) PHASE DETECTION ON DI-3

When an event occurs, the M3 unit controller will display a code which corresponds to control function. Error codes are stored and can be recalled later.

**NOTE:** Any references in the user interface referencing Advanced Airflow actually indicates SmartAirflow®.

## 19.2. Service Relays

Selected alarms (marked with \* in the following table result in the closure of the service relay contacts (DO1). The contacts remain closed until the Prodigy resets, or alarm condition is cleared and alarm status is read via explicit S-BUS

command. Other modes of operation may be selected and are described in the Prodigy Application Guide (Advanced Features).

**NOTE:** Any references in the user interface referencing Advance Airflow actually indicates SmartAirflow®.

## 19.3. M3 Unit Controller Alarm and Event Codes

Table 15. Prodigy 2.0 Alarm and Event Codes

SELECTED ALARMS (MARKED WITH * IN TABLE RESULT IN THE CLOSURE OF THE SERVICE RELAY CONTACTS (DO1).		
ALARM CODE	DISPLAY MESSAGE	EVENT ACTION
1	LOSS OF POWER DETECTION (SINGLE PHASE UNITS)	<p>Check power connections.</p> <p>The M3 unit controller will set an alarm "Erratic Power" whenever service is turned off due to detection of power loss. User will be able to clear "Erratic Power" alarm via user interface. The M3 unit controller will clear "Power Erratic" after the Compressor Min OFF Delay has expired. If compressor demand is still present the M3 unit controller will restart compressor(s) after the Compressor Min OFF Delay has expired.</p>
2 - 3 RESERVED		
4*	SMOKE DETECTOR INPUT (A173)	A173 input is sensed as closed. Will automatically clear once input is detected open. For smoke mode, check for source of smoke. While Smoke Alarm is active, the M3 unit controller will not service any cooling, heating or ventilation demands.
5*	BLOWER S52	Unit off. Air flow switch is normally closed. Monitoring starts 16 seconds after blower is started. If air flow switch is detected open after 16 second delay period, all compressors are de-energized, gas valves closed, electric heat turned off, economizer damper closed, and blower is stopped. Alarm will automatically clear once the error timed off delay has expired and system will resume. Check blower operation.
6*	DIRTY FILTER SWITCH S27	Dirty filter switch is detected as closed and will automatically clear once switch is detected open. Replace filter or check filter switch S27.
7 RESERVED		
8*	STRIKE 3 ON BLOWER S52	Lockout is active with multiple alarm code 5 detected. Alarm can be manually cleared through the user interface. Check blower operation. Once problem is corrected, lockout alarm can be cleared by resetting the M3 unit controller.
9 - 11 RESERVED		
12	COMP 1 HIGH PRESS S4 OR HI TEMP S5	<p>Compressor is off. Check charge, fans and coil.</p> <p><b>NOTE:</b> On Emergence Ultra-High Efficiency units - if only alarm 12 is present then issue could be high temperature S5 switch. If alarm 12 is accompanied with alarm 14 then most likely it is the high pressure S4 switch.</p> <p>The unit controller will clear high pressure switch alarm when corresponding high pressure switch is detected as closed. Compressor will not restart until corresponding high pressure switch is closed and Minimum Off Delay (cooling or heating) has expired.</p>
13*	STRIKE 3 ON COMP 1 HIGH PRESS S4 OR HI TEMP S5	<ul style="list-style-type: none"> <li>Compressor is lockout. Check charge, fans and coil. Use service menu to clear lockouts.</li> <li>User will be able to clear high pressure switch compressor lockout and alarm via user interface. High pressure switch compressor lockout and alarm will be cleared after the M3 unit controller reset.</li> <li>High pressure switch compressor lockout and alarm will be cleared on termination of cooling demand.</li> <li>Default is 3 occurrences and can be set between 1 and 7 occurrences.</li> </ul>
14	COMP 2 HIGH PRESS S7	<p>Compressor is off. Check charge, fans and coil.</p> <p><b>NOTE:</b> On Emergence Ultra-High efficiency units tandem alarms (14) compressor 2 high temperature S8 switch. If accompanied with alarm 15 then most likely the S4 high pressure switch is the issue.</p> <p>The M3 unit controller will clear high pressure switch alarm when corresponding high pressure switch is detected as closed. Compressor will not be restarted until corresponding high pressure switch is closed and Minimum Off Delay (cooling or heating) has expired.</p>

**Table 15. Prodigy 2.0 Alarm and Event Codes**

SELECTED ALARMS (MARKED WITH * IN TABLE RESULT IN THE CLOSURE OF THE SERVICE RELAY CONTACTS (DO1).		
ALARM CODE	DISPLAY MESSAGE	EVENT ACTION
15*	STRIKE 3 ON COMP 2 HIGH PRESS S5 OR S7	<ul style="list-style-type: none"> <li>Compressor lockout. Check charge, fans and coil. Use service menu to clear lockouts.</li> <li>User will be able to clear high pressure switch compressor lockout and alarm via user interface. High pressure switch compressor lockout and alarm will be cleared after the M3 unit controller reset.</li> <li>High pressure switch compressor lockout and alarm will be cleared on removal of cooling demand.</li> <li>Default is 3 occurrences and can be set between 1 and 7 occurrences.</li> </ul>
16	COMP 3 HIGH PRESS S28	<ul style="list-style-type: none"> <li>Compressor is off. Check charge, fans and coil.</li> <li>The M3 unit controller will clear high pressure switch alarm when corresponding high pressure switch is detected as closed. Compressor will not be restarted until corresponding high pressure switch is closed and Minimum Off Delay (cooling or heating) has expired.</li> </ul>
17*	STRIKE 3 ON COMP 3 HIGH PRESS S28	<ul style="list-style-type: none"> <li>Compressor lockout. Check charge, fans and coil. Use service menu to clear lockouts.</li> <li>User will be able to clear high pressure switch compressor lockout and alarm through the user interface. High pressure switch compressor lockout and alarm will be cleared after the M3 unit controller reset.</li> <li>High pressure switch compressor lockout and alarm is cleared on removal of cooling demand. Default is 3 occurrences and can be set between 1 and 7 occurrences.</li> </ul>
18	COMP 4 HIGH PRESS S96	<ul style="list-style-type: none"> <li>Compressor lockout. Check charge, fans and coil.</li> <li>The M3 unit controller will clear high pressure switch alarm when corresponding high pressure switch is detected as closed. Compressor will not be restarted until corresponding high pressure switch is closed and Minimum Off Delay (cooling or heating) has expired.</li> </ul>
19*	STRIKE 3 ON COMP 4 HIGH PRESS S96	<ul style="list-style-type: none"> <li>Compressor lockout. Check charge, fans and coil. Use service menu to clear lockouts.</li> <li>User will be able to clear high pressure switch compressor lockout and alarm via user interface. High pressure switch compressor lockout and alarm will be cleared after the M3 unit controller reset.</li> <li>High pressure switch compressor lockout and alarm is cleared on removal of cooling demand. Default is 3 occurrences and can be set between 1 and 7 occurrences.</li> </ul>
<b>NOTE: EVENTS 1219 COULD ALSO BE CAUSED BY A HIGH TEMPERATURE CONDITION ON SOME COMPRESSORS EQUIPPED WITH A HIGH TEMPERATURE SHUTDOWN.</b>		
20	UNIT SHUTDOWN A42	Phase monitor.
21 RESERVED		
22	COMP 1 LOW PRESS S87	Compressor is off. Check charge, fans and coil. Use service menu to clear lockouts.
23*	STRIKE 3 ON COMP 1 S87	<ul style="list-style-type: none"> <li>Compressor is off. Check charge, fans and coil. Use service menu to clear lockouts.</li> <li>Number of occurrences is set using Parameter 99 (max 10 occurrences). Default is 3 occurrences.</li> </ul>
24	COMP 2 LOW PRESS S88	Compressor is off. Check charge, fans and coil.
25*	STRIKE 3 ON COMP 2 S88	<ul style="list-style-type: none"> <li>Compressor is off. Check charge, fans and coil. Use service menu to clear lockouts.</li> <li>Number of occurrences is set using Parameter 99 (max 10 occurrences). Default is 3 occurrences.</li> </ul>
26	COMP 3 LOW PRESS S98	Compressor is off. Check charge, fans and coil.
27*	STRIKE 3 ON COMP 3 S98	<ul style="list-style-type: none"> <li>Compressor is off. Check charge, fans and coil. Use service menu to clear lockouts.</li> <li>Number of occurrences is set using Parameter 99 (max 10 occurrences). Default is 3 occurrences.</li> </ul>
28	COMP 4 LOW PRESS S97	Compressor is off. Check charge, fans and coil.
29*	STRIKE 3 ON COMP 4 S97	<ul style="list-style-type: none"> <li>Compressor is off. Check charge, fans and coil. Use service menu to clear lockouts.</li> <li>Number of occurrences is set using Parameter 99 (max 10 occurrences). Default is 3 occurrences.</li> </ul>

**Table 15. Prodigy 2.0 Alarm and Event Codes**

SELECTED ALARMS (MARKED WITH * IN TABLE RESULT IN THE CLOSURE OF THE SERVICE RELAY CONTACTS (DO1).		
ALARM CODE	DISPLAY MESSAGE	EVENT ACTION
30*	DRAIN PLAN OVERFLOW SHUTDOWN (S149)	<ul style="list-style-type: none"> <li>Check for block drain, condensate lines and drain pan overflow switch.</li> <li>Alarm set if overflow switch is detected opened and compressor will be locked out. System will automatically clear alarm once switch is detected closed. System will resume operation (compressor lockout), after the Error Timed OFF Delay has expired following the Overflow switch alarm clear.</li> </ul>
31	RESERVED	
32	COMP 1 FRZSTAT OPEN S49	Compressor is off. Check freezestat, air flow, charge, coil, air filter and outside air temperature.
33*	STRIKE 3 COMP 1 FRZSTAT OPEN S49	<ul style="list-style-type: none"> <li>Compressor is locked out. Check freezestat, air flow, charge, coil, air filter and outside air temperature.</li> <li>Number of occurrences is set using Parameter 81 (max freeze sat occ). Default is 3 occurrences.</li> </ul>
34	COMP 2 FRZSTAT OPEN S50	<ul style="list-style-type: none"> <li>Compressor is locked out. Check freezestat, air flow, charge, coil, air filter and outside air temperature.</li> </ul>
35*	STRIKE 3 COMP 2 FRZSTAT OPEN S50	<ul style="list-style-type: none"> <li>Compressor is locked out. Check freezestat, air flow, charge, coil, air filter and outside air temperature.</li> <li>Number of occurrences is set using Parameter 81 (max freeze sat occ). Default is 3 occurrences.</li> </ul>
36	COMP 3 FRZSTAT OPEN S53	<ul style="list-style-type: none"> <li>Compressor is locked out. Check freezestat, air flow, charge, coil, air filter and outside air temperature.</li> </ul>
37*	STRIKE 3 COMP 3 FRZSTAT OPEN S53	<ul style="list-style-type: none"> <li>Compressor is locked out. Check freezestat, air flow, charge, coil, air filter and outside air temperature.</li> <li>Number of occurrences is set using Parameter 81 (max freeze sat occ). Default is 3 occurrences.</li> </ul>
38	COMP 4 FRZSTAT OPEN S95	<ul style="list-style-type: none"> <li>Compressor is locked out. Check freezestat, air flow, charge, coil, air filter and outside air temperature.</li> </ul>
39*	STRIKE 3 COMP 4 FRZSTAT OPEN S95	<ul style="list-style-type: none"> <li>Compressor is locked out. Check freezestat, air flow, charge, coil, air filter and outside air temperature.</li> <li>Number of occurrences is set using Parameter 81 (max freeze sat occ). Default is 3 occurrences.</li> </ul>
40	RETURN AIR OVER HEAT LIMIT RT16	Heat is above set point. Check space conditions and sensors.
41	RETURN AIR UNDER COOL LIMIT RT16	Cool is below set point. Check space conditions and sensors.
42*	BLOWER MOTOR OVERLOAD (S42 OR S135) SHUTDOWN	<ul style="list-style-type: none"> <li>System will set an alarm if S42 switch is detected as open. System will automatically clear alarm once S42 switch is detected closed. System will resume operation (servicing the demands), after the Error Timed OFF Delay has expired following S42 or S135 clear.</li> <li>Check external motor overloads.</li> </ul>
43 RESERVED		
44*	GAS VALVE ON NO DEMAND GV1	Unit is off. Gas valve 1 has power, but no demand. Check gas valve and wiring.
45*	GAS VALVE ON NO DEMAND GV2	Unit is off. Gas valve 2 has power, but no demand. Check gas valve and wiring.
46 - 48 RESERVED		
49	No 24VAC ON A178 (C3) CONTROL	Third and fourth compressors are off. Alarm automatically clears once 24VAC is present. The M3 unit controller will resume operation once the ERROR TIME OFF DELAY is completed. Parameter 110 is used to set the reference delay. Factory delay default is 300 seconds.
50	PRIMARY HEAT 1 LIMIT OPEN S10	Heat section 1 primary gas heat limit switch is open. Check air flow, air filter, limit switch and wiring.
51*	STRIKE 3 PRIMARY HEAT 1 LIMIT OPEN S10	Heat section 1 primary gas heat limit switch is open. Check air flow, air filter, limit switch and wiring. Number of occurrences is reached.
52	SECONDARY HEAT 1 LIMIT OPEN S21	Heat section 1 secondary gas heat limit switch is open. Check air flow, air filter, limit switch and wiring.
53*	STRIKE 3 SECONDARY HEAT 1 LIMIT OPEN S21	Heat section 1 secondary gas heat limit switch is open. Check air flow, air filter, limit switch and wiring. Number of occurrences is reached.
54	HEAT 1 S15 LIMIT OPEN	Heat section 1 primary electric heat limit switch is open. Check air flow, air filter, limit switch and wiring.
55*	ROLL OUT OPEN	Heat section 1 flame roll out burner 1 switch is open. Check gas roll out switch S47.

**Table 15. Prodigy 2.0 Alarm and Event Codes**

SELECTED ALARMS (MARKED WITH * IN TABLE RESULT IN THE CLOSURE OF THE SERVICE RELAY CONTACTS (DO1).		
ALARM CODE	DISPLAY MESSAGE	EVENT ACTION
56	HEAT 1 CAI SWITCH S18	Check heat section 1 combustion air motor and proof switch.
57*	STRIKE 3 HEAT 1 CAI SWITCH S18	Check heat section 1 combustion air motor and proof switch. Number of occurrences is reached.
58	HEAT 1 NO PROOF GAS VALVE GV1	Check heat section 1 ignition control, flame proof, gas valve 1 and gas supply.
59*	STRIKE 3 NO PROOF GAS VALVE GV1	Check heat section 1 ignition control, flame proof, gas valve 1 and gas supply. Number of occurrences is reached.
60	PRIMARY HEAT 2 LIMIT OPEN S99	Check heat section 2 primary burner limit switch to see if it is open. Check air flow, limit switch and wiring.
61*	STRIKE 3 PRIMARY HEAT 2 LIMIT OPEN S99	Check heat section 2 primary burner limit switch to see if it is open. Check air flow, limit switch and wiring. Number of occurrences is reached.
62	HEAT 2 LIMIT OPEN S100	Heat section 2 secondary heat limit switch is open. Check air flow, limit switch and wiring.
63*	STRIKE 3 HEAT 2 LIMIT OPEN S100	Heat section 2 secondary heat limit switch is open. Check air flow, limit switch and wiring. Number of occurrences is reached.
64 RESERVED		
65*	HEAT 2 ROLLOUT OPEN S69	Check roll out sensor and gas supply.
66	HEAT 2 CAI SWITCH S45	Check heat section 2 combustion air motor and proof switch.
67*	STRIKE 3 HEAT 2 CAI SWITCH S45	Check heat section 2 combustion air motor and proof switch. Number of occurrences is reached.
68	HEAT 2 NO PROOF GAS VALVE GV2	Check heat section 2 ignition control, flame roof, gas valve 2 and gas supply.
69*	STRIKE 3 NO PROOF GAS VALVE GV2	Check heat section 2 ignition control, flame roof, gas valve 2 and gas supply. Number of occurrences is reached.
70 - 72 RESERVED		
73	NETWORK SENSOR ERROR	Check with integrator for refresh rate, network status lights and wiring.
74*	ZONE (ROOM) SENSOR A2	<ul style="list-style-type: none"> <li>• If measurement is out of specified range (including open/short detection) the system will ignore the Zone Temperature Sensor readings and set the alarm.</li> <li>• If measurement of Zone Temperature Sensor is out of specified range (including open/short detection) the system will change operating mode to the specified Backup mode (None, Local Thermistor or Return Air temp).</li> <li>• The system will clear the alarm, if zone temperature sensor measurement is detected in specified operating range and return the system to monitoring the A2 sensor as the primary sensor input.</li> </ul> <p>Check zone (room) sensor and wiring</p>
75*	OUTDOOR TEMPERATURE SENSOR (RT17)	<ul style="list-style-type: none"> <li>• If measurement of the outdoor temperature sensor is out of specified range (including open / short detection, the alarm will be activated. Alarm will automatically clear once in range condition is detected.</li> <li>• Check sensor and wiring.</li> </ul>
76*	HUMIDITY SENSOR A91	<ul style="list-style-type: none"> <li>• If measurement is below specified range (&lt;5 % RH) the system will ignore the Relative Humidity readings. If measurement is above the specified range( &gt;100% RH) the system will limit the value to 100%.</li> <li>• If measurement of Relative Humidity Sensor is below specified range while the dehumidification mode using RH sensor is enabled, the system will set an alarm. The system will clear the alarm if Relative Humidity sensor measurement is detected in specified operating range OR dehumidification mode using RH sensor is disabled.</li> <li>• Check sensor and wiring.</li> </ul>
77*	DISCHARGE AIR TEMP SENSOR RT6	<ul style="list-style-type: none"> <li>• If measurement of the discharge air temperature sensor is out of specified range (including open / short detection, the alarm will be activated. Alarm will automatically clear once in range condition is detected.</li> <li>• Check sensor and wiring.</li> </ul>

**Table 15. Prodigy 2.0 Alarm and Event Codes**

SELECTED ALARMS (MARKED WITH * IN TABLE RESULT IN THE CLOSURE OF THE SERVICE RELAY CONTACTS (DO1).		
ALARM CODE	DISPLAY MESSAGE	EVENT ACTION
78*	RETURN AIR TEMP SENSOR (RT16)	<ul style="list-style-type: none"> <li>If measurement of the return air temperature sensor is out of specified range (including open / short detection, the alarm will be activated. Alarm will automatically clear once in range condition is detected.</li> <li>Check sensor and wiring.</li> </ul>
79*	ADDON BOARD PROBLEM	Add-on board problem, reset M3 unit controller to clear. When the communication alarm 80 persists for more than 30 seconds even after several retries for establishing the communication this Alarm is logged. Alarm can only be cleared by M3 Unit controller reset.
80	ADDON BOARD COMMUNICATION PROBLEM	When the M3 unit controller is not able to communicate with any attached add-on boards (C3 and GP3) this alarm code is logged. The M3 unit controller will retry to establish the communication once every 5 second. Alarm is automatically cleared once communication is restored.
81	REHEAT SETUP ERROR	<p>Check reheat settings. Alarm 81 is raised under these two conditions:</p> <ol style="list-style-type: none"> <li>If the user sets up the unit to use supermarket reheat on a non-gas unit.</li> <li>If the user sets up the unit to use Humiditrol reheat but the heater type is heat pump</li> </ol>
82	CONTROLLER RESET	If set when M3 unit controller powers up. Will Indicated reason for reset if known.
83*	INCORRECT SETTINGS	<ul style="list-style-type: none"> <li>Check system configuration (model number, Configuration ID 1 and ID 2. If a model number is used that requires a daughter card, the M3 unit controller will attempt to detect the presences of the add-on board if not detected, this alarm will be set.</li> <li>This hardware configuration alarm can be only cleared by resetting or power cycling the M3 unit controller.</li> </ul>
84 RESERVED		
85	INCORRECT HUMIDITROL SETTINGS	Check Humiditrol settings. Check Configuration ID 1, position 1 and verify that the position is not set to U. Should be set to either N (not installed) or H (Humiditrol). Alarm will automatically clear once correct option is set.
86*	CONFLICTING THERMOSTAT INPUT	Check thermostat inputs for simultaneous heat and cooling wiring. Once condition is corrected, unit controller will resume operation after error time off day has expired.
87 -90 RESERVED		
91*	OUTDOOR ENTH SENSOR A7	<ul style="list-style-type: none"> <li>If Enthalpy Sensor failure is detected, the system will disable 'Free Cooling' operation.</li> </ul> <p><b>NOTE:</b> Valid Outdoor Enthalpy Sensor reading is required for both 'ODE' (Outdoor Enthalpy) and 'ODE differential' (Outdoor differential). Valid Indoor Enthalpy Sensor reading is required for 'ODE differential' (Outdoor differential).</p> <ul style="list-style-type: none"> <li>Check economizer Parameters 160 and 161. Also check enthalpy Parameters 162 and 163.</li> <li>Check sensor and wiring.</li> </ul>
92*	INDOOR ENTH SENSOR A62	<p>If Enthalpy Sensor failure is detected, the system will disable 'Free Cooling' operation.</p> <p><b>NOTE:</b> Valid Outdoor Enthalpy Sensor reading is required for both 'ODE' (Outdoor Enthalpy) and 'ODE differential' (Outdoor differential). Valid Indoor Enthalpy Sensor reading is required for 'ODE differential' (Outdoor differential).</p> <p>Check wiring and test A62 sensor using specified method in M3 application guide, section titled economizer checkout.</p>
93*	BACKUP MODE	<ul style="list-style-type: none"> <li>Check communication loss with network sensor or if M3 unit controller If NETWORK INTEGRATION is set to RTU STANDALONE MODE and backup sensor is set to RETURN AIR BACKUP.</li> <li>While running in backup mode the unit controller will set this alarm. The unit controller will return from Backup mode to Primary (Main) mode on a reset or after the Primary mode (room Sensor is not in error or OR network communication is re-established and available for 300 seconds.</li> <li>Backup mode alarm will be cleared on the reset OR after the unit controller has returned to primary (main) system mode.</li> </ul>
94*	BAD ZONE SENSOR SET POINT	Ensure that the heating and cooling set points honor the auto-changeover deadband.
95 - 98 RESERVED		
99*	OUTDOOR ECON SENSOR A24	Check sensor and wiring. This alarm activates when the A24 sensor input signal is continuously above 25% of sensor measuring range for more than five minutes with blower stopped. The M3 unit controller will disable the Outdoor Air CFM control. The alarm automatically clears when the sensor reading is below 10% sensor measuring range for one minute.

**Table 15. Prodigy 2.0 Alarm and Event Codes**

SELECTED ALARMS (MARKED WITH * IN TABLE RESULT IN THE CLOSURE OF THE SERVICE RELAY CONTACTS (DO1).		
ALARM CODE	DISPLAY MESSAGE	EVENT ACTION
100*	AIR VOL CONTROL SETUP ERROR	Check for proper installation of GP board and settings.
101*	MVG CONTROL SETUP ERROR	Check for proper installation of GP board and settings.
102*	GP CONTROL SETUP ERROR	Check for proper installation of GP board and settings.
103*	ADVANCED CONTROL SETUP ERROR	Check M3 unit controller Configuration ID 1 settings.
104 - 105 RESERVED		
106*	BUILDING PRESS SENSOR A34	Check sensor and wiring.
107*	DUCT SUPPLY PRESS SENSOR A30	<p>Check sensor and wiring. The unit controller will set Supply Air Static Pressure Sensor (A30) error status if:</p> <ul style="list-style-type: none"> <li>• Input signal is above 4.9" wc for more than 30 seconds.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• Input signal is below 0.1"wc 20 seconds after the blower has started with setting at or above Blower Output Static Duct Alarm Check.</li> </ul> <p>The M3 unit controller will clear the Supply Air Static Pressure Sensor (A30) error status and alarm after the expiration of Error Time OFF delay.</p>
108	DUCT SUPPLY HIGH PRESS SENSOR A30	<ul style="list-style-type: none"> <li>• Check sensor and wiring.</li> <li>• The M3 unit controller will shutdown operation for Error Off time (Parameter 110) if supply air static pressure exceeds supply static shutdown setpoint for 20 seconds (default) Parameter 42.</li> <li>• The M3 unit controller will clear High Supply Static (Duct) Pressure after Error Off Time has expired and static duct pressure is below Supply Static Set Point Shutdown.</li> </ul>
109*	STRIKE 3 DUCT SUPPLY PRESS SENSOR A30	<ul style="list-style-type: none"> <li>• Check sensor and wiring.</li> <li>• Prodigy controller shall "lockout" a unit operation after the Max Static Duct Pressure Occurrences have occurred of Supply Static Pressure Sensor Error (alarm 107) and/or High Supply Static (Duct) Pressure (alarm 108).</li> <li>• User shall be able to clear supply static pressure lockout and alarm via User Interface. Supply Static Pressure lockout and alarm shall be cleared after the Prodigy controller reset.</li> <li>• The number of strikes is three by default. this can be changed using Parameter 43. Optional occurrence setting is 1 to 7.</li> </ul>
110	WAITING ON NETWORK DATA	Check network or comfort sensor and wiring.
111	PROFILE ERROR	Configuration profile unrecoverable. Settings may have changed.
112 - 120 RESERVED		
121*	LINE FREQ DOES NOT MATCH UNIT CONFIG	Power source line frequency is determined by the entered model number. This alarm is enabled by the PhaseVoltage Detection feature. The M3 unit controller does not have an automatic clearing method, unit power cycle or reset will be required to re-evaluate the phase sequence again.
122*	24VAC PRIMARY VOLTAGE LOW	<ul style="list-style-type: none"> <li>• Low output voltage on T1 transformer. alarm set when 24VAC voltage low if calculated RMS voltage is below low voltage alarm threshold for more than two seconds. System will stop unit operations (cooling, heating and ventilation). Low voltage threshold is 18VAC.</li> <li>• The M3 unit controller will clear alarm 24VAC Voltage Low if calculated RMS voltage is above Low Voltage Alarm Threshold + 1 VAC for more than two seconds. After the low 24VAC alarm has been cleared, the M3 unit controller will ignore all service demands until the Error Time Off Delay has expired.</li> </ul>
123*	24VAC PRIMARY VOLTAGE HIGH	<ul style="list-style-type: none"> <li>• High output voltage on T1 transformer. alarm set when 24VAC voltage high if calculated RMS voltage is below low voltage alarm threshold for more than two seconds. System will stop unit operations (cooling, heating and ventilation). Low voltage threshold is 30VAC.</li> <li>• The M3 unit controller will clear alarm 24VAC Voltage high if calculated RMS voltage is above High Voltage Alarm Threshold + 1 VAC for more than two seconds. After the HIGH 24VAC alarm has been cleared, the M3 unit controller will ignore all service demands until the Error Time Off Delay has expired.</li> </ul>

**Table 15. Prodigy 2.0 Alarm and Event Codes**

SELECTED ALARMS (MARKED WITH * IN TABLE RESULT IN THE CLOSURE OF THE SERVICE RELAY CONTACTS (DO1).		
ALARM CODE	DISPLAY MESSAGE	EVENT ACTION
124*	24VAC SECONDARY VOLTAGE LOW	<ul style="list-style-type: none"> <li>Low output voltage on T1 transformer. alarm set when 24VAC voltage low if calculated RMS voltage is below low voltage alarm threshold for more than two seconds. System will stop unit operations (cooling, heating and ventilation). Low voltage threshold is 18VAC.</li> <li>The M3 unit controller will clear alarm 24VAC Voltage Low if calculated RMS voltage is above Low Voltage Alarm Threshold + 1 VAC for more than two seconds. After the low 24VAC alarm has been cleared, the M3 unit controller will ignore all service demands until the Error Time Off Delay has expired.</li> </ul>
125*	24VAC SECONDARY VOLTAGE HIGH	<ul style="list-style-type: none"> <li>High output voltage on T1 transformer. alarm set when 24VAC voltage high if calculated RMS voltage is below low voltage alarm threshold for more than two seconds. System will stop unit operations (cooling, heating and ventilation). Low voltage threshold is 30VAC.</li> <li>The M3 unit controller will clear alarm 24VAC Voltage HIGH if calculated RMS voltage is above high voltage alarm Threshold + 1 VAC for more than two seconds. After the high 24VAC alarm has been cleared the M3 unit controller will ignore all service demands until the Error Time Off Delay has expired.</li> </ul>
126*	LINE PHASING DOES NOT MATCH UNIT CONFIG	During power up or reset of unit, Mismatch on single or 3 phase power, or reverse rotation on 3 phase detected. This alarm is enabled by the Phase Voltage Detection feature.
127 - 128 RESERVED		
129*	VFD SHUTDOWN	VFD fault detected. Check belt and for blower overload. Fix source of fault and reset M3 unit controller.
130	VFD BYPASS ENGAGED	VFD bypass mode. Mode is engaged. Blower may or may not be disengage.
131 RESERVED		
132	VFD BYPASS NOT CONFIGURED	VFD bypass mode has not been selected. Unit operates as if bypass is not installed.
133 RESERVED		
134	ADVANCED AIRFLOW LOW SUPPLY CFM	Advanced Airflow enabled RTU indicates airflow target cannot be achieved. Check cause of airflow reduction such as dirty filter, changes in duct work, etc
135*	ADVANCED AIRFLOW NO AIRFLOW	Blower RPM is too low as indicates by blower status. This means that the blower is not working. Repair blower and reset M3 unit controller.
136*	ADVANCED AIRFLOW OUTSIDE AIR DAMPER/ECON MECHANICAL FAULT	Outdoor air damper stuck or actuator problem.
137	ADVANCED AIRFLOW LOW OUTDOOR AIRFLOW	Outdoor airflow is too low so the building is not getting the designed outdoor airflow based on IAQ.
138 RESERVED		
139	ADVANCED AIRFLOW OUTDOOR AIRFLOW TOO HIGH	Ventilation CFM is too high so the RTU is wasting energy.
140	ADVANCED AIRFLOW CFM UNATTAINABLE TARGET TOO LOW	Verify the MSAV blower settings and set the CM targets below set CFM. The alarm value will be displayed on the M3 unit controller screen.
141	ADVANCED AIRFLOW CFM UNATTAINABLE TARGET TOO HIGH	
142 RESERVED		
143*	ADVANCED AIRFLOW DAMPER PRESSURE ERROR.	Outdoor air differential pressure sensor value not in valid range. Might be tubing problem or high return duct resistance.
144 - 145 RESERVED		
146	SERVICE LOGGED	Service event logged.
147*	OA DAMPER ERROR	During free cooling damper is not modulating.
148*	ADVANCED AIRFLOW CONFIG ERROR	Economizer should be installed and blower should be ECM type.

**Table 15. Prodigy 2.0 Alarm and Event Codes**

SELECTED ALARMS (MARKED WITH * IN TABLE RESULT IN THE CLOSURE OF THE SERVICE RELAY CONTACTS (DO1).		
ALARM CODE	DISPLAY MESSAGE	EVENT ACTION
149*	OUTDOOR AIR DIFF PRESSURE SENSOR ERROR	Check outdoor air damper differential pressure sensor and wiring.
150*	NOT ECONOMIZING WHEN OUTDOOR AIR IS SUITABLE	May be due to the damper motor being unplugged or disconnected.
151*	ECONOMIZING WHEN OUTDOOR AIR IS NOT SUITABLE	This may be due to damper motor being blocked or stuck open and therefore not closing.
152 - 164 RESERVED		
165	ECONOMIZER NOT CONFIGURED	Configuration ID 1, position 2 is set to U. Select applicable option using setup/install wizard.
166	CAI PRESSURE SWITCH STUCK CLOSED GV1	This alarm will occur when the combustion air pressure switch (S18) is detected as closed immediately after the furnace demand relay is energized and before the combustion air blower is energized. Gas valve 1.
167	CAI PRESSURE SWITCH STUCK CLOSED GV2	This alarm will occur when the combustion air pressure switch (S45) is detected as closed immediately after the furnace demand relay is energized and before the combustion air blower is energized. Gas valve 2.
168*	COMBUSTION AIR SW NOT OPEN LOCKOUT GV1	System locked out due to S45 switch closed and a specific number occurrences detected based on Parameter 72 (max cai no prf occ) setting during a single cycle.
169*	COMBUSTION AIR SW NOT OPEN LOCKOUT GV2	
170	POWER EXHAUST NOT CONFIGURED	Configuration ID 1, position 3 is set as U (unconfigured).
171	POWER EXHAUST CONFIGURATION ERROR	Configuration ID 1, position 4 is set correctly. If position 3 is configured then position 4 must be also.
172 RESERVED		
173	AIR FLOW SWITCH CONFIG ERROR	Verify that Configuration ID 2, position 1 is set correctly.
174	ZONE (ROOM) BYPASS DAMPER CONFIGURATION ERROR	Room bypass damper operation is only compatible with cab blowers. Prodigy will only allow zone bypass unit operation if configuration ID1 is set to installed for units with B or T type blowers. Alarm will automatically clear when configuration conflict is corrected.
175	INVALID LOAD SHEDDING INPUT CONFIGURATION	Alarm will occur if load shedding input is shared with other optional devices or inputs, for example - global, blower overload, drain pan overflow, etc.
176	SBUS RECEIVED AN OBSOLETE M3 COMMAND	This alarm occurs when a SBUS master device sends a M2 style command to the M3 unit controller. The alarm is immediately cleared and a history of the event is stored.
177	MODEL NUMBER NOT DEFINED	Missing model configuration data. Run setup > install and complete model number information.
178 - 181 RESERVED		
182	ULTRA: SUCTION PRESSURE SENSOR ERROR	<ul style="list-style-type: none"> <li>Prodigy provides 0-5VDC analog input for the suction pressure sensor. Sensor output is connected to P333, pin 1. Valid suction pressure range is 0 to 300 psig.</li> <li>If Suction Pressure Sensor is detected on Energence Ultra-high efficiency unit falls below the 30 psig then Prodigy will assume that the Pressure Sensor sensor is faulty and ignore Pressure Sensor readings. Alarm will automatically clear once input is within normal operating range.</li> <li>The alarming value indicates which suction pressure sensor failed.</li> </ul> <p>0 - Tandem 1 Suction Pressure Sensor Failure 1 - Tandem 2 Suction Pressure Sensor Failure</p>

**Table 15. Prodigy 2.0 Alarm and Event Codes**

SELECTED ALARMS (MARKED WITH * IN TABLE RESULT IN THE CLOSURE OF THE SERVICE RELAY CONTACTS (DO1).		
ALARM CODE	DISPLAY MESSAGE	EVENT ACTION
183	ULTRA: COMPRESSOR 1 SUMP TEMPERATURE SENSOR ERROR	<ul style="list-style-type: none"> <li>• Alarm will occur when an open or short condition is detected. Alarm will also occur when unit controller via the temperature sensor detects an out of range. Valid range is 30°F to 150°F. Possible causes are faulty temperature sensor / circuit or improper installation.</li> <li>• The alarming value indicates which Compressor Sump Temp sensor failed.</li> </ul>
184	ULTRA: COMPRESSOR 2 SUMP TEMPERATURE SENSOR ERROR	<p>0 - Tandem 1 Compressor 2 Sump Temp Sensor Failure 1 - Tandem 2 Compressor 2 Sump Temp Sensor Failure</p>
185 ENGINEERING USE ONLY.		
186*	BLOWER MOTOR FAULT	<p>In systems with EBM blower, prodigy shall start monitoring the motor alarm output (normally closed relay contact) ten seconds after blower command is sent. The M3 unit controller will stop unit operation if fault conditions (relay contact open logic input high) are detected.</p> <p><b>NOTE:</b> <i>Motor alarm is wired to P2597; shared with VFD alarm and ECM blower rpm inputs. Alarm will clear when inrange temperature is detected.</i></p>
187	INVERTER LOW LEVEL ALARM	<ul style="list-style-type: none"> <li>• Alarming Value = Inverter error code</li> <li>• Possible alarming values for Prodigy Alarm 187 are: <ul style="list-style-type: none"> <li>&gt; 12 - High Comp Current</li> <li>&gt; 13 - High Heat sink temperature</li> <li>&gt; 14 - High PFC input current</li> </ul> </li> <li>• If the alarm continues after outdoor conditions have moderated, check the fan, charge and coil. Alarm 187 will automatically clear when minimum off time expires.</li> <li>• Refer to trouble shooting guide in service manual for more information.</li> </ul>
<p><b>NOTE:</b> <i>The inverter will automatically slow the compressor speed due to any of the above conditions and the condition drops below the time-based dependence of the system's output on present and past inputs.</i></p>		
188	INVERTER HIGH LEVEL ALARM	<ul style="list-style-type: none"> <li>• Alarming Value = Inverter error code</li> <li>• Possible alarming values for Prodigy Alarm 188 are: <ul style="list-style-type: none"> <li>&gt; 21 - Peak DC current</li> <li>&gt; 22 - Maximum current reached lockout</li> <li>&gt; 23 - DC Link low voltage</li> <li>&gt; 26 - Locked Rotor</li> <li>&gt; 28 - DC Link high voltage</li> <li>&gt; 29 - Compressor over current</li> <li>&gt; 61 - Low outdoor ambient inverter lockout</li> <li>&gt; 62 - High Heat Sink Temperature lockout</li> <li>&gt; 75 - Low Input Voltage</li> </ul> </li> <li>• No action required. Compressor stops for the duration of the minimum run time. Unit shuts down after ten occurrences in one hour and Alarm 189 is initiated. Alarm 188 will automatically clear when inverter error clears.</li> <li>• Refer to trouble shooting guide in service manual for more information.</li> </ul>
189	INVERTER FATAL ALARM	<ul style="list-style-type: none"> <li>• Alarming Value = Inverter error code</li> <li>• Possible alarming values for Prodigy Alarm 189 are 21, 22, 23, 26, 28, 29, 61, 62 and 75.</li> <li>• Alarm 189 will clear upon manual reset.</li> <li>• Refer to trouble shooting guide in service manual for more information.</li> </ul>

**Table 15. Prodigy 2.0 Alarm and Event Codes**

SELECTED ALARMS (MARKED WITH * IN TABLE RESULT IN THE CLOSURE OF THE SERVICE RELAY CONTACTS (DO1).		
ALARM CODE	DISPLAY MESSAGE	EVENT ACTION
190	INVERTER COMMUNICATION ERROR	Unable to communicate with inverter. Prodigy will disable compressor operation. Replace communication cable between inverter and M3 unit controller. If alarm continues, replace M3 unit controller or inverter.
191	INVERTER VOLTAGE MISMATCH	Prodigy will disable compressor operation. Replace with correct inverter part.
192	TEMP SWITCH TRIP	Check temperature trip switch. Compressor is off. Also check charge, fans and coil. The unit controller will clear the temperature trip alarm when corresponding compressor top cap temperature trip switch is detected as closed. Compressor will not restart until the corresponding temperature trip switch is closed and the minimum off delay has expired.
193	STRIKE 3 TEMP TRIP	Prodigy will disable compressor operation (lockout). Check switch, charge, fans and coil. Default is three occurrences. Alarm will be automatically cleared after removal of cooling demand.

## 20. M3 Unit Parameters

Table 16. M3 Unit Parameters							
Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
2	LANGUAGE	LANGUAGE		ENGLISH, SPANISH OR FRENCH		Option	Select desired language for user interface. Options are English, French and Spanish.
<b>Power and Damper Parameters</b>							
5	VAV CONTROL MODE	Variable Air Volume Control Mode	0	If applicable to specific unit, see unit Parameter label for default setting	511	Option	Applicable to Energence Standard Efficiency 3- to 6-ton units only. <ul style="list-style-type: none"> <li>• 16 = Runs the blower in high speed when occupied and there is not other active demand (room sensor mode only)</li> <li>• 32 = Runs the blower in high speed when G is active and there is no other active demand (thermostat mode only)</li> </ul>
6	BLOWER SMOKE OUTPUT	Blower Smoke Output	20	Check unit label as Parameters may be configured to order.	100	%	<ul style="list-style-type: none"> <li>• Applicable to Energence High Efficiency 3- to 5-ton units.</li> <li>• Blower staged percentage output during smoke detection.</li> </ul>
7	BLOWER HEAT OUTPUT	Blower Heat Output	20	Depends on equipment	100	%	<ul style="list-style-type: none"> <li>• Applicable to Energence High Efficiency 3- to 5-ton units only.</li> <li>• Blower staged percentage output high speed; used for high heating speed.</li> </ul>
8	BLOWER LO CL OUTPUT	Blower Cool Output	20	Depends on equipment	100	%	<ul style="list-style-type: none"> <li>• Applicable to Energence High Efficiency 3- to 5-ton units only.</li> <li>• Blower staged percentage output low speed; used for low cooling or ventilation.</li> </ul>
9	MIN DAMPER LOW BLWR	Minimum Damper Position During High Speed Blower Operation	0	0	100	%	<ul style="list-style-type: none"> <li>• Minimum damper position during low speed blower operation.</li> <li>• Use Parameter 132 during high speed blower operation</li> </ul>
10	FREE CL STG UP DLY	Free Cooling Blower Stage Up Delay	0	300	1800	Sec	<ul style="list-style-type: none"> <li>• Applicable to Energence Standard Efficiency 3- to 6-ton units only.</li> <li>• Free cooling blower stage-up delay. Blower runs low speed during delay, and then shifts to high speed.</li> </ul>
11	ENBL FIELD STAT RPT	Enabled Field Status Report		0 = OFF 1 = ON		Option	Enabled Field Status Report
12	MSAV SMK CFM	Multi-Stage Air Volume Smoke Detection Mode (Alarm)	450	Check unit Parameter label as default may be altered at factory test.	14400	CFM	Multi-Stage Air Volume Smoke Detection Mode (Alarm) <b>NOTE:</b> In order for the SMOKE CFM change to take affect, go the <b>SETUP &gt; TEST &amp; BALANCE &gt; BLOWER</b> and run the wizard. Performing this task will recalculate the output to the desired CFM. No adjustments are required during this procedure.
19	MAX CFM RPM	Maximum Cubic Feet Per Minute Revolutions Per Minute	445	Check unit Parameter label as default may be altered at factory test.	1780	RPM	Maximum Cubic Feet Per Minute Revolutions Per Minute
27	MIN OUPT CL VT SMK	Minimum Output Cooling Vent Smoke Detection Mode (Alarm)	30	50	100	%	Minimum Output Cooling Vent Smoke Detection Mode (Alarm)

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
28	MIN OUTPUT HEAT	Minimum Output Heat	30	50	100	%	Minimum Output Heat
29	MIN DAMPER BLOWER	Minimum Damper Blower	0	Check unit Parameter label as default may be altered at factory test.	101	%	Setting this Parameter to 101.0% will disable this feature.
30	PWREXH STG2 MIN BLR	Power Exhaust Stage 2 Minimum Blower	0	70	100	%	Power Exhaust Stage 2 Minimum Blower
31	SUPPLY PID P CONST	Supply Proportional Base Control Loop for Variable Air Volume or Constant Air Volume with Bypass Damper	0	17	127	Counts	Variable Air Volume or Constant Air Volume with Bypass Damper supply PID Proportional constant.
32	SUPPLY PID I CONST	Supply Integral Base Control Loop for Variable Air Volume or Constant Air Volume with Bypass Damper	0	12	127	Counts	Variable Air Volume or Constant Air Volume with Bypass Damper supply PID Integral constant.
33	SUPPLY PID D CONST	Supply Derivative Base Control Loop for Variable Air Volume or Constant Air Volume with Bypass Damper	0	0	127	Counts	Variable Air Volume or Constant Air Volume with Bypass Damper supply PID derivative constant.
34	BLR STC PRESS SMK SP	Constant Air Volume with Bypass Damper Static Pressure Set Point During Smoke Alarm	0	1	5	w.c.	Constant air volume with bypass damper static pressure set point during smoke alarm.
35	BLR STC PRES VT SP	Constant Air Volume with Bypass Damper Static Pressure Set Point for Ventilation	0	1	5	w.c.	Constant air volume with bypass damper static pressure set point for ventilation.
36	BLR STC PRES HT SP	Constant Air Volume with Bypass Damper Static Pressure Set Point for Heating	0	1	5	w.c.	Constant air volume with bypass damper static pressure set point for heating
37	BLR STC PRES CL SP	Constant Air Volume with Bypass Damper Static Pressure Set Point for Cooling	0	1	5	w.c.	Constant air volume with bypass damper static pressure set point for cooling
38	MIN OUTPT CL VT SMK	Constant Air Volume with Bypass Damper Minimum Output Percentage Set Point for Cooling, Ventilation and Smoke Alarms	20	20	100	%	<ul style="list-style-type: none"> <li>Constant air volume with bypass damper minimum output for cooling, ventilation and during smoke alarms. This sets the minimum air delivered.</li> <li>Bypass damper motor is set to 10 to 2 volts with 10 volts being closed.</li> <li>20% setting = 2 volts or damper completely opened.</li> </ul>

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
39	MIN OUTPUT HEAT	Constant Air Volume with Bypass Damper Minimum Output Percentage Set Point for Heating	20	20	100	%	<ul style="list-style-type: none"> <li>Constant air volume with bypass damper minimum output for heating.</li> <li>This sets the minimum air delivered.</li> <li>Bypass damper motor is set to 10 to 2 volts with 10 volts being closed.</li> <li>20% setting = 2 volts or damper completely opened.</li> </ul>
40	BLOWER MAX OUTPUT	Constant Air Volume with Bypass Damper Maximum Output Percentage Set Point	40	100	100	%	<ul style="list-style-type: none"> <li>Constant air volume with bypass damper maximum output.</li> <li>This sets the maximum air delivered.</li> <li>Bypass damper motor is set to 10 to 2 volts with 10 volts being closed.</li> <li>100% setting = 10 volts or damper completely closed.</li> </ul>
41	SUPPLY MANUAL RESET	Constant Air Volume with Bypass Damper Manual Reset Value Output Percentage Set Point	20	52	100	%	Constant air volume with bypass damper manual reset value output. This is the output when unit is off.
42	STATIC SHUTDOWN SP	Air Supply Static Shutdown Set Point	0	2	5	w.c.	Supply static shutdown set point. Unit will shutdown for Parameter 110 minutes if duct pressure exceeds this value for 20 seconds.
43	STATIC LOCKOUT CNT	Static Pressure Lockout Counter Set Point	1	3	7	Counts	<ul style="list-style-type: none"> <li>The number of occurrences before permanent lockout. Counter resets when M3 resets.</li> <li>Refer to Parameter 226 to either enable or disable this feature.</li> </ul>
44	STATIC LO ALARM CHK	Supply Static Sensor (A30) Low Alarm Percentage Set Point	30	40	100	%	<ul style="list-style-type: none"> <li>Supply Static Pressure Sensor (A30) connected at (A133_P195_6) (TB18_6) alarm threshold.</li> <li>Blower percent speed before checking sensor after a 20 second delay.</li> <li>A value of 30% disables the low threshold or “open” alarm trap.</li> </ul>

**Electric Heating Parameters**

58	HT ELEC WARMUP DLAY	Electric Heat Warm-up Time Delay for Economizer	0	60	136	Minutes	Warm-up time delay. The time that the economizer is forced closed during warm-up (first occupied + heat demand)
60	HT ELEC BL OFF DLAY	Electric Heat Blower Off Delay Set Point.	0	System Dependent	300	Seconds	The time the blower stays on after the heating demand is lost.
61	HT ELEC MAX LT OCC	Electric Heat Maximum Primary and Secondary	1	3	15	Counts	Service output activation. Maximum Primary and Secondary Limit occurrences stored before service relay is energized. <b>NOTE:</b> Heating stage is not locked out.
62	HT ELEC STAGE DELAY	Electric Heat Time Delay Between Heat Stages	12	12	60	Seconds	Time delay between heat stages.
63	HT ELEC STG UP TMR	Electric Heat Maximum Lower Stage Run Time in Room Sensor Applications	0	912	3600	Seconds	<ul style="list-style-type: none"> <li>Stage up timer. The maximum time that lower stage runs before calling next heat stage. Used in room sensor applications.</li> <li>Disabled if set to 0.</li> </ul>
64	HT ELEC STG DWN TMR	Electric Heat Time Delay for Lower Stage Termination Following Higher Stage Termination	0	0	3600	Seconds	<ul style="list-style-type: none"> <li>Time delay before a lower stage turns off following a higher stage termination.</li> <li>Used in room sensor applications.</li> </ul>

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
<b>Gas Heating Parameters</b>							
65	HT GAS WARMUP DELAY	Gas Time Delay for Economizer Being Closed During Warm-up	0	60	136	Minutes	Warm-up time delay. The time that the economizer is forced closed during warm-up (first occupied + heat demand).
66	HT GAS BLR ON DELAY	Gas Blower On Delay After Heating Demand	8	System Dependent	60	Seconds	The time before the blower turns on after a heating demand.
67	HT GAS BLR OFF DLAY	Gas Blower Off Delay After Heating Demand Termination	80	System Dependent	300	Seconds	The time the blower stays on after the heating demand is terminated.
69	HT GAS HI FIRE DLAY	Gas Minimum Low Fire Time Prior to High Fire	30	100	300	Seconds	The minimum low fire time before high fire is allowed.
70	HT GAS OFF DELAY	Heating Off Delay Timer	30	100	300	Seconds	Heating off delay.
71	MAX CAI PRF SW OCC	Maximum Combustion Air Inducer Proof Switch Occurrence Setting Prior To Service Output Energized.	1	3	5	Occurrences	Service relay activation. Maximum combustion air Inducer proof switch occurrences stored before service output is energized.
72	MAX CAI NO PRF OCC	Maximum Combustion Air Inducer Proof Switch Occurrences	1	3	15	Occurrences	After the initial maximum combustion air Inducer proof switch closure, the system will continue to monitor the pressure switch and set alarm if three open occurrences are detected
73	MAX GV SENSE OCC	Maximum Gas Valve Sense Occurrences Stored Prior to Service Output Is Energized	1	3	5	Occurrences	Service output activation. Maximum gas valve sense occurrences stored before service output is energized. <b>NOTE:</b> Heating stage is not locked out.
74	HT GAS STG UP TMR	Gas Stage Up Timer	0	912	3600	Seconds	<ul style="list-style-type: none"> <li>Stage-up timer. The maximum time that lower stage runs before calling next heat stage. Used in room sensor applications.</li> <li>Disabled if set to 0.</li> </ul>
75	HT GAS STG DWN TMR	Gas Stage Down Timer	0	0	3600	Seconds	<ul style="list-style-type: none"> <li>Time delay before a lower stage turns off following a higher stage termination.</li> <li>Used in room sensor applications.</li> </ul>

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
<b>Block 4 Cooling Parameters</b>							
78	COOL DOWN DELAY	Cool Down Time Delay	0	30	136	Minutes	<ul style="list-style-type: none"> <li>• Cool down time delay. Time that Y2 is ignored during cool down period (when first occupied + cool demand)</li> <li>• This delay is only used if an economizer is used and the outdoor air is suitable.</li> </ul>
79	COOL BLR ON DELAY	Cooling Blower On Time Delay	0	See section 3.3.9. on page 20 for defaults.	60	Seconds	The time before the blower turns on after a cooling demand.
80	COOL BLR OFF DELAY	Cooling Blower Off Time Delay	0	See section 3.3.10. on page 20 for defaults.	240	Seconds	The time the blower stays on after the cooling demand is lost.
81	MAX FREEZE STAT OCC	Maximum Freeze Thermostat Occurrence	1	3	3	Occurrences	Service output activation and compressor lockout. Maximum freeze thermostat occurrences are stored before service relay is energized and compressor is locked-out.
82	COND FAN RESTRRT DLY	Condenser Fan Restart Time Delay	0	6	16	Seconds	Low ambient anti-windmilling condenser fan delay. The time period that the last operating fan is turned off before starting the next fan.
83	LAC SP TEMP 1	Low Ambient Outdoor Air Limit Temperature 1 Set Point	10	40	60	°F	<ul style="list-style-type: none"> <li>• Low ambient outdoor air limit temp. 1. Parameters 83 and 84 are used to shed fans.</li> <li>• Temperature setting must be less than or equal to Parameter 84.</li> </ul>
84	LAC SP TEMP 2	Low Ambient Outdoor Air Limit Temperature 2 Set Point	10	55	60	°F	<ul style="list-style-type: none"> <li>• Low ambient outdoor air limit temp. 2. Parameters 83 and 84 are used to shed fans.</li> <li>• Temperature setting must be greater than or equal to Parameter 83.</li> </ul>
85	COMP1 LO TMP LCKOUT	Low Ambient Temperature Lockout for Compressor 1	-31	Check unit Parameter label as default may be altered at factory test.	80	°F	<ul style="list-style-type: none"> <li>• Low ambient lockout for compressor 1.</li> <li>• A value of (-31°F) will disable low ambient lockout function.</li> <li>• Temperature setting must be less than or equal to Parameter 86.</li> </ul>
86	COMP2 LO TMP LCKOUT	Low Ambient Temperature Lockout for Compressor 2	-31	Check unit Parameter label as default may be altered at factory test.	80	°F	<ul style="list-style-type: none"> <li>• Low ambient lockout for compressor 2.</li> <li>• A value of (-31°F) will disable low ambient lockout function.</li> <li>• Temperature setting must be greater than or equal to Parameter 85 and less than or equal to Parameter 87.</li> </ul>
87	COMP3 LO TMP LCKOUT	Low Ambient Temperature Lockout for Compressor 3	-31	Check unit Parameter label as default may be altered at factory test.	80	°F	<ul style="list-style-type: none"> <li>• Low ambient lockout for compressor 3.</li> <li>• A value of (-31°F) will disable low ambient lockout function.</li> <li>• Temperature setting must be greater than or equal to Parameter 86 and less than or equal to Parameter 88.</li> </ul>
88	COMP4 LO TMP LCKOUT	Low Ambient Temperature Lockout for Compressor 4	-31	Check unit Parameter label as default may be altered at factory test.	80	°F	<ul style="list-style-type: none"> <li>• Low ambient lockout for compressor 4.</li> <li>• A value of (-31°F) will disable low ambient lockout function.</li> <li>• Temperature setting must be greater than or equal to Parameter 87.</li> </ul>

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
89	COMP MIN OFF DELAY	Compressor Minimum Off Delay	60	300	510	Seconds	Compressor minimum off delay.
91	COMP MIN RUN TIME	Compressor Minimum Run Time	60	240	510	Seconds	Compressor minimum run time.
98	MAX HP OCCURRENCES	Maximum High Pressure Occurrences	1	3	7	Occurrences	Maximum High Pressure occurrences that are stored before control locks off compressor stage and energizes the service output.
99	MAX LP OCCURRENCES	Maximum Low Pressure Occurrences	1	3	7	Occurrences	Maximum Low Pressure occurrences that are stored before control locks off compressor stage and energizes the service relay.
100	LP SW IGNORE TIME	Low Pressure Switch Ignore Time	0	120	600	Seconds	Low Pressure Switch Ignore Time
101	CL STG 2 STGUP TIME	Maximum Stage 1 Cooling Time Before Call for Stage 2 Cooling	0	912	3600	Seconds	<ul style="list-style-type: none"> <li>Stage 2 stage up timer. The maximum time that cooling stage 1 runs before calling cooling stage 2.</li> <li>Used in room sensor applications.</li> <li>Disabled if set to 0.</li> </ul>
102	CL STG 3 STGUP TIME	Maximum Stage 2 Cooling Time Before Call for Stage 3 Cooling	0	912	3600	Seconds	<ul style="list-style-type: none"> <li>Stage 3 stage up timer. The maximum time that cooling stage 2 runs before calling cooling stage 3.</li> <li>Used in room sensor applications.</li> <li>Disabled if set to 0.</li> </ul>
103	CL STG 4 STGUP TIME	Maximum Stage 3 Cooling Time Before Call for Stage 4 Cooling	0	912	3600	Seconds	<ul style="list-style-type: none"> <li>Stage 4 stage up timer. The maximum time that cooling stage 3 runs before calling cooling stage 4.</li> <li>Used in room sensor applications.</li> <li>Disabled if set to 0</li> </ul>
104	CL STAGE DOWN TIME	Cooling Stage Down Time	0	912	3600	Seconds	<ul style="list-style-type: none"> <li>Time delay before a lower stage turns off following a higher stage termination.</li> <li>Used in room sensor applications.</li> </ul>
105	DEHUMID MODE	Dehumidification Mode	0	0 - No Humiditrol is installed 6 - All Others (Check Unit Parameter Label)	7	Option	<p>Dehumidification Mode</p> <ul style="list-style-type: none"> <li><b>0</b> = No reheat.</li> <li><b>1</b> = Supermarket reheat using De-Humidistat (wired thermostat mode only)</li> <li><b>2</b> = Supermarket reheat using relative humidity sensor.</li> <li><b>3</b> = Humiditrol reheat. Conditions: Blower must be energized, Must be occupied, At least one previous cooling demand.</li> <li><b>4</b> = Relative Humidity measurement / display. No Supermarket or Humiditrol reheat.</li> <li><b>5</b> = Humiditrol reheat. Conditions: At least one previous cooling demand.</li> <li><b>6</b> = Humiditrol reheat. Conditions: Blower must be energized, Must be occupied.</li> <li><b>7</b> = Humiditrol reheat. Conditions: None</li> </ul>

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
106	DEHUMID SETPOINT	Dehumidification Set Point	0	Check unit Parameter label as default may be altered at factory test.	99	% RH	<ul style="list-style-type: none"> <li>Percent relative humidity where supermarket or Humiditrol reheat demand is energized. Used of dehumid mode option 2, 3, 5, 6 or 7. Dehumidification is de-energized at set point – dead-band (Parameter 107)).</li> <li>Digital Input 4 only. Energized input signal calls for dehumidification demand. L Connection Network Relative Humidity set point will override this set point. (Such as from NCP).</li> </ul>
107	DEHUMID DEADBAND	Dehumidification Dead Band (neutral zone)	1	3	10	% RH	Used of dehumidification Parameter 105, option 2, 3, 5, 6 or 7. Dehumidification is: <ul style="list-style-type: none"> <li>ON when relative humidity is equal to or greater than Parameter 106.</li> <li>OFF when Relative Humidity is less than Parameter 106 minus Parameter 107.</li> </ul>
108	FREE LO AMB LCKT SP	Free Cooling Low Ambient Lockout Set Point	45	55	80	°F	When outdoor air is suitable for free cooling and an economizer is present, the compressor will not run when ambient is below this value.
109	SMOKE ALARM CONTROL	Smoke Alarm Control	0	0	13	Option	<p>Smoke alarm control options.</p> <ul style="list-style-type: none"> <li><b>0</b> = Blower off, exhaust fan off and fresh air damper closed.</li> <li><b>2</b> = Blower off, exhaust fan on and fresh air damper closed.</li> <li><b>9</b> = Blower on, exhaust fan off and fresh air damper opened.</li> <li><b>10</b> = Blower on, exhaust fan on and fresh air damper closed.</li> <li><b>11</b> = Blower on, exhaust fan on and fresh air damper opened.</li> </ul>
110	ERR TIME OFF DELAY	Error Time Off Delay	64	300	1800	Seconds	Off time delay if a “no-run” error occurs.
111	COOL STAGING OPTION	Cooling Staging Option	0	Check unit Parameter label as default may be altered at factory test.	4	Option	<p>Cooling staging options:</p> <ul style="list-style-type: none"> <li><b>0</b> = No cooling operation</li> <li><b>1</b> = Wired thermostat operation, Two cooling stages and units with Economizers <ul style="list-style-type: none"> <li>&gt; Y1 = Free Cooling,</li> <li>&gt; Y2 = Adds all mechanical stages.</li> </ul> </li> <li><b>2</b> = Wired thermostat operation. Two cooling stages and Units with Economizers <ul style="list-style-type: none"> <li>&gt; Y1 - Free Cooling</li> <li>&gt; Y2 - adds first stage of mechanical.</li> </ul> </li> <li><b>3</b> = Wired thermostat operation. Three cooling stages. <ul style="list-style-type: none"> <li>&gt; Y1 only - first stage,</li> <li>&gt; Y2 only - second stage,</li> <li>&gt; Y1+Y2 - third stage.</li> </ul> </li> </ul> <p><b>NOTE:</b> Units with Economizers Y2 only adds first stage of mechanical, Y1+Y2 adds first and second stage of mechanical.</p> <ul style="list-style-type: none"> <li><b>4</b> = Discharge air control. Up to four stages.</li> </ul>

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
<b>Block 5 Miscellaneous Parameters</b>							
112	HEAT STAGING OPTION	Heating Staging Option	0	2	2	Option	<p>Heating staging options:</p> <ul style="list-style-type: none"> <li>• 0 = No heating operation.</li> <li>• 1 = Discharge air control with up to four stages.</li> <li>• 2 = Thermostat operation.</li> </ul>
113	EN RET AIR TMP LMT	Enable Return Air Temperature Limit	0	0	1	Option	<ul style="list-style-type: none"> <li>• Enables return air temperature limit option.</li> <li>• Return air limits may be used for limiting zone temperatures. Continuous fan operation recommended.</li> </ul>
114	COOL RET AIR LIMIT	Cooling Return Air Limit	60	65	80	°F	<ul style="list-style-type: none"> <li>• Return air limit for cooling. If the return air cooling limit is exceeded, the cooling demands are interrupted.</li> <li>• Parameter 113 must be set to 1 to enable.</li> </ul>
115	HEAT RET AIR LIMIT	Heating Return Air Limit	60	85	100	°F	<ul style="list-style-type: none"> <li>• Return air limit for heating. If the return air heating limit is exceeded, the heating demands are interrupted.</li> <li>• Parameter 113 must be set to 1 to enable.</li> </ul>
117	DCV MAX DAMPER OPEN	Demand Control Ventilation Maximum Damper Open	0	50	100	%	Maximum allowed demand control ventilation damper open position.
118	DCV DAMP START OPEN	Demand Control Ventilation Damper Start Open	0	700	2000	PPM	<ul style="list-style-type: none"> <li>• Damper “start open” CO<sub>2</sub> set point for Demand Control Ventilation.</li> <li>• Level where fresh air damper begins to open.</li> </ul>
119	DCV DAMP FULL OPEN	Demand Control Ventilation Maximum Damper Full Open Set Point	0	1200	2000	PPM	<ul style="list-style-type: none"> <li>• Damper “full open” CO<sub>2</sub> set point for Demand Control Ventilation.</li> <li>• Level where fresh air damper is opened to maximum.</li> </ul>
120	DCV HI TMP OV FL CL	Demand Control Ventilation Outdoor Air Control Hi Temperature Override Full Closed	-31	105	132	°F	High outdoor air temp. where fresh air damper is closed to minimum position.
121	DCV HI TMP OV ST CL	Demand Control Ventilation Outdoor Air Control Hi Temperature Override Start Closing	-31	75	132	°F	High outdoor air temperature where fresh air damper begins to close.
122	DCV LO TMP OV FL CL	Demand Control Ventilation Outdoor Air Control Low Temperature Override Full Closed	-31	10	132	°F	Low outdoor air temperature where fresh air damper is closed to minimum position
123	DCV LO TMP OV ST CL	Demand Control Ventilation Outdoor Air Control Low Temperature Override Start Closing	-31	40	132	°F	Low outdoor air temp. where fresh air damper begins to close.
127	OAC MANUAL RESET	Outdoor Air Control Manual Reset	0	50	100	%	Manual reset value.
128	OAC PID P CONSTANT	Outdoor Air Control PID P Constant	0	2	127	Counts	Outdoor Air Control PID P Constant
129	OAC PID I CONSTANT	Outdoor Air Control PID I Constant	0	30	127	Counts	Outdoor Air Control PID I Constant

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
130	OAC PID D CONSTANT	Outdoor Air Control PID D Constant	0	0	127	Counts	Outdoor Air Control PID D Constant
131	FREE CL MAX DAMPER	Free Cooling Maximum Damper	0	100	100	%	The maximum allowed fresh air damper opening for free cooling.
132	MIN DAMPER POSITION	Minimum Damper Position	0	0	100	%	Minimum fresh air damper position during occupied operation.
133	ZONE SENS STRTUP DLY	Room Sensor Start-up Delay	2	2	30	Minutes	<ul style="list-style-type: none"> <li>Suspends all unit operation room sensor and Constant Air Volume with bypass damper applications.</li> <li>Suspends Fresh Air Heat Control-Reheat, Fresh Air Cooling Control, Fresh Air Heat Control options and all GP outputs.</li> <li>May be used to stagger unit start-ups. Does NOT delay demands in thermostat mode.</li> </ul>
134	IAQ INPUT MODE	Indoor Air Quality Input Mode	0	1	7	Option	Options are: <ul style="list-style-type: none"> <li>0 = Ventilation is disabled.</li> <li>1 = Demand control ventilation with outdoor temperature limit and blower on. (Default)</li> <li>2 = Demand control ventilation without Outdoor Temperature Limit and Blower ON.</li> <li>3 = Demand control ventilation with Outdoor Temperature Limit and Blower AUTO / ON.</li> <li>4 = Demand control ventilation without Outdoor temperature Limit and no blower AUTO / ON.</li> <li>5 = Outdoor air control with outdoor temperature limit.</li> <li>6 = Outdoor air control without outdoor temperature limit</li> <li>7 = Building pressure control</li> </ul>

**System 1 Parameters**

137	OCC HEAT STPT	Occupied Heating Set Point	40	Check unit Parameter label as default may be altered at factory test.	95	°F	<ul style="list-style-type: none"> <li>Backup occupied heating set point.</li> <li>Used if the communications link is lost for 5 minutes between the M3 and NCP. Used only with room sensor applications.</li> <li>Set point temperature must be less than or equal to (Parameter 139 minus Parameter 152).</li> </ul>
138	UNOCC HEAT STPT	Unoccupied Heating Set Point	40	60	95	°F	<ul style="list-style-type: none"> <li>Backup unoccupied heating set point. Used if the communications link is lost for 5 minutes between the M3 and NCP.</li> <li>Used only in room sensor applications.</li> <li>Set point temperature must be less than or equal to (Parameter 140 minus Parameter 152).</li> </ul>
139	OCC COOL STPT	Occupied Cooling Set Point	40	75	95	°F	<ul style="list-style-type: none"> <li>Backup occupied cooling set point.</li> <li>Used if the communications link is lost for 5 minutes between the M3 and NCP. Used only in room sensor applications.</li> <li>Set point temperature must be greater than or equal to Parameter 137 plus Parameter 152).</li> </ul>

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
140	UNOCC COOL STPT	Unoccupied Cooling Set Point	40	85	95	°F	<ul style="list-style-type: none"> <li>Backup unoccupied cooling set point.</li> <li>Used if the communications link is lost for 5 minutes between the M3 unit controller and network control panel. Used only in room sensor applications.</li> <li>Set point temperature must be greater than or equal to Parameter 138 plus Parameter 152).</li> </ul>
141	AFTERHOUR OVRD DLY	After Hours Override Time Delay	0	60	480	Minutes	<ul style="list-style-type: none"> <li>After hours override timer.</li> <li>Only used on room sensor applications without a network control panel.</li> </ul>
142	HEAT STAGE DEADBAND	Heat Stage Deadband	1	1	3.75	°F	<ul style="list-style-type: none"> <li>Heating dead-band. Used only with M3 unit controller room sensor applications.</li> <li>Dead band must be less than or equal to Parameter 152 minus Parameter 143.</li> </ul>
143	COOL STAGE DEADBAND	Cool Stage Deadband	1	1	3.75	°F	<ul style="list-style-type: none"> <li>Cooling dead-band. Used only with room sensor applications.</li> <li>Dead band must be less than or equal to Parameter 152 minus Parameter 142.</li> </ul>
144	COOL STAGE1 DIFFER	Cooling Stage 1 Differential	0	0.5	3	°F	<ul style="list-style-type: none"> <li>Cooling stage 1 differential. Used only with room sensor applications.</li> <li>Differential temperature must be less than or equal to Parameter 145.</li> </ul>
145	COOL STAGE2 DIFFER	Cooling Stage 2 Differential	0	1	3	°F	<ul style="list-style-type: none"> <li>Cooling stage 2 differential. Used only with room sensor applications.</li> <li>Differential temperature must be greater than or equal to Parameter 144 and less than or equal to Parameter 146.</li> </ul>
146	COOL STAGE3 DIFFER	Cooling Stage 3 Differential	0	1.5	3	°F	<ul style="list-style-type: none"> <li>Cooling stage 3 differential. Used only with room sensor applications.</li> <li>Differential temperature must be greater than or equal to Parameter 145 and less than or equal to Parameter 147.</li> </ul>
147	COOL STAGE4 DIFFER	Cooling Stage 4 Differential	0	2	3	°F	<ul style="list-style-type: none"> <li>Cooling stage 4 differential. Used only with room sensor applications.</li> <li>Differential temperature must be greater than or equal to Parameter 146.</li> </ul>
148	HEAT STAGE1 DIFFER	Heating Stage 1 Differential	0	0.5	3	°F	<ul style="list-style-type: none"> <li>Heating stage 1 differential. Used only with room sensor applications.</li> <li>Differential temperature must be less than or equal to Parameter 149.</li> </ul>
149	HEAT STAGE2 DIFFER	Heating Stage 2 Differential	0	1	3	°F	<ul style="list-style-type: none"> <li>Heating stage 2 differential. Used only with room sensor applications.</li> <li>Differential temperature must be greater or equal to Parameter 148.</li> </ul>
150	HEAT STAGE3 DIFFER	Heating Stage 3 Differential	0	1.5	3	°F	<ul style="list-style-type: none"> <li>Heating stage 3 differential temperature. Used only with room sensor applications.</li> <li>Differential temperature must be greater than or equal to Parameter 149.</li> </ul>
151	HEAT STAGE4 DIFFER	Heating Stage 4 Differential	0	2	3	°F	<ul style="list-style-type: none"> <li>Heating stage 4 differential temperature. Used only with room sensor applications.</li> <li>Differential temperature must be greater than or equal to Parameter 150.</li> </ul>
152	AUTO CHGOVR DEADBND	Automatic Changeover Deadband	2	3	10	°F	<ul style="list-style-type: none"> <li>Minimum auto changeover dead-band temperature. Dead band must be greater than or equal to Parameter 142 plus Parameter 143.</li> <li>Used in room sensor applications.</li> </ul>

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
153	AUTO CHGOVR DELAY	Automatic Changeover Delay	1	Check unit Parameter label as default may be altered at factory test.	15	Minutes	Auto changeover time delay. Delay between heating and cooling modes.
154	OCC BLOWER MODE	Occupied Blower Mode		AUTO-CYCLES		Option	Blower control option for room sensor applications during occupied periods. <ul style="list-style-type: none"><li>• <b>Auto Cycle:</b> Blower cycles with demand</li><li>• <b>On-Continuous 1:</b> blower is on with either the occupancy sensor or occupancy schedule indicates occupied.</li><li>• <b>On-Continuous 2:</b> Blower is on only when both the occupancy sensor and occupancy scheduler indicates occupied.</li><li>• <b>On-Continuous 3:</b> lower is on only when both the occupancy sensor and occupancy scheduler indicates occupied. in addition, blower will be on a minimum of 25% of the time when occupancy scheduler indicates occupied by the occupancy sensor indicates not occupied. The 25% minimum is achieved by turning blower on for 30 minutes and off for 90 minutes.</li></ul>
155	FREECOOL LOCKOUT SP	Free Cooling Lockout Set Point	30	30	60	°F	<ul style="list-style-type: none"><li>• Locks out free cooling when outdoor temperature is below the set value.</li><li>• Setting value to 29°F disables free cooling lockout.</li></ul>
156	FRESH AIR HEAT SP	See 507242-XX, Prodigy Application Guide for further details and to change the fresh air heat (FAH) set point. Modify the set point only using the method described in the reference section.					
157	FAH STAGE DEADBAND	Fresh Air Heating Stage Deadband	3	10	15	°F	Fresh Air Heating stage dead-band.
158	FAH MIN CYCLE TIME	Fresh Air Heating Minimum Cycle Time	120	480	1800	Seconds	Fresh Air heating minimum cycle time.
159	FREE COOL SUPPLY SP	Free Cooling Supply Set Point	45	55	65	°F	Economizer modulates dampers to maintain supply air temperature (RT6) at this set point during free cooling. DACC reset applies. See Parameter 207 - Parameter 201
160	ECON FREECL TEMP SP	Economizer Free Cooling Temperature Set Point	40	60	75	°F	Outdoor Air Temperature is less than Parameter Set Point between 41-75°F, or when Outdoor Air temperature is less than Return Air Temperature between 0-40°F.
161	ECON FRCL TMP OFFSET	Economizer Free Cooling Temperature Offset	0	10	40	°F	Economizer Free Cooling Temperature Offset
162	ECON FREECL ENTH SP	Economizer Free Cooling Enthalpy Set Point	10	12	19	mA	Economizer Free Cooling Enthalpy Set Point
163	ECN FRCL ENTH OFFST	Economizer Free Cooling Enthalpy Offset	1	1	5	mA	Economizer Free Cooling Enthalpy Offset

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
164	ECONOMIZER PROFILE	Economizer Profile	0	2	3	Option	<p>These are the operating profile options for the economizer damper during free cooling when any compressor is on and can be selected as follows:</p> <ul style="list-style-type: none"> <li>• <b>Option 0:</b> Damper continues to modulate while compressors are on, but the effect of mechanical cooling may force the damper closed to its minimum position. After compressor starts, the free cooling setpoint is lowered to a fixed temperature of 45°F.</li> <li>• <b>Option 1:</b> Damper opens to its maxopen position (Parameter 131 - FREE CL MAX DAMPER) when any compressors start.</li> </ul> <p><b>NOTE:</b> When using Option 1 and after the compressor is stopped, the M3 will resume damper modulation.</p> <ul style="list-style-type: none"> <li>• <b>Option 2:</b> Damper continues to modulate while compressors are on, but the effect of mechanical cooling may force the damper closed to its minimum position. This is the factory default setting. <ul style="list-style-type: none"> <li>&gt; Holds off compressor on Y2 call until damper has modulated to maximum position (Parameter 131 - FREE CL MAX DAMPER) for three minutes.</li> <li>&gt; After three minutes, compressor starts and the free cooling setpoint is lowered to 45°F. Damper is not locked at maximum open while compressor is on, but modulates to maintain 45°F discharge air temperature.</li> <li>&gt; When Y2 is satisfied, compressor goes off and free cooling setpoint is restored to 55°F (Parameter 159 - FREE COOL SUPPLY SP).</li> </ul> </li> <li>• <b>Option 3:</b> Same as Option 2, but with a 10 minute delay instead of a three minute delay.</li> </ul>

#### System 2 Parameters

165	FAH STAGE DIFFER	Fresh Air Heating Stage Differential	0	2	20	°F	<ul style="list-style-type: none"> <li>• Fresh Air Heating stage differential.</li> <li>• 0 value for first stage heating only for Fresh Air Heating.</li> </ul>
166	FAH REHEAT OAT SP	Fresh Air Heating Control Reheat Outdoor Air Temperature Set Point	20	45	60	°F	Outdoor air temperature set point that enables fresh air heating for reheat demand and opens damper to Parameter 167 when outdoor air is less than set point.
167	FAH REHEAT DAMPER	Fresh Air Heating Control Reheat Damper Position	5	40	100	%	Fresh air damper position during Fresh Air Heating reheat operation.
168	FAH REHEAT SP	Fresh Air Heat Control Set Point	40	40	70	°F	Fresh Air Heating Reheat set point.
169	FAT AUTO CHGOVR DLY	Fresh Air Tempering Automatic Changeover Delay	15	30	120	Minutes	Fresh Air Heating Control or Fresh Air Cooling Control air Tempering auto-changeover delay.
170	FRESH AIR COOL SP	See 507242-01, Prodigy Application Guide for further details and to change the fresh air cool (FAC) set point. Modify the set point only using the method described in the reference section.					
171	FAC STAGE DEADBAND	Fresh Air Cooling Control Deadband	3	10	15	°F	Fresh Air Cooling stage dead-band.
172	FAC MIN CYCLE TIME	Fresh Air Cooling Control Cycle Time	120	480	1800	Seconds	Fresh Air Cooling minimum cycle time.

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
173	FAC STAGE DIFFER	Fresh Air Cooling Control Stage Differential	0	2	20	°F	<ul style="list-style-type: none"> <li>• Fresh Air Cooling stage differential between stages.</li> <li>• Set to 0 for first stage cooling only for Fresh Air Cooling.</li> </ul>
174	DACH OCC SETPOINT	Discharge Air Control Heating Occupied Set Point	60	110	140	°F	Discharge Air Control Heating set point during occupied period.
175	DACH UNOCC SETPOINT	Discharge Air Control Heating Unoccupied Set Point	60	95	140	°F	Discharge Air Control Heating set point during unoccupied period.
176	DACH STAGE DEADBAND	Discharge Air Control Heating Stage Deadband	5	5	20	°F	Discharge Air Control Heating dead-band.
177	DACH FAH STG UP TMR	Discharge Air Control Heating Stage-Up Time Delay	0	180	900	Seconds	Discharge Air Control Heating and Fresh Air Heating stage-up time delay.
178	DACH FAH STG DN TMR	Discharge Air Control Heating and Fresh Air Heating Control Stage-Down Time Delay	0	120	600	Seconds	Discharge Air Control Heating and Fresh Air Heating stage-down time delay.
179	DACH STAGE DIFFER	Discharge Air Control Heating Stage Differential	2	2	20	°F	Discharge Air Control Heating stage differential
180	DACC OCC SETPOINT	Discharge Air Control Cooling Occupied Set Point	40	55	80	°F	Discharge Air Control Cooling set point during occupied period.
181	DACC UNOCC SETPOINT	Discharge Air Control Cooling Unoccupied Set Point	40	65	100	°F	Discharge Air Control Cooling set point during unoccupied period.
182	DACC STAGE DEADBAND	Discharge Air Control Cooling Deadband Set Point	5	5	20	°F	Discharge Air Control Cooling stage dead-band.
183	DACC FAC STG UP TMR	Discharge Air Control Cooling and Fresh Air Cooling Stage-Up Delay	0	180	900	Seconds	Discharge Air Control Cooling and Fresh Air Cooling stage-up delay.
184	DACC FAC STG DN TMR	Discharge Air Control Cooling and Fresh Air Cooling Stage-Down Time Delay	0	120	600	Seconds	Discharge Air Control Cooling and Fresh Air Cooling stage-down time delay.
185	DACC STAGE DIFFER	Discharge Air Cooling Stage Differential	2	2	20	°F	Discharge Air Cooling stage differential.

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
186	SRV OUTPT CTRL MODE	Service Output Control Mode	0	0	127	Option	<p>A55 Service Output Control Mode = X + 32*Y + 16*Z</p> <p><b>Input source = X:</b></p> <ul style="list-style-type: none"> <li>• 0 = None</li> <li>• 1 = Compressor 1 duty cycle. (Compressor crankcase heater function.) <ul style="list-style-type: none"> <li>&gt; On when outdoor air temperature is less than or equal to Parameter 189 and greater than or equal to Parameter 192 seconds have passed with compressor 1 off.</li> <li>&gt; Off when Outdoor Air temperature is greater than Parameter 189 plus 3°F (fixed dead-band) or is less than Parameter 192 seconds have passed with compressor 1 off</li> </ul> </li> <li>• 2 = On when occupied.</li> <li>• 3 = On when blower on,</li> <li>• 4 = On when heating demand.</li> <li>• 5 = On when cooling demand.</li> <li>• 6 = On when heating or cooling demand.</li> <li>• 7 = System Relative Humidity (A55_P298_5 RH)</li> <li>• 8 = System Indoor Air Quality. (A55_P298_3 IAQ)</li> <li>• 9 = System Outdoor Air Temperature (A55_P267_1/2 OAT)</li> <li>• 10 = Energy Recovery System</li> <li>• 11 = SCR Option for Electric Heat</li> </ul> <p><b>Algorithm Y for input sources 7 - 9:</b></p> <ul style="list-style-type: none"> <li>• 0 = Hysteresis loop (see sections 14.2 - 14.4)</li> <li>• 1 = Window - On when input is in range; (see sections 14.2 - 14.4)</li> <li>• 2 = Delayed-on. (see sections 14.2 - 14.4)</li> <li>• 3 = Delayed-off. (see sections 14.2 - 14.4)</li> </ul> <p><b>Inversion Z:</b></p> <ul style="list-style-type: none"> <li>• 0- Output not inverted.</li> <li>• 1- Output inverted.</li> </ul>
187	SRV OUTPT SP C02	Service Output Set Point for Carbon Dioxide	0	996	2000	ppm	A55 service relay output set point.
188	SRV OUTPT SP RH	Service Output Set Point for Relative Humidity	0	100	100	%	Service Output Set Point for Relative Humidity
189	SRV OUTPT SP TEMP	Service Output Set Point Temperature	-31	51	132	°F	Service Output Set Point Temperature
190	SRV OUTPT DB C02	Service Output Deadband for Carbon Dioxide	16	102	2000	ppm	A55 service relay output dead-band or delay.
191	SRV OUTPT DB RH	Service Output Deadband for Relative Humidity	2	13	100	%	Service Output Deadband for Relative Humidity
192	SRV OUTPT DB TEMP	Service Output Deadband for Temperature	1	8	162	°F	Service Output Deadband for Temperature

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
193	SRV OUTPT DELAY	Service Output Delay	64	416	8160	Seconds	Service Output Delay
194	LOAD SHED NUM COMP	Number of compressors to shed during load shedding	0	0	4	Option	Number of compressors to be turned off when load shedding is active. Applicable to Energence Standard Efficiency 3- to 6-ton units only. 2-stage compressor, a value of one shuts off 2nd stage only and a value of 2 turns compressor completely off.
196	MAC ADDRESS	MAC Address	0	128	128	Address	BACnet MAC Address. A value of 0-128 sets the BACnet MAC address to that value.
197	BAUD RATE	Baud Rate		9.6K 19.2K 38.4K 76.8K		Option	Baud rate setting.
<b>System 3 Parameters</b>							
201	DACC OAT RS ADJ BND	Discharge Air Control Cooling Outdoor Air Temperature Adjustment Band	0	0	30	°F	<ul style="list-style-type: none"> <li>• Discharge Air Control Cooling outdoor temperature ambient cooling adjustment reset band.</li> <li>• Also used to reset free cooling set point (Parameter 159).</li> </ul>
202	DACC OAT RS ADJ SP	Discharge Air Control Cooling Outdoor Air Temperature Cooling Reset Set Point	40	80	100	°F	<ul style="list-style-type: none"> <li>• Discharge Air Control Cooling outdoor air temperature cooling reset set point.</li> <li>• Also used to reset free cooling set point (Parameter 159).</li> </ul>
203	DACC OAT RS PRP BND	Discharge Air Control Cooling Outdoor Ambient Air Temperature Cooling Proportional Band	1	20	60	°F	<ul style="list-style-type: none"> <li>• Discharge Air Control Cooling outdoor ambient temperature cooling proportional band.</li> <li>• Also used to reset free cooling set point (Parameter 159).</li> </ul>
204	DACC RAT RS ADJ BND	Discharge Air Control Cooling Return Air Reset Adjustment Band	0	0	30	°F	<ul style="list-style-type: none"> <li>• Discharge Air Control Cooling return air reset adjustment band. 0 disables return air cooling reset.</li> <li>• Also used to reset free cooling set point (Parameter 159).</li> </ul>
205	DACC RAT RS ADJ SP	Discharge Air Control Return Air Reset Adjustment Set Point	50	70	80	°F	<ul style="list-style-type: none"> <li>• Discharge Air Control Cooling return air reset set point.</li> <li>• Also used to reset free cooling set point (Parameter 159).</li> </ul>
206	DACC RAT RS PRP BND	Discharge Air Control Cooling Return Air Reset Proportional Band	1	10	30	°F	<ul style="list-style-type: none"> <li>• Discharge Air Control Cooling return air reset proportional band.</li> <li>• Also used to reset free cooling set point (Parameter 159).</li> </ul>
207	DACC RS LIMIT	Discharge Air Control Cooling Reset Limit	5	10	20	°F	<ul style="list-style-type: none"> <li>• Discharge Air Control Cooling total reset limit. This limits the total DACC reset allowed.</li> <li>• Also used to reset free cooling set point (Parameter 159).</li> </ul>
208	DACH OAT RS ADJ BND	Discharge Air Control Heating Outdoor Air Temperature Reset Adjustment Band	0	0	30	°F	Discharge Air Control Heating outdoor temperature reset adjustment band.
209	DACH OAT RS ADJ SP	Discharge Air Control Heating Reset Adjustment Set Point	-31	40	60	°F	Discharge Air Control Heating outdoor temperature reset set point.

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
210	DACH OAT RS PRP BND	Discharge Air Control Heating Outdoor Air Temperature Reset Proportional Band	1	20	60	°F	Discharge Air Control Heating temperature reset proportional band.
211	DACH RAT RS ADJ BND	Discharge Air Control Heating Return Air Temperature Adjustment Band	0	0	30	°F	Discharge Air Control Heating return reset adjustment band.
212	DACH RAT RS ADJ SP	Discharge Air Control heating Return Air Heating Reset Set Point	50	70	80	°F	Discharge Air Control Heating return air heating reset set point.
213	DACH RAT RS PRP BND	Discharge Air Control Heating Return Air Heading Reset Proportional Band	1	10	30	°F	Discharge Air Control Heating return air heating reset proportional band.
214	DACH RS LIMIT	Discharge Air Control Heating Return Air Heating Reset Limit	5	10	20	°F	Discharge Air Control Heating reset limit. This limits the total DACH reset allowed.
215	EXH FN STG1 DAMP SP	Exhaust Fan Stage 1 Damper Set Point	0	50	100	%	Exhaust fan stage 1 damper set point.
216	EXH FN STG1 DAMP DB	Exhaust Fan Stage 1 Damper Deadband	0	Check unit Parameter label as default may be altered at factory test.	100	%	Exhaust Fan Stage 1 Damper Deadband
217	EXH FN STG1 PRES SP or VFD PE PRES SP	Stage 1 set point or VFD PE set point	-0.5	0.05	0.5	in w.c.	Exhaust Fan Stage 1 Pressure Set Point. or VFD Power Exhaust Building Pressure Set Point.
218	EXH FN STG1 PRES DB	Stage 1 deadband	0	0.02	1	in w.c.	Exhaust Fan Stage 1 Pressure Deadband.
219	EXH FN STG2 DAMP SP	Exhaust Fan Stage 2 Damper Set Point	0	75	100	%	Exhaust Fan Stage 2 Damper Set Point
220	EXH FN STG2 DAMP DB	Exhaust Fan Stage 2 Damper Deadband	0	10	100	%	Exhaust Fan Stage 2 Damper Deadband
221	EXH FN STG2 PRES SP	Stage 2 setpoint	-0.5	0.10	0.5	in w.c.	Exhaust Fan Stage 2 Pressure Set Point
222	EXH FN STG2 PRES DB	Stage 2 deadband	0	0.05	1	in w.c.	Exhaust Fan Stage 2 Pressure Deadband.
223	EXH FAN STGUP DELAY	Exhaust Fan Stage Up Delay	0	100	300	Seconds	Exhaust Fan Stage Up Delay
224	EXH FAN STGDWN DLAY	Exhaust Fan Stage Down Delay	0	100	200	Seconds	Stage 1 off-delay. (Only used for 2 stage operation)

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
228	CL LO CFM CALIB	Advanced Airflow Low Speed Calibration	-1200	0	1200	Count	<ul style="list-style-type: none"> <li>Applicable to Energence Standard Efficiency 3- to 6-ton units only.</li> <li>If the absolute value of this Parameter is greater than Parameter 17. then this is not considered in target calculation.</li> </ul>
229	CL HI SPD CALIB	Advanced Airflow Hi Speed Calibration	-1200	0	1200	Count	<ul style="list-style-type: none"> <li>Applicable to Energence Standard Efficiency 3- to 6-ton units only.</li> <li>If the absolute value of this Parameter is greater than Parameter 14. then this is not considered in target calculation</li> </ul>
230	CL MED LO SPD CALIB	Advanced Airflow Medium Speed Calibration	-1200	0	1200	Count	Applicable to Energence Standard Efficiency 3- to 6-ton units only.
231	CL MED HI SPD CALIB	Advanced Airflow Medium High Speed Calibration	-1200	0	1200	Count	Applicable to Energence Standard Efficiency 3- to 6-ton units only.
232	HEAT CFM CALIB	Advanced Airflow Heat CFM Calibration	-1200	0	1200	Count	Applicable to Energence Standard Efficiency 3- to 6-ton units only.
233	VENT CFM CALB	Advanced Airflow Vent CFM Calibration	-1200	0	1200	Count	Applicable to Energence Standard Efficiency 3- to 6-ton units only.
234	LO SP CFM ALARM SP	Advanced Airflow Low Speed CFM Alarm Set Point	15	25	100	%	Applicable to Energence Standard Efficiency 3- to 6-ton units only.
235	LO SP CFM ALARM EU	Advanced Airflow Low Speed CFM Alarm Evaluation	0	1800	3600	Seconds	Applicable to Energence Standard Efficiency 3- to 6-ton units only.
236	NO AIRFLOW ALARM EU	Advanced Airflow No Airflow Alarm Evaluation	0	20	300	Count	Applicable to Energence Standard Efficiency 3- to 6-ton units only.
237	OUTDOOR AIR TARGET	Outdoor Air Target	0	0	750	CFM	Applicable to Energence Standard Efficiency 3- to 6-ton units only.
238	OUTDOOR CFM CALIB	Advanced Airflow Outdoor CFM Calibration	-600	0	600	Count	Applicable to Energence Standard Efficiency 3- to 6-ton units only.
239	LO OD CFM ALARM SP	Advanced Airflow Outdoor CFM Alarm Set Point	15	25	100	%	Applicable to Energence Standard Efficiency 3- to 6-ton units only.
240	HI OD CFM ALARM SP	Advanced Air Flow High Outdoor CFM Alarm Set Point	15	25	100	%	Applicable to Energence Standard Efficiency 3- to 6-ton units only.
241	MAX OD CFM DCV SP	Advanced Airflow Maximum Outdoor CFM Demand Control Ventilation Set Point	0	600 (3-ton Unit) 800 (4-ton Unit) 1000 (5-ton Unit)	2400	CFM	Applicable to Energence Standard Efficiency 3- to 6-ton units only.
243	LO OD CFM ALARM EU	Advanced Air Flow Low Outdoor CFM Alarm Evaluation	0	1800	3600	Seconds	Applicable to Energence Standard Efficiency 3- to 6-ton units only.
244	HI OD CFM ALARM EU	Advanced Air Flow High Outdoor CFM Alarm Evaluation	0	1800	3600	Seconds	Applicable to Energence Standard Efficiency 3- to 6-ton units only.

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description																					
			Min.	Default	Max.																							
245	OD DP ERR ALARM EU	Advanced Airflow Outdoor Air Damper Error Alarm Evaluation	0	1800	3600	Seconds	Applicable to Energence Standard Efficiency 3- to 6-ton units only.																					
246	ALTITUDE STPT	Advanced Airflow Altitude Set Point	0	650	25000	Feet	Applicable to Energence Standard Efficiency 3- to 6-ton units only.																					
247	BLR CALIB RAMP RATE	Blower Calibration Ramp Rate	4	10	40	%	Applicable to Energence Standard Efficiency 3- to 6-ton units only.																					
258	DISPLAY UNITS F/C	Display Unit (Fahrenheit or Celsius)		FAHRENHEIT or CELSIUS		Option	Temperature unit of measurement.																					
285	FRCL COMP LCKOUT MD	Free Cooling Compressor Lockout Mode	0	2	2	Option	<ul style="list-style-type: none"> <li>0 = Disable Free Cooling Low Ambient Compressor Lockout (default).</li> <li>1 = Lockout Compressor whenever the outdoor air is suitable regardless of outdoor air temperature.</li> <li>2 = Enable Free Cooling Low Ambient Compressor Lockout.</li> </ul>																					
287	ALGORITHMS ENABLED	Algorithms Enabled	<p><b>NOTE:</b> Options for Parameter 287 are not accessible via the M3 unit controller user interface. Options can be set using the Lennox UC software.</p> <p>Here is an example of the selection options for Algorithms Enable via the Lennox UC Software:</p> <table> <thead> <tr> <th>Set Bit</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00000002</td> <td>Enable Fresh Air Heating (ALGO_FAH)</td> </tr> <tr> <td>0x00000004</td> <td>Enable Fresh Air Cooling (ALGO_FAC)</td> </tr> <tr> <td>0x00000008</td> <td>Enable DACC Return Air Reset (ALGO_DACC_RAT_RESET)</td> </tr> <tr> <td>0x00000010</td> <td>Enable DACC Outdoor Air Reset (ALGO_DACC_OAT_RESET)</td> </tr> <tr> <td>0x00000020</td> <td>Enable DACH Return Air Reset (ALGO_DACH_RAT_RESET)</td> </tr> <tr> <td>0x00000040</td> <td>Enable DACH Outdoor Air Reset (ALGO_DACH_OAT_RESET)</td> </tr> <tr> <td>0x00000080</td> <td>Enable Supply Static Pressure Sensor Alarm (ALGO_LO_STATIC_PRESSURE_ALARM)</td> </tr> <tr> <td>0x00000100</td> <td>Enable Low Outdoor Temp override of DCV/OAC operation (ALGO_LO_OAT_DCV_OAC_OVERRIDE)</td> </tr> <tr> <td>0x00000200</td> <td>Enable High Outdoor Temp override of DCV/OAC operation (ALGO_HI_OAT_DCV_OAC_OVERRIDE)</td> </tr> <tr> <td>0x00000800</td> <td>Enable Free Cooling Blower Stage Up</td> </tr> </tbody> </table> .	Set Bit	Description	0x00000002	Enable Fresh Air Heating (ALGO_FAH)	0x00000004	Enable Fresh Air Cooling (ALGO_FAC)	0x00000008	Enable DACC Return Air Reset (ALGO_DACC_RAT_RESET)	0x00000010	Enable DACC Outdoor Air Reset (ALGO_DACC_OAT_RESET)	0x00000020	Enable DACH Return Air Reset (ALGO_DACH_RAT_RESET)	0x00000040	Enable DACH Outdoor Air Reset (ALGO_DACH_OAT_RESET)	0x00000080	Enable Supply Static Pressure Sensor Alarm (ALGO_LO_STATIC_PRESSURE_ALARM)	0x00000100	Enable Low Outdoor Temp override of DCV/OAC operation (ALGO_LO_OAT_DCV_OAC_OVERRIDE)	0x00000200	Enable High Outdoor Temp override of DCV/OAC operation (ALGO_HI_OAT_DCV_OAC_OVERRIDE)	0x00000800	Enable Free Cooling Blower Stage Up			
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0x00000800	Enable Free Cooling Blower Stage Up																											
305	LON HEARTBEAT TIME	LonTalk Heartbeat Time	0	100	10,000	Seconds	Heartbeat configuration proprieties define how often a network variable update is transmitted from a sending node.																					
313	FAH REHEAT MODE	Fresh Air Reheat Mode	0	0	3	Option	<ul style="list-style-type: none"> <li>0 = Disabled</li> <li>1 = Allowed, must be occupied</li> <li>2 = Allowed, blower must be energized and in occupied mode.</li> <li>3 = Allow. No conditions apply.</li> </ul>																					
314	MSAV MIN VFD DR OUT	MSAV Minimum VFD Drive Output	10	33	50	%	The M3 unit controller will ensure that active VFD drive output is equal or greater than Minimum VFD drive output. If conversion from CFM setting to VFD drive yields lower value. The system will use Minimum VFD drive output instead output.																					
317	OUT AIR UNIT OPTNS	Outdoor Air Unit Options	0	0	2	Option	This Parameter is applicable in Zone Sensor mode (i.e. not applicable for local/remote thermostat mode).																					

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
321	ENTH HIGH TMP LIMT	Enthalpy High Temperature Limit	45	75	85	°F	When in Enthalpy mode, the outdoor air suitability (OAS) will be set only if the outdoor air temperature is lesser than this Parameter set point.
323	ZON SNSR CAL OFFSET	Zone Sensor Calibration Offset	-5	0	5	°F	This setting is applicable to local temperature sensor only. <b>NOTE:</b> Parameter 323 is only available in firmware version 8.01 or later.
327	BPC MANUAL RESET	Building Pressure Control Manual Reset	0	50	100	%	Manual reset value. This Parameter defines the default outdoor air damper position
328	BPC PID P CONST	Building Pressure Control PID P Constant	0	100	127	Count	BPC PID Proportional Constant
329	BPC PID I CONST	Building Pressure Control PID I Constant	0	30	127	Count	BPC PID Integral Constant
330	GP A02 MODE	General Purpose A02 Mode	0	0	12	Mode Selection	<ul style="list-style-type: none"> <li>• 1 - Occupied - PID set point A; Unoccupied - PID set point B</li> <li>• 2 - Occupied - PID set point A; Unoccupied - Staged output B</li> <li>• 3 - Occupied - Staged output A; Unoccupied - PID set point B</li> <li>• 4 - Occupied - Staged output A; Unoccupied - Staged output B</li> <li>• 5 - Blower On - PID set point A; Blower Off - PID set point B</li> <li>• 6 - Blower On - PID set point A; Blower Off - Staged output B</li> <li>• 7 - Blower On - Staged output A; Blower Off - PID set point B</li> <li>• 8 - Blower On - Staged output A; Blower Off - Staged output B</li> <li>• 9 - DI2 on - PID set point B (1); DI3 on - PID set point A (2); Otherwise off.</li> <li>• 10 - DI2 on - PID set point B (1); DI3 on - Staged Output A (2); Otherwise off.</li> <li>• 11 - DI2 on - PID set point B (1); DI3 on - Staged Output A (2); Otherwise off.</li> <li>• 12 - Reserved</li> <li>• (1) -DI3 (on M3) doesn't matter</li> <li>• (2) -DI2 (on M3) is off</li> </ul>
331	GP A02 SPA	General Purpose A02 Set Point A	0	0	100	%	Analog output channel 2, set point A.
332	GP A02 SP B	General Purpose A02 Set Point B	0	0	100	%	Analog output channel 2, set point B.
333	GP A02 STG A	General Purpose A02 Stage A	0	0	100	%	Analog output channel 2, stage A
334	GP A02 STG B	General Purpose A02 Stage B	0	0	100	%	Analog output channel 2, stage B
335	GP A02 OUTPUT	General Purpose A02 Output	0	0	1	Selection	<ul style="list-style-type: none"> <li>• 0 = PWM</li> <li>• 1 = 0-10 VDC</li> </ul>
336	GP A02 PWM FREQ	General Purpose A02 Pulse-Width Modulation Frequency	50	200	2000	Hz	Analog output PWM frequency.

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
337	GP A02 KP	General Purpose A02 Proportional Constant for PID	0	0	100	Count	Analog output channel 2 PID loop proportional constant.
338	GP A02 KI	General Purpose A02 Integral Constant for PID	0	0	100	Count	Analog output channel 2 PID loop integral constant.
340	GP A02 MIN OUPUT	General Purpose A02 Minimum Output	0	0	100	%	Analog output channel 2 minimum output.
341	GP A02 MAX OUPUT	General Purpose A02 Maximum Output	0	100	100	%	Analog output channel 2 maximum output.
342	GP A02 SOURCE	General Purpose A02 Source	1	1	3	Selection	Source/feedback for the PID loop. • 1 = Analog input 1 on GP3 A02 • 2 = Analog input 2 on GP3 A02 • 3 = Analog input 3 on GP3 A02
343	GP A02 CYCL INTRVL	General Purpose A02 Cycle Interval	0	1	180	Seconds	Frequency of execution of PID loop.
344	GP A03 MODE	General Purpose A03 Mode	0	0	11	Mode Selection	<ul style="list-style-type: none"> <li>• 1 - Occupied - PID set point A; Unoccupied - PID set point B</li> <li>• 2 - Occupied - PID set point A; Unoccupied - Staged output B</li> <li>• 3 - Occupied - Staged output A; Unoccupied - PID set point B</li> <li>• 4 - Occupied - Staged output A; Unoccupied - Staged output B</li> <li>• 5 - Blower On - PID set point A; Blower Off - PID set point B</li> <li>• 6 - Blower On - PID set point A; Blower Off - Staged output B</li> <li>• 7 - Blower On - Staged output A; Blower Off - PID set point B</li> <li>• 8 - Blower On - Staged output A; Blower Off - Staged output B</li> <li>• 9 - DI2 on - PID set point B (1); DI3 on - PID set point A (2); Otherwise off.</li> <li>• 10 - DI2 on - PID set point B (1); DI3 on - Staged Output A (2); Otherwise off.</li> <li>• 11 - DI2 on - PID set point B (1); DI3 on - Staged Output A (2); Otherwise off.</li> <li>• 12 - Reserved</li> <li>• (1) -DI3 (on M3) doesn't matter</li> <li>• (2) -DI2 (on M3) is off</li> </ul>
345	GP A03 SPA	General Purpose A03 Set Point A	0	0	100	%	Analog output channel 3, set point A.
346	GP A03 SP B	General Purpose A03 Set Point B	0	0	100	%	Analog output channel 3, set point B.
347	GP A03 STG A	General Purpose A03 Stage A	0	0	100	%	Analog output channel 3, stage A
348	GP A03 STG B	General Purpose A02 Stage B	0	0	100	%	Analog output channel 3, stage B
349	GP A03 OUTPUT	General Purpose A03 Output	0	0	1	Selection	<ul style="list-style-type: none"> <li>• 0 = PWM</li> <li>• 1 = 0-10 VDC</li> </ul>

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
350	GP A03 PWM FREQ	General Purpose A03 Pulse-Width Modulation Frequency	50	200	2000	Hz	Frequency of execution of PID loop.
351	GP A03 KP	General Purpose A03 Proportional Constant	0	0	100	Count	Analog output channel 3 PID loop proportional constant.
352	GP A03 KI	General Purpose A03 Integral Constant	0	0	100	Count	Analog output channel 3 PID loop integral constant.
354	GP A03 MIN OUPUT	General Purpose A03 Minimum Output	0	0	100	%	Analog output channel 3 minimum output.
355	GP A03 MAX OUPUT	General Purpose A03 Maximum Output	0	100	100	%	Analog output channel 3 Maximum output.
356	GP A03 SOURCE	General Purpose A03 Source	1	1	3	SOURCE	Source/feedback for the PID loop. <ul style="list-style-type: none"> <li>• 1 = Analog input 1 on GP3 A03</li> <li>• 2 = Analog input 2 on GP3 A03</li> <li>• 3 = Analog input 3 on GP3 A03</li> </ul>
357	GP A03 CYCL INTRVL	General Purpose A03 Cycle Interval	0	1	180	Seconds	Frequency of execution of PID loop.

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
358	GP D01 MODE	General Purpose D01 Mode	0	0	127	Input Source	<p>GP3 Digital Out Control Mode = X + 32*Y + 16*Z</p> <p><b>Input Sources X:</b></p> <ul style="list-style-type: none"> <li>• 0 = None.</li> <li>• 1 = Compressor 1 duty cycle. (Compressor crankcase heater function)           <ul style="list-style-type: none"> <li>&gt; On when outdoor air temperature is <math>\geq</math> Parameter 364 seconds have passed with compressor 1 off.</li> <li>&gt; Off when outdoor air temperature <math>&gt;</math> Parameter 362 + 3°F (fixed dead-band) or compressor 1 is turned on.</li> </ul> </li> <li>• 2 = On when Occupied</li> <li>• 3 = On when blower on.</li> <li>• 4 = On when heating demand</li> <li>• 5 = On when cooling demand</li> <li>• 6 = On when heating or cooling demand</li> <li>• 7 = System RH (use Parameter 361)</li> <li>• 8 = System IAQ (use Parameter 360)</li> <li>• 9 = System OAT (use Parameter 362)</li> <li>• 10 = On based on GP3 Temperature Sensor 1 (use Parameter 362)</li> <li>• 11 = On based on GP3 Temperature Sensor 2 (use Parameter 362)</li> <li>• 12 = On based on GP3 AI1 (use Parameter 359)</li> <li>• 13 = On based on GP3 AI2 (use Parameter 359)</li> <li>• 14 = On based on GP3 AO1 (use Parameter 359)</li> <li>• 15 = On based on GP3 AO2 (use Parameter 359)</li> <li>• Algorithm Y for Input Sources 7-15 (see 507242-01, Prodigy Application Guide for further details).</li> </ul>
359	GP D01 SP VOLTS	General Purpose D01 Set Points Volts	0	0	10	Volts	General Purpose D01 Digital output control mode set point.
360	GP D01 SP PPM	General Purpose D01 Set Point Parts Per Million	21	996	1996	PPM	General Purpose D01 Digital output control mode set point.
361	GP D01 SP PERCENT	General Purpose D01 Set Point Percentage	0	0	100	%	General Purpose D01 Digital output control mode set point.
362	GP D01 SP DEGREES	General Purpose D01 Set Point Degree	-31	0	132	°F	General Purpose D01 Digital output control mode set point.
363	GP D01 DB PERCENT	General Purpose D01 Dead Band Percentage	0	0	100	%	<p>General Purpose D01 Digital output control mode set point.</p> <p><b>EXAMPLE:</b> If this Parameter is set to 10%, then the dead-band in Fahrenheit would be (DO Temperature Set Point * 10 / 100).</p>
364	GP D01 TIME DELAY	General Purpose D01 Time Delay	1	416	8160	Seconds	For delay on or delay off.

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
365	GP D02 MODE	General Purpose D02 Mode	0	0	127	Mode Selection	<p>GP3 Digital Out Control Mode = X + 32*Y + 16*Z</p> <p><b>Input Sources X:</b></p> <ul style="list-style-type: none"> <li>• 0 = None.</li> <li>• 1 = Compressor 1 duty cycle. (Compressor crankcase heater function)           <ul style="list-style-type: none"> <li>&gt; On when outdoor air temperature is &lt;= Parameter 369 and &gt;= P 371 seconds have passed with compressor 1 off.</li> <li>&gt; Off when outdoor air temperature &gt; Parameter 369 + 3°F (fixed dead-band) or compressor 1 is turned on.</li> </ul> </li> <li>• 2 = On when Occupied</li> <li>• 3 = On when blower on.</li> <li>• 4 = On when heating demand</li> <li>• 5 = On when cooling demand</li> <li>• 6 = On when heating or cooling demand</li> <li>• 7 = System RH (use Parameter 368)</li> <li>• 8 = System IAQ (use Parameter 367)</li> <li>• 9 = System OAT (use Parameter 369)</li> <li>• 10 = On based on GP3 Temperature Sensor 1 (use Parameter 369)</li> <li>• 11 = On based on GP3 Temperature Sensor 2 (use Parameter 369)</li> <li>• 12 = On based on GP3 AI1 (use Parameter 366)</li> <li>• 13 = On based on GP3 AI2 (use Parameter 366)</li> <li>• 14 = On based on GP3 AO1 (use Parameter 366)</li> <li>• 15 = On based on GP3 AO2 (use Parameter 366)</li> <li>• Algorithm Y for Input Sources 7-15 (see 507242-01, Prodigy Application Guide for further details).</li> </ul>
366	GP D02 SP VOLTS	General Purpose D02 Set Point Volts	0	0	10	Volts	General Purpose D02 Digital output control mode set point.
367	GP D02 SP PPM	General Purpose D02 Set Point Parts Per Million	21	996	1996	PPM	General Purpose D02 Digital output control mode set point.
368	GP D02 SP PERCENT	General Purpose D02 Set Point Percentage	0	0	100	%	General Purpose D02 Digital output control mode set point.
369	GP D02 SP DEGREES	General Purpose D02 Set Point Degree	-31	0	132	°F	General Purpose D02 Digital output control mode set point.
370	GP D02 DB PERCENT	General Purpose D02 Dead Band Percentage	0	0	100	%	General Purpose D02 Digital output control mode set point.
371	GP2 D02 TIME DELAY	General Purpose D02 Time Delay	1	416	8160	Seconds	General Purpose D02 Digital output control mode set point.
375	DISCHARGE AIR CL SP	Discharge Air Cooling Set Point	45	55	65	°F	Set point used by the compressor / DAT PI in room sensor mode to determine the compressor speed.
382	BLOWER LO HT OUTPUT	Blower Low Heat Output	20	Depends on equipment	100	%	Applicable to Emergence High Efficiency 3- to 5-ton units only. ·Blower staged percentage output low speed; used for low heating for certain P volt models

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
385	BACNET & CS COEXIST	This will allow the CS8500 to act as a slave to the M3 Unit Controller and connect via BACNET.	0	0	1	Option	<ul style="list-style-type: none"> <li>• 0 = Disabled (default) (Required setting for connection with ICON system.</li> <li>• 1 = Enabled (BACNET &amp; CS8500 can co-exist.</li> </ul>
386	VAV SMK PRESS SP	VAV supply static pressure set point during smoke operation	0	1	5	in w.c.	
387	VAV VT PRESS SP	VAV supply static pressure set point during ventilation	0	1	5	in w.c.	
388	VAV HT PRESS SP	VAV supply static pressure set point during heating	0	1	5	in w.c.	
389	VAV CL PRESS SP	VAV supply static pressure set point during cooling	0	1	5	in w.c.	
390	VAV MAX OUTPUT	VAV PID loop max speed	40	100	100	%	
391	VAV MANUALRESET	VAV PID loop manual reset value.	0	60	100	%	
392	MGV STARTUP DELAY	"MGV start up delay is based on the setting. For example the default startup delay is 16 seconds after moving to high fire."	4	16	300	Seconds	
393	MGV MAX	MGV PID loop min speed	60	80	100	%	
394	MGV MIN	MGV PID loop max speed	0	20	100	%	
395	MGV PID MANUAL RST	MGV PID loop manual reset value.	0	50	100	%	
396	MGV PID P CONST	MGV PID loop proportional constant	0	40	127	Counts	
397	MGV PID I CONST	MGV PID loop integral constant	0	64	127	Counts	
398	MGV PID D CONST	MGV PID loop derivative constant	0	0	127	Counts	
399	MGV SP HI CAB	Shift to high speed CAB when MGV output rises above this value.	0	65	100	%	
400	MGV DB HI CAB	Deadband for shifting down to low speed CAB	2	17	100	%	
401	POWER EXHAUST MODE	Power Exhaust Mode	N/A	Blower On	N/A	Options	Exhaust Fan Enable Options: <ul style="list-style-type: none"> <li>• Blower On</li> <li>• Always</li> <li>• Occupied</li> <li>• External Enable</li> </ul>

**Table 16. M3 Unit Parameters**

Control Parameter No	Screen Name	Parameter Short Description	Control Value			Units	Description
			Min.	Default	Max.		
402	EXH FN LOW SPD CYCL	Low Speed Cycling.		0	1	Options	<ul style="list-style-type: none"> <li>• 0 = Disabled</li> <li>• 1 - Enables Low Speed Cycling.</li> </ul>
403	EXH FN STG1 SPEED	Speed for stage 1 when using a VFD for controlling exhaust fan in staged mode.	0	50	100	%	
404	EXH FN STG2 SPEED	Speed for stage 2 when using a VFD for controlling exhaust fan in staged mode.	0	100	100	%	
405	EXH FN SMK PRES SP	Exhaust Fan set point for PID control	-0.50	-0.50	0.50	in w.c.	
406	EXH FN MIN SPEED	Exhaust Fan PID loop min speed	0	50	100	%	
407	EXH FN MAX SPEED	Exhaust Fan PID loop max speed	0	100	100	%	
408	EXH FN MANUAL RESET	Exhaust Fan PID loop manual reset value.	0	100	100	%	
409	EXH FN P CONSTANT	Exhaust Fan PID loop proportional constant	0	20	127	Counts	
410	EXH FN I CONSTANT	Exhaust Fan PID loop integral constant	0	64	127	Counts	
411	EXG FN D CONSTANT	Exhaust Fan PID loop derivative constant	0	0	127	Counts	
412	EN FIXED BLWR SPD	Enable Fixed Blower Speed	0	0	2	Options	This Parameter is applicable to 'T' type Blower only. <ul style="list-style-type: none"> <li>• 0 - Auto</li> <li>• 1 - Always run the blower at low speed</li> <li>• 2 - Always run the blower at high speed</li> </ul>
414	HI CL REHEAT TMOUT	High Cool Reheat Time Out	0	0	30	Sec	Reheat run-time on call for high cooling.
415	DAMP BKLSH ADJ	Damper Backlash Adjustment	0	25	40	%	Damper overshoot percentage when moving to a more closed position. The damper will move this percentage beyond the target position, then reverse and move to the final target position.
416	BLOWER COOL OUTPUT	Blower Cooling High	20	Depends on equipment	100	%	Applicable to Emergence High Efficiency 3- to 5-ton units only. Blower staged percentage output high speed; used for high cooling or ventilation,

## 21. M3 Unit Controller Signal References

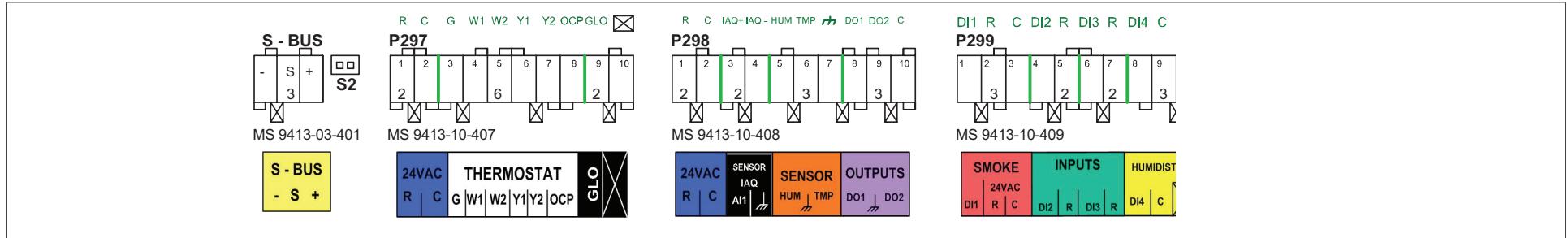


Figure 13. M3 Unit Controller Signal Reference Guide

## 22. M3 Unit Controller Connections Diagram

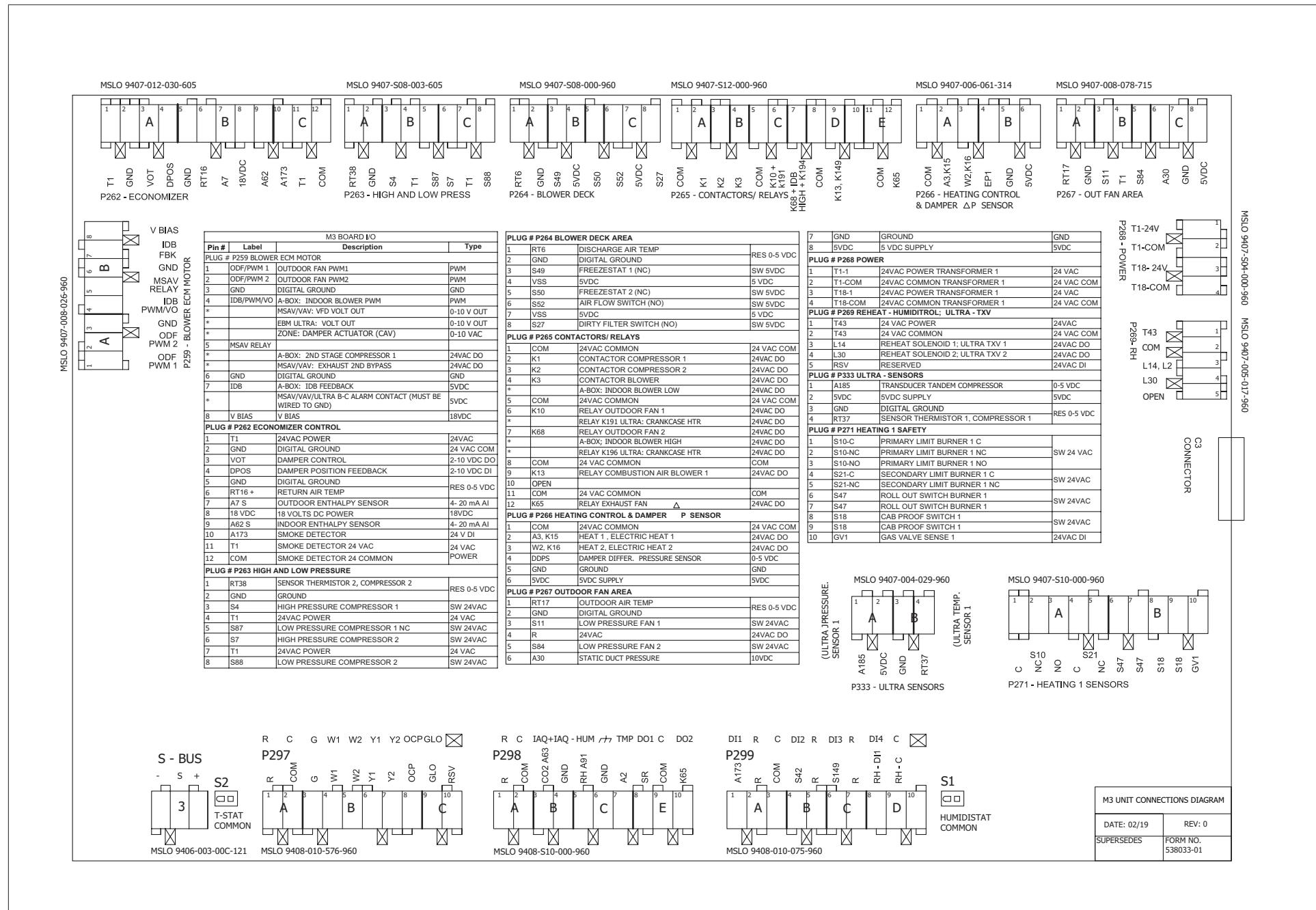


Figure 14. M3 Unit Connections Diagram

## 23. M3 Unit Controller (A55)

**Table 17. P259 Variable Blower and Fan Control**

Pin #	Label	Description	Type
1	ODF / PWM 1	OUTDOOR FAN PWM1	PWM
2	ODF / PWM 2	OUTDOOR FAN PWM2	PWM
3	GND	DIGITAL GROUND	GND
4	IDB / PWM / VO	ENERGENCE STANDARD EFFICIENCY 3 TO 6-TON UNIT INDOOR BLOWER PWM	PWM
*		MSAV / VAV: VFD VOLT OUT	0-10 VAC OUT
*		ALL ENERGENCE ULTRA-HIGH EFFICIENCY UNITS EBM: VOLT OUT	0-10 VAC OUT
*		ZONE: DAMPER ACUATOR (CAV)	0-10 VAC
5	MSAV RELAY		
*		ENERGENCE STANDARD EFFICIENCY 3 TO 6-TON UNIT: 2ND STAGE COMPRESSOR 1	24VAC DO
*		MSAV w/AUTO BYPASS; 2ND STAGE EXHAUST	24VAC DO
6	GND	DIGITAL GROUND	GND
7	IDB	ENERGENCE STANDARD EFFICIENCY 3 TO 6-TON UNIT: IDB FEEDBACK	5VDC
*		MSAV / VAV / ENERGENCE ULTRA-HIGH EFFICIENCY 7-1/2 TO 20-TON UNITS ALARM CONTACT (MUST BE WIRED TO GND)	5VDC
8	V BIAS	V-BIAS	18VDC

**Table 18. P262 Economizer Control**

Pin #	Label	Description	Type
1	T1	24VAC POWER	24VAC
2	GND	DIGITAL GROUND	24VAC COM
3	VOT	DAMPER CONTROL	2-10VDC DO
4	DPOS	DAMPER POSITION FEEDBACK	2-10VDC DI
5	GND	DIGITAL GROUND	RES 0-5VDC
6	RT16 +	RETURN AIR TEMP	
7	A7 S	OUTDOOR ENTHALPY SENSOR	4-20 mA AI
8	18VDC	18VDC POWER	18VDC
9	A62 S	INDOOR ENTHALPY SENSOR	4-20 mA AI
10	A173	SMOKE DETECTOR	24VAC DI
11	T1	SMOKE DETECTOR 24VAC	
12	COM	SMOKE DETECTOR 24VAC COMMON	24VAC POWER

**Table 19. P263 High and Low Pressure**

Pin #	Label	Description	Type
1	UTS2	ULTRA SUMP TEMP COMPRESSOR 2	RES 0-5VDC
2	GND	GROUND	
3	S4	HIGH PRESSURE COMPRESSOR 1	SW 24VAC
4	T1	24VAC POWER	24VAC
5	S87	LOW PRESSURE COMPRESSOR 1 NC	SW 24VAC
6	S7	HIGH PRESSURE COMPRESSOR 2	SW 24VAC
7	T1	24VAC POWER	24VAC
8	S88	LOW PRESSURE COMPRESSOR 2	SW 24VAC

**Table 20. P264 Blower Deck Area**

Pin #	Label	Description	Type
1	RT6	DISCHARGE AIR TEMP	RES 0-5VDC
2	GND	DIGITAL GROUND	
3	S49	FREEZESTAT 1 (NC)	SW 5VDC
4	VSS	5VDC	5VDC
5	S50	FREEZESTAT 2 (NC)	SW 5VDC
6	S52	AIR FLOW SWITCH (NO)	SW 5VDC
7	VSS	5VDC	5VDC
8	S27	DIRTY FILTER SWITCH (NO)	SW 5VDC

**Table 21. P265 Contactors / Relays**

<b>Pin #</b>	<b>Label</b>	<b>Description</b>	<b>Type</b>
1	COM	24VAC COMMON	24VAC COM
2	K1	CONTACTOR COMPRESSOR 1	24VAC DO
3	K2	CONTACTOR COMPRESSOR 2	24VAC DO
4	K3	CONTACTOR BLOWER	24VAC DO
*		ENERGENCE STANDARD EFFICIENCY 3 TO 6-TON UNITS INDOOR BLOWER LOW	24VAC DO
5	COM	24VAC COMMON	24VAC COM
6	K10	RELAY OUTDOOR FAN 1	24VAC DO
*		RELAY K191 ULTRA: CRANKCASE HEATER	24VAC DO
7	K68	RELAY OUTDOOR FAN 2	24VAC DO
*		A-BOX: INDOOR BLOWER HIGH	24VAC DO
*		RELAY K196 ULTRA: CRANKCASE HEATER	24VAC DO
8	COM	24VAC COMMON	24VAC COM
9	K13	RELAY COMBUSTION AIR BLOWER 1	24VAC DO
10	COM	24VAC COMMON	24VAC COM
11	K85	RELAY EXHAUST FAN	24VAC DO

**Table 22. P266 Heating Control and Damper ΔP Sensor**

<b>Pin #</b>	<b>Label</b>	<b>Description</b>	<b>Type</b>
1	COM	24VAC COMM	24VAC COM
2	A3, K15	HEAT 1, ELECTRIC HEAT 1	24VAC DO
3	W2, K16	HEAT 2, ELECTRIC HEAT 2	24VAC DO
4	DDPS	DAMPER DIFFER. PRESSURE SENSOR	0-5VDC
5	GND	GROUND	GND
6	5VDC	5VDC SUPPLY	5VDC

**Table 23. P267 Outdoor Fan Area**

<b>Pin #</b>	<b>Label</b>	<b>Description</b>	<b>Type</b>
1	RT17	OUTDOOR AIR TEMP	RES 0-5VDC
2	GND	DIGITAL GROUND	
3	S11	LOW PRESSURE FAN 1	SW 24VAC
4	R	24VAC	24VAC DO
5	S84	LOW PRESSURE FAN 2	SW 24VAC
6	A30	STATIC DUCT PRESSURE	10VDC
7	GND	GROUND	GND
8	5VDC	5VDC SUPPLY	5VDC

**Table 24. P268 Power**

<b>Pin #</b>	<b>Label</b>	<b>Description</b>	<b>Type</b>
1	T1-1	24VAC POWER TRANSFORMER 1	24VAC
2	T1-COM	24VAC COMMON TRANSFORMER 1	24VAC COM
3	T18-1	24VAC POWER TRANSFORMER 1	24VAC
4	T18-COM	24VAC COMMON TRANSFORMER 1	24VAC COM

**Table 25. P269 Reheat - Humiditrol: Ultra - TXV**

<b>Pin #</b>	<b>Label</b>	<b>Description</b>	<b>Type</b>
1	T43	24VAC POWER	24VAC
2	T43	24VAC COMMON	24VAC COM
3	L14	REHEAT SOLENOID 1: ULTRA TXV 1	24VAC DO
4	L30* ENERGENCE B 12.5T 2-SPEED OD FAN RELAYS - K251/K252	REHEAT SOLENOID 2: ULTRA TXV 2	24VAC DO
5	RSV	RESERVED	24VAC DI

**Table 26. P271 Heating 1 Safety**

<b>Pin #</b>	<b>Label</b>	<b>Description</b>	<b>Type</b>
1	S10-C	PRIMARY LIMIT BURNER 1C	SW 24VAC
2	S10-NC	PRIMARY LIMIT BURNER 1 NC	
3	S10-NO	PRIMARY	
4	S21-C	SECONDARY LIMIT BURNER 1C	SW 24VAC
5	S21-NC	SECONDARY LIMIT BURNER 1 NC	
6	S47	ROLL OUT SWITCH BURNER 1	SW 24VAC
7	S47	ROLL OUT SWITCH BURNER 1	
8	S18	CAB PROOF SWITCH 1	
9	S18	CAB PROOF SWITCH 1	SW 24VAC
10	GV1	GAS VALVE SENSE 1	

**Table 27. P297 Thermostat**

<b>Pin #</b>	<b>Label</b>	<b>Description</b>	<b>Type</b>
1	R	TRANSFORMER 1 24VAC POWER	24VAC
2	C	TRANSFORMER 1 24V COMMON	24VAC COMM
3	G	BLOWER SIGNAL	24VAC DI
4	W1	1ST STAGE HEATING	24VAC DI
5	W2	2ND STAGE HEATING	24VAC DI
6	Y1	1ST STAGE COOLING	24VAC DI
7	Y2	2ND STAGE COOLING	24VAC DI
8	OCP	OCCUPIED SIGNAL	24VAC DI
9	GLO	GLOBAL CONTROL INPUT	24VAC DI
10	RSV	RESERVED	NA

**Table 28. P298 IAQ Interface**

<b>Pin #</b>	<b>Label</b>	<b>Description</b>	<b>Type</b>
1	R	TRANSFORMER 1 24VAC POWER	24VAC
2	C	TRANSFORMER 1 24V COMMON	24VAC COMM
3	IAQ+	INDOOR AIR QUALITY	0-10VDC AI
4	GND	INDOOR AIR QUALITY	0-10VDC AI
5	HUM	RH SENSOR	0-10VDC AI
6	GND	DIGITAL GROUND	GND
7	TMP	ROOM SENSOR	THERMISTOR
8	DO1	SERVICE RELAY OUTPUT	24VAC DO
9	GND	24 VAC COMMON	24VAC COMM
10	DO2	EXHAUST FAN	24VAC DO

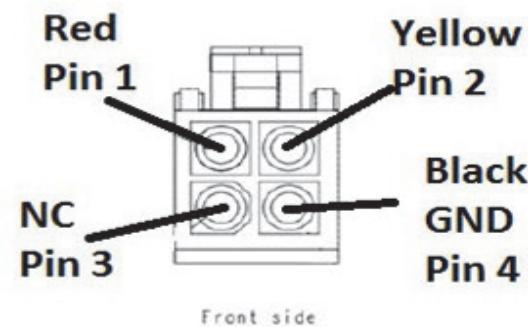
**Table 29. P299 Safety**

Pin #	Label	Description	Type
1	DI1	SMOKE DETECTOR (NO)	24VAC DI
2	R	TRANSFORMER 1 24VAC POWER	24VAC
3	C	TRANSFORMER 1 24V COMMON	24VAC COMM
4	DI2	DIGITAL INPUT 2 FORMER (S42 & S135)	24VAC DI
5	R	TRANSFORMER 1 24VAC POWER	24VAC
6	DI3	DIGITAL INPUT 3 FORMER (S149 & A42 FOR A BOX)	24VAC DI
7	R	TRANSFORMER 1 24VAC POWER	24VAC
8	DI4	DIGITAL INPUT 4 FORMER (HUMIDITROL INPUT)	24VAC DI
9	C	TRANSFORMER 1 24V COMMON	24VAC COMM
10	RSV	RESERVED	NA

**Table 30. P333 Ultra - Sensors**

Pin #	Label	Description	Type
1	UPS1	SUCTION PRESSURE	0-5VDC
2	5VDC	5VDC SUPPLY	5VDC
3	GND	DIGITAL GROUND	
4	UTS1	SUMP TEMP COMPRESSOR 1	RES 0-5VDC

**Table 31. P358 (Ultra-A Box Only M3 Unit Controller)**

Pin #	Label	Wire Color	
1	RS485_A	RED	
2	RS485_B	YELLOW	
3	NOT USED		
4	GND	BLACK	 Front side

## 23.1. GP3 Control (A187)

Table 32. P348

Pin #	Description	Type
1	5VDC SUPPLY (10MA MAX)	5VDC
2	ANALOG/PWM OUTPUT 4	AO: 0-10VDC; PWM: 0-15V
*	ULTRA C: PWM FAN B23/B24	PWM: 0-15V
3	ANALOG/PWM OUTPUT 2	AO: 0-10VDC; PWM: 0-15V
4	ANALOG/PWM OUTPUT 3	AO: 0-10VDC; PWM: 0-15V
*	ULTRA C: PWM FAN B22	PWM: 0-15V
5	ANALOG/PWM OUTPUT 1	AO: 0-10VDC; PWM: 0-10V
6	RELAY 1 - NORMALLY OPEN	RELAY (DRY) CONTACT
7	RELAY 1 - COM	RELAY (DRY) CONTACT
8	RELAY 2 - COM	RELAY (DRY) CONTACT
9	RELAY 2 - NORMALLY OPEN	RELAY (DRY) CONTACT
10	DIGITAL INPUT 3	24V DI
11	DIGITAL INPUT 4	24V DI
12	DIGITAL INPUT 2	24V DI
13	THERMISTOR INPUT 2 (10K@25C)	RES 0 - 3.3 VDC
*	ULTRA C: SENSOR THERMISTOR COMPRESSOR 4	
14	ANALOG INPUT 1	0-10VDC
*	ULTRA C: TRANSDUCER TANDEM COMP B	0-5VDC
15	ANALOG INPUT 2	0-10VDC
16	THERMISTOR INPUT 1 (10K@25C)	RES 0 - 3.3 VDC
*	ULTRA C: SENSOR THERMISTOR COMPRESSOR 3	
17	ANALOG INPUT 3 (0-10VDC)	0-10VDC
18	GROUND	GND
19	GROUND	GND
20	GROUND	GND
21	GROUND	GND
22	COM	COM
23	COM	COM
24	DIGITAL INPUT 1	24V DI

## 23.2. C3 Control (A178)

**Table 33. P118**

Pin #	Label	Description	Type
1	24VAC	24VAC SUPPLY (FOR RELAY OUTPUTS)	24VAC
2	COM	24VAC COM	24VAC COM
3		OPEN (NOT USED)	
4		OPEN (NOT USED)	
5	FAN3	RELAY OUTDOOR FAN 3	24VAC DO
*		ULTRA C: RELAY K233 CRANKCASE HEATER COMP 3	
6		OPEN (NOT USED)	
7		OPEN (NOT USED)	
8	FAN4	RELAY OUTDOOR FAN 4	24VAC DO
*		ULTRA C: RELAY K234 CRANKCASE HEATER COMP 4	
9	FAN5	RELAY OUTDOOR FAN 5	24VAC DO
10	FAN6	RELAY OUTDOOR FAN 6	24VAC DO
11	CMP3	CONTACTOR COMPRESSOR 3	24VAC DO
12	CMP4	CONTACTOR COMPRESSOR 4	24VAC DO

**Table 34. P119**

Pin #	Label	Description	Type
1	HPSW3	HIGH PRESSURE SWITCH COMPRESSOR 3	SW 24VAC
2			
3	HPSW4	HIGH PRESSURE SWITCH COMPRESSOR 4	SW 24VAC
4			
5	FRZST3	FREEZESTAT COMPRESSOR 3	SW 5VDC
6			
7	LPSW3	LOW PRESSURE SWITCH COMPRESSOR 3	SW 24VAC
8			
9	FRZST4	FREEZESTAT COMPRESSOR 4	SW 5VDC
10			
11	LPSW4	LOW PRESSURE SWITCH COMPRESSOR 3	SW 24VAC
12			
13		OPEN (NOT USED)	
14		OPEN (NOT USED)	
15		OPEN (NOT USED)	
16		OPEN (NOT USED)	

**Table 35. P272**

<b>Pin #</b>	<b>Label</b>	<b>Description</b>	<b>Type</b>
1	PRIMARY LIMIT	PRIMARY LIMIT BURNER 2 C	SW 24VAC
2		PRIMARY LIMIT BURNER 2 NC	
3		PRIMARY LIMIT BURNER 2 NO	
4	SECONDARY	SECONDARY LIMIT BURNER 2 C	SW 24VAC
5		SECONDARY LIMIT BURNER 2 NC	
6	GAS2 SAFETY SWITCHES	ROLLOUT SWITCH BURNER 2	SW 24VAC
7		CAB PROOF SWITCH 2	
8			SW 24VAC
9		GAS VALVE SENSE 2	
10			24VAC DI

**Table 36. P332**

<b>Pin #</b>	<b>Label</b>	<b>Description</b>	<b>Type</b>
1	COM	24VAC COM	24VAC COM
2	A12 K17	HEAT 3, ELECTRIC HEAT 3	24VAC DO
3	W2 K18	HEAT 4, ELECTRIC HEAT 4	24VAC DO
4	CAB2	RELAY COMBUSTION AIR BLOWER 2	24VAC DO

## 24. Quick Start Guide

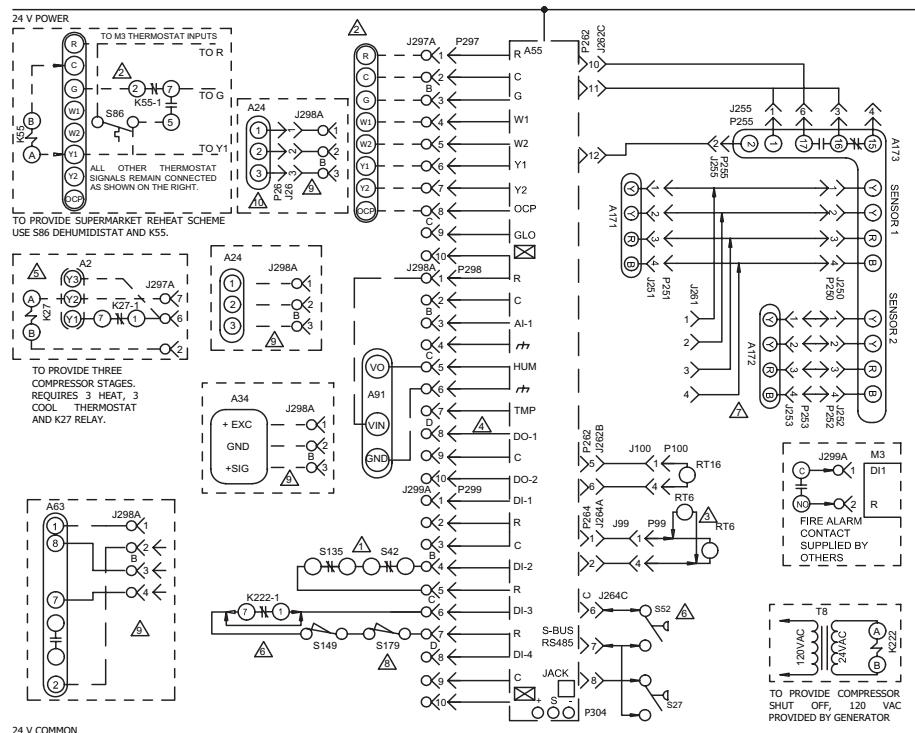
# CAUTION

**Check rooftop unit electrical power for proper voltage and phasing. Check gas train components.**

- a. Turn on unit and dismiss alarm messages as necessary.
- b. Follow SETUP > INSTALL menu to properly configure unit
- c. Be sure unit is in normal operating mode as seen in display (COOLING, HEATING, IDLE, etc).
- d. To verify operation use SERVICE > TEST menu.

Control Mode	Menu Setup Needed	Tips
THERMOSTAT	(Factory set for 2-stage thermostat)	Check LEDs for signals.
BACnet	SETUP > NETWORK INTEGRATION > NETWORK TYPE = BACNET	<ul style="list-style-type: none"> <li>• Setup information to be verified with integrator.</li> <li>• Follow wiring instructions including network termination</li> <li>• Remember to set MAC address 0-127</li> <li>• Expert level BACnet service manual available.</li> </ul>
LonTalk	SETUP > NETWORK INTEGRATION > NETWORK TYPE = LONTALK	<ul style="list-style-type: none"> <li>• Setup information to be verified with integrator.</li> <li>• Follow wiring instructions including network termination</li> <li>• XIF file available. Neuron ID on sticker.</li> <li>• Expert level LonTalk service manual available.</li> </ul>
L Connection	SETUP > NETWORK INTEGRATION > NETWORK TYPE = L-CONNECTION	<ul style="list-style-type: none"> <li>• Follow wiring instructions including network termination</li> <li>• Comfort Sensors are 24 VAC polarity sensitive.</li> <li>• All network devices need to be correctly addressed</li> </ul>
Damper	SETUP > TEST & BALANCE > DAMPER	<ul style="list-style-type: none"> <li>• Verify damper minimum positions</li> <li>• Refer to Economizer section of manual for more detail</li> </ul>
Local Mode	SETUP > NETWORK INTEGRATION > NETWORK TYPE = RTU STANDALONE	<ul style="list-style-type: none"> <li>• Give unit time to start-up.</li> <li>• Humidity control requires sensor or error code 7649</li> </ul>
Dehumidifier	Dehumidifier setup will be done during the SETUP >INSTALL wizard. It's the last part of that wizard.	<ul style="list-style-type: none"> <li>• Three possible connections, LOCAL SENSOR, NETWORK SENSOR and REHEAT DI4.</li> <li>• Analog sensor wiring is polarity sensitive</li> </ul>
Blower	Change motor torque; see SETUP > TEST & BALANCE > BLOWER	<ul style="list-style-type: none"> <li>• Final motor CFM should be set by Test and Balance technician</li> <li>• Blower charts are located in the unit installation instruction.</li> </ul>

## 25. Wiring Diagrams

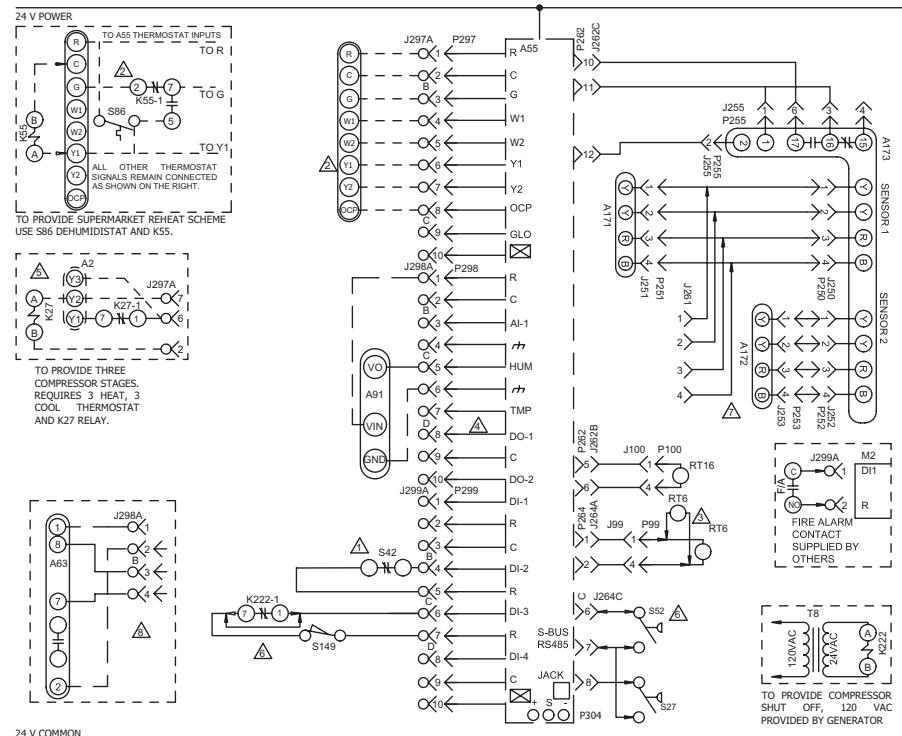


DESCRIPTION		
KEY	COMPONENT	
A2	SENSOR, ELECTRONIC THERMOSTAT	P253 PLUG, SMOKE DETECTOR TWO
A24	CONTROL, OUTDOOR AIR CFM FLOW	P255 PLUG, MODULE, CONTROL SMOKE DETECTION
A34	DIFFERENTIAL PRESSURE TRANSDUCER	P262 PLUG, ECONOMIZER
A55	CONTROL BOARD, MAIN	P264 PLUG, BLOWER DECK
A63	SENSOR, CO2 (IAQ) OPTIONAL	P297 PLUG, THERMOSTAT - DDC INTERFACE
A91	SENSOR, HUMIDITY	P298 PLUG, IAQ INTERFACE
A171	SENSOR ONE, SMOKE, RETURN AIR	P299 PLUG, SAFETY INTERFACE
A172	SENSOR TWO, SMOKE, SUPPLY AIR	P304 PLUG, SYS BUS
A173	MODULE, CONTROL SMOKE DETECTION	RT6 SENSOR, SUPPLY AIR TEMP
J26	JACK, AIR FLOW CONTROL	RT16 SENSOR, RETURN AIR TEMP
J99	JACK, RT16 RETURN AIR SENSOR	S27 SWITCH, FILTER
J100	JACK, RT16 SUPPLY AIR SENSOR	S52 SWITCH, AIRFLOW
J250	JACK, SMOKE DETECTOR ONE	S42 SWITCH, OVERLOAD RELAY BLOWER MOTOR
J251	JACK, SMOKE DETECTOR ONE	S86 SWITCH, DEHUMIDISTAT
J252	JACK, SMOKE DETECTOR TWO	S135 OVERLOAD-BLOWER MOTOR SUPPLY
J253	JACK, SMOKE DETECTOR TWO	S149 SWITCH, OVERFLOW ONE
J255	JACK, MODULE, CONTROL SMOKE DETECTION	S179 SWITCH, OVERFLOW TWO
J261	JACK, SUPPLY SMOKE DETECTOR JUMPER	T8 TRANSFORMER, 120 V GENERATOR POWERED
J62	JACK, ECONOMIZER	
J64	JACK, BLOWER DECK	
J97	JACK, THERMOSTAT - DDC INTERFACE	
J298	JACK, IAQ INTERFACE	
J299	JACK, SAFETY INTERFACE	
K27,-1	RELAY, TRANSFER	← → DESIGNATES OPTIONAL WIRES
K55,-1	RELAY, BLOWER	— — CLASS II FIELD WIRING
K22,-1	RELAY, COMPRESSOR LOCKOUT	
P26	PLUG, AIR FLOW CONTROL	
P99	PLUG, RT16 RETURN AIR SENSOR	
P100	PLUG, RT16 SUPPLY AIR SENSOR	
P250	PLUG, SMOKE DETECTOR ONE	
P251	PLUG, SMOKE DETECTOR ONE	
P252	PLUG, SMOKE DETECTOR TWO	

→ DESIGNATES OPTIONAL WIRING  
— — — — CLASS II FIELD WIRING



**Figure 15. Wiring Diagram**



KEY	DESCRIPTION	COMPONENT
A2	SENSOR, ELECTRONIC THERMOSTAT	
A55	PANEL, MAIN	
A63	SENSOR, CO2 (IAQ) OPTIONAL	
A91	SENSOR, HUMIDITY	
A171	SENSOR ONE, SMOKE, RETURN AIR	
A172	SENSOR TWO, SMOKE, SUPPLY AIR	
A173	MODULE, CONTROL SMOKE DETECTION	
J99	JACK, RT16 RETURN AIR SENSOR	
J100	JACK, RT6 SUPPLY AIR SENSOR	
J250	JACK, SMOKE DETECTOR ONE	
J251	JACK, SMOKE DETECTOR ONE	
J252	JACK, SMOKE DETECTOR TWO	
J253	JACK, SMOKE DETECTOR TWO	
J255	JACK, MODULE, CONTROL SMOKE DETECTION	
J261	JACK, SUPPLY SMOKE DETECTOR JUMPER	
J262	JACK, ECONOMIZER	
J264	JACK, BLOWER DECK	
J297	JACK, THERMOSTAT - DDC INTERFACE	
J298	JACK, IAQ INTERFACE	
J299	JACK, SAFETY INTERFACE	
K27,-1	RELAY, TRANSFER	
K55,-1	RELAY, BLOWER	
K222,-1	RELAY, COMPRESSOR LOCKOUT	
P99	PLUG, RT16 RETURN AIR SENSOR	
P100	PLUG, RT6 SUPPLY AIR SENSOR	
P250	PLUG, SMOKE DETECTOR ONE	
P251	PLUG, SMOKE DETECTOR ONE	
P252	PLUG, SMOKE DETECTOR TWO	
P253	PLUG, SMOKE DETECTOR TWO	

-  FOR MOTORS WITH S42 EXTERNAL OVERLOAD LESS INVERTER, SEE INVERTER WITH BY PASS FOR S42 HOOK UP
-  USE S86 DEHUMIDISTAT AND K55 FOR OPTIONAL SUPERMARKET REHEAT SCHEME, A55 PARAMETERS NEED TO BE MODIFIED UNDER THE SETTINGS MENU OR VIA UC SOFTWARE FOR SIMULTANEOUS HEATING AND COOLING.
-  REMOTE LOCATION OF RT6
-  P298-8 (DO-1) IS SERVICE RELAY OUTPUT (24VAC) IF USED CONNECT TO AN INDICATOR LIGHT
-  THERMOSTAT HOOKUP FOR PROGRAMMABLE CONFIGURATION OF THE A55 BOARD
-  A55 SETTINGS MUST BE MODIFIED WHEN K22, S42, S52, S149 OR S179 ARE INSTALLED
-  CONNECT J172 SENSOR TO J261 ON SUPPLY AIR SMOKE DETECTOR ONLY

 DESIGNATES OPTIONAL WIRING  
 CLASS II FIELD WIRING

04/18		WIRING DIAGRAM	04/18
537985-01			
ACCESSORIES			
ELECTRONIC OR ELECTROMECHANICAL THERMOSTAT FOR STRATEGOS			
SECTION C			REV. 0
Supersedes	New Form No.		
537108-01	537985-01		

**Figure 16. Wiring Diagram**

## 26. Prodigy 2.0 Release History

### 08.09.0118 New support of Strategos 2.0 Models 9/26/2019

- Strategos 2.0 adds the Humiditrol option.
- Strategos 2.0 A Boxes added 2-stage compressor support .
- Strategos 2.0 A Boxes add EBM blower type.
- Strategos 2.0 A Boxes have different gas heat options from the original Strategos.

### 08.08.0104 – Enhancement only release 4-12-2019

- Two heat speeds for single phase (P voltage type) high efficiency A-Boxes with ECM blowers and gas heat types B, D, U, H, Q and X.
- A-Box dedicated heating speed
- New 25T C Ultra (LCH/LGH300U4M)

### 08.07.0135 – Enhancement only release 1-22-2019

- Enhanced minimum position setting reliability
- Enhanced B Box (150H) low ambient control operations
- Emergence A Box Humiditrol reheat operation enhancements
- Update to "Figure 14. M3 Unit Connections Diagram" on page 74 to reflect part number change for the P267 connector.

### 08.07.0130 – Supports introduction of Prodigy 2.0 iCON OTA firmware updates release on 7-31-2018

- iCON has the ability to update Prodigy M3 firmware remotely - (OTA) over the air
- Enhanced error code reporting and explanations
- Enhanced Prodigy 2.0/BACnet operations
- Added Prodigy 2.0/BACnet MOAD actuator feedback monitoring
- Enhanced Strategos power exhaust control options
- Updated the scaling factors for Parameters 58, 65, 78, 141, and 169 to be adjusted at the local UI in minutes instead of seconds
- Enhanced load shedding operations when Prodigy 2.0 is in zone sensor mode
- Enhanced Emergence A Box Humiditrol reheat operations
- Enhanced Emergence VAV operations and error code reporting

### 08.06.0105 – Supports introduction of Prodigy 2.0 into Strategos RTU units release on 4-11-2018

- Implement UI command for BACnet commands viewed in App mode
- Allow thermostat occupancy input DIN 317 to work in conjunction with iCON, BACnet and Lon
- Setup wizard for DACH and no electric heat enhancement
- Enhancement on Model Numbers allowed now includes Strategos units
- Enhanced Outdoor Air CFM setup
- Enhanced communications when used in L Connection networks

### 08.05.0108 – Supports introduction of Prodigy 2.0 into D & E Box units release on 1-09-2018

- Added support for 380/420V, 3Ø, 50Hz (M Voltage) - D box RTU's

### 08.05.0107 – Supports introduction of Prodigy 2.0 into D & E Box units release on 9-22-2017

- Enhanced Heat error code reporting
- Enhanced firmware update reporting with acknowledgement
- Enhanced add on board communication reporting
- Enhanced back up sensor sequence of operation
- Changed default outdoor air temperature for free cooling to 60°F
- Enhanced heating data information
- Enhanced S-Bus communication functionality
- Enhanced MSAV/CAV options
- Enhanced discharge air control functionality
- Enhanced E Box modulating gas functionality
- Enhanced VFD power exhaust functionality
- Enhanced error code reporting
- Enhanced blower in Humiditrol mode
- Enhanced error reporting ability for smoke detection modes
- Enhanced Test and Balance menu path

### 08.04.0105 – Release supports for two new models- on 5-23-2017

- Enhanced high pressure switch trip reset speed
- Enhanced economizer operations

### 08.03.0120 – CS8500 as a BACnet sensor release on 3-1-17

- Adds the ability to use the CS8500 in conjunction with BACnet as an adjustable sensor with display
- Enhanced setup function for field installed electric heat

### 08.03.0112 – Emergence Ultra High Efficiency 3-6 Ton Family (A Box) release on 3-11-16

- Emergence Ultra High Efficiency 3-6 ton unit operations
- Enhanced low ambient operation for single compressor units
- Enhanced no current alarm messaging
- Improved firmware updating operations
- Improved Prodigy 2.0 BACnet useable object functionality
- Better BACnet object documentation descriptions
- Improved Prodigy 2.0 performance with BACnet
- Improved Prodigy 2.0 low ambient test mode operations
- Enhanced Prodigy 2.0 Humiditrol setpoint operations

### 08.02.0143 – Firmware update released on 8-17-15

- Enhanced alarm reporting and error code tables to eliminate nuisance error codes in the heating cycle.

- Enhanced Humiditrol operation for better control and improved setpoint tolerance.
- Improved smoke detector options and operations in remote demand mode.
- Enhanced status screen alarm notification.
- Enhanced timings and settings to allow better starting and operations in Emergence single compressor units.
- Enhanced re-establishing communication with the L Connection Zone Link after a communication loss or shutdown.
- Enhanced alarm reporting on four compressor Ultra units.
- Enhanced unit BACnet network identification options
- Improved override functionality in room sensor mode.

### 08.02.0129 – C Box operations released on 4-13-15

- General Purpose Digital and Analog IO on GP3 card release.
- C-Ultra Box operations.
- Capable of four stages of heating.
- L Connection Zone Bypass Damper on High Efficiency A-Box units.
- Outdoor air control with velocity sensor.
- Enhanced UI for EP in test mode.
- Building Pressure Control – using factory economizer and power exhaust.
- Crankcase heater control on Standard and High Efficiency A-Box units.

### 08.01.0136 – Firmware update released on 12-11-14

- Enhanced room sensor calibration.
- Enhanced communications to NOVAR LSE.
- Enhanced communications to L Connection (NCP).
- BACnet enhancements for Title 24.
- Enhanced communications with LonTalk integration.
- Enhanced options for A Box load shedding.
- Enhanced error codes reporting for room sensor failures.

### 08.01.0121 – A Box operations released on 9-5-14

- Enhanced BACnet protocol communication.
- Enhanced tolerances to error codes.
- Enhanced humidity sensor operations.

### 08.00.0604 – Firmware update released on 7-9-14

- Enhanced enthalpy sensor operations.

### 08.00.0603 – Original B Box released 5-12-14

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