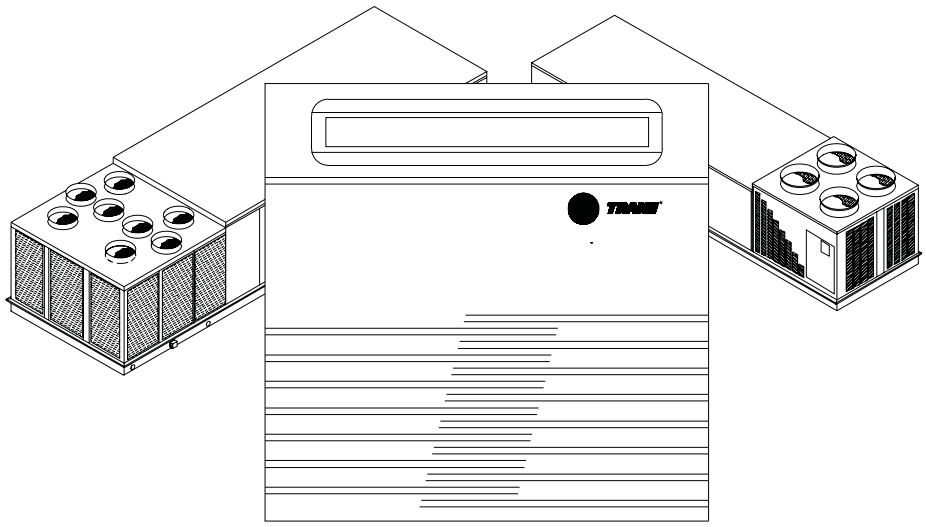
# Programming & Troubleshooting Guide

## IntelliPak™ 1 and IntelliPak™ 2

Single Zone Rooftop Air Conditioner/Rooftop Air Handlers with Variable Air Volume (VVDA/VVZT) Controls/ Constant Air Volume (CVDA/CVZT) Controls



| | | |
|---|---|---|
| **IntelliPak™ 1 models** | S*HF*20-75 | S*HL*20-75 |
| | S*HG*90-130 | S*HK*90-130 W*HB, W*HE |
| **IntelliPak™ 2 models** | S*HJ090-162 | W*HCA-C |

**⚠ SAFETY WARNING**

**Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.**

October 2017 **RT-SVP07G-EN**

# Introduction

Read this manual thoroughly before operating or servicing this unit.

## Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

**⚠WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**⚠CAUTION** Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

***NOTICE*** Indicates a situation that could result in equipment or property-damage only accidents.

### Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants-including industry replacements for CFCs such as HCFCs and HFCs.

### Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified. The Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

**⚠WARNING**

### Proper Field Wiring and Grounding Required!

**Failure to follow code could result in death or serious injury. All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state electrical codes.**

**⚠WARNING**

### Personal Protective Equipment (PPE) Required!

**Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, MUST follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:**

- **Before installing/servicing this unit, technicians MUST put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). ALWAYS refer to appropriate Material Safety Data Sheets (MSDS)/Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.**
- **When working with or around hazardous chemicals, ALWAYS refer to the appropriate MSDS/SDS and OSHA/GHS (Global Harmonized System of Classification and Labelling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.**
- **If there is a risk of energized electrical contact, arc, or flash, technicians MUST put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, PRIOR to servicing the unit. NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

## Copyright



## Trademarks

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## Revision History

- All updates to this version support changes related to the Variable Speed Compressor Option with IPak 1 75 Ton, and IPak 2 90, 105, 120, 130 and 150 ton units.
- Other running edits, minor edits included.

# Table of Contents

# Commonly Used Acronyms

For convenience, a number of acronyms and abbreviations are used throughout this manual. These acronyms are alphabetically listed and defined below.

**Table 1. Acronyms**

| | |
|---|---|
| act = active, actuator | RH = right-hand, relative humidity |
| AH = air handler | IGV = inlet guide vanes |
| annunc = annunciate | Indep = Independent |
| AS = airside | INFO = Information Only (Diagnostic) |
| aux = auxiliary | I/O = input/output |
| BAS = Building Automation System | IOM = installation/operation/ maintenance manual |
| BCI = BACnet® Communication Interface Module | IPAK = IntelliPak™ 1, IntelliPak™ 2 |
| ccfm = cfm/100 (ex. 120.5 CCFM = 12050 CFM) | IPC = interprocessor communications |
| cfm = cubic-feet-per-minute | IPCB = Interprocessor Communications Bridge (mod) |
| cfg = configured, configuration | iwc = inches water column |
| CIPD = compressor involute pressure differential | LCI = LonTalk® Communication Interface Module |
| ckt = circuit | LCI-I = LonTalk® Communication Interface for IPAK |
| cmd = command | LH = left-hand |
| comp(s) = compressor, compressors | lo = low |
| cond(s) = condenser, condensers | LON = LonWorks® (Echelon®, etc.) |
| config = configured, configuration | LRE = leaving recovery exhaust |
| ctrl = control | max = maximum |
| CV = constant volume | manif = manifolded |
| CVDA = Const. Volume airflow/Discharge Air temp ctrl | MCM = Multiple Circuit Module |
| CVZT = Const. Volume airflow/Zone Temp ctrl | MDM = Modulating Dehumidification Module |
| cw = clockwise | min = minimum, minute |
| cww = counterclockwise | misc = miscellaneous |
| cy = cycle | mod = modulating, module |
| DCV = Demand Control Ventilation | MPM = Multi-Purpose Module |
| dflt = default | MWU = morning warm-up |
| diag = diagnostic | NSB = Night Setback Panel |
| dmpr = damper | num = number |
| DWU = daytime warm-up | O/A, OA = outside air |
| DX = direct expansion (compressor control) | occ = occupied |
| E/A, EA = exhaust air | OVRD = override |
| ECEM = Exhaust Comparative Enthalpy Module | PAR = partial system disable, auto reset |
| econ = economizer, economizing | PMR = partial system disable, manual reset |
| ent = entering | pos = position |
| evap = evaporator | O/A, OA = outside air |
| F/A, FA = fresh air | pot = potentiometer |
| FDD = Fault Detection and Diagnostics | PPM = parts per million |
| funct = function | press = pressure |
| GBAS = Generic Building Automation System (module) | prop = proportional |
| HEAT = heat, heater, Heat (module) | psig = pounds-per-square-inch gauge pressure |
| HGBP = hot gas bypass | PWS = part-winding start |
| HGP = hot gas bypass | R/A, RA = return air |
| hi = high | refrig = refrigerant |
| HI = Human Interface (module) | RHI = Remote Human Interface (module) |
| HO = History Only (Diagnostic) | rpm = revolutions-per-minute |
| HVAC = heating, ventilation and air conditioning | ICS = Integrated Comfort System |

**Table 1. Acronyms (continued)**

| | |
|---|---|
| RHI = Remote Human Interface (module) | UCM = unit control module |
| rpm = revolutions-per-minute | unocc = unoccupied |
| RT = rooftop unit | VAV = variable air volume |
| RTM = rooftop module | VCM = Ventilation Control Module |
| S/A, SA = supply air | vdc = volts dc |
| SAP = supply air pressure | vent = ventilation |
| sat = saturated | vfd = variable frequency drive |
| SCM = Single Circuit Module | VOM = ventilation override module |
| SF = supply fan | VSM = variable speed (compressor) module |
| src = source | VSC = variable speed compressor |
| stg = stage | VVDA = Variable Volume airflow/Discharge Air temp ctrl |
| stnd = standard | VVZT = Variable Volume airflow/Zone Temp ctrl |
| stpt, stp = setpoint | w/, w- = with |
| sw = switch | w/o, wo- = without |
| sz = single-zone (unit airflow) | w.c. = water column |
| TCI = Tracer Communications Interface (module) | wu = warm-up |
| temp = temperature | XL = across-the-line start |

**Notes:**

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2. BACnet® is a registered trademark of the American Society of Heating, Refrigeration and Air-conditioning Engineers Inc. (ASHRAE.)

# Glossary of Terms

Carefully review these definitions since they are used throughout this document and the Installation, Operation, Maintenance Guide (IOM). Knowledge of these terms is essential in gaining an understanding of how these units operate.

**Active Setpoints.** The setpoint which is currently being used by the specified control.

**BACnet.** An open, device networking communications protocol for controls. This protocol utilizes BACnet and ANSI/ASHRAE® Standard 135-2004 protocol which provides building owners the capability to connect various types of building control systems or subsystems together

**CIPD Compressor Operation.** Enhancements to the compressor control will be implemented on all units, which will insure optimized compressor operation at all times.

**Comparative Enthalpy.** An economizer/cooling control strategy which compares return air enthalpy with outdoor enthalpy. If the outdoor enthalpy is significantly less than return enthalpy the economizer will be utilized for cooling.

**Compressor Protection Switch. (See Low Pressure Control).** A pressure switch installed on the suction line that prevents compressor operation below the switch's setpoint. The purpose is to prevent no-flow scroll compressor operation.

**Comm3/4.** A Trane proprietary network communication protocol.

**Comm5.** Trane's implementation of LonTalk (an open network communication protocol).

**Condenser Pressure.** The saturated condenser pressure measured on each circuit's condenser section on Evaporative Condenser units. Condenser pressure is converted to Saturated Condenser Temperature for display on the Human Interface. The data from these sensors is used in head pressure control.

**Control Band.** The range of temperatures, pressures or humidity which would normally be maintained by the various control functions.

**Control Point.** The value of a setpoint that an algorithm is using at any given time.

**Deadband.** A narrow band of sensor range equally spaced above and below the setpoint that defines a region where the algorithm will be satisfied and the controlled output will be maintained without change.

**Dehumidification Override High Zone Temp.** The temperature in the critical zone on VAV units where Dehumidification is disabled to prevent over-heating the space due to excess reheat.

**Dehumidification Override Low Zone Temp.** The temperature in the critical zone on VAV units where Dehumidification is disabled to prevent sub-cooling the space due to insufficient reheat.

**Demand Control Ventilation (DCV).** An ASHRAE compliant ventilation scheme that varies the Outside Air Damper minimum position or Fresh Air Flow (TRAQs) between minimum and maximum ventilation Setpoints based on CO2 level.

**Dry Bulb.** An outdoor temperature above which economizing will be disabled (unless comparative enthalpy is the economizer control type being used.)

**Economizer Zone Temp Setpoint Suppression.** A parameter used for setting the active economizer cooling control point to a value lower than the Zone Temp Cooling Setpoint to optimize economizer operation.

**Emergency Stop.** A binary input on the RTM, connected to a field-supplied switch, when set to OPEN causes a unit shutdown with a manual reset diagnostic.

**Energy Recovery Wheel.** A wheel that rotates through the outdoor and exhaust air streams, transferring energy between the two, to optimize unit efficiency.

**Evap Diff.** Evaporator Differential is a parameter indicating performance of a refrigeration system. It is calculated by determining the difference between the entering and leaving temperatures of the evaporator. If this value rises too high it may indicate a problem with the system.

**External Stop.** A binary input on the RTM, connected to a field-supplied switch, when set to OPEN causes a unit stop request.

**Fault Detection and Diagnostics.** A feature that determines whether the Outside Air damper actuator has failed to control the damper properly, and annunciates specific diagnostics under such conditions.

**Hot Gas Bypass.** A feature to reduce a refrigeration circuit's cooling capacity by bypassing hot discharge line refrigerant directly to the evaporator coil of the system to more effectively operate in low load conditions.

**Humidification Control.** During modes of continuous fan operation a relay is energized when the Humidity measured in the controlled space drops below an adjustable Humidification Setpoint.The humidifier device is a user supplied device placed in the supply air stream.

**IntelliPak™ 1.** Units covering the 20 through 130 ton capacity IntelliPak 1 cabinet sizes, and containing the latest control modules and software.

**IntelliPak™ 2.** Units covering the 90 through 150 ton capacity IntelliPak 2 cabinet sizes, and containing the latest control modules and software.

**LonTalk®.** An open, device networking communications protocol for controls.This protocol is defined in ANSI approved typical EIA/CEA-709.1-A-1999.

**Low Ambient Compressor Lockout.** A function which prevents compressor operation at low outdoor ambient temperatures.

**Low Vi Compressor Operation.** Enhancements to the compressor control will be implemented on units with Low Vi compressors installed, which will insure optimized compressor operation at all times.

**Night SetBack (NSB).** Applies to the control of the rooftop unit during unoccupied periods. Also refers to the NSB panel, a communicating wall sensor with night setback capability.

**Rapid Restart.** Certain unit applications require override of the normal unit startup sequence after a power outage. Target cooling requirements are established within a specified time to meet extreme high return air temperatures.

**Reference Enthalpy.** An outdoor enthalpy value, set at the HI, above which economizing will be disabled.

**Remote Human Interface. (See Interprocessor Communication Module).** A human interface module designed to be mounted remotely from the unit. There are some functional differences between a unit mounted and a remote mounted human interface module.

**Reset Amount Maximum.** An adjustable parameter on the HI where the maximum amount of reset allowed is defined.

**Reset End Temperature.** The temperature at which the maximum reset amount will occur.

**Reset Start Temperature.** The temperature at which reset will begin.

**Return Fan Control. .** Return Fan Control is a feature which allows units to operate at a higher external or duct system static pressure, or to reduce the load (horsepower requirement) on the supply fan motor. The fan is placed in the return air path.

**Return Fan Plenum Pressure.** The area between the Exhaust and Return Dampers and the outlet of the Return Fan defines the return plenum. The absolute static pressure measured in this area is the Return Fan Plenum Pressure.

**Return Plenum Pressure High Limit.** This control feature, available on all return fan options, shuts the supply fan and return fan off if the pressure in the return plenum exceeds a non-adjustable setpoint of 3.5 iwc.

**Space Pressure.** The pressure in the building as measured by the space pressure transducer, referenced to outside (atmospheric) pressure.

**Single Zone Variable Air Volume.** The active discharge air setpoint, used for cooling, heating and supply fan speed control, is based on the zone temperature load conditions.

**Supply Air Pressure High Limit.** A pressure limit to prevent unit casing and/or ductwork over pressurization.

**Statitrac™.** A control method to maintain proper space pressurization.

**Supply Air Pressure.** The pressure in inches-water-column (IWC) of the supply duct plenum or outlet as measured by the supply air pressure transducer, referenced to local outside (atmospheric) pressure.

**Supply Air Tempering.** An active heating mode where the supply air temperature has dropped below a preset value, usually due to cold outside air being brought in to provide building ventilation.

**Supply Air Temperature Control Point.** The revised value of SA Temp Setpoint after supply air temperature reset has been applied.

**Supply Air Temperature Reset.** A function that shifts the SA Temp Setpoint an amount based on the value of another parameter—typically Zone Temp or Outdoor Air Temp. The purpose of this function is to lower unit capacity to better meet load requirements.

**Target Setpoints.** An internally calculated control point which is typically derived from other setpoints in combination with specific unit operating conditions.

**Variable Speed Compressor.** An inverter driven compressor that has the capability to provide continuous-incremental cooling capacity control.

## UCM Control System

Trane Large Commercial Rooftop Units are controlled by a microelectronic control system that consists of a network of modules and are referred to as Unit Control Modules (UCM).

The unit size, type VVDA (VAV w/ IGV/VFD), SZxx (SZVAV), RRXX (Rapid Restart), CVDA (VAV w/o IGV/VFD), CVZT (CV), VVZT (SZVAV), heating functions, peripheral devices, options, exhaust capabilities, etc. determine the number and type of modules that a particular rooftop unit may employ.

The **UCM** receives analog or binary inputs, then processes this information and supplies outputs in the form of modulating voltages, contact closures, etc. to control damper actuators, fan motors, compressors, valves, electric heating coils and other electrical devices in the unit to maintain set comfort levels.

The UCM provides some equipment protection functions both directly and indirectly, such as duct pressure limits and compressor lockouts.

Listed below are the various modules that may be employed in a UCM control system.

### Rooftop Module (1U1 IntelliPak 2 / 1U48 IntelliPak 1)

(standard on all units)The **RTM** is the central processor of the system. It continuously receives information from the other unit modules, sensors, the remote control panel, and customer supplied relays. It then interprets this information and responds to cooling, heating, and ventilation requests by directing the other modules in the system to energize the proper unit components. It also directly initiates supply and exhaust fan operations, and economizer operation.

### Compressor Module (IU3 IntelliPak 2/ 1U49 IntelliPak 1)

(compressor control, head pressure control, evaporative condensing)The **SCM/MCM** module upon receiving a request for mechanical cooling staging from the RTM, energizes the appropriate compressors. It provides protection of the refrigerant circuit through feedback information it receives from various protection devices. It provides the necessary sensor interface to provide both air-cooled and water-cooled condenser head-pressure control.

### Heat Module (1U6 IntelliPak 2 / 1U50 IntelliPak 1)

(staged heat, modulating heat, air-handler chill water valve control)The **HEAT** module, directs the unit's heater to stage up, down, or modulate to bring the controlled temperature to within the applicable heating setpoint. Chill water valve control is handled by the modulating output and is coordinated with the heat control to insure proper cooling and heating operation.

### Exhaust/Comparative Enthalpy Module (1U5 IntelliPak 2 / 1U52 IntelliPak 1)

(Statitrac building pressure control, comparative enthalpy)The **ECEM** receives data from the return air humidity sensor, the return air temperature sensor, and the return air space pressure transducer to control the economizer, exhaust fan and the exhaust dampers to maintain set space pressure.

### Ventilation Control Module (7U14 IntelliPak 2 / 3U218 IntelliPak 1)

(TRAQ dampers, DCV, outdoor air preheat)The **VCM** receives data from two velocity pressure sensors associated with front and back TRAQ assemblies to measure fresh air flow entering the unit. These measurements are converted to CFM and added to give total fresh air flow. This value can be used for monitoring purposes, to maintain flow to a minimum fresh air flow Setpoint, or to maintain appropriate CO2 levels in the controlled space using its space CO2 sensor input and the DCV feature. Without TRAQ assemblies installed the VCM can use DCV and the CO2 sensor input to control OA Damper minimum position to maintain CO2 levels in the space. A preheat control relay output is also provided on this module to maintain tempered outdoor air during ventilation using the VCM Auxiliary Temperature input. The preheat unit is user-supplied.

### Multi Purpose Module (1U9 IntelliPak 2 / 1U105 IntelliPak 1)

(return fan, energy recovery wheel, evaporative condensing)The **MPM** supports the function of return plenum pressure control by providing inputs for measuring return plenum pressure, calibrating that reading, and providing an output to control the return fan speed (if variable speed configured) in response to control algorithm requests. Energy Wheel control along with bypass damper control, and interface to the saturated condensing pressure sensors for evaporative condensing head-pressure control.

### Modulating Dehumidification Module (1U15 IntelliPak 2 / 1U107 IntelliPak 1)

(dehumidification hot gas reheat)The **MDM** supports specific control inputs and outputs for modulating dehumidification control including modulating reheat and cooling valve control as well as the reheat pumpout coil relay output.

### Generic Building Automation System Module (1U10 GBAS(0-5VDC) / 1U11 GBAS(0-10VDC) IntelliPak 2) or (1U51 – GBAS(0-5VDC)/(0-10VDC) IntelliPak 1)

(interface to third party BAS controls)The **GBAS** modules allows a non-Trane building control system to communicate with the unit and accepts external Setpoints in form of analog inputs (0 - 5 V or 0 - 10 V depending on the module selected)

and a binary Input for demand limit. Five (5) binary outputs are available on 0 - 5 V modules. One (1) binary output and four (4) analog outputs are available on the 0 - 10 V modules. Refer to the "Field Installed Control Wiring" section of the Unit Installation, Operation, Maintenance Manual (IOM) for the control wiring to the GBAS module and the various desired Setpoints with the corresponding DC voltage inputs.

### Ventilation Override Module (1U8 IntelliPak 2 / 1U53 IntelliPak 1)

(special ventilation unit operation)The VOM module provides the necessary I/O interface to third party customer controls and allows specific override operation of the unit's air handling functions such as space pressurization, exhaust, purge, unit off, etc.

### Variable Speed Module (1U123 IntelliPak 1)

(variable speed compressor operation) The **VSM** module provides the necessary I/O interface to control variable speed compressor drives, and support Failure Detection and Diagnostics (FDD) functionality.

### Interprocessor Communications Bridge (1U12 IntelliPak 2 / 1U55 IntelliPak 1)

(communications isolation for remote human interface, external IPC wiring)The IPCB module expands communications from the unit UCM network to a Remote Human Interface Panel. DIP switch settings on the IPCB module for this application should be; Switches 1 and 2 "Off", Switch 3 "On". This module is used to isolate the unit communications bus from the outside wiring, and any potential wiring faults that may occur.

### BACnet® Communication Interface Module (1U66 IntelliPak 2 / 1U104 IntelliPak 1)

(used on units with Trane ICS or 3rd party Building Automation Systems)The BCI module expands communications from the unit UCM network to a Trane Tracer Summit, or a 3rd party building automation system that utilizes BACnet, and allows external Setpoint and configuration adjustment and monitoring of status and diagnostics.

### Lontalk® Communication Interface Module (1U7 IntelliPak 2 / 1U65 IntelliPak 1)

(used on units with Trane ICS or 3rd party Building Automation Systems)The LCI module expands communications from the unit UCM network to a Trane Tracer Summit, or a 3rd party building automation system that utilizes LonTalk, and allows external Setpoint and configuration adjustment and monitoring of status and diagnostics.

### Human Interface Module (Local = 1U2, Remote = 9U13 IntelliPak 2) (1U65 IntelliPak 1)

(standard on all units)The LHI and RHI (Local and Remote Human Interface) share a similar keypad which is illustrated, see Figure 1. Human Interface Module" on page 11. This device enables the customer, building owner, or contractor, to communicate to the Rooftop unit the necessary parameters for unit operation such as cooling and heating Setpoints, demand limiting, ventilation override modes, etc

The local (unit mounted) Human Interface and the Remote Human Interface Panel functions are identical, except for Service mode which is not available on the Remote Human Interface Panel.

The local HI Module is located in the unit's main control panel. A small door located in the unit's control panel door allows access to the HI Module's keypad and display window.

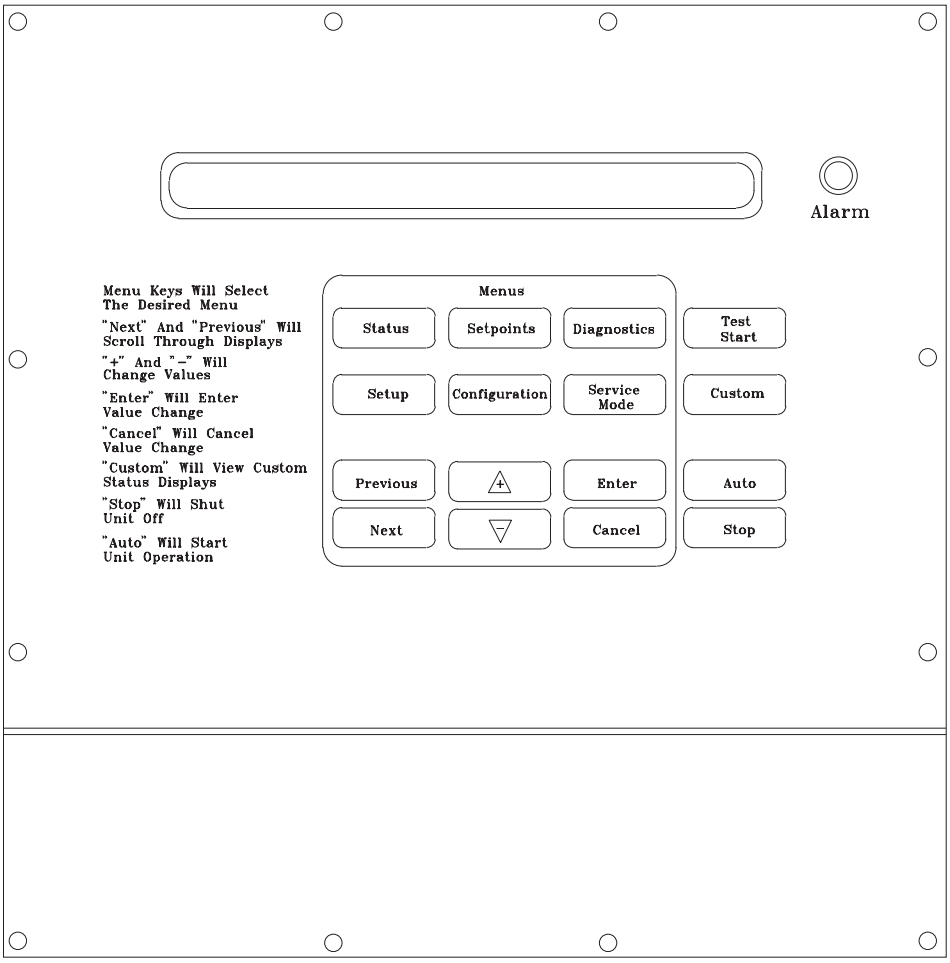
There is a 2 line by 40 character LCD screen which provides status information for the various unit functions as well as menus used to set or modify the operating parameters. There is a 16 key keypad adjacent to the LCD screen, which allows the operator to scroll through the various menus and make adjustments to the setpoints, etc.

The LCD screen has a backlight that makes the information easier to read. The light will go out if no keys are pressed for 30 minutes. If it goes out, simply press the Status key.

The information displayed in the LCD window will be top-level status information unless the operator initiates other displays.

At power-up, the Human Interface LCD will display one of four initial screens illustrated in the "General Status" section.

**Figure 1. Human Interface Module**




# Menu Keys

The six main menu keys illustrated in Figure 2. Human Interface Keypad, (**Status**, **Setpoints**, **Setup**, **Configuration**, **Diagnostics**, and **Service Mode**) are used to bring up the various interactive menus where the user inputs and accesses unit operating data. Pressing these keys will display the initial screen for the menu designated by the key's name. The following information describes the keys and their functions when viewing the various menus.

***Note:***

1. If no key is pressed for 30 minutes while the LCD is displaying a menu screen, it will revert back to the unit operating status screen.

## Status Key

Pressing the **Status** key causes the LCD to display the operating status screen; i.e. "On", "Unit Stop", "External Stop", "Emergency Stop", "Service Mode". Pressing the **Next** key allows the operator to scroll through the screens which provide information such as air and refrigerant temperatures, humidity levels, fan operation, compressor operation, heater operation, economizer positioning, exhaust operation, as well as heating, cooling, and compressor lockout setpoints. Pressing the **Status** key while viewing any of the data screens will cause the LCD to go back to the operating status screen.

### Setpoints Key

Pressing the **Setpoints** key will cause the LCD screen to display the first of the setpoint screens where the operator will designate default temperature and pressure setpoints. While scrolling through the setpoint screens, pressing this key again will cause the LCD to display the first setpoint screen.

### Diagnostics Key

Pressing the **Diagnostics** key at any time will allow the operator to view any active unit diagnostics, or 20 of the most recently logged unit diagnostics. The LCD screen will display one of the diagnostic screens (depending on which diagnostic, if any, is present). If no key is pressed for 30 minutes while the screen is displaying diagnostic information, it will revert back to the operating status display.

### Configuration Key

Pressing the **Configuration** key will cause the LCD screen to display the first of the configuration screens where the operator will designate unit configuration data such as unit type, capacity, system control, etc.

This information was programmed at the factory. Pressing the configuration key at any level in the configuration menu will display the first configuration screen.

***Note:***

1. This key should be used if the unit's configuration data is lost or new options are added in the field, and to view current configuration.
2. The **Stop** key must be pressed prior to making any changes under the Configuration menu.

### Setup Key

Pressing the **Setup** key will cause the LCD screen to display screens where the operator will designate various operating parameters such as temperature and pressure ranges, limits, percentages, setpoint source selections, and sensor input definitions for the control of the rooftop unit's various operating modes. Pressing the **Setup** key at any level in the setup menu will display the first setup screen.

### Service Mode Key

Pressing the **Service Mode** key causes the LCD to display the first of the service test mode screens showing various unit components which may be turned on or off for the particular test being performed. Once the status of these components is designated, the LCD will display screens that allow the operator to designate the TEST START time delay for each test.

## Data Manipulation Keys

The six data manipulation keys illustrated in Figure 2. Human Interface Keypad" on page 14, (**Enter**, **Cancel**, **+** (**Plus**), **-** (**Minus**), **Previous**, and **Next** are used to modify the data within the screens (change values, move the cursor, confirm choices)

### Enter Key

The **Enter** key will confirm the new values that were designated by pressing the **+** (**Plus**) or **-** (**Minus**) keys at all edit points. When viewing status and diagnostics screens, it has no function.

### Cancel Key

After changing data, at an editable screen, but before confirming it with the **Enter** key, pressing the **Cancel** key will return the data to its previous value. This key shall also function to clear active diagnostics.

### + (Plus) Key

When viewing a setpoint screen, this key will increase the value of the displayed item per the units selected. When working with a status menu, it will add the current status display to the CUSTOM MENU. When viewing setup, or service test screens, it will proceed forward though all the selections of that menu item, increase setpoints, toggle choices OFF to ON, DISABLED to ENABLED.

### - (Minus) Key

When viewing a setpoint screen, this key will decrease the value of the displayed item per the units selected. When working with a CUSTOM MENU, it will delete the current selected display. When viewing setup, or service test screens, it will proceed backwards though all the selections of that menu item, decrease setpoints, toggle choices ON to OFF, ENABLED to DISABLED.

### Next Key

Pressing the **Next** key causes the LCD to scroll forward through the various displays for each menu. At displays with multiple edit points it moves the cursor forward from one edit point to another.

### Previous Key

Pressing the **Previous** key causes the LCD to scroll backward through the various displays for each menu. At displays with multiple edit points, it moves the cursor backward from one edit point to another.

# Unit Operation Keys

The four unit operation keys (**Auto**, **Stop**,**Test Start**, **Custom**) are used to control and monitor the unit in normal operating mode, and also to initiate an active unit service test event.

### Auto Key

Pressing the **Auto** key at any time will cause the display to go to the top level status display and, if the unit is shutdown, will cause the unit to begin operation in the appropriate mode no matter what level in the menu structure is currently being displayed. If the current display is an editable display, the **Auto** key will confirm the desired edit point similar to the **Enter** key.

### Stop Key

Pressing the **Stop** key will cause the unit to transition to the stop state. If the current display is editable, pressing the **Stop** key will cancel the desired edit similar to the **Cancel** key. Prior to making any changes to the configuration menu screens, the **Stop** key must be pressed.

### Test Start Key *(Service Test Mode Start)*

Pressing the **Test Start** key while viewing any screen in the *Service Mode Menu* will start the service test. Pressing this key while displaying any screen other than the *Service Mode Menu* will not start the service test, and has no other function.

### Custom Key

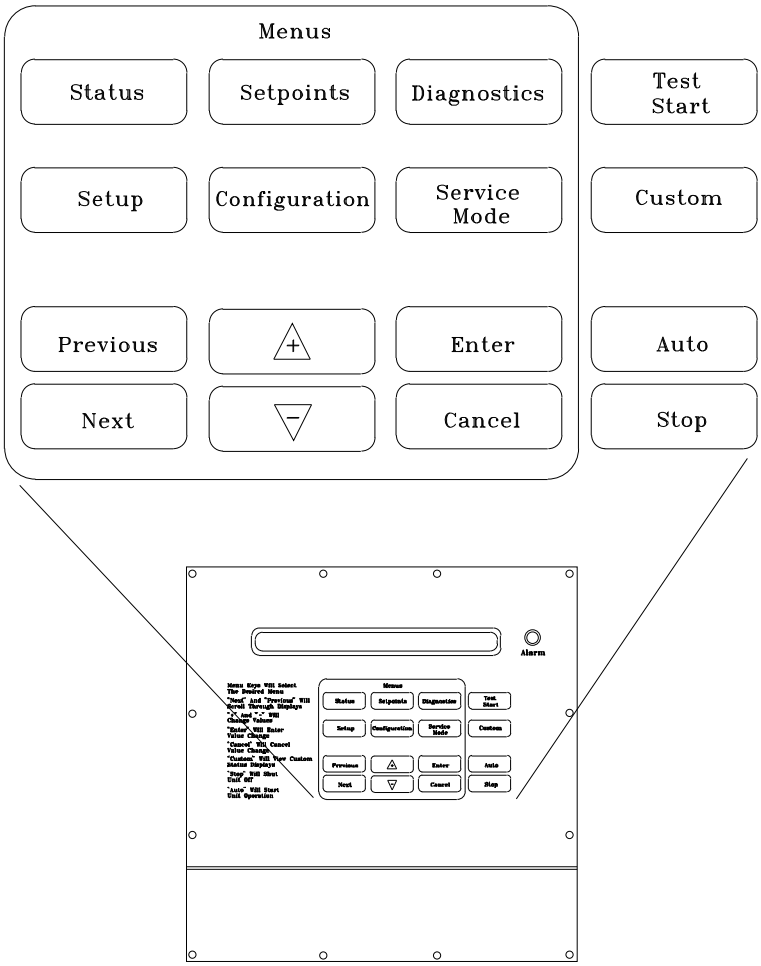
Pressing the **Custom** key will change the display to the *Custom Menu*. This menu is simply a status menu that contains screens that the user monitors most frequently. The custom menu can only contain five status screens. To create the custom menu, press the **Status** key, followed by the **Next** key (this brings up the initial status screen). If you want to add this screen to the custom menu, press the **+** (**Plus**) key, if not, press the **Next** key again until a status screen appears that you would like to add to the custom menu. Pressing the **+** (**Plus**) key while viewing any of the various status screens will add that screen to the custom menu. Once the custom menu is programmed it can be accessed by pressing the **Custom** key. To remove a status screen from the custom menu, press the **Custom** key, then press the **Next** key until the status screen that you want to remove appears, then press the **-** (**Minus**) key.

# General Status Display

Anytime the rooftop unit is powered up, or the **Status**, **Auto**, or **Stop** keys are pressed, the unit mounted Human Interface will display one of the following general status display screens. The operator will then be able to enter keystrokes which will allow him to navigate through a set of menus and submenus in order to provide/access various monitoring, setup,

and configuration information. The Human Interface will not display screens or parts of screens for which the unit is not configured.

**Figure 2. Human Interface Keypad**



## Unit "Off" or "Stopped"

If at power up the unit is not running, the following display will appear on the Human Interface LCD screen. When this screen is being displayed, the only functional keys are the six menu keys (**Status**, **Setpoints**, **Diagnostics**, **Setup**, **Configuration**, and **Service Mode**), the **Auto** key, the **Custom** key, and the **Stop** key.

```
Stop by Network          Supply Fan ON
Initializing               Diagnostics
```

**Used With:** Top Status Display
(Shown when unit is off or stopped)
**Possible Values:**
[see field descriptions at left]

**Top Left Field:**
- Unit Off
- Unit Stopped
- External Stop
- Emergency Stop
- Stop by Network
- Unit Starting
- Service Mode Off

**Top Right Field:**
- Supply Fan OFF
- Supply Fan ON

**Bottom Left Field:**
- (blank)
- Shutdown
- Initializing
- Freeze Avoidance Active

**Bottom Right Field:**
- (blank)
- (Diagnostics)

## Unit "On"

If the unit has entered an operating state (running), the following display will appear on the Human Interface LCD screen. When this screen is being displayed, the only functional keys are the six menu keys (**Status**, **Setpoints**, **Diagnostics**, **Setup**, **Configuration**, and **Service Mode**), the **Auto** key, the **Custom** key, and the **Stop** key.

```
VVDA OA Flow 380.0 CCFM   Supply Fan ON
Occupied     Cool   2        Diagnostics
```

**Used With:** Top Status Display
(Shown when unit is on)
**Possible Values:**
[see field descriptions at left]

**Top Left Field:**
- CVZT
- VVDA
- CVDA
- VVZT

**Top Middle Field:**
- (blank)
- OA Flow 0 to 500 CCFM
- Freeze Avoidance

**Top Right Field:**
- Supply Fan ON
- Supply Fan OFF

**Bottom Left Field:**
- (blank)
- Occupied
- Unoccupied
- MorningWU
- DaytimeWU
- Standby
- Shutdown
- Occupied TOV
- Initializing
- Tempering
- Rapid Restart

**Bottom Middle Field:**
- (blank)
- Heat 1 to 6
- Cool 1 to 4
- OA Dmpr 0 to 100 %
- Dehumid
- Purge
- Humidify
- SA Fan 0 to 100%

**Bottom Right Field:**
- (blank)
- Diagnostics

### "Emergency Override" Active

If the unit has entered an Emergency Override mode of operation, one of the following displays will appear on the Human Interface LCD screen.

```
Ventilation Override Mode
PRESSURIZE                    Diagnostics
```

**Used With:** LCI or BCI Options
**Top Left Field:**
**Top Right Field:** (blank)
**Bottom Left Field:**
PRESSUREIZE
DEPRESSURIZE
PURGE
SHUTDOWN
FIRE
**Bottom Right Field:**
Diagnostics (Trouble Indicator)
(blank)

### "VOM" Active

If at power up the unit is running and has entered a Ventilation Override mode of operation, the following display will appear on the Human Interface LCD screen.

```
Ventilation Override Mode    A
                             Diagnostics
```

**Used With:** VOM Option
**Possible Values:**
**Top Right Field:** A, B, C, D, E, OFF
**Bottom Left Field:**
(blank)
**Bottom Right Field:**
Diagnostics (Trouble Indicator)
(blank)

### "No Configuration" Condition

If at power up the unit has not been programmed with the necessary configuration data for normal unit operation, the following display will appear on the Human Interface LCD screen. When this screen is being displayed, the only functional key is the **Configuration** key.

***Note:*** *This screen will only appear when the RTM has been field replaced. Refer to the Configuration Menu section.*

```
      NO CONFIGURATION PRESENT
       PRESS CONFIGURATION KEY
```

**Used With:** All Units

### "Software Version Mismatched" Condition

If at power up the unit determines that one or more of the modules has been installed with a software version lower than what is required for proper unit operation, the following display will appear on the Human Interface LCD screen. When this screen is displayed, the only functional key is the **Configuration** key. Navigate to the software version screens to identify the improper board, or reconfigure the unit to remove the functionality.

***Note:*** *This screen will only appear when the RTM has been field replaced. Refer to the Configuration Menu section.*

```
   MODULE SOFTWARE VERSION MISMATCHED
       PRESS CONFIGURATION KEY
```

**Used With:** All Units

## Factory Presets

The UCM controlled unit has many operating functions which are preset at the factory, but may be modified to meet the unique requirements of each job. The following list in Table 2, identifies each of the unit's adjustable functions and the value assigned to it. If these factory presets match the application's requirements, simply press the **Auto** key at the Human Interface module to begin unit operation (after completing the Pre-Start and Start-Up procedures in the Installation, Operation, and Maintenance manual). If the application requires different settings, turn to the listed page beside the function, press the designated function menu key, then press and hold the **Next** or **Previous** key until its screen appears on the LCD. Once the proper screen appears, simply follow the programming instructions given below the applicable screen in this manual.

***Note:*** *Listed items availability is dependent on unit configuration.)*

**Table 2. Factory Presets List (Note: Listed Items availability is dependent on unit configuration.**

| Adjustable Function | Factory Preset | Changed To | To adjust press... |
|---|---|---|---|
| **General Function** | | | |
| Unit Address (Comm3/Comm4only) | 1 | _____ | Setup |
| System Mode | Auto | _____ | Setup |
| Supply Fan Mode | Auto | _____ | Setup |
| Unit Start Delay | 0 | _____ | Setup |
| Single Zone VAV Econ Control | Enabled | _____ | Setup |
| Single Zone VAV Heat Control | Disabled | _____ | Setup |
| Daytime Warm-up | Disabled | _____ | Setup |
| Morning Warm-up | Enabled | _____ | Setup |
| Morning Warm-up type | Cycling | _____ | Setup |
| Supply Air Tempering | Disabled | _____ | Setup |
| Unoccupied Mechanical Cooling | Enable | _____ | Setup |
| Unoccupied Heating | Enable | _____ | Setup |
| Unoccupied Mechanical Cooling | Enable | _____ | Setup |
| Unoccupied Heating | Enable | _____ | Setup |
| Occupied Dehumidification | Enable | _____ | Setup |
| Unoccupied Dehumidification | Enable | _____ | Setup |
| Occupied Humidification | Disable | _____ | Setup |
| Unoccupied Humidification | Disable | _____ | Setup |
| Rapid Restart Economizer Control | Disable | _____ | Setup |
| VCM Preheat Output | Disable | _____ | Setup |
| Demand Limit Definition - Cooling | None | _____ | Setup |
| Demand Limit Definition - Heating | None | _____ | Setup |
| Compressor Lead/Lag | Enable | _____ | Setup |
| Evap Temperature Limit | 35 F | _____ | Setup |
| Coil Frost Cutout Temp | 30 F | _____ | Setup |
| Isolation Damper Interlock | Disable | _____ | Setup |
| **Information Format** | | | |
| Display Text | English | _____ | Setup |
| Display Units | English | _____ | Setup |
| **VAV Control** | | | |
| SA Temp Reset Cool | None | _____ | Setup |

**Table 2. Factory Presets List (continued)(Note: Listed Items availability is dependent on unit configuration.**

| Adjustable Function | Factory Preset | Changed To | To adjust press... |
|---|---|---|---|
| Reset Cool Start Temp (Zone/OA) | (72/90) | _____ | Setup |
| Reset Cool End Temp (Zone/OA) | (69/70) | _____ | Setup |
| Reset Cool Max Amount | 5 | _____ | Setup |
| SA Temp Reset Heat | None | _____ | Setup |
| Reset Heat Start Temp (Zone/OA) | (65/10) | _____ | Setup |
| Reset Heat End Temp (Zone/OA) | (68/60) | _____ | Setup |
| Reset Heat Max Amount | 10 | _____ | Setup |
| VAV Box Stroke Time | 6 Min | _____ | Setup |
| Max Occ. IGV/VFD Command | 100 % | _____ | Setup |
| **Economizer Control** | | | |
| Economizer Control Enable Type | Drybulb | _____ | Setup |
| Unoccupied Economizer | Enable | _____ | Setup |
| **Head Pressure Control** | | | |
| Sump Drain Relay Control (on power loss) | Drain | _____ | Setup |
| Sump Purge Interval Time | Disabled | _____ | Setup |
| Sump Purge Duration Time (IPak 1/IPak 2)[a] | (120/60 sec.) | _____ | Setup |
| Sump Water Heater Setpoint | 38 F | _____ | Setup |
| Low Limit (Air-cooled/Water-cooled)[a] | (80/70 deg F) | _____ | Setup |
| Upper Limit | 120 deg F | _____ | Setup |
| Temporary low limit suppression | 20 deg F | _____ | Setup |
| Efficiency check point | 105 deg F | _____ | Setup |
| Low amb. control point (Air-cooled/Water-cooled)[a] | (90/80 deg F) | _____ | Setup |
| Alternate Refrigerant Type[a] | Disabled | _____ | Setup |
| **Sensor Source Selection** | | | |
| Daytime Warm-Up | RTM Zone Temp | _____ | Setup |
| Occupied Zone Control | RTM Zone Temp | _____ | Setup |
| Unoccupied Zone Control | RTM Zone Temp | _____ | Setup |
| Morning Warm-Up | RTM Zone Temp | _____ | Setup |
| Space Humidity Control | RTM Space Humidity | _____ | Setup |
| Dehumid OVRD Zone Temp | RTM Zone Temp | _____ | Setup |
| Zone Reset Function | RTM Zone Temp | _____ | Setup |
| Rapid Restart Function | ECEM Return Temp | _____ | Setup |
| Monitor | RTM Zone Temp | _____ | Setup |
| **Outside Air Ventilation** | | | |
| Demand Control Ventilation | Disable | _____ | Setup |
| Active/Passive DCV Control | Passive | _____ | Setup |
| OA Flow Compensation | Enabled | _____ | Setup |
| OA Flow C02 Reset (IPak-1 Non-DCV) | Disabled | _____ | Setup |
| CO2 Start (IPak 1 Non-DCV) | 800 | _____ | Setup |
| CO2 Max (IPak 1 Non-DCV) | 1000 | _____ | Setup |

**Table 2. Factory Presets List (continued)(Note: Listed Items availability is dependent on unit configuration.**

| Adjustable Function | Factory Preset | Changed To | To adjust press... |
|---|---|---|---|
| OA Flow Calibration Gain (Left) | 1.0 | _____ | Setup |
| OA Flow Calibration Offset (Left) | 0 CFM | _____ | Setup |
| OA Flow Calibration Gain (Right) | 1.0 | _____ | Setup |
| OA Flow Calibration Offset (Right) | 0 CFM | _____ | Setup |
| OA Normalization | 100 CCFM | _____ | Setup |
| OA Flow Calibration Data - Altitude: | 0 Ft | _____ | Setup |
| RTM Alarm Output Definition | Any Active Diagnostic | _____ | Setup |
| **GBAS Input/Output Definitions** | | | |
| GBAS (0-5) Analog Input 1 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-5) Analog Input 2 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-5) Analog Input 3 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-5) Analog Input 4 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-5) Output 1 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-5) Output 2 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-5) Output 3 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-5) Output 4 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-5) Output 5 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-10) Analog Input 1 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-10) Analog Input 2 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-10) Analog Input 3 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-10) Analog Input 4 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-10) Output 1 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-10) Output 2 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-10) Output 3 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-10) Output 4 Definitions | Not Assigned | _____ | Setup |
| GBAS (0-10) Output 5 Definitions | Not Assigned | _____ | Setup |
| Ventilation Override Definition | See Definitions | _____ | Setup |
| **Temperature Input Offset for...** | | | |
| RTM Zone Temperature | 0 deg F | _____ | Setup |
| RTM Aux Temperature | 0 deg F | _____ | Setup |
| Outdoor Air Temperature | 0 deg F | _____ | Setup |
| Heat Aux Temperature | 0 deg F | _____ | Setup |
| Return Air Temperature | 0 deg F | _____ | Setup |
| **Device Characteristics...** | | | |
| **Outside Air Damper (if equipped)** | | | |
| Actuator Setup | Direct | _____ | Setup |
| Max Stroke Time | 30 sec | _____ | Setup |
| Max Voltage | 10 VDC | _____ | Setup |

**Table 2. Factory Presets List (continued)(Note: Listed Items availability is dependent on unit configuration.**

| Adjustable Function | Factory Preset | Changed To | To adjust press... |
|---|---|---|---|
| Min Voltage | 2 VDC | _____ | Setup |
| **Supply Fan IGV/VFD (if equipped)** | | | |
| Actuator Setup | Direct | _____ | Setup |
| Max Stroke Time | 30/0 sec | _____ | Setup |
| Max Voltage | 10 VDC | _____ | Setup |
| Min Voltage | 2 VDC | _____ | Setup |
| **Return Fan VFD (if equipped)** | | | |
| Actuator Setup | Direct | _____ | Setup |
| Max Stroke Time | 60/0 sec | _____ | Setup |
| Max Voltage | 10 VDC | _____ | Setup |
| Min Voltage | 2 VDC | _____ | Setup |
| **Exhaust Damper/VFD (if equipped)** | | | |
| Actuator Setup | Direct | _____ | Setup |
| Max Stroke Time | 60 sec | _____ | Setup |
| Max Voltage | 10 VDC | _____ | Setup |
| Min Voltage | 0 VDC | _____ | Setup |
| **Hydronic Heat (if equipped)** | | | |
| Actuator Setup | Direct | _____ | Setup |
| Max Stroke Time | 60 sec | _____ | Setup |
| Max Voltage | 10 VDC | _____ | Setup |
| Min Voltage | 2 VDC | _____ | Setup |
| **Low Ambient Damper Ckt-1 (if equipped)** | | | |
| Actuator Setup | Direct | _____ | Setup |
| Max Stroke Time | 60 sec | _____ | Setup |
| Max Voltage | 10 VDC | _____ | Setup |
| Min Voltage | 2 VDC | _____ | Setup |
| **Low Ambient Damper Ckt-2 (if equipped)** | | | |
| Actuator Setup | Direct | _____ | Setup |
| Max Stroke Time | 60 sec | _____ | Setup |
| Max Voltage | 10 VDC | _____ | Setup |
| Min Voltage | 2 VDC | _____ | Setup |
| **Cond Fan VFD Ckt -1(if equipped)** | | | |
| Actuator Setup | Direct | _____ | Setup |
| Max Stroke Time | 60 sec | _____ | Setup |
| Max Voltage | 10 VDC | _____ | Setup |
| Min Voltage | 0 VDC | _____ | Setup |

**Table 2. Factory Presets List (continued)(Note: Listed Items availability is dependent on unit configuration.**

| Adjustable Function | Factory Preset | Changed To | To adjust press... |
|---|---|---|---|
| **Cond Fan VFD Ckt-2 (if equipped)** | | | |
| Actuator Setup | Direct | _____ | Setup |
| Max Stroke Time | 60 sec | _____ | Setup |
| Max Voltage | 10 VDC | _____ | Setup |
| Min Voltage | 0 VDC | _____ | Setup |
| **Modulating Gas Heat Actuator (if equipped)** | | | |
| Actuator Setup (IPak 1[a]/IPak 2[b]) | (Reverse/Direct) | _____ | Setup |
| Max Stroke Time | 90 sec | _____ | Setup |
| Max Voltage | 10 VDC | _____ | Setup |
| Min Voltage (IPak 1/IPak 2)[a] | (5 VDC/2 VDC) | _____ | Setup |
| **Outdoor Air Bypass Damper (if equipped)** | | | |
| Actuator Setup | Direct | _____ | Setup |
| Max Stroke Time | 60 sec | _____ | Setup |
| Max Voltage | 10 VDC | _____ | Setup |
| Min Voltage | 2 VDC | _____ | Setup |
| **Exhaust Bypass Damper (if equipped)** | | | |
| Actuator Setup | Direct | _____ | Setup |
| Max Stroke Time | 60 sec | _____ | Setup |
| Max Voltage | 10 VDC | _____ | Setup |
| Min Voltage | 2 VDC | _____ | Setup |
| **Variable Speed Comp (if equipped)** | | | |
| Actuator Setup | Direct | _____ | Setup |
| Max Stroke Time | 30 sec | _____ | Setup |
| Max Voltage | 10 VDC | _____ | Setup |
| Min Voltage | 0 VDC | _____ | Setup |
| **Default Setpoints** | | | |
| Supply Air Cooling (VAV/SZVAV)[a] | (55 F/50 F) | _____ | Setpoints |
| Supply Air Heating (VAV/SZVAV)[a] | (100 F/105 F) | _____ | Setpoints |
| SA Cool Deadband (VSPD)[a] | (8.0 F/2.0 F) | _____ | Setpoints |
| SA Heat Deadband | 4.0 F | _____ | Setpoints |
| DWU Initiate | 67 F | _____ | Setpoints |
| DWU Terminate | 71 F | _____ | Setpoints |
| Occupied Zone Cooling | 74 F | _____ | Setpoints |
| Occupied Zone Heating | 71 F | _____ | Setpoints |
| Zone Derived Setpoint | 4 F | _____ | Setpoints |
| Unoccupied Zone Cooling | 85 F | _____ | Setpoints |
| Unoccupied Zone Heating | 60 F | _____ | Setpoints |
| Unoccupied Zone MWU | 72 F | _____ | Setpoints |

**Table 2. Factory Presets List (continued)(Note: Listed Items availability is dependent on unit configuration.**

| Adjustable Function | Factory Preset | Changed To | To adjust press... |
|---|---|---|---|
| Rapid Restart Critical Temp[a] | 90 F | _____ | Setpoints |
| Occ Dehumidification | 60% | _____ | Setpoints |
| Occ Dehumid Hysteresis Offset | 5% | _____ | Setpoints |
| Unocc Dehumidification | 60% | _____ | Setpoints |
| Unocc Dehumid Hysteresis Offset | 5% | _____ | Setpoints |
| Supply Air Reheat Setpoint | 70 F | _____ | Setpoints |
| Supply Air Reheat Deadband | 4 F | _____ | Setpoints |
| Maximum Reheat Valve Limit | 85% | _____ | Setpoints |
| Dehumid Ovrd High Zone Temp | 75 F | _____ | Setpoints |
| Dehumid Ovrd Low Zone Temp | 68 F | _____ | Setpoints |
| Cond Coil Purge Interval | 90 Min | _____ | Setpoints |
| Occ Humidification | 30% | _____ | Setpoints |
| Occ Humidification Hysteresis Offset | 5% | _____ | Setpoints |
| Unocc Humidification | 30% | _____ | Setpoints |
| Unocc Humidification Hysteresis Offset | 5% | _____ | Setpoints |
| Economizer Cooling Setpoint Suppression (CV) | 3 F | _____ | Setpoints |
| Reference Enthalpy | 25 BTU/LB | _____ | Setpoints |
| Economizer Drybulb Enable Stpt | 75 F | _____ | Setpoints |
| Supply Air Low Limit | 50 F | _____ | Setpoints |
| VCM Preheat Actuate Temp | 35 F | _____ | Setpoints |
| Design Min $CO_2$ (DCV) | 1000 PPM | _____ | Setpoints |
| DCV Min $CO^2$ | 800 PPM | _____ | Setpoints |
| Design Min OA Flow (DCV) | 220 CCFM | _____ | Setpoints |
| DCV Min OA Flow | 67 CCFM | _____ | Setpoints |
| DCV Min OA Flow Deadband | 5 CCFM | _____ | Setpoints |
| Min OA Flow w\ VCM | Set per unit size | _____ | Setpoints |
| Min OA Flow Deadband | Set per unit size | _____ | Setpoints |
| Design Min OA Damper Position (DCV) | 15% | _____ | Setpoints |
| DCV Min OA Damper Position | 5% | _____ | Setpoints |
| OA Damper Min Position (non-DCV) | 15% | _____ | Setpoints |
| OAD Min Position w/IGV/VFD at 0% | 25% | _____ | Setpoints |
| OAD Min Position w/IGV/VFD at 50% | 20% | _____ | Setpoints |
| OAD Min Position w/IGV/VFD at 100% | 15% | _____ | Setpoints |
| OAD Min Position (Default) | 15% | _____ | Setpoints |
| Supply Air Pressure | 2.0 IWC | _____ | Setpoints |
| Supply Air Pressure High Limit | 4.0 IWC | _____ | Setpoints |
| Supply Air Pressure Deadband | 0.5 IWC | _____ | Setpoints |
| Max Return Plenum Pressure | 0.8 IWC | _____ | Setpoints |
| Return Plenum Pressure Deadband | 0.1 IWC | _____ | Setpoints |
| Space Pressure - Setpoint | 0.08 IWC | _____ | Setpoints |
| Space Pressure - Deadband | .04 IWC | _____ | Setpoints |
| Space Pressure Low Limit | -0.2 IWC | _____ | Setpoints |
| Exhaust Enable Point | 25% | _____ | Setpoints |
| Exhaust Inhibit Point | DISABLE | _____ | Setpoints |

**Table 2. Factory Presets List (continued)(Note: Listed Items availability is dependent on unit configuration.**

| Adjustable Function | Factory Preset | Changed To | To adjust press... |
|---|---|---|---|
| Low Ambient Comp. Lockout (Standard Units) | 50 F | _____ | Setpoints |
| Low Ambient Comp. Lockout (Low Ambient Units) | 0 F | _____ | Setpoints |
| Standby Freeze Avoidance | 0% | _____ | Setpoints |
| Recovery Frost Avoidance Setpoint | 27 F | _____ | Setpoints |
| **Setpoint Source Selection For...** | | | |
| Supply Air Temp Cooling | Hi Default | _____ | Setpoints |
| Supply Air Temp Heating | Hi Default | _____ | Setpoints |
| Occupied Zone Cooling | Hi Default | _____ | Setpoints |
| Occupied Zone Heating | Hi Default | _____ | Setpoints |
| Unoccupied Zone Cooling | Hi Default | _____ | Setpoints |
| Unoccupied Zone Heating | Hi Default | _____ | Setpoints |
| Morning Warm-Up | Hi Default | _____ | Setpoints |
| Economizer Dry Bulb Enable | Hi Default | _____ | Setpoints |
| Outside Damper Minimum Position | Hi Default | _____ | Setpoints |
| Occupied Dehumidification | Hi Default | _____ | Setpoints |
| Unoccupied Dehumidification | Hi Default | _____ | Setpoints |
| Supply Air Reheat | Hi Default | _____ | Setpoints |
| Occupied Humidity | Hi Default | _____ | Setpoints |
| Unoccupied Humidity | Hi Default | _____ | Setpoints |
| Minimum Outside Air Flow Rate | Hi Default | _____ | Setpoints |
| Supply Air Pressure | Hi Default | _____ | Setpoints |
| Space Pressure | Hi Default | _____ | Setpoints |

(a) Field replacement of control modules requires proper human interface setup to insure unit performance
(b) IPak 1 with Ultra Modulating Gas Heat is direct acting, rather than the typical reverse acting

## Password Protected Screens

Some of the operating displays on the Human Interface LCD screens and require a password to change. The following screens display the various programming sections that require a password in order to view or to modify the preset operating parameters. The password for each screen is a different series of **+** (**Plus**) or **-** (**Minus**) key strokes in a predefined sequence. Shown below are the password protected screens, and the passwords for accessing them.

The following screens display the various programming sections that require a specific password to be entered by a qualified operator in order to modify the operating parameters. The following screen will appear if the password is not entered within approximately 15 seconds.

```
Password Entry Time Limit Exceeded
```

```
Configuration is Password Protected
Please Enter Password: __________
```

1. Press the + or - keys in this sequence ( + - - - ) to access this restricted screen.
2. Press the **Enter** key to confirm the password and enter the menu.

```
Ventilation Override Mode _______
Enter Password to Lock Definition:
```

1. Press the + or - keys in this sequence ( + - - + ) to lock each VOM Mode.
2. Press the **Enter** key to confirm the password and Lock the definitions.

```
Diagnostic Reset is Password Protected
Please Enter Password: ____________
```

1. Press the + or - keys in this sequence ( - + + ) to access this restricted screen.
2. Press the **Enter** key to confirm the diagnostic reset.

```
Diagnostic Log is Password Protected
Please Enter Password: __________
```

1. Press the + or - keys in this sequence ( - + + -) to access this restricted screen.
2. Press the **Enter** key to confirm clearing the diagnostic log.

```
Turning Parameters are Password Protected
Please Enter Password: __________
```

1. Contact Large Commercial Technical Support for Password and before making any changes from the defaults.

## Navigating the Human Interface Screens

In the following sections the user will be presented with a number of screens and submenus that follow the selection of a main menu key entry (**Status**, **Setpoints**, **Diagnostics**, **Setup**, **Configuration**, **Service Mode** and **Custom**). When a submenu is presented, it may be accessed by pressing the **Enter** key or, skipped entirely by pressing the **Next** key. Upon entering a menu, or submenu, the user will navigate through the desired selections by pressing the **Next** and **Previous** keys. The most probable keystroke would be to press **Next** to cycle forward through the screens as shown in these sections, but pressing the **Previous** key may be desirable to review previous screens or to quickly navigate to the end of a menu.

Once the user has navigated to a desired selection, the **+** (**Plus**) and **-** (**Minus**) keys will be pressed to cycle through the selection range of the menu item. The range of each item selected is dependent upon the item and is listed for each screen in the following sections. For instance, if the user has selected a **Configuration** item typical choices displayed with each **+** (**Plus**) or **-** (**Minus**) keystroke may be *Installed* or *Not Installed*. If a **Setup** menu were accessed a choice may be *Enabled* or *Disabled*. Temperature **Setpoints** will typically cycle through their range one degree at a time, and so on. Similar to pressing the **Previous** key above, pressing the **-** (**Minus**) key to decrement through the range may provide quick access to the desired value.

Once a change has been made to the desired menu item the user will press the **Enter** key to accept the change, or press the **Cancel** key to ignore the modification and return the displayed item to its original value.

# STATUS Menu

The status menu is used to view various operating conditions such as temperatures, pressures and humidity levels. It is also used to view unit component status such as fan, compressor, heater, and economizer operation, as well as setpoint status.

The screens shown in this section are for example only. Pressing the **+** (**Plus**) key while viewing any of the status display screens will add that screen to the Custom menu. While viewing the Custom menu, a screen can be removed by pressing the **–** (**Minus**) key.

When a status screen is displayed for 30 minutes without a key being pressed, the LCD screen will revert to the general operating status display. If this happens, press the **Status** key again to return to the status menu. The following are examples of status screens that may be viewed by pressing the **Status** key.

***Notes:***

1. Many of the screens displayed in this section are applicable only for the options that are installed in the unit and may not be visible on your unit.
2. The range for some selections depend upon a sensor connected to a control module. Normal ranges expected will be listed for each screen shown. If the sensor is operating outside its normal limits, or has failed, "+ERR" will appear if out of range high, and "-ERR" if it is out of range low.

Press the **Status** key to begin viewing the status screens.

## TOP LEVEL STATUS SCREEN

```
VVDA OA Flow  350.0 CCFM   Supply Fan ON
Occupied     Cool 4          Diagnostics
```

• Press **Next / Previous** keys to navigate.

## GENERAL SYSTEM STATUS SUBMENU SCREENS

```
General System Status Submenu
Press ENTER to View Data in this Submenu
```

**Used With:** All Units

• Press **Next** key to skip this Submenu.

```
Active Unit Control Source:   LOCAL
Active Cluster Member Role:   STANDALONE
```

**Used With:** BAS Interface Installed
**Possible Values:**
Source: LOCAL, BAS/NETWORK
Role: STANDALONE, SLAVE, MASTER

• Press **Next / Previous** keys to navigate.

```
RTM Supply Fan Relay:                 OFF
RTM Supply Airflow Proving:          FLOW
```

**Used With:** All Units
**Possible Values:**
Fan Relay: ON, OFF
Airflow Proving: FLOW, NO FLOW

• Press **Next / Previous** keys to navigate.

**Note:** *One of the three following screens will be shown based on supply air pressure options.*

```
Supply Fan IGV/VFD Target:            30%
Master's Algorithm Command to All Units
```

**Used With:** Clustered VVDA Units
**Possible Values:** 0 to 100%

**OR**

```
Supply Fan IGV/VFD Cmd  Opening To  30 %
Active Supply Air Pressure       2.0 IWC
```

"Opening To" and "Closing To" indicate direction.
"Limited To" when shown indicates an active override.
"Active Supply Air Pressure" shown for VVDA

**Used With:** VVDA/VVZT Units
**Possible Values:**
Cmd: 0 to 100%
Press: 0.0 to 7.9 IWC

**OR**

```
Active Supply Air Pressure       2.0 IWC
```

**Used With:** CVDA/CVZT Units
**Possible Values:** 0.0 to 7.9 IWC

- Press **Next/Previous** keys to navigate.

**Note:** *One of the three following screens will be shown based on power exhaust options.*

```
Exhaust Fan OFF
```

**Used With:** Units w Power Exhaust w/o Statitrac, w/o Return Fan
**Possible Values:** ON, OFF

**OR**

```
Exhaust Damper/VFD Target:          70 %
Master's Algorithm Command to All Units
```

**Used With:** Clustered, w/Statitrac, w/o Return Fan Units
**Possible Values:** 0 to 100%

**OR**

```
Exhaust Fan ON   Space Pressure 0.00 IWC
Exhaust Damper/VFD   Opening To     32 %
```

"Opening To" and "Closing To" indicates direction.
"Limited To" when shown indicates an active override.

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/Statitrac, w/o Return Fan
**Possible Values:**
Fan: ON, OFF
Pressure:
IPak 1: -0.2 to 0.3 IWC
IPak 2: -0.67 to 0.67 IWC
Damper/VFD: 0 to 100%

**Note:** *One of the four following screens will be shown based on heating type options.*

```
Electric Heat: ENABLED
Stage: 6   K11: ON    K12: ON    K1: ON
```

"ENABLED" indicates heat is available.
"DISABLED" indicates heating is not allowed.
"LIMITED" indicates heating is available at reduced capacity.

**Used With:** Units w/Electric Heat
**Possible Values:**
**Electric Heat:**
ENABLED,
DISABLED By Setup,
LIMITED By Demand Limit
DISALBED By BAS/Network
**Stage:** 0,1,2,3,4,5,6
**K*:** ON, OFF

**OR**

```
Gas Heat: ENABLED
Stage: 2   K11: ON    K12: ON    K1: ON
```

"ENABLED" indicates heat is available.
"DISABLED" indicates heating is not allowed.
"LIMITED" indicates heating is available at reduced capacity.

**Used With:** Units w/Staged Gas Heat
**Possible Values:**
**Gas Heat:**
ENABLED,
DISABLED By Setup,
LIMITED By Demand Limit
DISALBED By BAS/Network
**Stage:** 0,1,2
**K*:** ON, OFF

**OR**

```
Hydronic Heat: ENABLED
Valve Position:    Opening To:     100 %
```

"ENABLED" indicates heat is available.
"DISABLED" indicates heating is not allowed.
"LIMITED" indicates heating is available at reduced capacity.
"Opening To" and "Closing To" indicates direction.

**Used With:** Units w/Hydronic Heat
**Possible Values:**
**Hydronic Heat:**
ENABLED,
DISABLED By Setup,
LIMITED By Demand Limit
DISABLED By Low Air Temp
DISALBED By BAS/Network
**Position:** 0 to 100%

**OR**

```
Mod Gas Heat: ENABLED
Valve Position:    Opening To:     100 %
```

"ENABLED" indicates heat is available.
"DISABLED" indicates heating is not allowed.
"LIMITED" indicates heating is available at reduced capacity.
"Opening To" and "Closing To" indicates direction.

**Used With:** Units w/Mod Gas Heat
**Possible Values:**
**Mod Gas Heat:**
ENABLED,
DISABLED By Setup,
LIMITED By Demand Limit
DISABLED By Low Air Temp
DISALBED By BAS/Network
**Position**: 0 to 100%

- Press **Next/Previous** keys to navigate.

```
Chilled Water: ENABLED
Valve Position:    Opening To      100 %
```

"ENABLED" indicates cooling is available.
"DISABLED" indicates cooling is not allowed.
"LIMITED" indicates cooling is available at reduced capacity.
"Opening To" and "Closing To" indicates direction.

**Used With:** Air Handler Units w/Chilled Water
**Possible Values:**
**Chilled Water:**
ENABLED,
DISABLED By Setup,
LIMITED By Demand Limit
DISABLED By Low Air Temp
DISALBED By BAS/Network
**Position**: 0 to 100%

- Press **Next/Previous** keys to navigate.

```
Dehumidification Status:          DISABLED
by Comfort Control Override is Active
```

**Used With:** Units w/Dehumidification
**Top Line Possible Values:** ENABLED, DISABLED
**Bottom line Possible Values:**
When ENABLED is Shown:
(blank line)
When LOCKED is Shown:
[See "Table 3. Dehumidification Lockout Sources" Below]

**Table 3. Dehumidification Lockout Sources**

| Value Displayed in Bottom Field | Disable Conditions |
|---|---|
| Disabled By Call for Cooling Demand Limit | Compressors unavailable due to demand limit. |
| Disabled By Compressor Lockout Sources | Required compressors are not available. |
| Disabled By Occ Dehumid Function Disable | Occupied Dehumid. control is disabled. |
| Disabled By Dehumid Override Zone Temp High/Low | VVDA/CVDA critical zone temp is too high/low. |
| Disabled By OA Temperature Out Of Range | Outdoor air temperature is out of range. |
| Disabled By Unocc Dehumid Function Disable | Unoccupied Dehumid. control is disabled. |
| Disabled By Comfort Control Override is Active | Comfort cooling control has priority. |
| Disabled By Required Sensor Failure Condition | Sensor(s) for dehumid. control have failed. |
| Disabled By Sat Reheat Cond Temp Sensor Fail | Sensor for dehumid. control have failed. |
| Disabled By Reheat Head Pressure High Limit | Reheat circuit is experiencing high pressures. |
| Disabled By Condenser Coil Purge is Active | Active purge mode temporary override. |
| Disabled By Comp Press Differential | Excessive refrig. pressures across compressors. |
| Disabled By High Ambient Protection | Excessive refrig. pressures across condenser. |

- Press **Next/Previous** keys to navigate.

```
Humidification Status:            ENABLED
Humidification is Active
```

**Used With:** Units w/Humidification
**Top Right Field:** ENABLED, DISABLED
**Bottom Field:**
The following shown when DISABLED:
by Occ Humidification Function Disable
by Unocc Humid Function Disable
The following shown when ENABLED:
Humidification is Inactive
Humidification is Active

- Press **Next/Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter STATUS
```

- Press **Next/Previous** keys to navigate.

## COMPRESSOR STATUS SUBMENU SCREENS

```
Compressor Status Submenu
Press ENTER to View Data in This Submenu
```

**Used With:** Units w/DX Cooling

- Press the **Next** key to skip this Submenu.

**Note:** *Combinations of the following screens will be shown based on unit cooling capacity option.*

```
Compressor Relay K10              Locked
Disabled By Compressor Protection (MORE)
```

**Note:** *There will be **2** screens shown for this configuration, one screen for K10 and one for K11.*

- Press **Next / Previous** keys to navigate.

**Used With:** IPak 1 20-30 Ton DX Cooling
**Possible Values:**
**Compressor Relay:**
K10: 1A
K11: 1B
**Top Right Field:**
ON, OFF, LOCKED
**Bottom Field:**
When ON or OFF is Shown: ENABLED
When LOCKED is Shown:
[See "Table 4. Compressor Lockout Sources" on page 32"]

**OR**

```
Compressor Relay K11              Locked
Disabled By Compressor Protection (MORE)
```

**Note:** *There will be up to 4 screens shown per the following: K11, K3, and K4 will be shown for all units. K12 will be shown for all units except 40-70 Ton units with variable speed compressor option.*

- Press **Next / Previous** keys to navigate.

**Used With:** IPak 1 40-130 Ton DX Cooling
**Possible Values:**
**Compressor Relay:**
K11: 1A
K12: 1B
K3: 2A
K4: 2B
**Top Right Field:**
ON, OFF, LOCKED
**Bottom Field:**
When ON or OFF is Shown: ENABLED
When LOCKED is Shown:
[See "Table 4. Compressor Lockout Sources" on page 32"]

```
Capacity of Variable Speed Comp:     0%
Disabled By Compressor Protection (MORE)
```

***Notes:***

- *This screen replaces K12 on 40 to 70 Ton units.*
- *This screen shown after K12 on 75 Ton unit.*
- *This screen shown after K3 on IPak 2 units.*
- **Applied Design Capacity is the maximum cooling capacity of the variable speed compressor for this unit's tonnage design.*

- Press **Next / Previous** keys to navigate.

**Used With:** IPak 40-150 Ton DX Cooling Configured w/Variable Speed Compressor
**Possible Values:** % of Applied Design Capacity*
**Top Right Field:** 0–100%
**Bottom Field:**
During Normal control: [blank]
When VSC is locked: [See "Table 4. Compressor Lockout Sources" on page 32"]

**OR**

```
Ckt 1 Compr Relay  K11:                OFF
Enabled
```

***Notes:***

- *There will be up to 3 screens shown for the configuration, one for K11, K12, and K13*.*
- **K13 will only be shown on IPak 2 units with variable speed compressor option installed.*

• Press **Next / Previous** keys to navigate.

**Used With:** IPak 2 DX Cooling
**Possible Values:**
**Compressor Relay:**
K11: 1A
K12: 1B
K13: 1C
**Top Right Field:**
ON, OFF, LOCKED
**Bottom Field:**
When ON or OFF is Shown: ENABLED
When LOCKED is Shown:
[See "Table 4. Compressor Lockout Sources" Below]

```
Ckt 2 Compr Relay   K3:                ON
Enabled
```

- *There will be 2 screens shown for the configuration, one for K3 and one for K4.*

**Used With:** IPak 2 DX Cooling
**Possible Values:** Possible Values:
**Compressor Relay**:
K3: 2A
K4: 2B
**Top Right Field:**
ON, OFF, LOCKED
**Bottom Field:**
When ON or OFF is Shown: ENABLED*
When LOCKED is Shown:
[See "Table 4. Compressor Lockout Sources" Below]

**Table 4. Compressor Lockout Sources**

| Value Displayed in Bottom Field | Lockout Conditions |
|---|---|
| Disabled By Compressor Protection | Compressor proving input did not close. |
| Disabled By Contactor/Drive Failure | Compressor proving input stuck closed. |
| Disabled By Low Pressure Cutout | Low pressure cutout input to MCM. |
| Disabled By Bad Cond Temp Sensor | Temp sensor is out of range. |
| Disabled By Demand Limit | From GBAS or BAS/Network. |
| Disabled By Frost Protection | Leaving evap temp. < coil frost setpoint. |
| Disabled By BAS/Network Lockout | BAS demand or capacity limited. |
| Disabled By Minimum Off Time | 3 minutes. |
| Disabled By Low Ambient Lockout | Ambient temp. < Low Ambient Lockout Stpt. |
| Disabled By Ventilation Override | Source is VOM input A-E, or BAS/Network. |
| Disabled By LPC Delay | 3 minutes. |
| Disabled By Water Flow Status | Evap. condenser water flow failure. |
| Disabled By Cond Coil Purge Request | Dehumidification coil purge mode. |
| Disabled By Sump Temp Sensor Fail | Evap. condenser sump water temperature. |
| Disabled By Low Refrig Charge | Evap. temp. difference exceeded for 10 min. |
| Disabled By Ckt | Evap Low Limit Entering evaporator temp. is excessively low. |
| Disabled by Reheat Ckt Evap Low Limit | Entering evaporator temp. is excessively low. |
| Disabled By Evap Temp Sensor Fail | Entering or leaving temp. sensor(s) failed. |
| Disabled by Comp Press Differential | Excessive refrig. pressures across compressors. |
| Disabled By Sump Min Level Sensor Fail | Evap. condenser min level switch failed. |
| Disabled By Sump Pump Failure | Evap. condenser pump proving failed. |
| Disabled By Sump Min Level Control | Evap. condenser water level marginal. |
| Disabled By High Ambient Protection | Saturated condenser conditions are marginal. |
| Limited By High Suction Pressure | Entering and leaving evaporator conditions are marginal. |

• Press **Next/Previous** keys to navigate.

```
Circuit 1                Evap Diff:  5.0°F
Enter Evap: 48.5°F    Leave Evap: 53.5°F
```

**Used With:** DX Cooling
**Possible Values:**
Evap Diff: 0.0 to 200.0ºF
Enter Evap: -40.0 to 200.0ºF
Leave Evap: -40 to 200.0ºF

"Evap Diff:" and associated value not displayed if:

1. circuit is inactive, or
2. for first ten minutes of circuit operation*, or
3. HGBP is installed

"Enter Evap:" and associated value not displayed if:

1. HGBP is installed

• Press **Next/Previous** keys to navigate.
*If VSC is installed, Evap Diff. will be shown whenever the compressor is on.

```
Circuit 1
Saturated Condensing Temp:       100.0°F
```

**Used With:** DX Cooling.
**Possible Values:**
Temp: -40.0 to 200.0ºF

• Press **Next/Previous** keys to navigate.

```
Circuit 2                  Evap Diff: 12.0°F
Enter Evap: 40.0°F     Leave Evap: 52.0°F
```

"Evap Diff:" and associated value not displayed if:

1. circuit is inactive, or
2. for first ten minutes of circuit operation*, or
3. HGBP is installed

"Enter Evap:" and associated value not displayed if:

1. HGBP is installed

• Press **Next/Previous** keys to navigate.
*If VSC is installed, Evap Diff. will be shown whenever the compressor is on.

**Used With:** DX Cooling ≥ 40Ton
**Possible Values:**
Evap Diff: 0.0 to 200.0ºF
Enter Evap: -40.0 to 200.0ºF
Leave Evap: -40 to 200.0ºF

```
Circuit 2
Saturated Condensing Temp:          97.0°F
```

• Press the **Next** key to navigate forward.

**Used With:** DX Cooling ≥ 40Ton
**Possible Values:**
Temp: -40.0 to 200.0ºF

```
Circuit 1                  Cond Fan Staging
K1:  ON     K2:  ON              Stage 4
```

"K2:" status not displayed, and maximum stage is 1, on water-cooled condenser units.

• Press **Next/Previous** keys to navigate.

**Used With:** DX Cooling
**Possible Values:**
K1: ON, OFF; K2: ON, OFF
**Bottom Right Field:**
OFF
Stage 1
Stage 2
Stage 3
Stage 4

```
Circuit 2                  Cond Fan Staging
K5:  ON     K6: ON               Stage 4
```

"K6:" status not displayed and maximum stage is 1 on water-cooled condenser units.

• Press **Next/Previous** keys to navigate.

**Used With:** DX Cooling ≥ 40Ton
**Possible Values:**
K5: ON, OFF; K6: ON, OFF
**Bottom Right Field:**
OFF
Stage 1
Stage 2
Stage 3
Stage 4

```
Condenser Fan Speed:
Circuit 1: 100%          Circuit 2: 100%
```

"Circuit 2:" only shown for units ≥ 40Tons.

• Press **Next/Previous** keys to navigate.

**Used With:** DX Cooling w/Low Ambient Option or Water-Cooled Condensers
**Possible Values:**
Circuit 1: 0 to 100%
Circuit 2: 0 to 100%

```
Condenser Sump Water Temp:          73.1°F
Condenser Sump Heater Relay:           OFF
```

"Cond Sump Heater Relay" only shown if Sump Heater installed.

- Press **Next/Previous** keys to navigate.

**Used With:** DX Cooling w/Water-Cooled Condensers
**Possible Values:**
Temp: 0.0 to 200.0ºF
Relay: ON, OFF

```
Condenser Sump Pump Relay Command:     ON
Condenser Sump Pump Proving:         FLOW
```

- Press **Next/Previous** keys to navigate.

**Used With:** DX Cooling w/Water-Cooled Condensers
**Possible Values:**
Relay: ON, OFF
Proving: FLOW, NO FLOW

```
Condenser Sump Fill Relay:             OFF
Condenser Sump Fill Valve:            OPEN
```

- Press **Next/Previous** keys to navigate.

**Used With:** DX Cooling w/Water-Cooled Condensers
**Possible Values:**
Relay: ON, OFF
Valve: CLOSED, OPEN

```
Condenser Sump Drain Relay:            ON
Condenser Sump Drain Valve:       CLOSED
```

"Relay" and "Valve" states are configurable based on the need to hold water in the sump or drain it on power loss. See the **IOM**, and **"** Sump Drain Valve States" on page 109 in **Service Test** section for further information.

- Press **Next/Previous** keys to navigate.

**Used With:** DX Cooling w/Water-Cooled Condensers
**Possible Values:**
Sump Drain Relay: ON, OFF
Sump Drain Valve: CLOSED, OPEN

```
Cond Sump Water Level Max Input:       OPEN
Cond Sump Water Level Min Input:     CLOSED
```

- Press **Next/Previous** keys to navigate.

**Used With:** DX Cooling w/Water-Cooled Condensers
**Possible Values:**
Max Input: CLOSED, OPEN
Min Input: CLOSED, OPEN

```
External Sump Drain Request:       INACTIVE
```

- Press **Next/Previous** keys to navigate.

**Used With:** DX Cooling w/Water-Cooled Condensers
**Possible Values:** ACTIVE, INACTIVE

```
Reheat Coil Pumpout Relay:             OFF
Reheat Coil Pumpout Valve:           CLOSED
```

- Press **Next/Previous** keys to navigate.

**Used With:** DX Cooling w/ Dehumidification
**Possible Values:**
Relay: ON, OFF
Valve: CLOSED, OPEN

```
Dehumid Reheat  Valve Position:       0%
Dehumid Cooling Valve Position:     100%
```

**Used With:** DX Cooling w/ Dehumidification
**Possible Values:**
Reheat Valve: 0 to *Max Reheat Valve Position Setpoint (see Setpoints Menu)*
Cooling Valve: 10 to 100%

• Press **Next/Previous** keys to navigate.

```
Active Outside Air Temperature    70.0°F
Low Ambient Comp Lockout Temp:      50°F
```

**Used With:** DX Cooling
**Possible Values:**
Active Outside Air Temp: -40 to 200.0ºF Lockout Temp: -20 to 80ºF
Default(s):
Standard: 50ºF
Low-Amb. w/Hot Gas Bypass: 0ºF
Low-Amb. w/o Hot Gas Bypass: 10ºF

• Press **Next/Previous** keys to navigate.

```
 End of Submenu (NEXT) to Enter STATUS
```

• Press **Next/Previous** keys to navigate.

## ECONOMIZER STATUS SUBMENU SCREENS

```
Economizer Status Submenu
Press ENTER to View Data in This Submenu
```

**Used With:** Units w/Economizer

• Press the **Next** key to skip this Submenu.

```
Air Economizing:                  ENABLED
Outside Air Damper Pos:  Closing to  10%
```

or

```
Air Economizing:   LIMITED By SA Low Limit
Outside Air Damper Pos:               30%
```

**Used With:** Units w/Economizer
**Possible Values:**
Economizing: ENABLED/DISABLED
Damper Pos: 0 to 100%

"Opening to" and "Closing to" indicates direction.
"LIMITED By SA Low Limit" indicates economizer sub-cooling prevention is activated and the OA Damper is limited.

• Press Next/Previous keys to navigate.

| | |
|---|---|
| Active Outside Air Enthalpy 29.5 BTU/LB<br>ECEM Return Air Enthalpy 34.0 BTU/LB | **Used With:** Units w/Economizer<br>**Possible Values:**<br>OA Enthalpy: 10 to 35 BTU/LB<br>RA Enthalpy: 10 to 35 BTU/LB |

"Return Air Enthalpy" is displayed if Comparative Enthalpy or Energy Recovery is installed.

- Press **Next/Previous** keys to navigate.

| | |
|---|---|
| Active Outside Air Temperature 86.0°F<br>ECEM Return Air Temperature 78.0°F | **Used With:** Units w/Economizer<br>**Possible Values:**<br>OA Temp: -40 to 200°F<br>RA Temp: -40 to 200°F |

"Return Air Temperature" is displayed if Comparative Enthalpy or Energy Recovery is installed.

- Press **Next/Previous** keys to navigate.

| | |
|---|---|
| Active Outside Air Humidity 30 %RH<br>ECEM Return Air Humidity 62 %RH | **Used With:** Units w/Economizer<br>**Possible Values:**<br>OA Humidity: 10 to 90%<br>RA Humidity: 10 to 90% |

"Return Air Humidity" is displayed if Comparative Enthalpy or Energy Recovery is installed.

- Press **Next/Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter STATUS
```

- Press **Next/Previous** keys to navigate.

## OUTSIDE AIR VENTILATION STATUS SUBMENU SCREENS

| | |
|---|---|
| Outside Air Ventilation Status Submenu<br>Press ENTER to View Data in this Submenu | **Used With:** Units w/Fresh Air Options |

- Press the **Next** key to skip this Submenu.

| | |
|---|---|
| Demand Control Ventilation is ENABLED<br>Space $CO_2$ Level: 600 PPM | **Used With:** All Units<br>**Possible Values:**<br>DCV: ENABLED, DISABLED<br>$CO_2$ Level: 50 to 2200 PPM |

"Space CO2 Level" is shown only if "Demand Control Ventilation" is ENABLED

- Press **Next/Previous** keys to navigate.

**Note:** *One of the three following screens will be shown based on fresh air measurement and DCV options.*

```
DCV Min OA Flow Target:        250.0 CCFM
Deadband: 5.0 CCFM    OA Flow 234.3 CCFM
```

**Used With:** Fresh Air Measurement (VCM) w/DCV and Demand Control Ventilation ENABLED
**Possible Values:**
Target: 0 to 650 CCFM
Deadband: 5.0 to 200 CCFM
OA Flow: 0 to 650 CCFM

**OR**

```
Active Min OA Flow Setpoint:  140.3 CCFM
Deadband: 6.8 CCFM    OA Flow 143.5 CCFM
```

**Used With:** Fresh Air Measurement (VCM) w/DCV and Demand Control Ventilation DISABLED
**Possible Values:**
Setpoint: 0 to 650 CCFM
Deadband: 5.0 to 200 CCFM
OA Flow: 0 to 650 CCFM

**OR**

```
Active Min OA Flow Setpoint:  140.3 CCFM
CO2 Level 1100 PPM  OA Damper Pos:  99 %
```

**Used With:** Fresh Air Measurement (VCM) w/o DCV and CO2 Reset ENABLED
**Possible Values:**
Setpoint: 0 to 650 CCFM
CO2 Level: 50 to 2000 PPM
OA Damper Pos: 0 to 650 CCFM

- Press **Next/Previous** keys to navigate.

```
Outside Air Flow       Total: 335.4 CCFM
Left: 167.2 CCFM       Right: 168.2 CCFM
```

**Used With:** Fresh Air Measurement (VCM) w/DCV
**Possible Values:** 0 to 650 CCFM

- Press **Next/Previous** keys to navigate.

```
Outside Air Damper Target:          27 %
Outside Air Damper Position:        24 %
```

**Used With:** Units w/Fresh Air Options
**Possible Values:** 0 to 100%

- Press **Next/Previous** keys to navigate.

```
VCM Preheater Output Control:        OFF
VCM Module Aux Temp Input:       47.2 °F
```

**Used With:** Fresh Air Measurement (VCM) w/DCV or OA Damper Min Position (VCM) w/DCV and Preheat ENABLED
**Possible Values:**
Output Control: ON, OFF
Aux Temp Input: -40.0 to 200.0ºF

- Press **Next/Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter STATUS
```

- Press **Next/Previous** keys to navigate.

## RETURN FAN STATUS SUBMENU SCREENS

```
Return Fan Status Submenu
Press ENTER to View Data in This Submenu
```

**Used With:** Units w/Return Fan Option

- Press the **Next** key to skip this Submenu.

```
Return Fan Relay:                    ON
Return Airflow Proving:              ON
```

**Used With:** Units w/Return Fan Option
**Possible Values:** ON, OFF

- Press **Next/Previous** keys to navigate.

```
Return Fan VFD Command:              45 %
Return Plenum Pressure:           0.8 IWC
```

Top line shown only if Return Fan VFD is installed.

**Used With:** Units w/Return Fan Option
**Possible Values:**
Command: 0 to 100%
Pressure: -0.7 to 3.5 IWC

- Press **Next/Previous** keys to navigate.

```
Return Plenum Pressure Target:    0.8 IWC
Return Fan VFD Pos:  Opening to      45 %
```

"Opening to" and "Closing to" indicates direction.
"Limited to" indicates an active override.

**Used With:** Units w/Return Fan Option
**Possible Values:**
Target: -0.5 IWC, or 0.1 to 2.5 IWC
VFD Pos: 0 to 100%

- Press **Next/Previous** keys to navigate.

```
Max Return Plenum Pressure Stp: 1.2 IWC
High Limit: 3.5 IWC   Deadband: 0.2 IWC
```

**Used With:** Units w/Return Fan Option
**Possible Values:**
Pressure Stp: 0.1 to 2.5 IWC
Deadband: 0.1 to 1.0 IWC
High Limit: 3.5 IWC ***(non-adjustable)***

- Press **Next/Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter STATUS
```

- Press **Next/Previous** keys to navigate.

### SINGLE ZONE VAV STATUS SUBMENU SCREENS

```
Single Zone VAV Control Status Submenu
Press ENTER to View Data in this Section
```

**Used With:** Units w/SZVAV(VVZT) Option

- Press **Next/Previous** keys to navigate.

```
Active SA Target High Limit:   123.0 °F
Active SA Max Target Setpoint: 100.0 °F
```

The Target High Limit is a calculated value which corresponds to the Maximum Fan Speed during heating (see SA Target Setpoint on following screen). The Max Target Setpoint reflects the SA Heating Setpoint value and corresponds to the Minimum Fan Speed during heating.

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/SZVAV(VVZT) Option

**Possible Values:**

High Limit: (calculated)

Max Target: Equal to SA Cooling Setpoint

Fan speed modulation in heating occurs when the Target Setpoint modulates between the Max Setpoint and High Limit Setpoint.

```
Active SA Target Setpoint:     74.0 °F
Active SA Temperature:         73.9 °F
```

The SA Target Setpoint is a calculated discharge setpoint based on zone temperature conditions. Heating and Cooling is staged to maintain SA Temperature to this setpoint. The range is clamped on the high end to Max Target Setpoint (see previous screen) and to the low end to Min Target Setpoint (see next screen).

• **Press** Next/Previous **keys to navigate.**

**Used With:** Units w/SZAV (VVZT) Option

**Possible Values:**

SA Target: Max Target – Min Target

SA Temp: See SA Temp status.

```
Active SA Min Target Setpoint:   50.0 °F
Active SA Target Low Limit:      38.4 °F
```

The Target Low Limit is a calculated value which corresponds to the Maximum Fan Speed during cooling (see SA Target Setpoint on previous screen). The Min Target Setpoint reflects the SA Cooling Setpoint value and corresponds to the Minimum Fan Speed during cooling.

• **Press** Next/Previous **keys to navigate.**

**Used With:** Units w/SZAV (VVZT) Option

**Possible Values:**

MinTarget: Equal to SA Heating Setpoint

Low Limit: (calculated)

Fan speed modulation in cooling occurs when the Target Setpoint modulates between the Min Setpoint and Low Limit Setpoint.

```
End of Submenu (NEXT) to Enter STATUS
```

• Press **Next/Previous** keys to navigate.

## ENERGY RECOVERY STATUS SUBMENU SCREENS

```
Energy Recovery Status Submenu
Press ENTER to View Data in This Submenu
```

• Press the **Next** key to skip this Submenu.

**Used With:** Units w/Energy Recovery Option

## STATUS Menu

```
Energy Wheel Relay:                    ON
Energy Wheel Proving:                  ON
```

**Used With:** Units w/Energy Recovery Option
**Possible Values:** ON, OFF

• Press **Next/Previous** keys to navigate.

```
Outside Air Bypass Damper Pos:         0%
Exhaust Air Bypass Damper Pos:        15%
```

**Used With:** Units w/Energy Recovery Option
**Possible Values:** 0 to 100%

• Press **Next/Previous** keys to navigate.

```
Energy Wheel Frost Avoidance:    INACTIVE
Leaving Recovery Exhaust Temp:    45.0°F
```

**Used With:** Units w/Energy Recovery Option
**Possible Values:**
Frost Avoidance: ACTIVE, INACTIVE;
Exhaust Temp: -40.0 to 200.0ºF

• Press **Next/Previous** keys to navigate.

```
MPM Preheat Relay:                     OFF
```

**Used With:** Units w/Energy Recovery Option w/Preheat
**Possible Values:** ON, OFF

• Press **Next/Previous** keys to navigate.

```
 End of Submenu (NEXT) to Enter STATUS
```

• Press **Next/Previous** keys to navigate.

### CONTROLLING SETPOINT STATUS SUBMENU SCREENS

```
Controlling SETPOINT Status Submenu
Press ENTER to View Data in This Submenu
```

**Used With:** All Units

• Press the **Next** key to skip this Submenu.

```
Active Supply Air Cooling STP From
HI (KEYPAD) SETPOINT MENU  Is       55°F
```

**Used With:** VVDA or CVDA Units
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPOINT INPUT
NSB PANEL SETPOINT INPUT
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK
Range: 40 to 90ºF

• Press **Next/Previous** keys to navigate.

```
Active Supply Air Heating STP From
HI (KEYPAD) SETPOINT MENU   Is     100°F
```

• Press **Next/Previous** keys to navigate.

**Used With:** VVDA or CVDA Units w/ Hydronic Heat, Modulating Gas Heat, or Ipak 2 w/Electric Heat
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPOINT INPUT
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK
Range: 40 to 180ºF

```
Active Daytime Warmup Initiate STP From
HI (KEYPAD) SETPOINT MENU    is     67°F
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/DWU ENABLED
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
BAS/NETWORK
Range: 50 to 87ºF

```
Active Daytime Warmup Terminate STP From
HI (KEYPAD) SETPOINT MENU    is     71°F
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/DWU ENABLED
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
BAS/NETWORK
Range: 53 to 90ºF

```
Active Occupied Zone Cooling STP From
HI (KEYPAD) SETPOINT MENU    is     71°F
```

• Press **Next/Previous** keys to navigate.

**Used With:** CVZT Units w/DX Cooling
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPOINT INPUT
NSB PANEL SETPOINT INPUT
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK
Range: 52 to 90ºF

```
Active Occupied Zone Heating STP From
HI (KEYPAD) SETPOINT MENU    is     71°F
```

• Press **Next/Previous** keys to navigate.

**Used With:** CVZT w/Heat, VV/CVDA w/ DWU or MWU Installed
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPOINT INPUT
NSB PANEL SETPOINT INPUT
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK
Range: 50 to 88ºF

```
Active Unoccupied Zone Cooling STP From
HI (KEYPAD) SETPOINT MENU    is     85°F
```

**Used With:** All Units
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPOINT INPUT
NSB PANEL SETPOINT INPUT
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK
Range: 52 to 90ºF

- Press **Next/Previous** keys to navigate.

```
Active Unoccupied Zone Heating STP From
HI (KEYPAD) SETPOINT MENU    is     60°F
```

**Used With:** Units w/Heat Installed
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPOINT INPUT
NSB PANEL SETPOINT INPUT
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK
Range: 50 to 88ºF

- Press **Next/Previous** keys to navigate.

```
Active Morning Warmup Setpoint From
HI (KEYPAD) SETPOINT MENU    is     72°F
```

**Used With:** Units w/MWU ENABLED
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPOINT INPUT
NSB PANEL SETPOINT INPUT
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK
Range: 52 to 90ºF

- Press **Next/Previous** keys to navigate.

```
Active Rapid Restart Critical Stpt From
HI (KEYPAD) SETPOINT MENU    is     90°F
```

**Used With:** Units w/Rapid Restart
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
Range: 75 to 95ºF

- Press **Next/Previous** keys to navigate.

```
Active Occ Dehumidification Setpt From
HI (KEYPAD) SETPOINT MENU    is      60%
```

**Used With:** Units w/Dehumid. Option
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK
Range: 40 to 65%

- Press **Next/Previous** keys to navigate.

```
Active Unocc Dehumidification Setpt From
HI (KEYPAD) SETPOINT MENU    is      60%
```

**Used With:** Units w/Dehumid. Option
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK
Range: 40 to 65%

- Press **Next/Previous** keys to navigate.

```
Active Supply Air Reheat Setpoint From
HI (KEYPAD) SETPOINT MENU    is   70.0°F
```

**Used With:** Units w/Dehumid. Option
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK
Range: 60 to 80F

- Press **Next/Previous** keys to navigate.

```
Active Occ Humidification Setpt From
HI (KEYPAD) SETPOINT MENU    is      40%
```

**Used With:** Units w/Humid. Option
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK
Range: 20 to 50%

- Press **Next/Previous** keys to navigate.

```
Active Unocc Humidification Setpt From
HI (KEYPAD) SETPOINT MENU    is      20%
```

**Used With:** Units w/Humid. Option
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK
Range: 20 to 50%

- Press **Next/Previous** keys to navigate.

```
Active Econ DB Enable Setpoint From
HI (KEYPAD) SETPOINT MENU    is     75°F
```

**Used With:** Units w/Economizer
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK
Range: 40 to 90ºF

- Press **Next/Previous** keys to navigate.

```
Active OA Damper Min Position STP From
HI (KEYPAD) SETPOINT MENU    is      25%
```

**Used With:** Units w/0-25% Motorized Damper, or Economizer and OA CFM Compensation Function DISABLED or OA Damper Min Position Setpoint Source Selection is Not "HI (KEYPAD) SETPOINT"

**Possible Values:**

HI (KEYPAD) SETPOINT MENU
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK

Range: 0 to 100%

- Press **Next/Previous** keys to navigate.

```
Active Min OA Flow Setpoint From
HI (KEYPAD) SETPOINT MENU  is  34.2 CCFM
```

**Used With:** Units w/Fresh Air Measurement (VCM) w/o DCV Option

**Possible Values:**

HI (KEYPAD) SETPOINT MENU
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK SETPOINT

Range: 0 to *Max Unit Airflow*

[See "Table 6. Max Unit Airflows" on page 90" in *the Setpoints* Section Below]

- Press **Next/Previous** keys to navigate.

```
Active Design Min OA Flow Setpoint From HI
(KEYPAD) SETPOINT MENU  is  34.2 CCFM
```

**Used With:** Units w/Fresh Air Measurement (VCM) w/DCV Option

**Possible Values:**

HI (KEYPAD) SETPOINT MENU
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK SETPOINT

Range: 0 to *Max Unit Airflow*

[See "Table 6. Max Unit Airflows" on page 90" in *the Setpoints* Section]

- Press **Next/Previous** keys to navigate.

```
Active Min OA Flow Target From
VCM Module                  is 120.5 CCFM
```

**Used With:** Units w/Fresh Air Measurement (VCM) w/DCV Option

**Possible Values:**

VCM Module
BAS/NETWORK

Range: 0 to *Max Unit Airflow*

[See "Table 6. Max Unit Airflows" on page 90" in *the Setpoints* Section]

- Press **Next/Previous** keys to navigate.

```
Active Supply Air Pressure STP From
HI (KEYPAD) SETPOINT MENU is    2.0 IWC
```

**Used With:** VVDA Units
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK SETPOINT
Range: 0.7 to 5.1 IWC

- Press **Next/Previous** keys to navigate.

```
Active Supply Air Pressure Setpoints
High Limit: 4.0 IWC    Deadband: 0.5 IWC
```

**Used With:** VVDA or Units w/Supply Air Pressure Sensor Present
**Possible Values:**
High Limit: 1.2 to 4.7 IWC
Deadband: 0.1 to 2.0 IWC

- Press **Next/Previous** keys to navigate.

```
Active Space Pressure Setpoint From
HI (KEYPAD) SETPOINT MENU  is   0.08 IWC
```

**Used With:** Units w/Statitrac
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
GBAS 0-5 VDC MODULE
GBAS 0-10 VDC MODULE
BAS/NETWORK SETPOINT
Range: -0.2 to 0.30 IWC

- Press **Next/Previous** keys to navigate.

```
Active Space Pressure Deadband   0.1 IWC
```

**Used With:** Units w/Statitrac
**Possible Values:** 0.02 to 0.20 IWC

- Press **Next/Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter STATUS
```

- Press **Next/Previous** keys to navigate.

## CONTROLLING SENSOR STATUS SUBMENU SCREENS

```
ControllingSensorStatusSubmenu
Press ENTER to View Data in This Submenu
```

**Used With:** All Units

- Press the **Next** key to skip this Submenu.

```
Active Supply Air Temp Sensv Input From
BAS/NETWORK                 is   50.0°F
```

**Used With:** All Units
**Possible Values:**
RTM Supply Air Temp Input
BAS/Network

- Press **Next/Previous** keys to navigate.

```
Active Daytime WU Temp Sensor Input From
RTM ZONE TEMP INPUT   is          82.0°F
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/DWU ENABLED
**Possible Values:**
RTM ZONE TEMP INPUT
NSB PANEL TEMP SENSOR INPUT
RTM AUX TEMP INPUT
HEAT MODULE AUX TEMP INPUT
ECEM RETURN AIR TEMP INPUT BAS/ NETWORK SENSOR
Range: -40 to 200ºF

```
Active Occ Zone Temp Sensor Input From
RTM ZONE TEMP INPUT is             75.0°F
```

- Press **Next/Previous** keys to navigate.

**Used With:** CVZT or VVZT Units
**Possible Values:**
[See "**Possible Values:**" Above]

```
Active Unocc Zone Temp Sensor Input From
RTM ZONE TEMP INPUT is             75.0°F
```

- Press **Next/Previous** keys to navigate.

**Used With:** All Units
**Possible Values:**
[See "**Possible Values:**" Above]

```
Active Morning WU Temp Sensor Input From
RTM ZONE TEMP INPUT          is   82.0°F
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/MWU ENABLED
**Possible Values:**
[See "**Possible Values:**" Above]

```
Active Space Humidity Sensor Input From
RTM SPACE HUMIDITY INPUT     is      55%
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/Dehumid. or Humid. Option
**Possible Values:**
RTM SPACE HUMIDITY INPUT
ECEM RA HUMIDITY INPUT
BAS/NETWORK
Range: 10 to 90%

```
Active Rapid Restart Sensor Input From
 ECEM RETURN AIR TEMP INPUT   is   82.0°F
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/Rapid Restart.
**Possible Values:**
[See "**Possible Values:**" Above]

```
Active Space CO2 Sensor Input From
VCM SPACE CO2 INPUT          is  600 PPM
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/Fresh Air Measurement (VCM) w/DCV, or $CO_2$ Reset ENABLED
**Possible Values:**
VCM SPACE $CO_2$ INPUT
BAS/NETWORK
Range: 50 to 2000 PPM

```
Active Dehumid OVRD Temp Input From
RTM ZONE TEMP INPUT          is   73.5°F
```

**Used With:** Units w/Dehumid. Option
**Possible Values:**
RTM ZONE TEMP INPUT
NSB PANEL TEMP SENSOR INPUT
RTM AUX TEMP INPUT
HEAT MODULE AUX TEMP INPUT
ECEM RETURN AIR TEMP INPUT
BAS/NETWORK SENSOR
Range: -40 to 200ºF

- Press **Next/Previous** keys to navigate.

```
Active Zone Reset Temp Sensor Input From
RTM ZONE TEMP INPUT          is   82.0°F
```

**Used With:** All Units with Reset Select not selected as None.
**Possible Values:**
[See "**Possible Values:**" Above]

- Press **Next/Previous** keys to navigate.

```
Active OA Temperature Sensor Input From
RTM OUTSIDE AIR TEMP INPUT   is   86.0°F
```

**Used With:** All Units
**Possible Values:**
RTM OUTSIDE AIR TEMP INPUT BAS/ NETWORK
Range: -40 to 200ºF

- Press **Next/Previous** keys to navigate.

```
Active Outside Air Humidity Input From
OA HUMIDITY SENSOR INPUT     is     30 %
```

**Used With:** Units w/Economizer Option
**Possible Values:**
OA HUMIDITY SENSOR INPUT
BAS/NETWORK SENSOR
Range: 10 to 90%

- Press **Next/Previous** keys to navigate.

```
Active Supply Air Press Input From
RTM SA PRESSURE INPUT        is  2.1 IWC
```

**Used With:** VVDA or Units w/Supply Air Pressure Sensor Present
**Possible Values:**
RTM SA PRESSURE INPUT
BAS/NETWORK
Range: 0 to 7.9 IWC

- Press **Next/Previous** keys to navigate.

```
Active Space Pressure Input From
ECEM SPACE PRESSURE INPUT    is 0.08 IWC
```

**Used With:** Units w/Statitrac Option
**Possible Values:**
ECEM SPACE PRESSURE INPUT
BAS/NETWORK
Range: -0.67 to 0.67 IWC

- Press **Next/Previous** keys to navigate.

```
Temp Sensor Input Being Monitored:
RTM ZONE TEMP INPUT          is   82.0°F
```

**Used With:** All Units
**Possible Values:**
RTM ZONE TEMP INPUT
NSB PANEL TEMP SENSOR INPUT
RTM AUX TEMP INPUT
HEAT MODULE AUX TEMP INPUT
ECEM RETURN AIR TEMP INPUT
BAS/NETWORK SENSOR
Range: -40 to 200ºF

- Press **Next/Previous** keys to navigate.

```
 End of Submenu (NEXT) to Enter STATUS
```

- Press **Next/Previous** keys to navigate.

### TEMPERATURE INPUT STATUS SUBMENU SCREENS

```
Temperature Input Status Submenu
Press ENTER to View Data in This Submenu
```

**Used With:** All Units

- Press the **Next** key to skip this Submenu.

```
Temp Measured By Sensor Connected To
RTM SUPPLY AIR TEMP INPUT         50.0°F
```

**Used With:** All Units

- Press **Next/Previous** keys to navigate.

```
Temp Measured By Sensor Connected To
RTM ZONE TEMP INPUT               82.0°F
```

**Used With:** All Units

- Press **Next/Previous** keys to navigate.

```
Temp Measured By Sensor Connected To
NSB PANEL TEMP SENSOR INPUT       79.5°F
```

**Used With:** Units w/NSB Panel Installed

- Press **Next/Previous** keys to navigate.

```
Temp Measured By Sensor Connected To
RTM AUX TEMP INPUT                62.0°F
```

**Used With:** All Units

- Press **Next/Previous** keys to navigate.

```
Temp Measured By Sensor Connected To
RTM OUTSIDE AIR TEMP INPUT        86.0°F
```

**Used With:** All Units

• Press **Next/Previous** keys to navigate.

```
Temp Measured By Sensor Connected To
HEAT MODULE AUX TEMP INPUT        82.0°F
```

**Used With:** Units w/Heat Installed

• Press **Next/Previous** keys to navigate.

```
Temp Measured By Sensor Connected To
ECEM RETURN AIR TEMP INPUT        78.0°F
```

**Used With:** Units w/Comparative Enthalpy Installed

• Press **Next/Previous** keys to navigate.

```
Temp Measured By Sensor Connected To
VCM MODULE AUX TEMP INPUT         50.0°F
```

**Used With:** Units w/VCM Module Installed

• Press **Next/Previous** keys to navigate.

```
 End of Submenu (NEXT) to Enter STATUS
```

• Press **Next/Previous** keys to navigate.

## LOCAL HARDWIRED INPUT STATUS SUBMENU SCREENS

```
Local Hardwired Input Status Submenu
Press ENTER to View Data in This Submenu
```

**Used With:** All Units

• Press the **Next** key to skip this Submenu.

```
IntelliPak II Config Input:       CLOSED
Dehumidification Config Input:      OPEN
```

**Used With:** All Units
**Possible Values:** OPEN/CLOSED

• Press **Next/Previous** keys to navigate.

```
RTM Supply Airflow Proving:         FLOW
RTM Exhaust Airflow Proving:        FLOW
```

**Used With:** All Units
**Possible Values:** Flow, No Flow
**Bottom Left Field:**
RTM Exhaust Airflow Proving
RTM Return Airflow Proving

"RTM Exhaust…" shown for Power Exhaust w/o Return Fan.
"RTM Return…" shown for Power Exhaust w/ Return Fan.

• Press **Next/Previous** keys to navigate.

| RTM Remote Min Position Pot Input | 0 % |
|---|---|

**Note:** *If potentiometer input is out of range (> 350 ohms) this screen will not appear.*

**Used With:** Units w/Outside Air Damper and Minimum Position Source is RTM.
**Possible Values:** 0 to 100%

• Press **Next/Previous** keys to navigate.

| RTM Supply Air Pressure Input | 2.1 IWC |
|---|---|

**Used With:** VVDA or Units w/Supply Air Pressure is present.
**Possible Values:** 0 to 5.0 IWC

• Press **Next/Previous** keys to navigate.

| RTM Outside Air Humidity | 55 % |
|---|---|
| ECEM Return Air Humidity | 46 % |

**Used With:** Units w/Economizer Option
**Possible Values:** 10 to 90%

"OA Humidity" shown only if comparative enthalpy installed.
"RA Humidity" shown only if comparative enthalpy installed, or non-Ipak 2 units with humidification control.

• Press **Next/Previous** keys to navigate.

| RTM Space Humidity | 10 % |
|---|---|

**Used With:** Units w/Dehumid. or Humid. Option
**Possible Values:** 10 to 90%

• Press **Next/Previous** keys to navigate.

| ECEM Space Pressure Input | 0.08 IWC |
|---|---|

**Used With:** Units w/Statitrac Option
**Possible Values:** -0.67 to 0.67 IWC

• Press **Next/Previous** keys to navigate.

| VCM Outside Air Flow Input | 350.0 CCFM |
|---|---|

**Used With:** Units w/Fresh Air Measurement (VCM)
**Possible Values:** 0 to *Max Unit Air Flow* [See "Table 6. Max Unit Airflows" on page 90" in the *Setpoints* Section]

• Press **Next/Previous** keys to navigate.

| VCM $CO_2$ Level Input | 1512 PPM |
|---|---|

**Used With:** Units w/Fresh Air Measurement (VCM) w/DCV, or C02 Reset is ENABLED
**Possible Values:** 50 to 2000 PPM

• Press **Next/Previous** keys to navigate.

| MPM Return Plenum Pressure Input | 0.0 IWC |
|---|---|

Screen shown only if unit with Return Fan installed
**Possible Values:** -0.7 to 3.5 IWC

• Press **Next/Previous** keys to navigate.

```
Compr Diff Pressure Control is Installed
```

**Used With:** Units with CIPD control.
**Possible Values:** As shown or [screen not shown]

- Press **Next / Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter STATUS
```

- Press **Next / Previous** keys to navigate.

## GBAS (5VDC) MODULE STATUS SUBMENU SCREENS

```
GBAS (5VDC) Module Status Submenu
Press ENTER to View Data in This Submenu
```

**Used With:** Units w/GBAS (5VDC) Installed

- Press the **Next** key to skip this Submenu.

```
GBAS 0-5VDC Module Input 1      0.00 VDC
Assigned:                   Not Assigned
```

**Used With:** Units w/GBAS (5VDC) Installed
**Possible Values:** Input: 0.0 to 5 VDC
**Bottom Right Field:**
Not Assigned
OCC ZONE COOLING SETPOINT
UNOCC ZONE COOLING SETPOINT
OCC ZONE HEATING SETPOINT
UNOCC ZONE HEATING SETPOINT
SUPPLY AIR COOLING SETPOINT
SUPPLY AIR HEATING SETPOINT
SPACE PRESSURE SETPOINT
SA PRESSURE SETPOINT
MIN OA FLOW SETPOINT
MWU SETPOINT
ECON DRY BULB ENABLE SETPOINT
MINIMUM POSITION SETPOINT
OCC DEHUMIDIFICATION SETPOINT
UNOCC DEHUMIDIFICATION SETPOINT
SUPPLY AIR REHEAT SETPOINT
OCC HUMIDIFICATION SETPOINT
UNOCC HUMIDIFICATION SETPOINT

**Note**: *There will be **4** screens shown for this configuration. The first screen will be for **Input 1** setpoint assignment. The next screens will be identical and will show setpoint assignments for **Input 2**, **Input 3**, and **Input 4**.*

- Press **Next / Previous** keys to navigate.

```
GBAS (0-5VDC) Demand Limit Input Status
OPEN
```

**Used With:** Units w/GBAS (5VDC) Installed

**Possible Values:** OPEN, CLOSED

- Press **Next / Previous** keys to navigate.

```
GBAS 0-5VDC Module Relay Output Status
Output    1                          OFF
```

**Note:** *There will be **5** screens shown for this configuration. The first screen shows the relay status for **Output 1** and indicates the associated Alarm Diagnostic has tripped. The next screens are identical and will show **Output 2**, **Output 3**, **Output 4** and **Output 5** relay status.*

• Press **Next / Previous** keys to navigate.

**Used With:** Units w/GBAS (5VDC) Installed

**Possible Values:** ON, OFF

**Note:** *Please review the "Diagnostics Troubleshooting Chart" in the "DIAGNOSTICS Menu" section to see the list of diagnostics associated with each module. (Refer to the "Diagnostics Displayed" column for the specified module.)*

```
GBAS (5VDC) Hardware Configuration
The Value Returned From This Input: XXX
```

• Press **Next / Previous** keys to navigate.

**Used With:** Units w/GBAS (5VDC) Installed
**Possible Values:** 0-255

```
End of Submenu (Next) to enter Status
```

• Press **Next / Previous** keys to navigate.

## GBAS (10VDC) MODULE STATUS SUBMENU SCREENS

```
GBAS (10VDC) Module Status Submenu
Press ENTER to View Data in This Submenu
```

• Press the **Next** key to skip this Submenu.

**Used With:** Units w/GBAS (10VDC) Installed

```
GBAS (10VDC) Analog Input 1      0.00 VDC
Assigned:          NOT ASSIGNED
```

**Note:** *There will be **4** screens shown for this configuration. The first screen will be for **Input 1** setpoint assignment. The next screens will be identical and will show setpoint assignments for **Input 2**, **Input 3**, and **Input 4**.*

• Press **Next / Previous** keys to navigate.

**Used With:** Units w/GBAS (10VDC) Installed
**Possible Values:**
Input: 0.0 to 10.0 VDC
**Bottom Right Field:**
[See **GBAS(5VDC)** Above for Assignments]

```
GBAS (0-10VDC) Demand Limit Input Status
Open
```

• Press **Next / Previous** keys to navigate.

**Used With:** Units w/GBAS (10VDC) Installed
**Possible Values:** Open, Closed

```
GBAS (0-10VDC) Binary Output 1       OFF
Assigned:        OUTPUT IS NOT ASSIGNED
```

**Used With:** Units w/GBAS (10VDC) Installed
**Possible Values:** Output: ON, OFF
**Bottom Right Field:**
OUTPUT IS NOT ASSIGNED
INDICATE ANY COMP IS RUNNING
INDICATE UNIT AT MAX CAPACITY
INDICATE SELECTED DIAG ALARMS
[See "**Alarm Listings**" in *RTM Alarm Outputs* Below]

- Press **Next/Previous** keys to navigate.

```
GBAS (10VDC) Analog Output 1    0.00 VDC
Assigned:        NOT ASSIGNED
```

**Note:** *There will be **5** screens shown for this configuration. The first screen will be for **Output 1** parameter assignment. The next screens will be identical and will show parameter assignments for **Output 2**, **Output 3**, **Output 4** and **Input 5**.*

**Used With:** Units w/GBAS (10VDC) Installed
**Possible Values:**
Output: 0.0 to 10.0 VDC
**Bottom Right Field:**
NOT ASSIGNED
OUTSIDE AIR TEMPERATURE
ACTIVE ZONE TEMPERATURE
ACTIVE SUPPLY AIR TEMPERATURE
ACTIVE SUPPLY AIR PRESSURE
ACTIVE SPACE PRESSURE
ACTIVE SPACE RELATIVE HUMIDITY
ACTIVE OA RELATIVE HUMIDITY
ACTIVE SPACE $CO_2$ LEVEL
ACTIVE COOLING CAPACITY
ACTIVE HEATING CAPACITY
ACTIVE OA DAMPER POSITION
ACTIVE OUTDOOR AIRFLOW

- Press **Next/Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter STATUS
```

- Press **Next/Previous** keys to navigate.

# SETUP Menu

After the unit is installed, the control modules must be programmed with certain setup information in order to operate and function properly.The data necessary for unit operation will vary depending on certain factors such as unit size, type, and installed options.

The setup menu is used to input initial operating information such as control parameters, setpoint source selection, sensor source selections, ventilation override definitions, functions enable/disable, text display (Language), units displayed (English or SI), unit diagnostic assignments, and system tuning parameters. When a setup screen is displayed for 30 minutes without a key being pressed, the LCD screen will revert to the appropriate power-up display. If this happens, press the **Setup** key again to return to the setup menu.

Information that pertains to when the screens are shown, the possible values that may be designated, and the factory presets for these values is located to the right of each programmable screen.

***Note:***

1. Many of the screens displayed in this section are applicable only for the options that are installed in the unit and may not be visible on your unit.
2. If a screen is not visible on the Unit Human Interface Module, refer to the "Used With" information listed to the right of each screen in this book.

**Modifying Selections:** Starting with the first setup screen program the necessary information by using the appropriate keys to navigate (Next and Previous) and make changes (+ and -) to the selections. Once the selection has been changed to the desired value, the user has the following options to either *Cancel* or *Accept* the pending change:

- To *Cancel*, press the **Cancel** key to remove the change, the display will revert to the original value.
- To *Accept*, press the **Enter** key to confirm the new choice.

Press the **Setup** key to begin viewing or modifying the setup screens.

## TOP LEVEL SETUP SCREEN

```
Display Text in:          ENGLISH LANGUAGE
Display Units Using:      ENGLISH NOTATION
```

**Used With:** All Units
**Factory Presets:**
Text Language: ENGLISH
Units Notation: ENGLISH
**Possible Values:**
Language: ENGLISH, FRENCH, SPANISH
Notation: ENGLISH, SI

- Press **Next/Previous** keys to navigate.

```
Unit Control:                    BAS/NETWORK
Unit Address:
```

"Unit Address" only shown if unit has TCI installed.

**Used With:** TCI, LCI, BCI
**Factory Presets:**

**Possible Values:**
LOCAL, BAS/NETWORK

- Press **Next/Previous** keys to navigate.

## GENERAL UNIT FUNCTIONS SETUP SUBMENU SCREENS

```
General Unit Functions Setup Submenu
Press ENTER to Review or Adjust
```

**Used With:** All Units

- Press the **Next** key to skip this Submenu.

```
If Remote Panel Mode Input Not Present:
System Mode: AUTO Supply Fan Mode: AUTO
```

• Press **Next/Previous** keys to navigate.

**Used With:**
System Mode: All Units
Supply Fan Mode: CVZT, VVZT
**Factory Presets:**
System: AUTO
Supply Fan: AUTO
**Possible Values:**
System: OFF, AUTO
Supply Fan: ON, AUTO

```
Reduce Multi-Unit Startup Power Demand
After Power-Up, Delay Unit Start   0 Sec
```

• Press **Next/Previous** keys to navigate.

**Used With:** All units.
**Factory Presets:** 0 Sec
**Possible Values:** 0 to 255 Sec

```
Single Zone VAV Econ Control:    ENABLED
Single Zone VAV Heat Control:   DISABLED
```

• Press **Next/Previous** keys to navigate.

**Used With:** VVZT Units
**Factory Presets:**
Econ: ENABLED
Heat: DISABLED
**Possible Values:**
ENABLED, DISABLED

```
Daytime Warmup Function:          ENABLED
```

• Press **Next/Previous** keys to navigate.

**Used With:** VV/CVDA Units w/Heat Installed
**Factory Presets:** ENABLED
**Possible Values:** ENABLED, DISABLED

```
Morning Warmup Function:          ENABLED
Morning Warmup Type:       FULL CAPACITY
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Heat Installed
**Factory Presets:**
Function: ENABLED
Type: CYCLING CAPACITY
**Possible Values:**
Function: ENABLED, DISABLED
Type: FULL CAPACITY, CYCLING CAP.

```
Supply Air Tempering Function:   ENABLED
Warm Up Outside Air Used For Ventilation
```

• Press **Next/Previous** keys to navigate.

**Used With:** VV/CVDA Units w/ Modulating Heat (w/Electric Heat if IPak 2), or CVZT Units w/Staged Heat Installed.
**Factory Preset:** ENABLED
**Possible Values:** ENABLED, DISABLED

```
Unocc Mech Cooling Function:      ENABLED
Unocc Heating Function:           ENABLED
```

"Unocc Heating Function" only shown if unit has heat installed.

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/DX Cooling, or Air Handler w/Chilled Water, and w/Heat Installed
**Factory Presets:** ENABLED
**Possible Values:** ENABLED, DISABLED

```
Occupied Dehumid Function:        ENABLED
Unoccupied Dehumid Function:      ENABLED
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Dehumidification
**Possible Values:** ENABLED, DISABLED

```
Occ   Humidification Function:  DISABLED
Unocc Humidification Function:  DISABLED
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Humidification
**Factory Presets:** DISABLED
**Possible Values:** ENABLED, DISABLED

```
Rapid Restart Economizer Ctrl: DISABLED
Compressors Used for Cooling Control:
```

• Press **Next/Previous** keys to navigate.

**Used With:** Rapid Restart Units
**Factory Presets:** DISABLED
**Possible Values:** ENABLED, DISABLED

```
VCM Preheater Output Control:     ENABLED
Activate If Preheat Temp Below Setpoint
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Fresh Air Measurement (VCM) Option
**Factory Preset:** DISABLED
**Possible Values:** ENABLED, DISABLED

```
Demand Limit Definition:
Cooling: None          Heating: None
```

"Heating" only shown if unit has heat installed.

A selection of "None" indicates the unit will not limit the cooling or heating capacity of the unit. A selection of "25%" indicates that 1 of the 4 compressors will be inhibited from operation.

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/DX Cooling and/or Heat, and GBAS(5VDC), GBAS(10VDC) or BAS/Network Installed
**Factory Presets:** None
**Possible Values:**
Cooling: None, 25*, 50, 75*, 100%
Heating: None, 50% or 100%

*allowed only w/DX Cooling $\geq$ 40Ton

```
Compressor Lead/Lag Function:     ENABLED
Vary Staging Order To Distribute Runtime
```

Press **Next/Previous** keys to navigate.

**Used With:** Units w/DX Cooling
**Factory Preset:** ENABLED
**Possible Values:** ENABLED, DISABLED

```
Low Charge Protection Function:   ENABLED
Evap Temperature Limit Setpoint Shown
```

**Used With:** Units w/DX Cooling
**Factory Preset:** ENABLED
**Possible Values:** ENABLED, DISABLED

This screen only shown in 90-130 ton IPak 1 units.

Press **Next/Previous** keys to navigate.

```
Evap Temperature Limit. Shut Off Circuit
if (Leaving - Entering) Exceeds:    35°F
```

**Used With:** All Units
**Factory Preset:** 35ºF
**Possible Values:** 25 to 40ºF

**Note**: *On units with Dehumidification installed a non-adjustable Evap Temperature Limit of 40ºF is used for the Reheat Circuit only.*

- Press **Next/Previous** keys to navigate.

```
Coil Frost Cutout Temperature. Shut off
Compressors If Evap Temp Is Below:  30°F
```

**Used With:** Units w/DX Cooling
**Factory Preset:** 30ºF
**Possible Values:** 25 to 35ºF

- Press **Next/Previous** keys to navigate.

```
Isolation Damper Interlock:       ENABLED
SA Proving Must Open Before Fan Start
```

**Used With:** All Units
**Factory Preset:** DISABLED
**Possible Values:** DISABLED, ENABLED

If ENABLED, "SA Proving Must Open Before Fan Start" is shown. If DISABLED, the bottom line is blank.

- Press **Next/Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter SETUP
```

- Press **Next/Previous** keys to navigate.

## VAV CONTROL FUNCTIONS SUBMENU SCREENS

```
VAV Control Functions Submenu
Press ENTER to Review or Adjust
```

**Used With:** All Units

Press the **Next** key to skip this Submenu.

```
Supply Air Temp Reset type:
Cooling:    NONE        Heating:   NONE
```

**Used With:** VV/CVDA Units w/Cooling and Heat Installed
**Factory Preset:** NONE
**Possible Values:** NONE, ZONE, OA

"Heating" only shown if unit has heat installed.

- Press **Next/Previous** keys to navigate.

```
Supply Air Temp Zone Reset For Cooling:
Start Temp: 72°F     End Temp:  69°F
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/SA Cooling Reset Type Set to "ZONE"
**Factory Presets:**
Start Temp: 72ºF
End Temp: 69ºF
**Possible Values:**
Start Temp: 51 to 90ºF
End Temp: 50 to 89ºF

```
Supply Air Temp OA Reset For Cooling:
Start Temp:  90°F     End Temp:  70°F
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/SA Cooling Reset Type Set to "OA"
**Factory Presets:**
Start Temp: 90ºF
End Temp: 70ºF
**Possible Values:**
Start Temp: 1 to 95ºF
End Temp: 0 to 94ºF

```
Supply Air Temp Zone Reset For Cooling:
Maximum Amount of Reset Applied:  5°F
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/SA Cooling Reset Type Set to "ZONE"
**Factory Presets:** 5ºF
**Possible Values:** 0 to 20ºF

```
Supply Air Temp OA Reset For Cooling:
Maximum Amount of Reset Applied:  5°F
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/SA Cooling Reset Type Set to "OA"
**Factory Presets:** 5ºF
**Possible Values:** 0 to 20ºF

```
Supply Air Temp Zone Reset For Heating:
Start Temp:  65°F     End Temp:  68°F
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/SA Heating Reset Type Set to "ZONE"
**Factory Presets:**
Start Temp: 65ºF
End Temp: 68ºF
**Possible Values:**
Start Temp: 50 to 89ºF
End Temp: 51 to 90ºF

```
Supply Air Temp OA Reset For Heating:
Start Temp:  10°F     End Temp:  60°F
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/SA Heating Reset Type Set to "OA"
**Factory Presets:**
Start Temp: 10ºF
End Temp: 60ºF
**Possible Values:**
Start Temp: 0 to 94ºF
End Temp: 1 to 95ºF

```
Supply Air Temp Zone Reset For Heating:
Maximum Amount of Reset Applied:  10°F
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/SA Heating Reset Type Set to "ZONE"
**Factory Presets:** 10ºF
**Possible Values:** 10 to 90ºF

```
Supply Air Temp OA Reset For Heating:
Maximum Amount of Reset Applied:  10°F
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/SA Heating Reset Type Set to "OA"
**Factory Presets:** 10ºF
**Possible Values:** 10 to 90ºF

```
VAV Box Max Stroke Time:          6 Min
```

• Press **Next/Previous** keys to navigate.

**Used With:** VVDA Units
**Factory Presets:** 6 Min
**Possible Values:** 0 to 10 Min

```
Max Occupied IGV/VFD Command:     100%
```

• Press **Next/Previous** keys to navigate.

**Used With:** VVDA
**Factory Presets:** 100%
**Possible Values:** 0 to 100%

```
End of Submenu (NEXT) to Enter SETUP
```

• Press **Next/Previous** keys to navigate.

## ECONOMIZER CONTROL FUNCTIONS SUBMENU SCREENS

```
Economizer Control Functions Submenu
Press ENTER to Review or Adjust
```

**Used With:** Units w/Economizer Option

- Press **Next/Previous** keys to navigate.

```
Economizer Ctrl Enable Type:  REFERENCE
When Comparative Enthalpy Not Available
```

**Used With:** Units w/Economizer Option
**Factory Presets:** REFERENCE
**Possible Values:** REFERENCE, DRYBULB

- Press **Next/Previous** keys to navigate.

```
Unocc Air Economizer Function:   ENABLED
```

**Used With:** Units w/Economizer Option
**Factory Presets:** ENABLED
**Possible Values:** ENABLED, DISABLED

- Press **Next/Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter SETUP
```

- Press **Next/Previous** keys to navigate.

## HEAD PRESSURE CTRL SETUP SUBMENU SCREENS

```
Head Pressure Ctrl Setup Submenu
Press ENTER to Review or Adjust
```

**Used With:** Units w/DX Cooling

- Press the **Next** key to skip this Submenu.

```
Sump Drain Valve Relay Control is: DRAIN
During Unit Power Loss Conditions
```

**Used With:** Units w/Water-Cooled Condensers Installed
**Factory Preset:** DRAIN
**Possible Values:** HOLD, DRAIN

- Press **Next/Previous** keys to navigate.

```
Sump Water Purge Timers
Interval:  3 Hrs.        Duration 60 Sec
```

"Sump Purge Duration Timer" only shown if *Interval Timer* is not set to DISABLED.

**Used With:** Units w/Water-Cooled Condensers Installed
**Factory Preset:**
Interval Timer: 3 Hrs
Duration Timer: 30 Sec
**Possible Values:**
Interval Timer: 1 to 12 Hrs, DISABLED
Duration Timer: 5 to 255 Sec

- Press **Next/Previous** keys to navigate.

```
Sump Water Heater Setpoint:          38°F
Low Sump Temp Activates Heater Output
```

**Used With:** Units w/Water-Cooled Condensers and Sump Heat Installed
**Factory Preset:** 38ºF
**Possible Values:** 38 to 43ºF

• Press **Next/Previous** keys to navigate.

```
Cond Temp Control Band
Lower Limit:  80°F Upper Limit: 120°F
```

**Used With:** Units w/DX Cooling
**Factory Presets:**
Upper Limit: 120ºF
Lower Limit: 80ºF
**Possible Values:**
Upper Limit: 110 to 130ºF
Lower Limit: 70 to 90ºF

• Press **Next/Previous** keys to navigate.

```
Cond Temp Control Band
Temporary Low Limit Suppression:    10°F
```

**Used With:** Units w/DX Cooling
**Factory Presets:** 10ºF
**Possible Values:** 0 to 20ºF

• Press **Next/Previous** keys to navigate.

```
Cond Temp
Efficiency Check Point:             105°F
```

**Used With:** Units w/DX Cooling
**Factory Presets:** 105ºF
**Possible Values:** 95 to 115ºF

• Press **Next/Previous** keys to navigate.

```
Cond Temp
Low Ambient Control Point:           90°F
```

**Used With:** Units w/DX Cooling w/Low Ambient Option
**Factory Presets:** 90ºF
**Possible Values:** 80 to 100ºF

Low Ambient Dampers control condensing temperature to this value.

• Press **Next/Previous** keys to navigate.

```
Alternate Unit Refrigerant Type: ENABLED
```

**Used With:** Units w/DX Cooling
**Factory Presets:** DISABLED
**Possible Values:** ENABLED/DISABLED

Units w/R-22 should have this set to ENABLED

• Press **Next/Previous** keys to navigate.

```
2
End of Submenu (NEXT) to Enter SETUP
```

• Press **Next/Previous** keys to navigate.

## SENSOR SOURCE SELECTIONS SUBMENU SCREENS

```
Sensor Source Selections Submenu
Press ENTER to Review or Adjust
```

**Used With:** All Units.

- Press the **Next** key to skip this Submenu.

```
For Daytime Warmup Temp Crtl, Use sensor
Connected to: RTM ZONE TEMP INPUT
```

**Used With:** Units w/DWU ENABLED
**Factory Preset:** RTM ZONE TEMP INPUT
**Possible Values:**
RTM ZONE TEMP INPUT
NSB PANEL TEMP SENSOR INPUT
RTM AUX TEMP INPUT
HEAT MODULE AUX TEMP INPUT
ECEM RETURN AIR TEMP INPUT

- Press **Next/Previous** keys to navigate.

```
For Unoccupied Zone Temp Ctrl, Use Sensor
Connected To:        RTM ZONE TEMP INPUT
```

**Used With:** CVZT, VVZT, or VV/CVDA w/DWU Installed
**Factory Preset:** RTM ZONE TEMP INPUT
**Possible Values:**
[See **"DWU Source Selection"** Above]

- Press **Next/Previous** keys to navigate.

```
For Unoccupied Zone Temp Ctrl, Use Sensor
Connected To:        RTM ZONE TEMP INPUT
```

**Used With:** All Units
**Factory Preset:** RTM ZONE TEMP INPUT
**Possible Values:**
[See **"DWU Source Selection"** Above]

- Press **Next/Previous** keys to navigate.

```
For Morning Warmup Temp Ctrl, Use Sensor
Connected To: RTM ZONE TEMP INPUT
```

**Used With:** Units w/MWU ENABLED
**Factory Preset:** RTM ZONE TEMP INPUT
**Possible Values:**
[See **"DWU Source Selection"** Above]

- Press **Next/Previous** keys to navigate.

```
For Space Humidity Control, Use Sensor
Connected To:   RTM SPACE HUMIDITY INPUT
```

**Used With:** Units w/Dehumidification or Humidification Options
**Factory Preset:**
RTM SPACE HUMID INPUT
**Possible Values:**
RTM SPACE HUMIDITY INPUT
ECEM RA HUMIDITY INPUT

- Press **Next/Previous** keys to navigate.

```
For Dehumid OVRD Zone Temp, Use Sensor
Connected To:        RTM ZONE TEMP INPUT
```

**Used With:** Units w/Dehumid. Option
**Factory Preset:** RTM ZONE TEMP INPUT
**Possible Values:**
[See **"DWU Source Selection"** Above]

- Press **Next/Previous** keys to navigate.

```
For Zone Reset Function, Use Sensor
Connected To:        RTM ZONE TEMP INPUT
```

**Used With:** All Units
**Factory Preset:** RTM ZONE TEMP INPUT
**Possible Values:**
[See **"DWU Source Selection"** Above]

- Press **Next/Previous** keys to navigate.

```
For Rapid Restart Function, Use Sensor
Connected To:         RTM ZONE TEMP INPUT
```

**Used With:** Units w/Rapid Restart
**Factory Preset:** RTM ZONE TEMP INPUT
**Possible Values:**
[See **"DWU Source Selection"** Above]

- Press **Next/Previous** keys to navigate.

```
Monitor Specific Temp Input, Use Sensor
Connected To:        RTM ZONE TEMP INPUT
```

**Used With:** All Units
**Factory Preset:** RTM ZONE TEMP INPUT
**Possible Values:**
[See **"DWU Source Selection"** Above]

- Press **Next/Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter SETUP
```

- Press **Next/Previous** keys to navigate.

## OUTSIDE AIR VENTILATION SETUP SUBMENU SCREENS

```
Outside Air Ventilation Setup Submenu
Press ENTER to Review or Adjust
```

**Used With:** Units w/Fresh Air Option

- Press the **Next** key to skip this Submenu.

```
Demand Controlled Ventilation:   ENABLED
DCV Setpoint Modified By Space CO2 Level
```

**Used With:** Units w/ Fresh Air Measurement (VCM) w/DCV or OA Damper Min Position w/DCV Installed
**Factory Preset:** DISABLED
**Possible Values:** ENABLED, DISABLED
**Bottom Field:**
If ENABLED: "DCV Setpoint Modified By Space $CO_2$ Level"
If DISABLED: (blank)

- Press **Next/Previous** keys to navigate.

```
DCV Active Supply Fan Control:   ENABLED
Allow Supply Fan to Energize for DCV
```

**Used With:** CVZT or VVZT Units w/DCV set to ENABLED.
**Factory Preset:** DISABLED
**Possible Values:** DISABLED, ENABLED,
**Bottom Field:**
If ENABLED: "Allow Supply Fan to Energize for DCV"
If DISABLED: (blank)

- Press **Next/Previous** keys to navigate.

```
OA Flow Compensation Function:  DISABLED
Use fixed OA Damper Minimum Position
```

**Used With:** VVDA or VVZT Units w/ Economizer
**Factory Preset:** DISABLED
**Possible Values:** ENABLED, DISABLED
**Bottom Field:**
If ENABLED: "OA Damper Min Pos Depends on IGV/VFD Pos"
If DISABLED: "Use Fixed OA Damper Minimum Position"

- Press **Next/Previous** keys to navigate.

```
OA Flow CO2 Reset Function:    ENABLED
CO2 Start: 800 PPM   CO2 Max: 1000 PPM
```

**Note:** *Bottom line will not be shown if function is DISABLED.*

**Used With:** IPak 1 Units w/Fresh Air Measurement (VCM) w/o DCV Option
**Factory Preset:**
Function: DISABLED
Start: 800, Max: 1000
**Possible Values:**
Function: ENABLED, DISABLED
Start: 50 to 1900
Max: 150 to 2000

- Press **Next/Previous** keys to navigate.

```
OA Flow Calibration Data          (Left)
Gain    1.0          Offset     0  CCFM
```

"Left" refers to the flow station on the left side of the unit when looking into the unit's airstream.

**Used With:** Units w/Fresh Air Measurement (VCM) w/DCV Option
**Factory Preset:** Gain 1.0, Offset 0 CCFM
**Possible Values:**
Gain: 0.5 to 1.5
Offset: -25 to 25 CCFM

- Press **Next/Previous** keys to navigate.

```
OA Flow Calibration Data          (Right)
Gain    1.0          Offset     0  CCFM
```

"Right" refers to the flow station on the right side of the unit when looking into the unit's airstream.

**Used With:** Units w/Fresh Air Measurement (VCM) w/DCV Option
**Factory Preset:** Gain 1.0, Offset 0 CCFM
**Possible Values:**
Gain: 0.5 to 1.5
Offset: -25 to 25 CCFM

- Press **Next/Previous** keys to navigate.

```
Maximum OA Flow at Design Conditions
OA Normalization:                350 CCFM
```

**Used With:** Units w/Return Fan and Fresh Air Measurement (VCM) w/DCV, Units w/Energy Recovery Wheel Option
**Factory Preset:** 1 CCFM
**Possible Values:** 0 to *Max Unit Airflow* [See "**Max Unit Airflows**" in *Setpoints* Section Below]

- Press **Next/Previous** keys to navigate.

```
OA Flow Calibration Data
Altitude:                          0 Ft.
```

**Used With:** Units w/Return Fan and Fresh Air Measurement (VCM)
**Factory Preset:** 0 Ft (0 m)
**Possible Values:**
[See "Table 5. Flow Calibration - Altitude Correction Factor C.F." for assignments below.]

This correction factor is used to adjust airflow calculations due to density of air at different altitudes.

**Table 5. Flow Calibration - Altitude Correction Factor C.F.**

| Feet | Meters | C.F. | Feet | Meters | C.F. |
|---|---|---|---|---|---|
| 0 | 0 | 1.00 | 5500 | 1650 | 0.91 |
| 500 | 150 | 0.99 | 6000 | 1800 | 0.90 |
| 1000 | 300 | 0.98 | 6500 | 2000 | 0.89 |
| 1500 | 450 | 0.97 | 7000 | 2150 | 0.88 |
| 2000 | 600 | 0.97 | 7500 | 2300 | 0.87 |
| 2500 | 750 | 0.96 | 8000 | 2450 | 0.86 |
| 3000 | 900 | 0.95 | 8500 | 2600 | 0.85 |
| 3500 | 1050 | 0.94 | 9000 | 2750 | 0.85 |
| 4000 | 1200 | 0.93 | 9500 | 2900 | 0.84 |
| 4500 | 1350 | 0.92 | 10000 | 3050 | 0.83 |
| 5000 | 1500 | 0.91 | | | |

- Press **Next/Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter SETUP
```

- Press **Next/Previous** keys to navigate.

# Emergency Override Definitions (with LCI or BCI module installed)

When an LCI or BCI module is installed, the user can initiate one of five (5) Emergency Override sequences that have the following predefined unit operation via LonTalk or BACnet Communication:

## PRESSURIZE

- Supply Fan – On
- Inlet Vanes - Open (if equipped)
- Return Fan VFD – Min
- Return Fan / Exhaust Damper - Off / Closed (if equipped)
- OA Dampers – Open
- Heat - All heat stages Off (staged gas and elec.); Hydronic heat & Mod Gas Heat output at 0%.
- Occupied / Unoccupied output – Energized
- VO Relay - Energized (with VOM module installed)
- VCM Preheater State - Off (with VCM installed)

## DEPRESSURIZE

- Supply Fan – Off
- Inlet Vanes - Closed (if equipped)
- Return Fan VFD – Max
- Return Fan / Exhaust Damper - On / Open (if equipped)
- OA Dampers – Closed
- Heat - All heat stages Off (staged gas and elec.); Hydronic heat & Mod Gas Heat output at 0%.
- Occupied / Unoccupied output - De-energized
- VO Relay - Energized (with VOM module installed)
- VCM Preheater State - Off (with VCM installed)

## PURGE

- Supply Fan – On
- Inlet Vanes - Open (if equipped)
- Return Fan / Exhaust Damper - On / Open (if equipped)
- Return Fan VFD – Max
- OA Dampers – Open
- Heat - All heat stages Off (staged gas and elec.); Hydronic heat & Mod Gas Heat output at 0%.
- Occupied / Unoccupied output – Energized
- VO Relay - Energized (with VOM module installed)
- VCM Preheater State - Off (with VCM installed)

## SHUTDOWN

- Supply Fan – Off
- Inlet Vanes - Closed (if equipped)
- Return Fan / Exhaust Damper - Off / Closed (if equipped)
- Return Fan VFD – Min
- OA Dampers – Closed

- Heat - All heat stages Off (staged gas and elec.); Hydronic heat & Mod Gas Heat output at 0%.
- Occupied/Unoccupied output - De-energized
- VO Relay - Energized (with VOM module installed)
- VCM Preheater State - Off (with VCM installed)

## FIRE

- Supply Fan – Off
- Inlet Vanes - Closed (if equipped)
- Return Fan / Exhaust Damper - Off / Closed (if equipped)
- Return Fan VFD – Min
- OA Dampers – Closed
- Heat - All heat stages Off (staged gas and elec.); Hydronic heat & Mod Gas Heat output at 0%.
- Occupied / Unoccupied output - De-energized
- VO Relay - Energized (with VOM module installed)
- VCM Preheater State - Off (with VCM installed)

## Ventilation Override Mode Definitions (with VOM installed)

Each of the five VOM modes have factory presets, that when initiated by a VOM contact closure, will accomplish five predefined operations (listed below). Any of the five sequences may be user-redefined by changing the factory presets at the unit mounted Human Interface or through Tracer.

## Ventilation Override Mode A - (Unit Off)

- Supply Fan – Off
- Inlet Vanes / VFD - Closed / 0%
- Return Fan VFD – Min
- Return Fan / Exhaust Damper – Off / Closed (if equipped)
- OA Dampers – Closed
- Heat - All heat stages Off (staged gas and elec.); Hydronic heat & Mod Gas Heat output at 0%.
- Occupied / Unoccupied output – Deenergized
- VO Relay – Energized
- VCM Preheater State - Off (with VCM installed)

## Ventilation Override Mode B - (Pressurize)

- Supply Fan – On
- Inlet Vanes / VFD - Open / 100%
- Return Fan VFD – Min
- Return Fan / Exhaust Damper - Off / Closed (if equipped)
- OA Dampers – Open
- Heat - All heat stages Off (staged gas & elec.); Hydronic heat & Mod Gas Heat output at 0%.
- Occupied / Unoccupied output – Energized
- VO Relay – Energized
- VCM Preheater State - Off (with VCM installed)

## Ventilation Override Mode C - (Exhaust)

- Supply Fan – Off
- Inlet Vanes - Closed (if equipped)
- Return Fan / Exhaust Damper – On / Open (if equipped)
- Return Fan VFD – Max
- OA Dampers – Closed
- Heat - All heat stages Off (staged gas and elec.); Hydronic heat & Mod Gas Heat output at 0%.
- Occupied / Unoccupied output – Deenergized
- VO Relay – Energized
- VCM Preheater State - Off (with VCM installed)

## Ventilation Override Mode D - (Purge)

- Supply Fan – On
- Inlet Vanes / VFD - Open / 100%
- Return Fan VFD – Max
- Return Fan / Exhaust Damper - On / Open (if equipped)
- OA Dampers – Open
- Heat - All heat stages Off (staged gas and elec.); Hydronic heat & Mod Gas Heat output at 0%.
- Occupied / Unoccupied output – Energized
- VO Relay – Energized
- VCM Preheater State - Off (with VCM installed)

## Ventilation Override Mode E - (Purge with Duct Pressure Control)

- Supply Fan – On
- Return Fan VFD – Max
- Inlet Vanes / VFD - Open/100% (Ctrl'd by SA Press control function, SA Press High Limit is disabled)
- Return Fan / Exhaust Damper - On / Open (if equipped)
- OA Dampers – Open
- Heat - All heat stages Off (staged gas and elec.) Hydronic & Mod Gas Heat output at 0%.
- Occupied / Unoccupied output – Energized
- VO Relay – Energized
- VCM Preheater State - Off (with VCM installed)

***Note:***

1. The five VOM modes A, B, C, D, E will have the factory defaults set to the above defined values.
2. "OFF" - will appear in the Ventilation Override screen after all VOM binary inputs have been reset (opened).

## VENTILATION OVERRIDE MENU SCREENS

```
Ventilation Override Definitions
Press ENTER to Review or Adjust
```

**Used With:** Units w/VOM Installed

• Press the **Next** key to skip this Submenu.

```
Ventilation Override Definition Mode A
Supply Fan                          ON
```

**Used With:** Units w/VOM Installed
**Possible Values:** ON, OFF

• Press **Next**/**Previous** keys to navigate.

```
Ventilation Override Definition Mode A
Supply Fan IGV/VFD                 MIN
```

**Used With:** Units w/VOM Installed
**Possible Values:** IN CONTROL, MIN, MAX

• Press **Next**/**Previous** keys to navigate.

```
Ventilation Override Definition Mode A
Exhaust Fan/Dampers             ON/OPEN
```

**Used With:** Units w/VOM and Power Exhaust w/Statitrac
**Possible Values:** ON/OPEN, OFF/CLOSED

• Press **Next**/**Previous** keys to navigate.

```
Ventilation Override Definition Mode A
Return Fan/Exhaust Dampers    OFF/CLOSED
```

**Used With:** Units w/VOM and Return Fan
**Possible Values:** OFF/CLOSED, ON/OPEN

• Press the **Next** key to navigate forward.

```
Ventilation Override Definition Mode A
Exhaust Fan                         ON
```

**Used With:** Units w/VOM and Power Exhaust w/o Statitrac Installed
**Possible Values:** ON, OFF

• Press **Next**/**Previous** keys to navigate.

```
Ventilation Override Definition Mode  A
Return Fan VFD Command              Min
```

**Used With:** Units w/VOM and Return Fan with Statitrac Installed
**Possible Values:** Return Fan VFD Command: MIN, MAX

• Press **Next**/**Previous** keys to navigate.

```
Ventilation Override Definition Mode A
Outside Air Dampers                OPEN
```

**Used With:** Units w/VOM and Economizer Option
**Possible Values:** OPEN, CLOSED

• Press **Next**/**Previous** keys to navigate.

```
Ventilation Override Definition Mode A
VAV Box Relay                DEENERGIZED
```

**Used With:** Units w/VOM Installed
**Possible Values:** ENERGIZED, DEENERGIZED

• Press **Next**/**Previous** keys to navigate.

```
Ventilation Override Definition Mode A
Heat                                OFF
```

**Used With:** Units w/VOM and Heat Installed
**Possible Values:** OFF, IN CONTROL

• Press **Next/Previous** keys to navigate.

```
Ventilation Override Definition Mode A
VCM Preheater State            IN CONTROL
```

**Used With:** Units w/ and OA Preheater Function Enabled
**Possible Values:** OFF, IN CONTROL

• Press **Next/Previous** keys to navigate.

```
Ventilation Override Definition Mode A
Ventilation Override Relay     ENERGIZED
```

**Used With:** Units w/VOM Installed
**Possible Values:** ENERGIZED, DEENERGIZED

• Press **Next/Previous** keys to navigate.

```
Ventilation Override Definition Mode A
Enter Password to Lock Definition:
```

**Used With:** Units w/VOM Installed and Mode Not Locked

**Note:** *After locking a MODE (by entering the password), the displays for that MODE becomes "Reporting" only and the definition cannot be changed unless the Ventilation Override Module is replaced. If the password was entered, pressing the NEXT key will scroll through the previous screens to confirm the selected choices for each mode as follows:*

• Press **Next/Previous** keys to navigate.

```
Ventilation Override Mode A Is Locked
Supply Fan                          ON
```

**Used With:** Units w/VOM Mode Locked
**Factory Presets:** See Definitions Above
**Possible Values:** N/A

**Note:** *This is "Reporting Only" display. After all of the "VOM A" entries have been viewed or modified, the following screen will be displayed:*

• Press **Next/Previous** keys to navigate.

```
Ventilation Override Mode B
Supply Fan                          OFF
```

**Used With:** All Units
**Factory Presets:** See Definitions Above
**Possible Values:** ON, OFF

**Note:** *Follow the preceding steps, used in programming Mode "A", to program VOM Mode "B", "C", "D", and "E" if modifications are needed.*

• Press **Next/Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter SETUP
```

• Press **Next/Previous** keys to navigate.

## GBAS 0-5VDC MODULE I/O ASSIGNMENTS SCREENS

```
GBAS (5VDC) Module I/O Assignments
Press ENTER to Review or Adjust
```

**Used With:** Units w/GBAS(5VDC) Installed

Press the **Next** key to skip this Submenu.

```
GBAS (5VDC) Analog Input 1 Assignment
NOT ASSIGNED
```

**Used With:** Units w/GBAS(5VDC) Installed.

**Factory Presets:** NOT ASSIGNED

**Possible Values:**
- NOT ASSIGNED
- OCC ZONE COOLING SETPOINT
- UNOCC ZONE COOLING SETPOINT
- OCC ZONE HEATING SETPOINT
- UNOCC ZONE HEATING SETPOINT
- SPACE STATIC PRESSURE SETPOINT
- SA STATIC PRESSURE SETPOINT
- MIN OA FLOW SETPOINT
- MORNING WARMUP SETPOINT
- ECON DRY BULB ENABLE SETPOINT
- MINIMUM POSITION SETPOINT
- OCC DEHUMID SETPOINT
- UNOCC DEHUMID SETPOINT
- SUPPLY AIR REHEAT SETPOINT
- OCC HUMIDIFICATION SETPOINT
- UNOCC HUMIDIFICATION SETPOINT

**Note:** *There are 3 additional screens associated with Input Assignments; "Analog Input 2", "Analog Input 3", and "Analog Input 4". Press the Next key to proceed through the remaining assignments.*

- Press **Next / Previous** keys to navigate.

```
GBAS (5VDC) Output 1 Alarm Assignments
Press ENTER to Review or Adjust
```

**Used With:** Units w/GBAS(5VDC) Installed

**Factory Presets:**
- Output 1 = Dirty Filters
- Output 2 = Compressor Trip
- Compressor Trip - Ckt 1
- Compressor Trip - Ckt 2
- Low Pressure Control Open
- Low Pressure Control Open - Ckt 1
- Low Pressure Control Open - Ckt 2
- Comp Contactor/Drive Fail
- Comp Contactor/Drive Fail - Ckt 1
- Comp Contactor/Drive Fail - Ckt 2
- Output 3 = Heat Fail
- Output 4 = Supply Fan Failure
- Output 5 = Any Active Diagnostic

**Possible Values:** Refer to the list of diagnostics that can be assigned to each of the five (5) output definitions in the "*DIAGNOSTICS Menu*" section.

Press the **Next** key to skip this Submenu.

**Note:** *There are 4 additional screens associated with Alarm Output Assignments: "Alarm Output 2", "Alarm Output 3", "Alarm Output 4", and "Alarm Output 5". The process of assigning diagnostics to those outputs is identical to what is described here for "Alarm Output 1".*

If **Enter** was pressed, proceed to the following 3 screens.

```
Assign Diagnostic to Alarm Output  1?
Any Active Diagnostic              (Yes)
```

**Used With:** All Units w/GBAS(5VDC) Installed
**Possible Values:** Yes, No

**Note:** *If "Yes" is selected at this screen, any active diagnostic will activate this output. A selection of "No" will allow the user to choose, from the following menus, which diagnostics activate the Alarm Output.*

If **No** was entered, proceed to the following 2 screens.

```
Assignment Submenu – RTM Alarms
Press ENTER To Review Or Adjust
```

**Used With:** Units w/GBAS(5VDC) Installed and *Any Active Diagnostic* Set to "No"

Pressing the **Next** key will allow the user to skip this submenu.

Pressing the **Enter** key will allow the user to select any of the diagnostics associated with the RTM module to activate the associated Alarm Output.

**Note:** *The user will be presented with similar Assignment Submenus for the following alarm sources: "SCM/MCM Alarms", "HEAT Alarms", "ECEM Alarms", "VOM Alarms", "VCM Alarms", "GBAS Alarms", "MDM Alarms", "MPM Alarms" and "BAS/Network Alarms".*

**Note:** *Please review the "Diagnostics Troubleshooting Chart" in the "DIAGNOSTICS Menu" section to see the list of diagnostics associated with each module. (Refer to the "Diagnostics Displayed" column for the specified module.)*

If **Enter** was pressed, proceed to the following screen.

```
Assign Diagnostic to Alarm Output  1?
RTM Zone Temp Sensor Failure       (Yes)
```

**Used With:** Units w/GBAS(5VDC)

Selecting "Yes" for each of the diagnostics displayed will activate the associated Alarm Output when that diagnostic is activated.

**Note:** *The list of diagnostics displayed here will be dependent upon the module assignments selected. See the Table 7, p. 121 in the diagnostics menu section for the complete list displayed for each module.*

- Press **Next / Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter GBAS
```

- Press **Next / Previous** keys to navigate.

## GBAS 0-10VDC MODULE I/O ASSIGNMENTS SCREENS

```
GBAS (10VDC) Module I/O Assignments
Press ENTER to Review or Adjust
```

**Used With:** Units w/GBAS(10VDC) Installed

- Press the **Next** key to skip this Submenu.

| GBAS (10VDC) Analog Input 1 Assignment<br>NOT ASSIGNED |
|---|

**Used With:** Units w/GBAS(10VDC) Installed
**Factory Presets:** NOT ASSIGNED
**Possible Values:**
[See **"Possible Values"** in GBAS(5VDC) Above]

**Note:** *There are 3 additional screens associated with Input Assignments; "Analog Input 2", "Analog Input 3", and "Analog Input 4". Press the Next key to proceed through the remaining assignments.*

• Press **Next / Previous** keys to navigate.

The following screen will display if "Indicate selected diag alarms" is assigned.

| GBAS (10VDC) Binary Alarm Assignments<br>Press ENTER to Review or Adjust |
|---|

**Used With:** Units w/GBAS(10VDC) Installed

• Press the **Next** key to skip this Submenu.

If **Enter** was pressed, proceed to the following 3 screens.

| Assign Diagnostic To Alarm Output<br>Any Active Diagnostic (Yes) |
|---|

**Used With:** Units w/GBAS(10VDC) Installed
**Factory Presets:** Yes
**Possible Values:** Yes, No

**Note:** *If "Yes" is selected at this screen, any active diagnostic will activate this output. A selection of "No" will allow the user to choose, from the following menus, which diagnostics activate the Alarm Output.*

If **No** was entered, proceed to the following 2 screens.

| Assignment Submenu – RTM Alarms<br>Press ENTER To Review Or Adjust |
|---|

**Used With:** Units w/GBAS(10VDC) Installed and *Any Active Diagnostic* Set to "No"

Pressing the **Next** key will allow the user to skip this submenu.

Pressing the **Enter** key will allow the user to select any of the diagnostics associated with the RTM module to activate the associated Alarm Output.

**Note:** *The user will be presented with similar Assignment Submenus for the following alarm sources: "SCM/MCM Alarms", "HEAT Alarms", "ECEM Alarms", "VOM Alarms", "VCM Alarms", "GBAS Alarms", "MDM Alarms", "MPM Alarms" and "BAS/Network Alarms".*

If **Enter** was pressed, proceed to the following screen.

**Note:** *Please review the "Diagnostics Troubleshooting Chart" in the "DIAGNOSTICS Menu" section to see the list of diagnostics associated with each module. (Refer to the "Diagnostics Displayed" column for the specified module.)*

```
Assign Diagnostic to Alarm Output  1?
RTM Zone Temp Sensor Failure       (Yes)
```

**Used With:** Units w/GBAS(10VDC)

Selecting "Yes" for each of the diagnostics displayed will activate the associated Alarm Output when that diagnostic is activated.

**Note:** *The list of diagnostics displayed here will be dependent upon the module assignments selected. See Table 7, p. 121 in the diagnostics menu section for the complete list displayed for each module.*

- Press **Next / Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter GBAS
```

- Press **Next / Previous** keys to navigate.

```
GBAS (0-10 VDC) Analog Output 1 Assignment
NOT ASSIGNED
```

**Used With:** Units w/GBAS(10VDC) Installed
**Factory Presets:** NOT ASSIGNED
**Possible Values:**
NOT ASSIGNED
ACTIVE COOLING CAPACITY
ACTIVE HEATING CAPACITY
OUTSIDE AIR TEMPERATURE
ACTIVE ZONE TEMPERATURE
ACTIVE SUPPLY AIR TEMPERATURE
ACTIVE SUPPLY AIR PRESSURE
ACTIVE SPACE PRESSURE
ACTIVE SPACE RELATIVE HUMIDITY
ACTIVE OUTDOOR AIR HUMIDITY
ACTIVE SPACE $CO_2$ LEVEL
ACTIVE OA DAMPER POSITION
ACTIVE OUTDOOR AIR FLOW

**Note:** *There are 3 additional screens associated with Output Assignments; "Analog Output 2", "Analog Output 3", and "Analog Output 4". Press the Next key to proceed through the remaining assignments.*

- Press **Next / Previous** keys to navigate.

```
End of Submenu (NEXT) to enter SETUP
```

- Press **Next / Previous** keys to navigate.

## RTM ALARM OUTPUT DIAGNOSTIC ASSIGNMENTS SCREENS

```
RTM Alarm Output Setup Submenu
Press ENTER to Review or Adjust
```

**Used With:** All Units

• Press the **Next** key to skip this Submenu.

If **Enter** was pressed, proceed to the following 3 screens.

```
Assign Diagnostic to Alarm Output?
Any Active Diagnostic              (Yes)
```

**Used With:** All Units
**Possible Values:** Yes, No

**Note:** *If "Yes" is selected at this screen, any active diagnostic will activate this output. A selection of "No" will allow the user to choose, from the following menus, which diagnostics activate the Alarm Output.*

If **No** was entered, proceed to the following 2 screens.

```
Assignment Submenu - RTM Alarms
Press ENTER to Review or Adjust
```

**Used With:** All Units and *Any Active Diagnostic* Set to "No"

Pressing the **Next** key will allow the user to skip this submenu.

Pressing the **Enter** key will allow the user to select any of the diagnostics associated with the RTM module to activate the associated Alarm Output.

**Note:** *The user will be presented with similar Assignment Submenus for the following alarm sources: "SCM/MCM Alarms", "HEAT Alarms", "ECEM Alarms", "VOM Alarms", "VCM Alarms", "GBAS Alarms", "MDM Alarms", "MPM Alarms" and "BAS/Network Alarms".*

**Note:** *Please review the "Diagnostics Troubleshooting Chart" in the "DIAGNOSTICS Menu" section to see the list of diagnostics associated with each module. (Refer to the "Diagnostics Displayed" column for the specified module.)*

If **Enter** was pressed, proceed to the following screen.

```
Assign Diagnostic to Alarm Output?
RTM Zone Temp Sensor Failure       (Yes)
```

**Used With:** All Units and the ENTER Key Was Pressed At The Prior Screen

Selecting "Yes" for each of the diagnostics displayed will activate the associated Alarm Output when that diagnostic is activated.

**Note:** *The list of diagnostics displayed here will be dependent upon the Assignment Submenu selected. See Table 7, p. 121 in the diagnostics menu section for the list of diagnostics displayed for each module.*

• Press **Next/Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter SETUP
```

• Press the **Next** key to navigate forward.

## Temperature Input Calibration Screens

The following five (5) Offset screens are used only if calibration of a sensor designated to perform the listed function is necessary.

Example: If the temperature sensor for Morning Warm Up (MWU) is checked and a difference between the actual measured room temperature and the corresponding measured sensor value is found, by programming the amount of error into the Temperature Input Offset for Morning Warm Up (MWU) Heat — The sensor can be calibrated.

### CALIBRATION AND OFFSET SUBMENU SCREENS

```
Calibration and Offset Submenu
Press ENTER to Review or Adjust
```

**Used With:** All Units

- Press the **Next** key to skip this Submenu.

```
Temperature Calibration Offset For
RTM Zone Temperature Input        0.0°F
```

**Used With:** All Units
**Factory Presets:** 0.0ºF
**Possible Values:** -5.0 to 5.0ºF

- Press **Next**/**Previous** keys to navigate.

```
Temperature Calibration Offset For
RTM Aux Temperature Input         0.0°F
```

**Used With:** All Units
**Factory Presets:** 0.0ºF
**Possible Values:** -5.0 to 5.0ºF

- Press **Next**/**Previous** keys to navigate.

```
Temperature Calibration Offset For
RTM Outside Air Temperature Input 0.0°F
```

**Used With:** All Units
**Factory Presets:** 0.0ºF
**Possible Values:** -5.0 to 5.0ºF

- Press **Next**/**Previous** keys to navigate.

```
Temperature Calibration Offset For
Heat Module Aux Temp Input        0.0°F
```

**Used With:** Units w/Heat or Chilled Water Installed
**Factory Presets:** 0.0ºF
**Possible Values:** -5.0 to 5.0ºF

- Press **Next**/**Previous** keys to navigate.

```
Temperature Calibration Offset For
ECEM Return Air Temperature Input 0.0°F
```

**Used With:** Units w/Comparative Enthalpy Installed
**Factory Presets:** 0.0ºF
**Possible Values:** -5.0 to 5.0ºF

- Press **Next**/**Previous** keys to navigate.

```
End of Submenu (NEXT) to Enter SETUP
```

- Press **Next**/**Previous** keys to navigate.

## DEVICE CHARACTERISTICS SETUP DEFINITIONS SCREENS

```
Device Characteristic Setup Definitions
Press ENTER to review or Adjust
```

**Used With:** All Units

- Press **Next/Previous** keys to navigate.

```
Actuator Setup                  OA Damper
Max Stroke Time                    30 Sec
```

**Used With:** Units w/OA Damper
**Factory Presets:** 30 Sec
**Possible Values:** 1 to 255 Sec

- Press **Next/Previous** keys to navigate.

```
Actuator Setup                  OA Damper
Min Voltage                      2.0 VDC
```

**Used With:** Units w/OA Damper
**Factory Presets:** 2.0 VDC
**Possible Values:** 0 to 10.0 VDC

- Press **Next/Previous** keys to navigate.

```
Actuator Setup                  OA Damper
Max Voltage                     10.0 VDC
```

**Used With:** Units w/OA Damper
**Factory Presets:** 10.0 VDC
**Possible Values:** 0 to 10.0 VDC

- Press **Next/Previous** keys to navigate.

```
Actuator Setup                  OA Damper
Direct/Reverse Act         DIRECT ACTING
```

**Used With:** Units w/OA Damper
**Factory Presets:** DIRECT ACTING
**Possible Values:** DIRECT ACTING, REVERSE ACTING

- Press **Next/Previous** keys to navigate.

```
Actuator Setup        Supply Fan IGV/VFD
Max Stroke Time                    30 Sec
```

**Used With:** VVDAUnits
**Factory Preset:** 30 Sec
**Possible Values:** 1 to 255 Sec

- Press **Next/Previous** keys to navigate.

```
Actuator Setup    Supply Fan IGV/VFD Cmd
Min Voltage                      0.0 VDC
```

**Used With:** VVDA Units
**Factory Presets:** 0 VDC
**Possible Values:** 0 to 10.0 VDC

**Note**: *If the unit is configured for a Supply Fan VFD, initial setting should be 0.0 VDC. If the unit is configured with IGV set this value to 2.0 VDC.*

- Press **Next/Previous** keys to navigate.

| Actuator Setup | Supply Fan IGV/VFD Cmd |
|---|---|
| Max Voltage | 10.0 VDC |

• Press **Next/Previous** keys to navigate.

**Used With:** VVDA Units
**Factory Presets:** 10.0 VDC
**Possible Values:** 0 to 10.0 VDC

| Actuator Setup | Supply Fan IGV/VFD Cmd |
|---|---|
| Direct/Reverse Act | DIRECT ACTING |

• Press **Next/Previous** keys to navigate.

**Used With:** VVDAUnits
**Factory Presets:** DIRECT ACTING
**Possible Values:** DIRECT ACTING, REVERSE ACTING

| Actuator Setup | Return Fan VFD |
|---|---|
| Max Stroke Time | 30 Sec |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Return Fan Option
**Factory Presets:** 30 Sec
**Possible Values:** 1 to 255 Sec

| Actuator Setup | Return Fan VFD |
|---|---|
| Min Voltage | 0.0 VDC |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Return Fan Option
**Factory Presets:** 0 VDC
**Possible Values:** 0 to 10.0 VDC

| Actuator Setup | Return Fan VFD |
|---|---|
| Max Voltage | 10.0 VDC |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Return Fan Option
**Factory Presets:** 10.0 VDC
**Possible Values:** 0 to 10.0 VDC

| Actuator Setup | Return Fan VFD |
|---|---|
| Direct/Reverse Act | DIRECT ACTING |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Return Fan Option
**Factory Presets:** Direct Acting
**Possible Values:** Direct, Reverse

| Actuator Setup | Exhaust Damper/VFD |
|---|---|
| Max Stroke Time | 60 Sec |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Power Exhaust
**Factory Presets:** 60 Sec
**Possible Values:** 1 to 255 Sec

| Actuator Setup | Exhaust Damper/VFD |
|---|---|
| Min Voltage | 2.0 VDC |

**Note:** *If the unit is configured for a Exhaust Fan VFD, initial setting should be 0.0 VDC. If the unit is configured w/o VFD set this value to 2.0 VDC.*

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Power Exhaust
**Factory Presets:** 2.0 VDC
**Possible Values:** 0 to 10.0 VDC

| Actuator Setup | Exhaust Damper/VFD |
|---|---|
| Max Voltage | 10.0 VDC |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Power Exhaust
**Factory Presets:** 10.0 VDC
**Possible Values:** 0 to 10.0 VDC

| Actuator Setup | Exhaust Damper/VFD |
|---|---|
| Direct/Reverse Act | DIRECT ACTING |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Power Exhaust
**Factory Presets:** DIRECT ACTING
**Possible Values:** DIRECT ACTING, REVERSE ACTING

| Actuator Setup | Hydronic |
|---|---|
| Max Stroke Time | 60 Sec |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Hydronic Heat and/or Chilled Water Installed
**Factory Presets:** 60 Sec
**Possible Values:** 1 to 255 Sec

| Actuator Setup | Hydronic |
|---|---|
| Min Voltage | 2.0 VDC |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Hydronic Heat and/or Chilled Water Installed
**Factory Presets:** 2.0 VDC
**Possible Values:** 0 to 10.0 VDC

| Actuator Setup | Hydronic |
|---|---|
| Max Voltage | 10.0 VDC |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Hydronic Heat and/or Chilled Water Installed
**Factory Presets:** 0 VDC
**Possible Values:** 0 to 10.0 VDC

| Actuator Setup | Hydronic |
|---|---|
| Direct/Reverse Act | DIRECT ACTING |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Hydronic Heat and/or Chilled Water Installed
**Factory Presets:** DIRECT ACTING
**Possible Values:** DIRECT ACTING, REVERSE ACTING

**Note**: *Only one of the following two screens will be shown*

| Actuator Setup | Num 1 Low Ambient |
|---|---|
| Max Stroke Time | 60 Sec |

**Used With:** Units w/DX Cooling, w/Air-Cooled Condensers
**Factory Presets:** 60 Sec
**Possible Values:** 1 to 255 Sec

**OR**

| Actuator Setup | Cond Fan VFD Ckt 1 |
|---|---|
| Max Stroke Time | 60 Sec |

Press the **Next** key to navigate forward.

**Used With:** Units w/DX Cooling, w/Water-Cooled Condensers
**Factory Preset:** 60 Sec
**Possible Values:** 1 to 255 Sec

**Note:** *Only one of the following two screens will be shown based on condenser type.*

| | |
|---|---|
| Actuator Setup Num 1 Low Ambient<br>Min Voltage 2.0 VDC | **Used With:** Units w/DX Cooling, w/Air-Cooled Condensers<br>**Factory Presets:** 2.0 VDC<br>**Possible Values:** 0 to 10.0 VDC |

**OR**

| | |
|---|---|
| Actuator Setup Cond Fan VFD Ckt 1<br>Min Voltage 0.0 VDC | **Used With:** Units w/DX Cooling, w/ Water-Cooled Condensers<br>**Factory Preset:** 0 VDC<br>**Possible Values:** 0 to 10.0 VDC |

- Press **Next/Previous** keys to navigate.

**Note:** *Only one of the following two screens will be shown based on condenser type.*

| | |
|---|---|
| Actuator Setup Num 1 Low Ambient<br>Max Voltage 10.0 VDC | **Used With:** Units w/DX Cooling, w/Air-Cooled Condensers<br>**Factory Presets:** 10.0 VDC<br>**Possible Values:** 0 to 10.0 VDC |

**OR**

| | |
|---|---|
| Actuator Setup Cond Fan VFD Ckt 1<br>Max Voltage 10.0 VDC | **Used With:** Units w/DX Cooling, w/ Water-Cooled Condensers<br>**Factory Preset:** 10.0 VDC<br>**Possible Values:** 0 to 10.0 VDC |

- Press **Next/Previous** keys to navigate.

**Note:** *Only one of the following two screens will be shown based on condenser type.*

| | |
|---|---|
| Actuator Setup Num 1 Low Ambient<br>Direct/Reverse Act DIRECT ACTING | **Used With:** Units w/DX Cooling, w/Air-Cooled Condensers<br>**Factory Presets:** Direct Acting<br>**Possible Values:** Direct Acting, Reverse Acting |

**OR**

| | |
|---|---|
| Actuator Setup Cond Fan VFD Ckt 1<br>Direct/Reverse Act DIRECT ACTING | **Used With:** Units w/DX Cooling, w/ Water-Cooled Condensers<br>**Factory Preset:** DIRECT<br>**Possible Values:** DIRECT, REVERSE |

- Press **Next/Previous** keys to navigate.

**Note:** *Only one of the following two screens will be shown based on condenser type.*

| | |
|---|---|
| Actuator Setup | Num 2 Low Ambient |
| Max Stroke Time | 60 Sec |

**Used With:** Units w/DX Cooling, w/Air-Cooled Condensers
**Factory Presets:** 60 Sec
**Possible Values:** 1 to 255 Sec

**OR**

| | |
|---|---|
| Actuator Setup | Cond Fan VFD Ckt 2 |
| Max Stroke Time | 60 Sec |

**Used With:** Units w/DX Cooling, w/ Water-Cooled Condensers
**Factory Preset:** 60 Sec
**Possible Values:** 1 to 255 Sec

- Press **Next/Previous** keys to navigate.

**Note:** *Only one of the following two screens will be shown based on condenser type.*

| | |
|---|---|
| Actuator Setup | Num 2 Low Ambient |
| Min Voltage | 2.0 VDC |

**Used With:** Units w/DX Cooling, w/Air-Cooled Condensers
**Factory Presets:** 2.0 VDC
**Possible Values:** 0 to 10.0 VDC

**OR**

| | |
|---|---|
| Actuator Setup | Cond Fan VFD Ckt 2 |
| Min Voltage | 0.0 VDC |

**Used With:** Units w/DX Cooling, w/ Water-Cooled Condensers
**Factory Preset:** 0 VDC
**Possible Values:** 0 to 10.0 VDC

- Press **Next/Previous** keys to navigate.

**Note:** *Only one of the following two screens will be shown based on condenser type.*

| | |
|---|---|
| Actuator Setup | Num 2 Low Ambient |
| Max Voltage | 10.0 VDC |

**Used With:** Units w/DX Cooling, w/Air-Cooled Condensers
**Factory Presets:** 10.0 VDC
**Possible Values:** 0 to 10.0 VDC

**OR**

| | |
|---|---|
| Actuator Setup | Cond Fan VFD Ckt 2 |
| Max Voltage | 10.0 VDC |

**Used With:** Units w/DX Cooling, w/ Water-Cooled Condensers
**Factory Preset:** 10.0 VDC
**Possible Values:** 0 to 10.0 VDC

- Press **Next/Previous** keys to navigate.

**Note:** *Only one of the following two screens will be shown based on condenser type.*

| | |
|---|---|
| Actuator Setup | Num 2 Low Ambient |
| Direct/Reverse Act | DIRECT ACTING |

**Used With:** Units w/DX Cooling, w/Air-Cooled Condensers
**Factory Presets:** Direct Acting
**Possible Values:** Direct Acting, Reverse Acting

**OR**

| | |
|---|---|
| Actuator Setup | Cond Fan VFD Ckt 2 |
| Direct/Reverse Act | DIRECT ACTING |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/DX Cooling, w/ Water-Cooled Condensers
**Factory Preset:** DIRECT
**Possible Values:** DIRECT, REVERSE

| | |
|---|---|
| Actuator Setup | Modulating Gas Heat |
| Max Stroke Time | 90 Sec |

• Press **Next/Previous** keys to navigate.

**Used With:** All Rooftop Units and Air Handlers when Modulating Gas is installed
**Factory Presets:** 90 Sec
**Possible Values:** 1 to 255 Sec

| | |
|---|---|
| Actuator Setup | Modulating Gas Heat |
| Min Voltage | 2.0 VDC |

• Press **Next/Previous** keys to navigate.

**Used With:** All Rooftop Units and Air Handlers when Modulating Gas is installed
**Factory Presets:** 2 VDC
**Possible Values:** 0 to 10.0 VDC

| | |
|---|---|
| Actuator Setup | Modulating Gas Heat |
| Max Voltage | 10 VDC |

• Press **Next/Previous** keys to navigate.

**Used With:** All Rooftop Units and Air Handlers when Modulating Gas is installed
**Factory Presets:** 10 VDC
**Possible Values:** 0 to 10.0 VDC

| | |
|---|---|
| Actuator Setup | Modulating Gas Heat |
| Direct/Reverse Act | DIRECT ACTING |

• Press **Next/Previous** keys to navigate.

**Used With:** All Rooftop Units and Air Handlers Modulating Gas is installed
**Factory Presets:** Direct Acting
**Possible Values:** Direct Acting, Reverse Acting

| | |
|---|---|
| Actuator Setup | Exh Bypass Damper |
| Max Stroke Time | 60 Sec |

• Press **Next/Previous** keys to navigate.

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** 60 Sec
**Possible Values:** 1 to 255 Sec

| | |
|---|---|
| Actuator Setup | Exh Bypass Damper |
| Min Voltage | 2.0 VDC |

• Press **Next/Previous** keys to navigate.

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** 2.0 VDC
**Possible Values:** 0 to 10.0 VDC

| | |
|---|---|
| Actuator Setup<br>Max Voltage | Exh Bypass Damper<br>10.0 VDC |

• Press **Next/Previous** keys to navigate.

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** 10.0 VDC
**Possible Values:** 0 to 10.0 VDC

| | |
|---|---|
| Actuator Setup<br>Direct/Reverse Act | Exh Bypass Damper<br>DIRECT ACTING |

• Press **Next/Previous** keys to navigate.

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** DIRECT
**Possible Values:** DIRECT, REVERSE

| | |
|---|---|
| Actuator Setup<br>Max Stroke Time | OA Bypass Damper<br>60 Sec |

• Press **Next/Previous** keys to navigate.

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** 60 Sec
**Possible Values:** 1 to 255 Sec

| | |
|---|---|
| Actuator Setup<br>Min Voltage | OA Bypass Damper<br>2.0 VDC |

• Press **Next/Previous** keys to navigate.

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** 2.0 VDC
**Possible Values:** 0 to 10.0 VDC

| | |
|---|---|
| Actuator Setup<br>Max Voltage | OA Bypass Damper<br>10.0 VDC |

• Press **Next/Previous** keys to navigate.

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** 10.0 VDC
**Possible Values:** 0 to 10.0 VDC

| | |
|---|---|
| Actuator Setup<br>Direct/Reverse Act | OA Bypass Damper<br>DIRECT ACTING |

• Press **Next/Previous** keys to navigate.

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** DIRECT
**Possible Values:** DIRECT, REVERSE

| | |
|---|---|
| Actuator Setup<br>Max Stroke Time | Variable Speed Comp<br>30 Sec |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Variable Speed Compressor Installed.
**Factory Preset:** 30 Sec
**Possible Values:** 1 to 255 Sec

| | |
|---|---|
| Actuator Setup<br>Min Voltage | Variable Speed Comp<br>0.0 VDC |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Variable Speed Compressor Installed.
**Factory Preset:** 0.0 VDC
**Possible Values:** 0 to 10.0 VDC

| | |
|---|---|
| Actuator Setup<br>Max Voltage | Variable Speed Comp<br>10.0 VDC |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Variable Speed Compressor Installed.
**Factory Preset:** 10.0 VDC
**Possible Values:** 0 to 10.0 VDC

```
Actuator Setup        Variable Speed Comp
Direct/Reverse Act          DIRECT ACTING
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/Variable Speed Compressor Installed.
**Factory Preset:** DIRECT ACTING
**Possible Values:** DIRECT ACTING, REVERSE ACTING

```
End of Submenu (NEXT) to Enter SETUP
```

- Press **Next/Previous** keys to navigate.

### CONTROL ALGORITHM TUNING PARAMETERS SCREENS (Partial)

```
Control Algorithm Tuning Parameters
Press ENTER to Review or Adjust
```

**Note:** *Contact the Trane Company before making any adjustment to these settings.See also RT-SVB98*-EN.*

# SETPOINT Menu

The setpoint menu is used to designate default zone temperature setpoints, supply air and space pressure setpoints, and low ambient compressor lockout setpoints.

These setpoints will be active (in use) for the "Setpoint Source Selection" designated as "DEFAULT" for these inputs.

When a setpoint screen is displayed for 30 minutes without a key being pressed, the LCD screen will revert to the general operating status display. If this happens, press the **Setpoint** key again to return to the setpoint menu.

***Note:*** *Many of the screens displayed in this section are applicable only for the options that are installed in the unit and may not be visible on your unit.*

**Modifying Selections:** Starting with the first setpoint screen program the necessary information by using the appropriate keys to navigate (Next and Previous) and make changes (+ and -) to the selections. Once the selection has been changed to the desired value, the user has the following options to either *Cancel* or *Accept* the pending change:

- To *Cancel*, press the **Cancel** key to remove the change, the display will revert to the original value.
- To *Accept*, press the **Enter** key to confirm the new choice.

Press the **Setpoint** key to begin viewing or modifying the unit setpoints.

## TOP LEVEL SETPOINTS SCREEN

```
Default Supply Air Temp Setpoints
Cooling: 55°F              Heating: 100°F
```

**Note:** *These values must be reset on field replacement of the RTM Module if the unit is configured for SZVAV (VVZT).*
"Heating" setpoint only shown if units are configured with hydronic or modulating gas heat, or if IPak 2 w/electric heat.

**Used With:** VV/CVDA or VVZT Units
**Factory Presets: Factory Presets:**
Cooling: 55ºF (VVZT: 50°F)
Heating: 100ºF (VVZT: 105°F)
**Possible Values:**
Cool: 40 to 90ºF
Heat: 40 to 180ºF

- Press **Next/Previous** keys to navigate.

```
Supply Air Temperature Deadband
Cooling: 8.0°F             Heating: 4.0°F
```

"Heating" setpoint only shown if units are configured with hydronic or modulating gas heat, or if IPak 2 w/electric heat.

**Used With:** VV/CVDA Units
**Factory Presets:**
Cooling: 8ºF
Heating: 4ºF
**Possible Values:**
Cool: 1 to 20ºF
Heat: 2 to 10ºF

- Press **Next/Previous** keys to navigate.

```
Default Daytime Warmup Setpoints
Initiate: 67°F           Terminate: 71°F
```

**Used With:** VV/CVDA Units w/DWU Enabled
**Factory Presets:**
Initiate: 67ºF
Terminate: 71ºF
**Possible Values:**
DWU Initiate: 50 to 87ºF
DWU Terminate: 53 to 90ºF

- Press **Next/Previous** keys to navigate.

## SETPOINT Menu

```
Default Occupied Zone Temp Setpoints
Cool: 74°F          Heat: 71°F
```

"Cool" setpoint shown for CVZT units. "Heat" setpoint shown for CVZT w/heat installed, or VV/CVDA units with DWU or MWU enabled.

• Press **Next/Previous** keys to navigate.

**Used With:** CVZT or VVZT Units, or VV/CVDA Units w/DWU or MWU Enabled
**Factory Presets:**
Cool: 74ºF
Heat: 71ºF
**Possible Values:**
Heat: 50 to 90ºF

```
Derived Zone Setpoint Deadband:    2.0°F
Used When Only One Setpoint is Available
```

• Press **Next/Previous** keys to navigate.

**Used With:** CVZT or VVZT Units w/Zone Sensor Supporting Only One Setpoint
**Factory Preset:** 4.0ºF
**Possible Values:** 2.0 to 10.0ºF

```
Default Unoccupied Zone Temp Setpoints
Cool: 85°F  Heat: 60°F Morn Warmup: 72°F
```

**Note:** *Minimum difference of 2ºF maintained between Heating & Cooling Setpoints. Morning warmup cannot be lower than Heating Setpoints.*

"Heat" and "Morn Warmup" shown for units w/heat installed. "Morn Warmup" shown if MWU is enabled.

• Press **Next/Previous** keys to navigate.

**Used With:** All Units
**Factory Presets:**
Cool: 85ºF
Heat: 60ºF
MWU: 72ºF
**Possible Values:**
Cool: 52 to 90ºF
Heat: 50 to 88ºF
MWU: 50 to 90ºF

```
Dflt Rapid Restart Critical Temp:    90°F
```

Return temperature relative to this setpoint determines target DX stage during a Rapid Restart event.

• Press **Next/Previous** keys to navigate.

**Used With:** All Units w/Rapid Restart Installed
**Factory Preset:** 90ºF
**Possible Values:** 75, 80, 85, 90, 95 ºF

### HUMIDITY CONTROL SETPOINT SUBMENU SCREENS

```
Humidity Control Setpoint Submenu
Press ENTER to Review or Adjust
```

• Press the **Next** key to skip this Submenu.

**Used With:** Units w/Dehumidification or Humidification Option

```
Dehumidify if Space Humidity Above
Occ Dehumidification Setpoint:       60%
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Dehumidification Option
**Factory Preset:** 60%
**Possible Values:** 40 to 65%

```
Stop Dehumid if Space RH Below STP Minus
Occ Dehumid Hysteresis Offset:        5%
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Dehumidification Option
**Factory Preset:** 5%
**Possible Values:** 3 to 10%

```
Dehumidify if Space Humidity Above
Unocc Dehumidification Setpoint:     60%
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Dehumidification Option and Unocc Dehumid. Enabled
**Factory Preset:** 60%
**Possible Values:** 40 to 65%

```
Stop Dehumid if Space RH Below STP Minus
Unocc Dehumid Hysteresis Offset:      5%
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Dehumidification Option and Unocc Dehumid. Enabled
**Factory Preset:** 5%
**Possible Values:** 3 to 10%

```
Default Supply Air Reheat Stpt:     70°F
Supply Air Reheat Deadband:          4°F
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Dehumidification Option
**Factory Preset:**
Reheat Setpoint: 70ºF
Reheat Deadband: 4ºF
**Possible Values:**
Reheat Setpoint: 60 to 80ºF
Reheat Deadband: 2 to 10ºF

```
In Active Dehumidification Mode, Limit
Maximum Reheat Valve Position To:    85%
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Dehumidification Option
**Factory Preset:** 85%
**Possible Values:** 50 to 85%

```
Dehumid Ovrd High Zone Temp Stpt:   75°F
Dehumid Ovrd Low  Zone Temp Stpt:   68°F
```

• Press **Next/Previous** keys to navigate.

**Used With:** VV/CVDA Units w/ Dehumidification Option
**Factory Preset:**
Ovrd High Temp: 75ºF
Ovrd Low Temp: 68ºF
**Possible Values:**
Ovrd High Temp: 70 to 85ºF
Ovrd Low Temp: 60 to 75ºF

```
Cond Coil Purge Interval Setpt:   90 Min
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Dehumidification Option
**Factory Preset:** 90 Minutes
**Possible Values:** 60 to 120 Minutes

## SETPOINT Menu

```
Humidify if Space Humidity Below
Occ Humidification Setpoint:        30%
```

**Used With:** Units w/Humidification Option
**Factory Preset:** 30%
**Possible Values:** 20 to 50%

- Press **Next/Previous** keys to navigate.

```
Stop Humid if Space RH Above STP Plus
Occ Humid Hysteresis Offset:         5%
```

**Used With:** Units w/Humidification Option
**Factory Preset:** 5%
**Possible Values:** 3 to 10%

- Press **Next/Previous** keys to navigate.

```
Humidify if Space Humidity Below
Unocc Humidification SETPOINT:      30%
```

**Used With:** Units w/Humidification Option and Unocc. Humid. Enabled
**Factory Preset:** 30%
**Possible Values:** 20 to 50%

- Press **Next/Previous** keys to navigate.

```
Stop Humid if Space RH Above STP Plus
Unocc Humid Hysteresis Offset:       5%
```

**Used With:** Units w/Humidification Option and Unocc. Humid. Enabled
**Factory Preset:** 5%
**Possible Values:** 3 to 10%

- Press **Next/Previous** keys to navigate.

```
End Of Submenu (NEXT) to Enter SETPOINT
```

- Press **Next/Previous** keys to navigate.

### OUTSIDE AIR CONTROL SETPOINT SUBMENU SCREENS

```
Outside Air Control Setpoint Submenu
Press ENTER to Review or Adjust
```

**Used With:** Units w/Fresh Air Option

- Press the **Next** key to skip this Submenu.

```
When Economizer Cooling, Reduce Zone
Temperature Cooling Setpoint By:   1.5°F
```

**Used With:** CVZT Units w/Economizer Option
**Factory Preset:** 1.5ºF
**Possible Values:** 0.0 to 3.0ºF

- Press **Next/Previous** keys to navigate.

```
Reference Enthalpy. Enable Air Econ
When OA Enthalpy is Below:     25 BTU/LB
```

**Used With:** Units w/Economizer
**Factory Presets:** 25 BTU/LB
**Possible Values:** 19 to 28 BTU/LB

**Note:** *This Setpoint is used when Comparative Enthalpy is not installed or is invalid due to return air humidity or temperature is out of range or failed.*

- Press **Next/Previous** keys to navigate.

```
Default Econ Drybulb Enable Setpoint
Enable Economizer Below:          75°F
```

**Used With:** Units w/Economizer
**Factory Presets:** 75ºF
**Possible Values:** 50 to 140ºF

**Note:** *This setpoint is used when Comparative Enthalpy is not installed, or is invalid, and Drybulb is selected for alternate economizer enable/disable decision.*

- Press **Next/Previous** keys to navigate.

```
Supply Air Low Limit-Modulate Economizer
Toward Min Pos if SA Temp below:   50°F
```

**Used With:** CVZT Units, or non-VVZT Units Operating in Unoccupied Economizer Cooling Mode
**Factory Presets:** 50ºF
**Possible Values:** 40 to 65ºF

- Press **Next/Previous** keys to navigate.

```
VCM Preheat ON If VCM Aux Temp Below
Ventilation Preheat Setpoint:      35°F
```

**Used With:** Units w/Fresh Air Measurement (VCM) w/DCV, or OA Damper Min Position w/DCV, and Preheat Enabled
**Factory Presets:** 35ºF
**Possible Values:** 35 to 75ºF

- Press **Next/Previous** keys to navigate.

```
Default Design Min CO2 Setpt:  1000 PPM
Default DCV Min CO2 Setpoint:   400 PPM
```

**Used With:** Units w/Fresh Air Measurement (VCM) w/DCV, or OA Damper Min Position w/DCV
**Factory Presets:**
Design Min $CO_2$: 1000 PPM
DCV Min $CO_2$: 400 PPM
**Possible Values:**
Design Min $CO_2$: 150 to 2000 PPM
DCV Min $CO_2$: 50-1900 PPM

- Press **Next/Previous** keys to navigate.

**Note:** *The following 2 screens are only shown if DCV is enabled.*

```
Default Design Min OA Flow Stp: 350 CCFM
Default DCV Min OA Flow Setpt:  150 CCFM
```

**Used With:** Units w/Fresh Air Measurement (VCM) w/DCV
**Factory Preset:** 220 CCFM
Ovrd to 112 CCFM for 90 and 105 Ton
Ovrd to 146 CCFM for 120 and 130 Ton
**Possible Values:**
Design Min OA Flow: 0 to 585 CCFM
DCV Min OA Flow: 0 to 585 CCFM

- Press **Next / Previous** keys to navigate.

```
Demand Controlled Ventilation
Min OA Flow deadband:          5 CCFM
```

**Used With:** Units w/Fresh Air Measurement (VCM) w/DCV
**Factory Presets:** 5 CCFM
**Possible Values:** 5 to 20 CCFM

- Press **Next / Previous** keys to navigate.

**OR**

**Note:** *The following screen is only shown if DCV is disabled.*

```
Default Min OA Flow Setpoint:   40 CCFM
Min OA Flow Deadband:          5.0 CCFM
```

**Used With:** Units w/Fresh Air Measurement (VCM) w/o DCV
**Factory Presets:**
Setpoint: 40 CCFM
Deadband: 5 CCFM
**Possible Values:**
[See "Table 6, p. 90" for assignments.]

**Table 6. Max Unit Airflows**

| Product | Capacity (Tons) | Max Airflow Range (CFM) | Deadband Range (CFM) |
|---|---|---|---|
| IPak 1 | 20 to 25 | 0 to 14000 | 500 to 2000 |
| IPak 1 | 30 | 0 to 17000 | 500 to 2000 |
| IPak 1 | 40 | 0 to 22000 | 500 to 2000 |
| IPak 1 | 50 to 55 | 0 to 28000 | 500 to 2000 |
| IPak 1 | 60 to 75 | 0 to 33000 | 700 to 2000 |
| IPak 1 | 90 to 130 | 0 to 46000 | 1000 to 2000 |
| IPak 2 | 90 to 105 | 0 to 45000 | 500 to 2000 |
| IPak 2 | 120 to 150 | 0 to 58500 | 500 to 2000 |

- Press **Next / Previous** keys to navigate.

```
Default Design Min OA Damper Pos:    15%
Default DCV Min OA Damper Pos Stp:   10%
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/OA Damper, And OA Damper Min Pos w/DCV Option, and OA CFM Compensation Disabled.
**Factory Presets:**
Design Min OA Damper: 15%
DCV Min OA Damper: 10%
**Possible Values:** 0 to 100%

```
Default OA Damper Min Position:      15%
With IGV/VFD Command At Minimum (0%)
```

**Note:** *OA Damper Min Pos...At Minimum (0%) must be > OA Damper Min Pos...At Maximum (100%) if VVDA, or at Medium (50%) if VVZT.*

- Press **Next/Previous** keys to navigate.

**Used With:** VVDA or VVZT Units w/OA Damper, And *OA CFM Compensation* Enabled
**Factory Presets:**
VVDA: 15
VVZT: 25%
**Possible Values:** 0 to 100%

```
Default OA Damper Min Position:      20%
With IGV/VFD Command At Medium (50%)
```

**Note:** *OA Damper Min Pos...At Minimum (50%) must be > OA Damper Min Pos...At Maximum (100%) and must be < OA Damper Min Pos...At Minimum (0%).*

- Press **Next/Previous** keys to navigate.

**Used With:** VVZT Units w/OA Damper, And *OA CFM Compensation* Enabled
**Factory Presets:** 20%
**Possible Values:** 0 to 100%

```
Default OA Damper Min Position:      10%
With IGV/VFD Command At Maximum (100%)
```

**Note:** *OA Damper Min Pos...At Minimum (100%) must be < OA Damper Min Pos...At Maximum (100%) if VVDA, or At Medium (50%) if VVZT.*

- Press **Next/Previous** keys to navigate.

**Used With:** VVDA or VVZT Units w/OA Damper, And *OA CFM Compensation* Enabled
**Factory Presets:**
VVDA: 10%
VVZT: 5%
**Possible Values:** 0 to 100%

**OR**

```
Default OA Damper Min Position:      15%
```

**Note:** *If unit has TRAQ, this setpoint is only used in case of flow station failure.*

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/OA Damper Option, DCV Disabled, OACFM Compensation Disabled
**Factory Presets:** 15%
**Possible Values:** 0 to 100%

```
End Of Submenu (NEXT) To Enter SETPOINT
```

- Press **Next/Previous** keys to navigate.

**Used With:** All units

```
Default Supply Air Pressure:     2.0 IWC
High Limit: 4.0 IWC   Deadband:  0.5 IWC
```

"Default Supply Air Pressure" and "Deadband" shown for VVDA. "High Limit" shown for all VVDA, VVZT and CVDA units if present.

**Note**: *"Default Supply Air Pressure" will not adjust higher than: (High Limit – 0.1 – ½ Deadband).*

• Press **Next/Previous** keys to navigate.

**Used With:** VV/CVDA or VVZT Units
**Factory Presets:**
Setpoint: 2.0 IWC
High Limit: 4.0 IWC
Deadband: 0.5 IWC
**Possible Values:** (IPak 2)
Setpoint: 0.7 to 5.1 IWC
High Limit: 1.2 to 5.7 IWC
Deadband: 0.1 to 2.0 IWC
**Possible Values:** (IPak 1)
Setpoint: 0.7 to 4.3 IWC
High Limit: 1.2 to 4.7 IWC
Deadband: 0.1 to 2.0 IWCV

```
Max Return Plenum Pressure Stp:  0.8 IWC
                      Deadband:  0.2 IWC
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Return Fan VFD Installed (Statitrac)
**Factory Presets:**
Setpoint: 0.8 IWC
Deadband: 0.2 IWC
**Possible Values:**
Setpoint: 0.1 to 2.5 IWC
Deadband: 0.1 to 1.0 IWC

```
Default Space Pressure Setpoint:0.08 IWC
Space Pressure Deadband:        0.10 IWC
```

**OR**

```
Default Space Pressure Setpt:   0.08 IWC
Deadband: 0.10 IWC  Low Limit: -0.02 IWC
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Statitrac Installed, w/o Return Fan Option
**Factory Presets:**
Setpoint: 0.08 IWC
Deadband: 0.04 IWC
**Possible Values:**
Setpoint: -0.2 to 0.3 IWC
Deadband: 0.02 to 0.2 IWC

**Used With:** Units w/Statitrac Installed, w/Return Fan Option
**Factory Presets:**
Setpoint: 0.08 IWC
Deadband: 0.04 IWC
Low Limit: -0.05 IWC
**Possible Values:**
Setpoint: -0.2 to 0.3 IWC
Deadband: 0.02 to 0.2 IWC
Low Limit: -0.4 to 0.2 IWC

```
Exhaust Enable Point. Enable Exhaust Fan
When Outside Air damper is Above:    25%
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Power Exhaust Option
**Factory Presets:** 25%
**Possible Values:** 0 to 100%

```
Exhaust Disabled When OA Damper is Below
Exhaust Inhibit Point:                15%
```

"Exhaust Disabled When OA Damper is Below" is shown when set to anything other than DISABLED. If set to DISABLED, "Exhaust Function Not Disabled By" is shown on top line.

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Power Exhaust, w/ Return Fan Option
**Factory Presets:** DISABLED
**Possible Values:** 0 to 25%, DISABLED

```
Low Ambient Comp Lockout Temp:      50°F
Comp(s) OFF if OA Temp Below This Value
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/DX Cooling
**Factory Presets:** 50ºF
**Possible Values:** -20 to 80ºF

```
For Standby Freeze Avoidance, Open the
Hydronic Heat Valve(s) To:            0%
```

**Note:** *When the supply fan is OFF, and the active outside air temperature drops below 45F, the hydronic valve output will be driven to the value specified here.*

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Hydronic Heat
**Factory Preset:** Disabled
**Possible Values:** Disabled, 1 to 100%

```
Frost Avoidance ON When LRE Temp Below
Recovery Frost Avoidance Setpoint:  27°F
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Energy Recovery Option
**Factory Preset:** 27ºF
**Possible Values:** 0 to 60ºF

## SETPOINT SOURCE SELECTIONS SUBMENU SCREENS

```
Setpoint Source Selections Submenu
Press ENTER to Review or Adjust
```

**Note:** *For GBAS selections to be shown, either the GBAS(5VDC) or GBAS(10VDC) module must be installed.*

• Press the **Next** key to skip this Submenu.

**Used With:** All Units
**Factory Presets:** For All Setpoint Source Selections the Factory Presets will be:
HI (KEYPAD) SETPOINT MENU

```
For Supply Air Temp Cooling Control, Use
Setpoint From: HI (KEYPAD) SETPOINT MENU
```

• Press **Next/Previous** keys to navigate.

**Used With:** VV/CVDA or VVZT Units
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPOINT INPUT
NSB PANEL SETPOINT INPUT
GBAS (5VDC) MODULE
GBAS (10VDC) MODULE

## SETPOINT Menu

**For Supply Air Temp Heating Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU**

**Used With:** VV/CVDA or VVZT Units w/ Hydronic or Modulating Gas Heat, or IPak 2 w/Electric Heat

**Possible Values:**
HI (KEYPAD) SETPOINT MENU
NSB PANEL SETPOINT INPUT
GBAS(5VDC) Module
GBAS(10VDC) Module

- Press **Next/Previous** keys to navigate.

**For Occ Zone Temp Cooling Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU**

**Used With:** CVZT Units or VVZT w/ Cooling

**Possible Values:**
HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPOINT INPUT
NSB PANEL SETPOINT INPUT
GBAS (5VDC) MODULE
GBAS (10VDC) MODULE

- Press **Next/Previous** keys to navigate.

**For Occ Zone Temp Heating Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU**

**Used With:** CVZT or VVZT Units w/Heat, And VV/CVDA Units w/Heat and DWU Enabled

**Possible Values:**
[Same as **"Possible Values"** Above]

- Press **Next/Previous** keys to navigate.

**For Unocc Zone Temp Cooling Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU**

**Used With:** Units w/Cooling

**Possible Values:**
[Same as **"Possible Values"** Above]

- Press **Next/Previous** keys to navigate.

**For Unocc Zone Temp Heating Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU**

**Used With:** Units w/Heat Installed

**Possible Values:**
[Same as **"Possible Values"** Above]

- Press **Next/Previous** keys to navigate.

**For Morning Warmup Temp Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU**

**Used With:** Units w/Heat Installed

**Possible Values:**
HI (KEYPAD) SETPOINT MENU
NSB PANEL SETPOINT INPUT
GBAS (5VDC) MODULE
GBAS (10VDC) MODULE

- Press **Next/Previous** keys to navigate.

```
For Economizer Dry Bulb Enable, Use
Setpoint From: HI(KEYPAD) SETPOINT Menu
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/Economizer Option
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
GBAS(5VDC) MODULE
GBAS(10VDC) MODULE

```
For Default OA Damper Min Position, Use
Setpoint From: HI (KEYPAD) SETPOINT MENU
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/Economizer Option
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
REMOTE MIN POS POT INPUT
GBAS(5VDC) MODULE
GBAS(10VDC) MODULE

## HUMIDITY CTRL STPT SOURCE SELECT SUBMENU SCREENS

```
Humidity Ctrl Stpt Source Select Submenu
Press ENTER to Review or Adjust
```

- Press the **Next** key to skip this Submenu.

**Used With:** All Units

```
For Occ Dehumidification Control, Use
Setpoint From: HI(KEYPAD) SETPOINT MENU
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/Dehumidification Option
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
GBAS(5VDC) MODULE
GBAS(10VDC) MODULE

```
For Unocc Dehumidification Control, Use
Setpoint From: HI(KEYPAD) SETPOINT MENU
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/Dehumidification Option
**Possible Values:**
[Same as **"Possible Values"** Above]

```
For Occ Humidification Control, Use
Setpoint From: HI(KEYPAD) SETPOINT MENU
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/Humidification Option
**Possible Values:**
[Same as **"Possible Values"** Above]

```
For Unocc Humidification Control, Use
Setpoint From: HI(KEYPAD) SETPOINT MENU
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/Humidification Option
**Possible Values:**
[Same as **"Possible Values"** Above]

## SETPOINT Menu

**For Supply Air Reheat Control, Use Setpoint From: HI(KEYPAD) SETPOINT MENU**

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Dehumidification Option
**Possible Values:**
[Same as **"Possible Values"** Above]

**End Of Submenu (NEXT) To ENTER SRC SEL**

• Press **Next/Previous** keys to navigate.

**Used With:** All units.

**For Min Outside Air Flow Rate Ctrl, Use Setpoint From: HI (KEYPAD) SETPOINT MENU**

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Fresh Air Measurement (VCM) Option
**Possible Values:**
HI (KEYPAD) SETPOINT MENU
GBAS 0-5 VDC MODULE
GBAS 0-10VDC Module

**For Supply Air Pressure Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU**

• Press **Next/Previous** keys to navigate.

**Used With:** VVDA Units
**Possible Values:**
[Same as **"Possible Values"** Above]

**For Space Pressure Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU**

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Statitrac Option
**Possible Values:**
[Same as **"Possible Values"** Above]

**End Of Submenu (NEXT) To Enter SETPOINT**

• Press Next/Previous keys to navigate.

# CONFIGURATION Menu

The electronically controlled unit has many operating functions whose settings are preset at the factory. The following configuration programming steps are provided for those cases where the modules have been replaced after the unit has been in operation and must be reconfigured.

Refer to the Model number stamped on the unit nameplate located on the control panel door while scrolling through the configuration screens. Certain digits of this alpha/numeric model number provide information that must be entered at the Human Interface (HI) in order for the UCM network to operate properly.

***Notes:***

1. Prior to making any changes to these Configuration Menus, the **Stop** key must be pressed on the Local Human Interface.
2. Many of the screens displayed in this section are applicable only for the options that are installed in the unit and may not be visible on your unit. All screens displayed with "CONFIG REQ'D" are required to be changed prior to unit operation.
3. Pay close attention to the notes throughout this section of the document. The notes describe additional essential messages and other intermediate screen information.

**Modifying Selections:** Starting with the first configuration screen program the necessary information by using the appropriate keys to navigate (**Next** and **Previous**) and make changes (+ and -) to the selections. Once the selection has been changed to the desired value, the user has the following options to either *Cancel* or *Accept* the pending change:

- To *Cancel*, press the **Cancel** key to remove the change, the display will revert to the original value.
- To *Accept*, press the **Enter** key to confirm the new choice.

Press the **Configuration** key to begin viewing or modifying the configuration screens.

## TOP LEVEL CONFIGURATION SCREEN

```
Unit Product Family is:   IntelliPak II
Press (NEXT) or (PREVIOUS) to Continue
```

**Note:** *"Product Family" is based on the absence (IntelliPak), or presence (IntelliPak II), of a configuration jumper in the wire harness of the RTM module.*

**Used With:** All Units
**Possible Values:**
IntelliPak
IntelliPak II

**Note:** *This screen is not adjustable.*

- Press **Next / Previous** keys to navigate.

```
Configuration - Model Num Digit       1
Unit Type:                  ROOFTOP UNIT
```

**Note:**

1. For IPak 2 products, if "Unit Type" is changed "Unit Capacity" below is set to CONFIG REQ'D.
2. If "Heating Type" below is Electric Heat, the "Electric Heat Capacity" below is also set to CONFIG. REQ'D.

**Used With:** All Units
**Possible Values:**
ROOFTOP UNIT
AIR HANDLER

- Press **Next / Previous** keys to navigate.

| Configuration - Model Num Digit | 2 |
|---|---|
| Heating Type: | GAS |

• Press **Next/Previous** keys to navigate.

**Used With:** All Units.
**Possible Values:**
ELECTRIC
GAS
HYDRONIC
EXTERNAL HEAT
NONE (COOLING ONLY)

| Configuration - Model Num Digit 5, 6, 7 | |
|---|---|
| Unit Capacity: | 90 |

**OR**

| Configuration - Model Num Digit 5, 6, 7 | |
|---|---|
| Unit Capacity CFM: | 16100-45000 |

• Press **Next/Previous** keys to navigate.

**Used With:** All Units w/DX Cooling
**Possible Values:**
*Multiple Selections:* 20 through 162 Tons

**Used With:** Air Handler Units w/o DX Cooling
**Possible Values:**
*Multiple Selections:* 4000 through 45000

| Configuration - Model Num Digit | 6 |
|---|---|
| Cooling Type: | NO COOLING |

• Press **Next/Previous** keys to navigate.

**Used With:** Air Handler Units
**Possible Values:**
NO COOLING
DX COOLING
CHILLED WATER

| Configuration - Model Num Digit | 9 |
|---|---|
| Electric Heat Capacity: | 90 KW |

**OR**

| Configuration - Model Num Digit | 9 |
|---|---|
| Gas Heat Type: | STAGED |

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Electric Heat Option
**Possible Values:**
30, 50, 70, 110, 130, 150, 170, 190 KW

**Used With:** Units w/Gas Heat Option
**Possible Values:**
STAGED
MODULATING

| Configuration - Model Num Digit 17 or 11 | |
|---|---|
| Exhaust/Return: | NONE |

**Note**: *"RET FAN..." (All Return Fan) selections are not permitted to be installed here if the "Energy Recovery" option below is set to INSTALLED.*

• Press **Next/Previous** keys to navigate.

**Used With:** All Units
**Possible Values:**
NONE
EXH FAN_W/ STATITRAC
EXH FAN_W/O STATITRAC
RET FAN W/ STATITRAC
RET FAN W/O STATITRAC

```
Configuration - Model Num Digit 17 or 20
Single Zone VAV VVZT:      INSTALLED
```

**Used With:** Units with GBAS(5VDC) Hardware Configuration - VVZT.
**Possible Values:**
INSTALLED
NOT INSTALLED

**Note**: *Single Zone VAV (VVZT) functionality can be inhibited by setting this parameter to NOT INSTALLED. If set to NOT INSTALLED the unit will perform CVZT control.*

- The following screens will be shown if there is a GBAS(5VDC) SZSVAV hardware configuration failure. Otherwise press **Next/Previous** keys to navigate.

```
GBAS Configuration Hardware Has Failed
Press Enter to Reset, CANCEL to Ignore
```

**Note**: *This screen is shown if the unit was configured for SZVAV and the hardware configuration input on the GBAS(5VDC) has failed or has been changed.*

- Press the **ENTER** key to accept, and review the following screen.

```
Check GBAS Config Hardware, Cycle Power
RETURN HERE TO CONFIRM CONFIGURATION
```

**Note**: *This screen instructs the user to:*

1. Turn OFF the power to the unit.
2. Inspect the GBAS(5VDC) hardware configuration input.
3. Restore the power to the Unit.
4. Return to this configuration screen and verify entry.

- Press **Next/Previous** keys to navigate.

```
Configuration - Model Num Digit 20 or 17
System Control:      ZONE TEMP CTRL (CV)
```

**Used With:** All Units not configured w/ Single Zone VAV (VVZT).
**Possible Values:**
ZONE TEMP CTRL (CV)
DISCH TEMP CTRL (VAV)
DISCH TEMP CTRL (CV)

**Note**: *Zone Temp Ctrl (CV) - (CVZT)*
*Disch Temp Ctrl (VAV) - (VVDA) - (Indicates w/ IGV/VFD)*
*Disch Temp Ctrl (CV) - (CVDA) - (Indicates w/o IGV/VFD)*

- Press **Next/Previous** keys to navigate.

```
Configuration - Model Num Digit 21 or 16
Fresh Air Section:          No Fresh Air
```

**Used With:** All Units
**Possible Values:**
NO FRESH AIR
0-100% ECONOMIZER
0-25% MOTORIZED DAMPER

- Press **Next/Previous** keys to navigate.

| Configuration - Model Num Digit 21 or 16 | |
|---|---|
| Economizer FDD | Installed |

• Press **Next/Previous** keys to navigate.

**Used With:** All Units w/ 0-100% ECONOMIZER
**Possible Values:**
NOT INSTALLED
INSTALLED

| Configuration - Model Num Digit 21 or 31 | |
|---|---|
| Ventilation Ctrl | (VCM) CONFIG REQ'D |

***Notes:***

1. A VCM module will be required installed if: "Fresh Air Measurement (VCM) w/DCV OPTION" is selected, or
2. "OA Damper Min Pos (VCM) w/DCV Option" is selected and DCV Control in the setup menu is set to ENABLED.

• Press **Next/Previous** keys to navigate.

**Used With:** All Units
**Possible Values:**
Vent. Ctrl (VCM) NOT INSTALLED
Fresh Air Meas. (VCM)w/DCV OPTION
OA Damp Min Pos (VCM)w/DCV OPTION

| Configuration - Model Num Digit 21 or 23 | |
|---|---|
| Comparative Enthalpy: | INSTALLED |

• Press **Next/Previous** keys to navigate.

**Used With:** All Units
**Possible Values:**
NOT INSTALLED
INSTALLED

| Configuration - Model Num Digit | 24 |
|---|---|
| Final Filters: | INSTALLED |

• Press **Next/Previous** keys to navigate.

**Used With:** All Units
**Possible Values:**
NOT INSTALLED
INSTALLED

| Configuration - Model Num Digit | 25 |
|---|---|
| Energy Recovery: | NOT INSTALLED |

**Note:** *"Energy Recovery" is not permitted to be installed here if "Return Fan…" option above is set to INSTALLED.*

• Press **Next/Previous** keys to navigate.

**Used With:** All Units
**Possible Values:**
NOT INSTALLED
INSTALLED W/O PREHEAT
INSTALLED W/ PREHEAT

| Configuration - Model Num Digit | 26 |
|---|---|
| Variable Speed Compressor | CONFIG REQ'D |

**Note:** *"Variable Speed Compressor" is not permitted to be installed if unit is to be configured with "CV Zone Temp Control", "Hot Gas Bypass", or "Evaporative Condensers".*

• Press **Next/Previous** keys to navigate.

**Used With:** 40 to 70, or 75 Ton Ipak 1 Units, or 90, 105, 120, 130 or 150 Ton Ipak 2 Units, w/VVDA, CVDA, or VVZT
**Possible Values:**
NOT INSTALLED
INSTALLED

```
Configuration - Model Num Digit       27
Condenser Type:              Air-Cooled
```

**Note:** *This selection must match the physical unit configuration or improper operation and unit damage may occur. "Sump HT" refers to the Sump Heater installation. "Water-Cooled" condenser not allowed with "Variable Speed Compressor" option.*

**Used With:** IPak 2 Units
**Possible Values:**
AIR-COOLED
WATER-COOLED W/O SUMP HT
WATER-COOLED WITH SUMP HT

• Press **Next/Previous** keys to navigate.

```
Configuration - Model Num Digit 30 or 22
Dehumid w/ Hot Gas Reheat: NOT INSTALLED
```

**Note:** *"Dehumid w/Hot Gas Reheat" is INSTALLED if the configuration jumper in the wire harness of the RTM module is installed.*

**Used With:** All IPak Units
**Possible Values:**
NOT INSTALLED
INSTALLED

**Note:** *This screen is not adjustable.*

• Press **Next/Previous** keys to navigate.

```
Configuration - Model Num Digit 30 or 22
Hot Gas Bypass:                 INSTALLED
```

**Note:** *If "Hot Gas Bypass" is INSTALLED, Low Charge Protection functions will be automatically disabled."Hot Gas Bypass" not allowed with "Variable Speed Compressor" option.*

**Used With:** All Units
**Possible Values:**
NOT INSTALLED
INSTALLED

• Press **Next/Previous** keys to navigate.

```
Configuration - Model Num Digit 31 or 19
Ambient Control:                STANDARD
```

**Note:** *When set to "STANDARD" the Low Ambient Compressor Lockout setpoint may not be set less than 40ºF. When set to "0 DEGREE F" the setpoint can be set down to -20ºF.*

**Used With:** All Units
**Possible Values:**
STANDARD
0 DEGREE F

• Press **Next/Previous** keys to navigate.

```
Configuration - Model Num Digit 33 or 30
Remote Human Interface          INSTALLED
```

**Used With:** All Units
**Possible Values:**
NOT INSTALLED
INSTALLED

• Press **Next/Previous** keys to navigate.

```
Configuration - Model Num Digit 34 or 35
BAS Communication Module        INSTALLED
```

**Used With:** All Units
**Possible Values:**
NOT INSTALLED
INSTALLED

• Press **Next/Previous** keys to navigate.

```
Configuration - Model Num Digit 34 or 28
GBAS 0-5 VDC Module              INSTALLED
```

**Used With:** All Units
**Possible Values:**
NOT INSTALLED
INSTALLED

- Press **Next/Previous** keys to navigate.

```
Configuration - Model Num Digit 34 or 28
GBAS 0-10 VDC Module             INSTALLED
```

**Used With:** All Units
**Possible Values:**
NOT INSTALLED
INSTALLED

- Press **Next/Previous** keys to navigate.

```
Configuration - Model Num Digit 21 or 34
Rapid Restart:                   INSTALLED
```

**Used With:** Units with GBAS(5VDC) Hardware Configuration - Rapid Restart
**Possible Values:**
INSTALLED
NOT INSTALLED

**Note:** *Rapid Restart functionality can be inhibited by setting this parameter to NOT INSTALLED. If set to NOT INSTALLED the unit will perform DX staging at restart.*

- The following screens will be shown if there is a GBAS(5VDC) Rapid Restart hardware configuration failure. Otherwise press **Next/Previous** keys to navigate.

```
GBAS Configuration Hardware Has Failed
Press Enter to Reset, CANCEL to Ignore
```

**Note:** *This screen is shown if the unit was configured for Rapid Restart and the hardware configuration input on the GBAS(5VDC) has failed or has been changed.*

- Press the **ENTER** key to accept, and review the following screen.

```
Check GBAS Config Hardware, Cycle Power
RETURN HERE TO CONFIRM CONFIGURATION
```

**Note:** *This screen instructs the user to:*

1. Turn OFF the power to the unit.
2. Inspect the GBAS(5VDC) hardware configuration input.
3. Restore the power to the Unit.
4. Return to this configuration screen and verify entry.

- Press **Next/Previous** keys to navigate.

```
Configuration - Model Num Digit 34 or 31
Ventilation Override (VOM)       INSTALLED
```

**Used With:** All Units
**Possible Values:**
NOT INSTALLED
INSTALLED

- Press **Next/Previous** keys to navigate.

```
Unit Model Number
□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
```

**Note:** *The screen is only displayed on units with the original RTM modules installed at the factory. If the RTM is replaced in the field it will no longer be displayed.*

**Used With:** All Units
**Possible Values:**
Model Number information as reflected on the unit nameplate.

• Press **Next / Previous** keys to navigate.

```
Software Revision Number:        INVALID
RTM                                24.00
```

**Note:** *"INVALID" is shown if the software version for the module specified is not correct for a unit configuration. If this is the case the module will have to be replaced before the unit will be allowed to operate.*

**Used With:** All Units
**Possible Values:**
**Top Right Field:** ***[blank]***, INVALID
**Bottom Right Field:** xx.yy
where:
xx is the primary version: 0 to 255
yy is the secondary version: 00 to 99

• Press **Next / Previous** keys to navigate.

```
Software Revision Number:        INVALID
Multiple Compressor Module (MCM)   15.00
```

**Note:** *See RTM above for discussion on INVALID.*

**Used With:** All Units
**Possible Values:**
[See "**RTM Possible Values**" Above]

• Press **Next / Previous** keys to navigate.

```
Software Revision Number:        INVALID
GBAS 0-5 VDC Module                5.0
```

**Note:** *See RTM above for discussion on INVALID.*

**Used With:** All Units
**Possible Values:**
[See "**RTM Possible Values**" Above]

• Press **Next / Previous** keys to navigate.

```
Software Revision Number:        INVALID
GBAS 0-10 VDC Module               2.00
```

**Note:** *See RTM above for discussion on INVALID.*

**Used With:** All Units
**Possible Values:**
[See "**RTM Possible Values**" Above]

• Press **Next / Previous** keys to navigate.

```
Software Revision Number:        INVALID
Ventilation Override (VOM)         3.00
```

**Note:** *See RTM above for discussion on INVALID.*

**Used With:** All Units
**Possible Values:**
[See "**RTM Possible Values**" Above]

• Press **Next / Previous** keys to navigate.

| | |
|---|---|
| Software Revision Number: | INVALID |
| Exhaust/Comp Enthalpy Module | 11.00 |

**Used With:** All Units
**Possible Values:**
[See "**RTM Possible Values**" Above]

**Note:** *See RTM above for discussion on INVALID.*

- Press **Next / Previous** keys to navigate.

| | |
|---|---|
| Software Revision Number: | INVALID |
| Heat Module | 11.00 |

**Used With:** All Units
**Possible Values:**
[See "**RTM Possible Values**" Above]

**Note:** *See RTM above for discussion on INVALID.*

- Press **Next / Previous** keys to navigate.

| | |
|---|---|
| Software Revision Number: | INVALID |
| Unit Human Interface (HI) | 32.00 |

**Used With:** All Units
**Possible Values:**
[See "**RTM Possible Values**" Above]

**Note:** *See RTM above for discussion on INVALID.*

- Press **Next / Previous** keys to navigate.

| | |
|---|---|
| Software Revision Number: | INVALID |
| Remote Human Interface (RHI) | 32.00 |

**Used With:** All Units
**Possible Values:**
[See "**RTM Possible Values**" Above]

**Note:** *See RTM above for discussion on INVALID.*

- Press **Next / Previous** keys to navigate.

| | |
|---|---|
| Software Revision Number: | INVALID |
| Ventilation Control Module (VCM) | 4.00 |

**Used With:** All Units
**Possible Values:**
[See "**RTM Possible Values**" Above]

**Note:** *See RTM above for discussion on INVALID.*

- Press **Next / Previous** keys to navigate.

| | |
|---|---|
| Software Revision Number: | INVALID |
| BAS Communications: Comm5 | 14.00 |

**Used With:** All Units
**Possible Values:**
[See "**RTM Possible Values**" Above]

**Note:** *See RTM above for discussion on INVALID.*

- Press **Next / Previous** keys to navigate.

| | |
|---|---|
| Software Revision Number: | INVALID |
| Multi-Purpose Module (MPM) | 1.0 |

**Used With:** All Units
**Possible Values:**
[See "**RTM Possible Values**" Above]

**Note:** *See RTM above for discussion on INVALID.*

- Press **Next / Previous** keys to navigate.

| | |
|---|---|
| Software Revision Number: | INVALID |
| Modulating Dehumid Module (MDM) | 1.0 |

**Note:** *See RTM above for discussion on INVALID.*

**Used With:** All Units
**Possible Values:**
[See "**RTM Possible Values**" Above]

- Press **Next / Previous** keys to navigate.

| | |
|---|---|
| Software Revision Number: | INVALID |
| VSM Module | 1.0 |

**Note:** *See RTM above for discussion on INVALID.*

**Used With:** 40 to 70 Ton IPak 1 Units w/ VVDA, CVDA, or VVZT w/ VSC Installed
**Possible Values:**
[See "**RTM Possible Values**" Above]

- Press **Next / Previous** keys to navigate.

# SERVICE MODE Menu (Local Human Interface only)

The SERVICE MODE menu is used to input operating parameters for unit operation during a service test. Depending on the particular test being conducted, the user will cycle through all unit outputs (compressors, fans, dampers, heaters, etc.) and selectively turn them "On" or "Off" for the test. After designating the operating status for each unit component, the operator will designate the "TEST START" delay time.

When a service mode screen is displayed for 30 minutes without a key being pressed, the LCD screen will revert to the general operating status display. If this happens, press the **Service Mode** key again to return to the service menu.

***Notes:***

1. All "Factory Peristalses are either OFF, CLOSED, or 0% unless otherwise stated.
2. Many of the screens displayed in this section are applicable only for the options that are installed in the unit and may not be visible on your unit.

**Modifying Selections:** Starting with the first service test screen program the necessary information by using the appropriate keys to navigate (Next and Previous) and make changes (+ and -) to the selections. Once the selection has been changed to the desired value, the user has the following options to either *Cancel* or *Accept* the pending change:

- To *Cancel*, press the **Cancel** key to remove the change, the display will revert to the original value.
- To *Accept*, press the **Enter** key to confirm the new choice.

To operate the system in the TEST MODE, press the **Service Mode** key to enter into the service mode menu and scroll through all of the system outputs and selectively turn them "On" or "Off". After the outputs are set, press the **Test Start** key.

***NOTICE:***

**Compressors Failure!**

**To protect compressors from premature failure the unit must be powered and crankcase heaters energized at least 8 hours BEFORE compressors are started.**

## TOP LEVEL SERVICE MODE SCREEN

***Note:*** *One of the three following screens will be shown based on supply air pressure options.*

```
Supply Air Controls
Supply Fan OFF
```

**Used With:** CVDA or CVZT Units, w/o Return Fan Option
**Possible Values:** ON, OFF, AUTO

**OR**

```
Supply Air Controls
Supply Fan OFF          IGV/VFD Cmd  35%
```

**Used With:** VVDA or VVZT Units w/o Return Fan Option
**Possible Values:**
Fan: ON, OFF, AUTO
IGV/VFD Cmd: 0 to 100 %

**OR**

```
Supply Fan OFF          IGV/VFD Cmd   0%
Return Fan OFF              VFD Cmd   0%
```

***Note:***
The "Return Fan" field is not manually setable but will automatically change as the "Supply Fan" field is changed. This is to insure proper airflow through the unit.
"IGV/VFD' shown for VVDA or VVZT units.
"VFD" shown for units with Statirac.

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Return Fan Option
**Possible Values:**
Fan: OFF, ON, AUTO
IGV/VFD: 0 to 100%
VFD: 0 to 100%

***Note:*** *Fans must be ON, and IGV/VFD command must be 100% if staged heat is being tested.*

```
RTM VAV Box Relay           DRIVE MAX
RTM Alarm Output                   ON
```

• Press **Next/Previous** keys to navigate.

**Used With:** All Units
**Possible Values:**
RTM VAV Box Relay: Drive Max, Auto
Alarm Output: On, Off

```
Humidification Relay               ON
```

***Note:*** *The "Humidification Relay" can only be set to ON if the supply fan output is set ON. A message will display indicating such and operation will be prevented.*

• Press **Next/Previous** keys to navigate.

**Used With:** All Units
**Possible Values:** ON, OFF

## ENERGY RECOVERY CONTROL SUBMENU SCREENS

```
Energy Recovery Control Submenu
Press ENTER to Review or Adjust
```

• Press the **Next** key to skip this Submenu.

**Used With:** Units w/Energy Recovery Option

```
Energy Recovery Wheel Operation:   OFF
Energy Recovery Preheat Relay:     OFF
```

***Note:*** *The "ER Preheat Relay" can only be set to ON if the supply fan output is set to ON. A message will display indicating such and operation will be prevented.*

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Energy Recovery Option
**Possible Values:**
Wheel Operation: ON, OFF
Preheat Relay: ON, OFF

```
Exhaust Air Bypass Damper Pos:     0%
Outside Air Bypass Damper Pos:     0%
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Energy Recovery Option
**Possible Values:** 0 to 100%

```
End Of Submenu (NEXT) For Service Mode
```

**Used With:** Units w/Energy Recovery Option

- Press **Next / Previous** keys to navigate.

***NOTICE:***

**Compressors Failure!**

**To protect compressors from premature failure the unit must be powered and crankcase heaters energized at least 8 hours BEFORE compressors are started.**

## COMPRESSOR AND CONDENSER CONTROL SUBMENU SCREENS

```
Compressor and Condenser Fan Submenu
Press ENTER to Review or Adjust
```

**Used With:** Units w/DX Cooling

- Press the **Next** key to skip this Submenu.

```
Head Pressure Control:                AUTO
Enables Automatic Sump and Fan Control
```

***Note:*** *The bottom line will display "Enables Automatic Sump and Fan Control" when the control is set to AUTO, and will display "Manual Sump and Fan Control Allowed" when the control is set to MANUAL.*

**Used With:** Units w/Water-Cooled Condensers
**Factory Preset:** AUTO
**Possible Values:** AUTO, MANUAL

- Press **Next / Previous** keys to navigate.

```
Condenser Fan Relay   K1:             OFF
Condenser Fan Speed Ckt1:              0%
```

**Used With:** Units w/Water-Cooled Condensers
**Possible Values:**
Fan Relay: ON, OFF
Fan Speed: 0 to 100%

- Press **Next/Previous** keys to navigate.

```
Condenser Fan Relay   K5:             OFF
Condenser Fan Speed Ckt2:              0%
```

**Used With:** Units > 75 Tons, w/Water-Cooled Condensers
**Possible Values:**
Fan Relay: ON, OFF
Fan Speed: 0 to 100%

- Press **Next / Previous** keys to navigate.

```
Condenser Sump Drain Relay:          OFF
Condenser Sump Drain Valve:       CLOSED
```

**Used With:** Units w/Water-Cooled Condensers
**Possible Values:**
Relay: OFF, ON
Valve: CLOSED, OPEN (Display Only)

**Sump Drain Valve States**

| Drain Relay Cmd | Power Loss Config | Valve State |
|---|---|---|
| OFF | HOLD | CLOSED |
| OFF | DRAIN | OPEN |
| ON | HOLD | OPEN |
| ON | DRAIN | CLOSED |

***Note:*** *The valve state is based on the power loss configuration of the drain valve. [See "Sump Drain Valve States on Left"]*

• Press Next/Previous keys to navigate.

```
Condenser Sump Fill Relay:           ON
Condenser Sump Fill Valve:         OPEN
```

**Used With:** Units w/Water-Cooled Condensers
**Possible Values:**
Relay: OFF, ON
Valve: CLOSED, OPEN (Display Only)

• Press **Next/Previous** keys to navigate.

```
Sump Heater Relay:                   OFF
```

**Used With:** Units w/Water-Cooled Condensers and Sump Heat Installed
**Possible Values:** ON, OFF

• Press **Next/Previous** keys to navigate.

```
Condenser Sump Pump Relay:           OFF
```

**Used With:** Units w/Water-Cooled Condensers
**Possible Values:** ON, OFF

• Press **Next/Previous** keys to navigate.

```
Condenser Fan Outputs
K1: OFF    K2: OFF
```

**Used With:** Units w/DX Cooling < 40 Tons, and Airside Condensers Installed
**Possible Values:** ON, OFF, AUTO

***Note:*** *If either K1 or K2 is set to AUTO, the other will automatically be changed to AUTO.*

• Press **Next/Previous** keys to navigate.

```
Condenser Fan Outputs (MCM 1)
K1: OFF   K2: OFF      K5: OFF     K6: OFF
```

**Used With:** Units w/DX Cooling ≥ 40 Tons, and Airside Condensers Installed
**Possible Values:** ON, OFF, AUTO

***Note:***

1. If either K1 or K2 is set to AUTO, the other will automatically be changed to AUTO.
2. If either K5 or K6 is set to AUTO, the other will automatically be changed to AUTO.

• Press **Next/Previous** keys to navigate.

```
Condenser Fan Speed (MCM 1)
Circuit 1   0%            Circuit 2   0%
```

***Note:*** *"Circuit 2" only shown for DX Cooling > 40 Tons.*

**Used With:** Units w/DX Cooling and Airside Condensers Installed
**Possible Values:** AUTO, 0 to 100%

• Press **Next/Previous** keys to navigate.

```
Compressor Relays
K10: OFF   K11: OFF
```

**Used With:** Units w/DX Cooling < 40 Tons
**Possible Values:** OFF, ON

• Press **Next/Previous** keys to navigate.

```
Compressor Relays (MCM 1)
K11: OFF   K12: OFF    K3: OFF   K4: OFF
```

**Used With:** Units w/DX Cooling ≥ 40 Tons, w/o Variable Speed Compressor
**Possible Values:** OFF, ON

• Press **Next/Previous** keys to navigate.

**OR**

```
Compressor Relays (MCM 1)
K11: OFF   Spd: 100%   K3: OFF   K4: OFF
```

**Used With:** Units w/DX Cooling 40 to 70 Tons, w/ Variable Speed Compressor
**Possible Values:**
Relays: OFF, ON
Spd: 0 to 100% (100% command correlates to Applied Design Capacity)

• Press **Next/Previous** keys to navigate.

***Note:*** *Applied Design Capacity is the maximum cooling capacity of the variable speed compressor for this unit's tonnage design.*

**OR**

```
Compressor Relays (MCM 1)
K11: OFF   K12: OFF   Spd: 100%
```

**Used With:** Units w/DX Cooling 75 Tons, w/ Variable Speed Compressor
**Possible Values:**
Ckt 1 Relays: OFF, ON
Spd: 0 to 100% (100% command correlates to Applied Design Capacity*)

• Press **Next/Previous** keys to navigate.

***Note:*** *"K12" controls variable speed compressor, if OFF the modulated voltage will still be present with "Spd" changes.*
**Applied Design Capacity is the maximum cooling capacity of the variable speed compressor for this unit's tonnage design.*

**AND**

```
Compressor Relays (MCM 1)
K3: OFF   K4: OFF
```

**Used With:** Units w/DX Cooling 75 Tons, w/ Variable Speed Compressor
**Possible Values:**
Ckt 2 Relays: OFF, ON

• Press **Next/Previous** keys to navigate.

**OR**

```
Compressor Relays (MCM 1)
K11: OFF   K12: OFF K13: OFF
```

**Used With:** IPak 2 Units w/DX Cooling, w/ Variable Speed Compressor
**Possible Values:**
Ckt 1 Relays: OFF, ON

• Press **Next/Previous** keys to navigate.

**AND**

```
Compressor Relays (MCM 1)
K3: OFF   Spd: 100% K4: OFF
```

• Press **Next/Previous** keys to navigate.

***Note:*** *"K3" controls variable speed compressor, if OFF the modulated voltage will still be present with "Spd" changes. *Applied Design Capacity is the maximum cooling capacity of the variable speed compressor for this unit's tonnage design.*

**Used With:** IPak 2 Units w/DX Cooling, w/ Variable Speed Compressor
**Possible Values:**
Ckt 2 Relays: OFF, ON
Spd: 0 to 100% (100% command correlates to Applied Design Capacity*)

```
Reheat Coil Pumpout Relay:          ON
Reheat Pumpout Solenoid/Valve:  CLOSED
```

***Note:***

1. "Relay:" may be adjusted manually only when compressors are set to OFF. Otherwise the value is set automatically as a function of Reheat Valve Position set below.
2. "Solenoid/Valve:" is a display only field.

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Dehumidification Option
**Factory Preset:**
Relay: ON
Solenoid Valve: CLOSED (Display Only)
**Possible Values:**
Reheat Relay: ON, OFF
Solenoid Valve: (Display Only)
OPEN – when Relay set to OFF
CLOSED – when Relay set to ON

```
Dehumid Reheat  Valve Position:    0%
Dehumid Cooling Valve Position:  100%
```

***Note:***

1. With all compressors on the reheat circuit set to OFF, the "Reheat Valve Position" can be set to any value between 0 and 100%. Once a compressor on the circuit is turned ON, the values allowed will be between 15 and 85%.
2. "Cooling Valve Position" is display only. This value is the reverse that of the "Reheat Valve Position".
   ex. CVP = 100% - RVP

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/Dehumidification Option
**Factory Preset:**
Reheat Valve: 0%
Cooling Valve: 100% (Display Only)
**Possible Values:**
Reheat Valve: 0 to 100%
Cooling Valve: 100 to 0% (Display Only)

```
End Of Submenu (NEXT) For Service Mode
```

• Press **Next/Previous** keys to navigate.

**Used With:** All Units w/DX Cooling

```
Relay State =                    HEAT ON
Hydro Heat/Chilled Water Output      0%
```

**Used With:** Air Handlers w/Chilled Water Cooling and Hydronic Heat
**Possible Values:**
Relay State:
HEAT ON, COOL ON, OVERRIDE
Output: 0 to 100%

***Note:*** *The relays on the HEAT module, and associated wiring, are used to route the 0 to 10VDC modulating output to the Chill Water and Hydronic Heat actuators. [See "Hydronic Heat/Chilled Water Relay on Left"]*

**Hydronic Heat/Chilled Water Relay**

| State / Relays | K11 | K12 | K1 |
|---|---|---|---|
| OFF | OFF | OFF | OFF |
| Cool On | ON | ON | OFF |
| Heat On | OFF | OFF | Note 1 |
| Override | ON | OFF | Note 2 |

***Notes:***

1. K1 turns ON when the output is commanded > 0%.
2. *Override occurs with Freezestat or service test request.*

• Press **Next / Previous** keys to navigate.

```
Relay State =                    HEAT ON
Mod Gas Heat/Chilled Water Output    0%
```

**Used With:** Air Handlers w/Chilled Water Cooling and Modulating Gas Heat
**Possible Values:**
Relay State: HEAT ON, COOL ON
Output: 0 to 100%

***Note:*** *The relays on the HEAT module, and associated wiring, are used to route the 0 to 10VDC modulating output to the Chill Water and Mod Gas Heat actuators. [see " Modulating Gas Heat / Chilled Water Relay on Left"]*

**Modulating Gas Heat / Chilled Water Relay**

| State / Relays | K11 | K12 | K1 |
|---|---|---|---|
| OFF | OFF | OFF | OFF |
| Cool On | OFF | OFF | OFF |
| Heat On | ON | OFF | Note 1 |
| Override | OFF | OFF | OFF |

***Note:*** *K1 turns ON when the output is commanded > 0%.*

• Press **Next / Previous** keys to navigate.

```
Chilled Water
Actuator                             0%
```

**Used With:** Air Handlers w/Chilled Water Cooling (If Heating Unit, Hydronic or Modulating Gas Is Not Installed)
**Possible Values:** 0 to 100%

• Press **Next / Previous** keys to navigate.

```
Hydronic Heat
Actuator                             0%
```

**Used With:** Hydronic Heat Units, (If Air Handler Unit, Chill Water Is Not Installed)
**Possible Values:** 0 to 100%

• Press **Next / Previous** keys to navigate.

```
Modulating Gas Heat
Actuator                             0%
```

**Used With:** Modulating Gas Heat Units, (If Air Handler Unit, Chill Water Is Not Installed)
**Possible Values:** 0 to 100%

• Press **Next / Previous** keys to navigate.

```
Heat Stages: 0
K11: OFF        K12: OFF      K1: OFF
```

**Used With:** Units w/Staged Gas or Electric Heat Option
**Possible Values:**
Stages: 0, 1, 2, 3, 4, 5
[Config. Dependent-see " Electric Heat Relay States"]

**Electric Heat Relay States**

| | All Units Gas Heat | | | IntelliPak 1 Electric Heat | | | IntelliPak 2 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 90 KW | | | 140 KW | | | 265/300 KW | | |
| **Stage** | **K11** | **K12** | **K1** | **K11** | **K12** | **K1** | **K11** | **K12** | **K1** | **K11** | **K12** | **K1** | **K11** | **K12** | **K1** |
| OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| Stage 1 | ON | ON | OFF | ON | OFF | OFF | ON | OFF | OFF | ON | OFF | OFF | ON | OFF | OFF |
| Stage 2 | ON | ON | ON | ON | ON | OFF | ON | ON | OFF | OFF | ON | OFF | OFF | ON | OFF |
| Stage 3 | | | | ON | ON | ON | ON | ON | ON | ON | ON | OFF | ON | ON | OFF |
| Stage 4 | | | | | | | | | | ON | ON | ON | OFF | ON | ON |
| Stage 5 | | | | | | | | | | | | | ON | ON | ON |

- Press **Next/Previous** keys to navigate.

```
OA Damper:    0%      Exhaust Damper:    0%
                         Exhaust Fan:   OFF
```

"OA Damper" shown if Economizer or 25% Damper installed.
"Exhaust Damper" shown if Power Exhaust w/Statitrac installed.
"Exhaust Fan" shown if Power Exhaust w/o Return Fan installed.

- Press **Next/Previous** keys to navigate.

**Used With:** All Units
**Possible Values:**
OA Damper:
0 to 100% (Economizer Option)
0 to 25% (Motorized Damper Option)
Exhaust Damper: 0 to 100%
Exhaust fan: OFF, ON

```
Ventilation Override Module Output Relay
        OFF
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/VOM Option
**Possible Values:** ON, OFF

```
VCM Preheater State                    OFF
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/Fresh Air Measurement (VCM) Option
**Possible Values:** ON, OFF

```
GBAS 0-5VDC Module Relay Outputs
#1 OFF  #2 OFF   #3 OFF   #4 OFF  #5 OFF
```

- Press **Next/Previous** keys to navigate.

**Used With:** Units w/GBAS(5VDC) Option
**Possible Values:** ON, OFF

## SERVICE MODE Menu (Local Human Interface only)

```
GBAS 0-10VDC Module Relay Outputs
#1 OFF
```

• Press **Next/Previous** keys to navigate.

**Used With:** Units w/GBAS(10VDC) Option
**Possible Values:** ON, OFF

```
GBAS 0-10VDC Module Analog Outputs
#1  0 v    #2  0 v     #3  0v    #4  0v
```

Press the **Next** key to navigate forward.

**Used With:** Units w/GBAS(10VDC) Option
**Possible Values:** 0 to 10.0 v (volts)

```
Status/Annunc Test     Sys On (Blinking)
Heat: OFF     Cool: OFF     Service: OFF
```

• Press **Next/Previous** keys to navigate.

**Used With:** All Units
**Possible Values:**
HEAT: ON, OFF
COOL: ON, OFF
SERVICE: ON, OFF

```
Start Test In   5 Seconds
Press TEST START To Begin, STOP To Halt
```

**Used With:** All Units
**Factory Presets:** 5 Sec
**Possible Values:** 0 to 120 Sec

# DIAGNOSTICS Menu

The DIAGNOSTICS menu is used to view diagnostics that have resulted from system failures within the unit. There are two lists where diagnostics reside; the *Active List*, and the *Diagnostic Event Log*.

The *Active List* is used for viewing all active diagnostics and for clearing diagnostics that can be manually reset. These lists of diagnostics are displayed after pressing the **Diagnostics** key if active diagnostics are present.

Active manual diagnostics can be cleared in batch form at the unit mounted Human Interface. When an active diagnostic is manually or automatically cleared, it is removed from this buffer. Automatically resetting diagnostics cannot be reset by the Human Interface, because the condition that caused the diagnostic has to be corrected for the diagnostic to clear.

The word "MORE" is displayed on all screens if more than one diagnostic exist, except for the last diagnostic. Upon reaching the last diagnostic, the word "MORE" disappears. Pressing the **Next** key at this point causes the display to advance to the first diagnostic in the *Diagnostic Event Log*.

The *Diagnostic Event Log* screens are displayed after scrolling through the *Active List* or after pressing the **Diagnostics** key when no active diagnostics are present. It's used to view the past 20 diagnostics. Diagnostics in this log are stacked in inverse chronological order, with the first diagnostic screen being the most recently reported diagnostic.

When a new diagnostic is displayed, the words "NOT VIEWED" are displayed with it. After viewing the last not viewed diagnostic, the words "NOT VIEWED" change to "VIEWED" for every diagnostic in the log. The diagnostic will remain this way as long as it is in the log. This allows the operator to distinguish between old and new diagnostics in the event log.

Pressing the **Next** key after reaching the last diagnostic in the event log advances the display to the first diagnostic in the *Active List* if any exist. If not, the display reverts back to the first event log diagnostic. If the *Diagnostic Event Log* is full (20 events), and another diagnostic occurs, the oldest diagnostic is pushed off the end of the list. If all 20 diagnostics in the list are active when the 21st occurs, then the oldest active diagnostic is pushed off the end of the list. When an active diagnostic is automatically or manually cleared in the active buffer, its status in the *Diagnostic Event Log* changes from "Active" to "History". If the operator does not clear an active diagnostic in the *Active List*, its status will still show as active in the *Diagnostic Event Log*.

When a diagnostic screen is displayed for more than four hours without a key being pressed, the screen will return to the operating status display.

One of the following screens will be the first screen displayed when the **Diagnostic** key is pressed.

```
Diagnostic Menu ---- Info
No Active Diagnostics (NEXT) History Log
```

**OR**

```
Press CANCEL to Clear All Active Manual
Diagnostics, or Press NEXT to View
```

***Note:*** *Pressing the* ***Cancel*** *key to clear the diagnostics will prompt the following screen…*

```
Diagnostic Reset Is Password Protected
Please Enter Password:□□□□□□□□□□□□□□
```

**Used With:** All Units
**Factory Presets:** N/A
**Possible Values:** + (Plus) and - (Minus)

***Notes:***

1. Press the **+** (plus) or **-** (minus) keys to enter the password.
2. Press the **Enter** key to confirm this choice. When the correct password is entered, the following screen will be displayed…

```
Resetting Active Manual Diagnostics
      Sending Reset Request
```

***Note:*** *Once the clear diagnostic request is sent to all the modules, the following screen will be displayed…*

```
Resetting Active Manual Diagnostics
  Updating Unit Data, Please wait
```

***Note:*** *Once the unit data has been updated, the following screen will be displayed…*

```
Active Diagnostic -- Info
Please Wait, Unit Is In Reset Mode
```

***Note:*** *Once the control modules have reset, if there are reoccurring diagnostics the following screen will be displayed…*

```
Active Diagnostic -- Manual Reset
Low Pressure Control Open - Ckt 1   More
```

***Note:*** *The word "More" will only appear if more than one failure is occurring. Press the* ***Next*** *key to view the remaining diagnostics if any exist.*

**Used With:** All units
**Factory Presets:** N/A
**Possible Values:** [Manual Reset]
Blocked Air Return
Compressor Contactor/Drive Fail - Ckt 1
Compressor Contactor/Drive Fail - Ckt 2
Compressor Trip - Ckt 1
Compressor Trip - Ckt 2
Cond Sump Heater Failure
Cond Sump Pump Manual Fail
Cond Sump Min Level Short Cycling
Emergency Stop
Energy Recovery Wheel Proof Failure
Exhaust Fan Failure
High Comp Press Diff Failure - Ckt 1
High Comp Press Diff Failure - Ckt 2
Low Air Temperature Limit Trip
Low Pressure Control Open - Ckt 1
Low Pressure Control Open - Ckt 2
Low Refrigerant Charge - Ckt 1
Low Refrigerant Charge - Ckt 2
Manual Reset Return Pressure Limit
Manual Reset SA Static Pressure Limit
Manual Reset Space Press Low Limit Trip
Return Fan Failure
Rooftop Module Data Storage Error
Supply Fan Failure
Supply Fan Proving Failure

***Note:*** *Pressing the* ***Next*** *key at the last Manual Reset Diagnostic will prompt the following screen if an "Auto Reset" failure has occurred.*

```
Active Diagnostic -- Auto Reset
OA Temp Sensor Failure                More
```

***Note:*** *The word "More" will only appear if more than one failure is occurring.*
*Press the Next key to view the remaining diagnostics if any exist.*

**Possible Values: (cont)**:
- Occ Zone Heat Setpoint Failure
- Outdoor Air Damper Not Modulating
- RTM AUX Temp Sensor Failure
- RTM Space Humidity Sensor Fail
- RTM Zone Temp Sensor Failure
- RA Humidity Sensor Failure
- Rapid Restart HW Config Failure
- Return Air Temp Sensor Failure
- Return Plenum Press Sensor Fail
- SCM Communications Failure
- Space Pressure Low Limit Trip
- Space Pressure Low Limit Warning
- Space Pressure Sensor Failure
- Space Static Pres Setpt Failure
- Supply Air Pres Sensor Failure
- Supply Air Pres Setpt Failure
- Supply Air Reheat Setpoint Failure
- Supply Air Temp Cool Setpt Fail
- Supply Air Temp Heat Setpt Fail
- Supply Air Temp Sensor Failure
- SZVAV HW Configuration Failure
- Unit Economizing When It Should Not
- Unit HI Communications Failure
- Unit Not Economizing When It Should
- Unocc Dehumidification Setpoint Fail
- Unocc Humidification Setpoint Fail
- Unocc Zone Cool Setpt Failure
- Unocc Zone Heat Setpt Failure
- VCM Aux. Temp Sensor Failure
- VCM Module Comm Failure
- Velocity Pressure Sensor Failure
- Velocity Press Sensor (Left) Fail
- Velocity Press Sensor (Right) Fail
- VOM Communications Failure
- VSM Module Comm Failure

***Note:*** *Pressing the* ***Next*** *key at the last Auto Reset Diagnostic will prompt the following screen if an "Info Only Reset" failure has occurred.*

**Used With:** All units
**Factory Presets:** N/A
**Possible Values:** *[Auto Reset]*
- Auto Reset Return Pressure Limit
- Auto Reset SA Static Pres Limit
- BAS Module Comm Failure
- BAS/Network Comm Failure
- CO2 Sensor Failure
- Cond Pressure Sensor Fail Ckt
- Cond Pressure Sensor Fail Ckt
- Cond Sump Max Level Failure
- Cond Sump Min Level or Drain Failure
- Cond Sump Temp Sensor Failure
- Cond Temp Sensor Failure - Ckt 1
- Cond Temp Sensor Failure - Ckt 2
- ECEM Communications Failure
- Economizer Drybulb Setpoint Failure
- Entering Evap Temp Sensor Fail - Ckt 1
- Entering Evap Temp Sensor Fail - Ckt 2
- Evap Temp Sensor Failure - Ckt 1
- Evap Temp Sensor Failure - Ckt 2
- Excessive Outdoor Air
- GBAS 0-5VDC Module Comm Failure
- GBAS 0-10VDC Module Comm Failure
- Heat AUX Temp Sensor Fail
- Heat Module Comm Failure
- High Super Heat – Ckt 1
- High Super Heat – Ckt 2
- Leaving Recovery Exhaust Temp Failure
- MCM Communications Failure
- MDM Communications Failure
- MPM Communications Fail
- Min OA Flow Setpoint Fail
- Min Position Setpoint Fail
- Mode Input Failure
- Morning Warmup Setpoint Failure
- NSB Panel Comm Failure
- NSB Panel Zone Temp Sensor Fail
- OA Humidity Sensor Failure
- OA Temp Sensor Failure
- Occ Dehumidification Setpoint Failure
- Occ Humid Setpoint Fail
- Occ Zone Cool Setpoint Failure

**(continued at left)**

```
Active Diagnostic -- Info
Dirty Recovery Filter                More
```

***Note:*** *The word "More" will only appear if more than one failure is occurring. Press the* ***Next*** *key to view the remaining diagnostics if any exist.*

***Note:*** *Pressing the* ***Next*** *key at the last Info Only Diagnostic will prompt the following screen…*

**Used With:** All units
**Factory Presets:** N/A
**Possible Values:** [Information Only]
Heat Fail
Dirty Filter
Dirty Final Filter
Dirty Recovery Filter
Ventilation Override Mode A, B, C, D, E

```
Log 1       (Viewed)     History  Manual
Supply Air Pres Setpt Failure
```

***Notes:***

1. Any diagnostic listed under the previous screens will be displayed here. This screen will show the last 20 diagnostics that have occurred with the latest being assigned to "Log 1", the prior being pushed to "Log 2" (and so on) with the last diagnostic in the list being removed if beyond the 20th position. No diagnostic will be logged consecutively, another diagnostic must occur prior to an older diagnostic being re-entered into the log.
2. Press the **Next** key to view any remaining diagnostic history items. Pressing the **Cancel** key, to clear the diagnostic history log, will prompt the following screen…

**Used With:** All units
**Factory Presets:** N/A
**Possible Values:** Log Number 1-20
**Top Middle-Left Field:**
Viewed, Not Viewed
**Top Middle-Right Field:**
Active, History
**Top Right Field:**
Manual, Auto, Info.

```
Diagnostic Log Is Password Protected
Please Enter Password:□□□□□□□□□□□□
```

***Notes:***

1. Press the **+** (plus) or **-** (minus) keys to enter the password.
2. Press the **ENTER** key to confirm this choice. When the correct password is entered, the following screen will be displayed…

**Used With:** All units
**Factory Presets:** N/A
**Possible Values:** + (Plus) and - (Minus)

```
Active Diagnostics              Manual
Please Wait, Updating Diagnostic Log
```

**OR**

***Note:*** *If the* ***Cancel*** *key is pressed there are no diagnostics listed in the "DIAGNOSTIC LOG", the following screen will be displayed…*

**Used With:** All units
**Factory Presets:** N/A
**Possible Values:** Manual, Auto, or Info

```
Active Diagnostics ---- Info
"Diagnostic Buffer Is Already Empty!"
```

**Used With:** All units
**Factory Presets:** N/A
**Possible Values:** Manual, Auto, or Info

***Note:*** *Press the* ***Auto*** *or* ***Stop*** *key to return to the top level status screen.*

## Communication Link Problems

***Note:*** *If one of the following 2 screens appear, the Human Interface is not communicating properly with the unit.*

```
LOCAL HI COMMUNICATIONS LOSS
CHECK COMM LINK WIRING BETWEEN MODULES
```

**Used With:** All Units

***Note:*** *The "Local HI" (Local Human Interface) is located at the unit.*

**Problem:** The *Local Human Interface* has lost communications with the RTM module. See "Fail Diagnostic" for additional information.
**Check:** Wiring between the *Local Human Interface*, unit mounted communications terminal block, and RTM. Verify crimping and polarity of communications wiring. There should be no loose connections or crimps on wire insulation. See the appropriate unit wiring manual for additional information.

**OR**

```
REMOTE HI COMMUNICATIONS LOSS
CHECK COMM LINK WIRING TO UNIT NUMBER 3
```

**Used With:** Units w/Remote Human Interface Option
**Possible Values:**
Unit Number: 1, 2, 3, 4

**Problem:** The *Remote Human Interface* has lost communications with the unit whose number is specified (#3 in this example).
**Check:** Field/unit wiring between Remote Human Interface and the IPCB on the unit number specified. Also, verify wiring between the IPCB and RTM of the unit whose number is specified. Verify crimping and polarity of communications wiring. There should be no loose connections or crimps on wire insulation.

***Note:*** *If one of the following 2 screens appear, the communications link is marginal or there is another Human Interface of the same type on the link.*

```
IMPROPER HUMAN INTERFACE CONFIGURATION
MORE THAN ONE LOCAL HI ON LINK
```

**Used With:** All Units

**Problem:** Noisy Communications link or a second Local HI has been installed on the link.
**Check:** Wiring between the *Local Human Interface*, unit mounted communications terminal block, and RTM. Verify crimping and polarity of communications wiring. There should be no loose connections or crimps on wire insulation. See the appropriate unit wiring manual for additional information. Also, if a Remote HI was installed, verify that a Local HI was not installed by mistake.

**OR**

**IMPROPER HUMAN INTERFACE CONFIGURATION**
**MORE THAN ONE REMOTE HI ON LINK**

**Used With:** All Units w/Remote Human Interface Option

**Problem:** Noisy Communications link or a second Remote HI has been installed on the link.
**Check:** Field/Unit wiring between Remote Human Interface and the IPCB and RTM. Verify crimping of communications wiring. There should be no loose connections or crimps on wire insulation. Verify that no other Remote HI's have been connected to the same communications link/unit.

**MODULE SOFTWARE VERSION MISMATCH**
**PRESS CONFIG TO REVIEW, SEE LITERATURE**

**Used With:** All Units

**Problem:** One or more control modules are installed that have a version of software that does not match the required versions for the installed features.
**Check:** Use the HI Configuration Menu to check the software versions of the required modules. The ones that do not match will have the word "INVALID" in the upper right corner of the screen. Replace the software in those modules with the latest version.

# Diagnostics

There are four types of diagnostics:

1. (PMR) Partial System Disable, Manual Reset
2. (PAR) Partial System Disable, Auto Reset
3. (INFO) Information Only
4. (HO) History Only

The *Troubleshooting Chart* below list all of the possible failure modes with the following columns:

**Used With:** *Diagnostic Displayed*: The string displayed at the HI, associated module, and "used with" info.

5. *Reason For Diagnostic*: The condition which caused the failure mode, and troubleshooting tips.
6. *UCM's Reaction*: The type of failure, and the unit's response to the failure w/additional information.
7. *Reset Required*: The conditions that must exist to clear the diagnostic.

**Table 7. Diagnostics Troubleshooting Chart**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Auto Reset Return Pressure Limit**<br><br>**Used With:** Return Fan w/ Power Exhaust w/Statitrac.<br><br>**Module:** MPM | **Problem:** The return plenum pressure exceeded the *Return Plenum Pressure High Limit Setpoint* (3.5 iwc non-adjustable) continuously for 1 second.<br><br>**Check:** Return/Outside Damper, Exhaust Damper linkage. Return Plenum Pressure reading. | The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog ouputs closed/stop fan speed, dampers, modulating heat, etc.<br><br>The Return Pressure High Limit trip counter is incremented. | (PAR) An automatic reset occurs when the return plenum pressure drops below the *Return Plenum Pressure High Limit Setpoint*, the IGV/VFD have closed/stopped, and 15 seconds have elapsed since the shutdown command was issued. |
| **Auto Reset SA Static Pressure Limit**<br><br>**Used With:** VVDA units, or CVDA/CVZT units with supply air pressure sensor installed.<br><br>**Module:** RTM | **Problem:** The supply air static pressure exceeded the *SA Static Pressure High Limit Setpoint* for at least one second continuously.<br><br>**Check:** SA Pressure Sensor Assembly, Isolation Dampers, ductwork, BAS system control of VAV Boxes. | The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog ouputs closed/stop fan speed, dampers, modulating heat, etc.<br><br>The Supply Pressure High Limit trip counter is incremented. | (PAR) An automatic reset occurs when the supply air pressure drops below the *SA Static Pressure High Limit Setpoint*, the IGV/VFD have closed/stopped, and 15 seconds have elapsed since the shutdown command was issued. |
| **BAS Module Communications Failure**<br><br>**Used With:** BAS system control is expected.<br><br>**Module:** BAS | **Problem:** The RTM has lost communications with the LCI or BCI.<br><br>**Check:** Check all unit wiring and terminations between the RTM and LCI/ BCI modules. | All active commands and control setpoints provided by the network, through the LCI or BCI, will be cancelled and/ or ignored. Setpoints will fall-back to the default designated sources, otherwise Human Interface setpoints will be used. | (PAR) An automatic reset occurs after communication has been restored. |
| **BAS / Network Comm Failure**<br><br>**Used With:** BAS system control is expected.<br><br>**Module:** BAS | **Problem:** The LCI or BCI has lost communications with the Network for > 15 minutes.<br><br>**Check:** That the Network (Tracer or 3rd party building control panel) is powered up and running properly. If so, check unit wiring between LCI or BCI and network (Tracer or 3rd party building control panel). | All active commands and control setpoints provided by the network, through the LCI or BCI, will be cancelled and/ or ignored. Setpoints will fall-back to the default designated sources, otherwise Human Interface setpoints will be used. | (PAR) An automatic reset occurs after communication between the network and LCI or BCI has been restored. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Blocked Air Return Failure**<br><br>**Used With:** Option available w/Fresh Air Measurement (VCM), OA Damper w/DCV or $CO_2$ Reset installed.<br><br>**Module:** VCM | **Problem:** The low pressure limit on the VCM module is detected closed for 1 second.<br><br>**Check:** Mixed air section damper linkages and actuators for proper travel and operation and return duct for impediments to airflow. Check wiring between mixed air pressure sensor and VCM module. Check wiring between all damper actuators and control box. | The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog ouputs closed/stop fan speed, dampers, modulating heat, etc. | (PMR) A manual reset is required after the diagnostic is set. It can be reset by the HI or Tracer, or by cycling power to the RTM. |
| **CO2 Sensor Failure**<br><br>**Used With:** DCV option or $CO_2$ reset function installed.<br><br>**Module:** VCM | **Problem:** The *$CO_2$ Sensor* input is out of range.<br><br>**Check:** Wiring between the VCM and customer terminal block, and between the terminal block and sensor. | All DCV (Demand Control Ventilation) functions, or $CO_2$ reset functions, will cease and the unit will fall-back to the default outside air damper minimum position arbitration logic. | (PAR) An automatic reset occurs after the $CO_2$ Sensor transducer input receives a signal that is within range for 10 continuous seconds. |
| **Compressor Contactor/ Drive Fail (Ckt-1 or Ckt-2)**<br><br>**Used With:** See compressor protection devices on MCM control wiring schematic.<br><br>**Module:** MCM | **Problem:** The compressor contactor for the given circuit has malfunctioned. The circuit's compressor proving input is detected closed continuously for more than 3 seconds while neither compressor is on.<br><br>**Check:** The circuits contactor, side contacts, wiring, etc. | All compressors on the associated circuit will be locked out and prevented from operation. | (PMR) A manual reset is required after the diagnostic is set. It can be reset by the HI or Tracer, or by cycling power to the RTM. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Compressor Trip (Ckt-1 or Ckt-2)**<br><br>**Used With:** See compressor protection devices on MCM control wiring schematic.<br><br>**Module:** MCM | **Problem:** There have been 4 occurrences*, during active compressor operation, of the compressor proving input for the given circuit being detected open continuously for more than 3 seconds.<br><br>**Check:** All compressor protection devices in the associated refrigerant circuit's 115v contactor control wiring circuit. | Prior to the (PMR), each occurrence of a compressor trip will inhibit all compressor operation of the circuit for a period of 15 minutes. After this period the circuit will be allowed to restart.<br><br>During the (PMR), all compressors on the associated circuit will be locked out and prevented from operation. | (PMR) A manual reset1 is required after this diagnostic occurs. The Diagnostic can be reset by the unit mounted Human Interface Module or Tracer, or by cycling power to the RTM.<br>***Note:*** **Prior to the (PMR), if any compressor on the circuit has 3 continuous minutes of operation, the occurrences counter resets to zero and no error is generated.* |
| **Condenser Pressure Sensor Failure (Ckt-1 or Ckt-2)**<br><br>**Used With:** DX cooling w/ water cooled condensers.<br><br>**Module:** MPM | **Problem:** The saturated condenser pressure sensor input is out of range for the given circuit.<br><br>**Check:** Wiring from the MPM to the pressure sensor. The input voltage range should be between: 0.625 and 4.80VDC. | All compressors on the associated circuit will be locked out and prevented from operation. | (PAR) An automatic reset occurs after the Condenser Pressure Sensor input returns to within range for 10 continuous seconds. |
| **Condenser Sump Heater Failure Manual**<br><br>**Used With:** DX cooling w/ water cooled condensers w/sump heater.<br><br>**Module:** MCM | **Problem:** The sump min level switch is CLOSED, and the Sump Water Temperature is less than 37.5 F, and has remained this way for 20 minutes.<br><br>**Check:** Actual water level, minimum level switch, heater power circuitry. | The unit will perform Sump Water Freeze Protection function. | (PMR) A manual reset is required anytime after the Diagnostic is set to re-enable compressor operation. The Diagnostic can be reset by the Human Interface or Tracer, or by cycling power to the RTM. |
| **Condenser Sump Pump Manual Fail**<br><br>**Used With:** DX cooling w/ water cooled condensers.<br><br>**Module:** MCM | **Problem:** Sump Pump contactor auxiliary contacts do not close (state change), within 6 seconds, when the pump is requested ON for mechanical cooling, or are open for 6 continuous seconds during compressor operation.<br><br>**Check:** Wiring to sump pump, contactor, and auxiliary contacts. Check for pump operation. | A compressor lockout is generated on all circuits. | (PMR) A manual reset is required anytime after the Diagnostic is set to re-enable compressor operation. The Diagnostic can be reset by the Human Interface or Tracer, or by cycling power to the RTM. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Cond Sump Max Level Failure**<br><br>**Used With:** DX cooling w/ water cooled condensers.<br><br>**Module:** MCM | **Problem:** The condenser sump water level reaching the *Cond Sump Max Level Switch* is considered an undesirable condition indicating a problem with the mechanical float valve or some other water control mechanism.<br><br>**Check:** Max level switch, float apparatus, and wiring | The *Cond Sump Fill Relay* will be de-energized. | (PAR) Once the *Cond Sump Max Level Switch* input is open for 120 continuous seconds the diagnostic will be cleared and the *Cond Sump Fill Relay* will be energized. |
| **Cond Sump Min Level or Drain Fail**<br><br>**Used With:** DX cooling w/ water cooled condensers.<br><br>**Module:** MCM | **Problem:**<br>**Min Level Fail:** The *Cond Water Sump Fill Relay* is energized, the 30-minute fill timer expired and the *Cond Water Sump Min Level Input* has not closed.<br>**Drain Fail:** The Cond Sump Min Level Input has remained CLOSED for 5 continuous minutes after a Cond Sump Drain Request has occurred.<br><br>**Check:** wiring from the MCM to the Sump Fill valve, water flow to the sump, sump min level switch and associated wiring. | All compressor circuits are locked out due to inability to determine if the sump has sufficient water level.<br><br>De-energize the Heat relay. | (PAR) An automatic reset occurs after:<br>**Min Level Fail:** the Cond Water Sump Min Level Input is closed for 10 continuous seconds.<br>**Drain Fail:** the Cond Sump Min Level is open for 10 continuous seconds.<br>**Both:** clear the diagnostic and compressor lockouts. |
| **Condenser Sump Temp Sensor Failure**<br><br>**Used With:** DX cooling w/ water cooled condensers.<br><br>**Module:** MCM | **Problem:** The *Condenser Sump Temperature Sensor* input is out of range. (Temperature < -40F or Temperature > 200 F).<br><br>**Check:** Wiring from the MCM to the temperature sensor. Removing the plug from the MCM there should be no shorts or opens on the wires, readings should between 830 ohms and 345k ohms. | A compressor lockout is generated on all circuits and the Condenser Sump is drained completely if the *Outdoor Air Temp* is below 35F or failed. | (PAR) An automatic reset occurs and the sump is allowed to fill after the Condenser Sump Temp input rises above 40F for 10 seconds. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Condenser Sump Min Level Short Cycle Failure**<br><br>**Used With:** DX cooling w/ water cooled condensers.<br><br>**Module:** MCM | **Problem:** The *Sump Min Level Input* has opened three times without 60 seconds of continuous sump pump operation.<br><br>**Check:** Water flow rate, leaking drain, faulty min level switch or wiring. | A compressor lockout is generated on all circuits. | (PMR) A manual reset is required anytime after the diagnostic is set to re-enable compressor operation. The diagnostic can be reset by the Human Interface or Tracer, or by cycling power to the RTM. |
| **Cond Temp Sensor Failure (Ckt-1 or Ckt-2)**<br><br>**Used With:** DX cooling w/ air cooled condensers.<br><br>**Module:** MCM | **Problem:** The saturated condenser temperature sensor input is out of range for the given circuit.<br><br>**Check:** Wiring from the MCM to the temperature sensor. Removing the plug from the MCM there should be no shorts or opens on the wires, readings should between 830 ohms and 345k ohms. | All compressors on the associated circuit will be locked out and prevented from operation. | (PAR) An automatic reset occurs after the Condenser Temp Sensor input returns to its allowable range within 10 seconds. |
| **Dirty Filter**<br><br>**Module:** RTM | **Problem:** The dirty filter switch input on the RTM has closed for more than 60 continuous seconds.<br><br>**Check:** Dirty filters, shorted wiring, failed switch, tubing. | An Information Only Diagnostic is set. | (INFO) An automatic reset occurs after the Dirty Filter input reopens for 60 continuous seconds. |
| **Dirty Final Filter**<br><br>**Module:** RTMS | **Problem:** The dirty final filter switch input on the RTM has closed for more than 60 continuous seconds.<br><br>**Check:** Dirty filters, shorted wiring, failed switch, tubing. | An Information Only diagnostic is set. | (INFO) An automatic reset occurs after the Recovery Filter proving switch input reopens for 60 continuous seconds. |
| **Dirty Recovery Filter**<br><br>**Module:** MPM | **Problem:** The dirty recovery filter switch input on the MPM has closed for more than 60 continuous seconds.<br><br>**Check:** Dirty filters, shorted wiring, failed switch, tubing. | An Information Only diagnostic is set. | (INFO) An automatic reset occurs after the Recovery Filter proving switch input reopens for 60 continuous seconds. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **ECEM Communications Failure**<br><br>**Module:** ECEM | **Problem:** The RTM has lost communications with the ECEM.<br><br>**Check:** Wiring between the communications terminal block and the ECEM. Check for polarity, crimp and wire integrity of the pins. | On units w/ Comparative Enthalpy option, the Economizer Enable Enthalpy function will revert to Reference Enthalpy or Drybulb comparison.<br>On units w/ Statitrac option, the space pressure control is deactivated, the exhaust fan is turned off, the exhaust damper is closed and the outside damper is limited to minimum position. | (PAR) An automatic reset occurs after communication has been restored. |
| **Economizer DryBulb Setpoint Failure**<br><br>**Module:** GBAS(5VDC/ 10VDC) | **Problem:** The GBAS input assigned to *Economizer DryBulb Setpoint* is out of range. (Temperature <50 F or Temperature > 140 F)<br><br>**Check:** Wiring and external devices on the associated GBAS input. | The *Active Economizer DryBulb Setpoint* reverts to the HI default *Economizer DryBulb Enable Setpoint* value. | (PAR) An automatic reset occurs after the GBAS input returns to within range for 10 continuous seconds, or after a different valid *Economizer DryBulb Enable Setpoint* source selection is user-defined. |
| **Emergency Stop**<br><br>**Module:** RTM | **Problem:** The circuit wired to the Emergency Stop Input has opened. This can occur by design or un-intentionally.<br><br>**Check:** An open circuit has occurred on the Emergency Stop input caused either by a High Duct Temp T-stat trip, the opening of field-provided contacts, etc., or due to a fault of the wiring or external devices. | The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog ouputs closed/stop, fan speed, dampers, modulating heat, etc. | (PMR) A manual reset is required after the Emergency Stop input recloses. The Diagnostic can be reset by the Human Interface or Tracer or by cycling power to the RTM. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Energy Recovery Wheel Proof Failure**<br><br>**Module:** MPM | **Problem:** Comparison of the *Leaving Recovery Exhaust Temp* and *Return Air Temp* indicates inadequate temperature differential exists which could be caused by improper energy recovery wheel operation.<br><br>**Check:** Wheel operation, dirty wheel material, temperature sensor integrity. | Energy Wheel output is de-energized and associated dampers closed while in heat mode. In cooling mode the dampers will still open during economizing operation. | (PMR) A manual reset is required anytime after the Diagnostic is set. The Diagnostic can be reset by the Human Interface or Tracer, or by cycling power to the RTM. |
| **Entering Evaporator Temperature Sensor Failure (Ckt-1 or Ckt-2)**<br><br>**Used With:** DX cooling.<br><br>**Module:** MCM | **Problem:** The *Entering Evap Temp Sensor* input for the given circuit is out of range. (Temperature <-55 F or Temperature > 209 F)<br><br>**Check:** The HI value and wiring between the MCM and specific sensor. Removing the plug from the MCM there should be no shorts, opens and sensor resistance should be between 830 ohms and 345.7Kohms. | The *Low Charge Protection* function (either Ckt-1 or Ckt-2) is disabled on units with that function and all compressors on the given circuit will be locked out and prevented from operating. | (PAR) An automatic reset occurs after the entering Evaporator Temperature Sensor input returns to within range continuously for 10 seconds. |
| **Evaporator Temperature Sensor Failure (Ckt-1 and Ckt-2)**<br><br>**Used With:** DX cooling.<br><br>**Module:** MCM | **Problem:** The *Evap Temp Sensor* input for the given circuit is out of range. (Temperature <-55 F or Temperature > 209 F)<br><br>**Check:** The HI value and wiring between the MCM and specific sensor. Removing the plug from the MCM there should be no shorts, opens and sensor resistance should be between 830 ohms and 345.7Kohms. | The *Coil Frost Protection* function for the given refrigeration is disabled. The *Low Charge Protection* function (either Ckt-1 or Ckt-2) is disabled on units with that function and all compressors on the given circuit will be locked out and prevented from operating. | (PAR) An automatic reset occurs after the evaporator temperature input returns to its allowable range for 10 seconds. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Excessive Outdoor Air**<br><br>**Used With: FDD operation.**<br><br>**Module: RTM / VSM** | **Problem:** The voltage feedback from the OA Damper actuator indicates the damper has failed OPEN (> 10% of commanded value) during ventilation mode for 5 continuous minutes.<br><br>**Check:** OA Damper apparatus for linkage binding or failure. Wiring/ voltages between actuator and VSM. Wiring/voltages between the RTM and actuator. | None. Only an information diagnostic is annunciated. | (INFO) An automatic reset occurs when any of the following occurs: 1) the unit control has changed, or stopped, or 2) the feedback voltage has returned within its expected range. |
| **Exhaust Fan Failure**<br><br>**Used With:** Power Exhaust w/ or w/o Statitrac option, and when Return Fan is not installed.<br><br>**Module:** RTM | **Problem:** The unit has power exhaust and the exhaust proving switch input has been detected OPEN for 40 continuous seconds during any period of time in which the Exhaust Fan binary output is ON.<br><br>**Check:** Check belts, linkages, etc. on the exhaust fan assembly. If these are ok, check field/ unit wiring between RTM and exhaust fan. If exhaust fan will run in service mode, then verify airflow proving switch and wiring. | A "minimum position" request is issued to the Economizer Actuator Control function. And a "Fan off" request is issued to the Exhaust Fan Control function.<br><br>***Note:*** *On units with an exhaust fan installed, an ECEM Comm Fail diagnostic will also generate this diagnostic to insure the defined reaction is observed.* | (PMR) A manual reset is required anytime after the Diagnostic is set. The Diagnostic can be reset by the Human Interface or Tracer, or by cycling power to the RTM. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **GBAS 0-5VDC Module Communications Failure**<br><br>**Module:** GBAS(5VDC) | **Problem:** The RTM has lost communications with the GBAS(5VDC) Module.<br><br>**Check:** Check unit wiring between RTM and GBAS. | The UCM will initiate the following actions:<br>a. Any Demand Limit request issued by this GBAS will be canceled. The Demand Limit request may continue if the BAS/ Network is requesting it.<br>b. All active Setpoints that source this GBAS will revert to their Human Interface default values.<br>c. A fail safe function in the GBAS module will cause all GBAS outputs to be zeroed and de-energized. | (PAR) An automatic reset occurs after communication has been restored. |
| **GBAS 0-10 VDC Module Communications Failure**<br><br>**Module:** GBAS(10VDC) | **Problem:** The RTM has lost communications with the GBAS(10VDC) Module.<br><br>**Check:** Check unit wiring between RTM and GBAS. | The UCM will initiate the following actions:<br>a. Any Demand Limit request issued by this GBAS will be canceled. The Demand Limit request may continue if the BAS/ Network is requesting it.<br>b. All active Setpoints that source this GBAS will revert to their Human Interface default values.<br>c. A fail safe function in the GBAS module will cause all GBAS outputs to be zeroed and de-energized. | (PAR) An automatic reset occurs after one complete set of the required IPC packets has been received. |
| **Heat AUX Temp Sensor Fail (formerly: MWU Zone Sensor Fail)**<br><br>**Used With:** Heat options.<br><br>**Module:** HEAT | **Problem:** The Heat Module's *Auxiliary Temperature Sensor* has been assigned to at least one function, and this sensor signal is out of range (Temp < -55 F or Temp > 209 F).<br><br>**Check:** The HI value and wiring between the HEAT module and the sensor. Removing the plug from the HEAT module there should be no shorts, opens and sensor resistance should be between 830 ohms and 345.7Kohms. | The functions that designated the Heat Module Auxiliary Temperature Input as their input are disabled. | (PAR) An automatic reset occurs after the Heat Module Auxiliary Temperature input returns to its allowable range for 10 seconds. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Heat Failure**<br><br>**Module:** HEAT | **Problem:** The Gas or Electric heat controls has failed or has marginal performance and the Heat Fail Input has closed:<br>a. for more than 80 seconds,<br>b. for 10 consecutive occurrences (each lasting 5 seconds or more) within a 210 second period.<br>(This is typically caused when the gas heater's igniter failed to light the gas, or because the electric heat section became too hot.)<br><br>**Check Gas Heat:** External ignition controller, wiring, combustion fan motor and airflow operation, etc.<br>**Check Electric Heat:** Wiring, sufficient airflow, etc. | An Information Only diagnostic is set. | (INFO) An automatic reset occurs after the Heat Fail input remains open for 210 seconds continuously. |
| **Heat Module Communication Failure**<br><br>**Module:** HEAT | **Problem:** The RTM has lost communications with the HEAT module.<br><br>**Check:** Check unit wiring between RTM and HEAT module. | An "All Heat Off" request is sent to the heat operation function:<br>a. On staged gas or electric heat units, all heat module outputs will be de-energized.<br>b. On hydronic heat or chilled water units, the supply fan will be turned off, the outside air damper closed, hydronic/chill water valves will be driven to 100%, and the relay outputs will be controlled for proper signal routing to actuators. | (PAR) An automatic reset occurs after communication has been restored. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **High Comp Press Diff Failure (Ckt1 and Ckt2)**<br><br>**Used With:** Low Vi<br><br>**Module:** MCM | **Problem:** An excessive compressor pressure differential condition has tripped the given refrigerant circuit 4 times before the call for mechanical cooling has terminated.<br><br>**Check:** The condenser fan operation, condenser and evaporator temperature sensor values for proper readings and refrigerant charge. Check evaporator coil for airflow obstruction. | All compressors on the associated circuit will be locked out and prevented from operation. | (PMR) A manual reset is required anytime after the diagnostic is set to re-enable compressor operation. The diagnostic can be reset by the Human Interface or Tracer, or by cycling power to the RTM. |
| **High Superheat (Ckt-1 or Ckt-2)**<br><br>**Used With:** DX cooling.<br><br>**Module:** MCM | **Problem:** DX cooling operation has been active for 10 minutes on the given circuit, and the difference in the entering and leaving evaporator temperatures is:<br>a. less than the Evaporator Temperature Differential Setpoint for a period of ten minutes, and…<br>b. greater than the *Evaporator Temperature Differential Setpoint* minus 5 F.<br><br>**Check:** Refrigerant. Sensor integrity. | An Information Only diagnostic is set. | (PAR) An automatic reset occurs after the difference in the entering and leaving evaporator temperature is less than the *Evaporator Temperature Differential Setpoint* minus 5 F. |
| **Leaving Recovery Exhaust Temp Failure**<br><br>**Used With:** Energy Recovery Wheel option.<br><br>**Module:** MPM | **Problem:** The *Leaving Recovery Exhaust Temp* sensor is out of range. (Temp < -55 F or Temp > 209 F)<br><br>**Check:** The HI value and wiring between the MPM module and the sensor. Removing the plug from the MPM module there should be no shorts, opens and sensor resistance should be between 830 ohms and 345.7Kohms. | Exhaust Air Bypass Damper modulated fully closed if energy recovery for heating is active or if energy recovery is not active. If OA Damper is fully open Exhaust Air Bypass and Outside Air Bypass dampers modulated fully open when Outside Air Temp is 10F or less. | (PAR) An automatic reset occurs after the Leaving Recovery Exhaust Temp input returns to within range continuously for 10 seconds |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Low Air Temperature Limit Trip (formerly: Freezestat Trip)**<br><br>**Used With:** Hydronic or steam heat option, or w/ chilled water installed.<br><br>**Module:** HEAT | **Problem:** The *Low Air Temperature Limit Trip* condition has been detected. This can occur if either of the following occurs:<br>a. the *Hydronic Heat Low Air Temperature Limit* input closes for > 1 second, or<br>b. the *Chilled Water Low Air Temperature Limit* input opens for > 1 second.<br><br>**Check:** Proper outside air damper actuator/linkage setup. | The UCM will initiate the following actions;<br>a. An "Open All Water Valves" request is issued to the heat module function, causing any steam, hot water, or chilled water valves on the unit to open.<br>b. An "All Heat OFF" request is issued to the heat control function.<br>c. A "Fan Off" request is sent to the supply fan and the return fan control functions.<br>d. A "Close Damper" request is sent to the outside air damper control function. | (PMR) A manual reset is required after the Low Air Temperature Limit Trip condition clears. The Diagnostic can be reset at the unit mounted Human Interface, by Tracer, or by cycling power to the RTM. |
| **Low Pressure Control Open (Ckt-1 or Ckt-2)**<br><br>**Used With:** DX cooling.<br><br>**Module:** MCM | **Problem:** The *LPC Switch Input* on the given circuit is detected open for at least 6 seconds.<br><br>**Check:** State of refrigerant charge for the given circuit. | A "Lockout Circuit" request is issued to the given circuit's compressor staging control function. | (PMR) A manual reset is required anytime after the Diagnostic is set. The Diagnostic can be reset by the Human Interface or Tracer, or by cycling power to the RTM. |
| **Low Refrigerant Charge (Ckt-1 or Ckt-2)**<br><br>**Used With:** DX cooling.<br><br>**Module:** MCM | **Problem:** The cooling circuit of interest has been active for 10 minutes and the difference in the entering and leaving evaporator temperatures has been greater than the *Evaporator Temperature Differential Setpoint* for 10 continuous minutes.<br><br>**Check:** Refrigerant charge, temperature sensor values. | A "Lockout" request is issued to the given circuit's compressor Staging Control Function. | (PMR) A manual reset is required anytime after the Diagnostic is set. The Diagnostic can be reset by the Human Interface or Tracer, or by cycling power to the RTM." |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Manual Reset Return Pressure Limit Trip**<br><br>**Used With:** Return Fan.<br><br>**Module:** MPM | **Problem:** The return plenum pressure has exceeded the Return Plenum Pressure High Limit (3.5 IWC).<br><br>**Check:** Check return plenum pressure, exhaust/ return damper actuators, return pressure transducer assembly and wiring, etc. | The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog ouputs closed/stop, fan speed, dampers, modulating heat, etc. | (PMR) A manual reset is required anytime after the Diagnostic is set. The Diagnostic can be reset by the Human Interface or Tracer, or by cycling power to the RTM. |
| **Manual Reset Supply Air Static Pressure Limit**<br><br>**Used With:** VVDA units, or CVDA/CVZT units with supply air pressure sensor installed.<br><br>**Module:** RTM | **Problem:** The supply air pressure has exceeded the Supply Air Pressure High Limit Setpoint the 3rd consecutive time while the unit is operating in any mode.<br><br>**Check:** Supply air ductwork, supply fan speed control, supply air pressure transducer assembly and wiring. | A "Supply Air Pressure Shutdown" signal is sent to the following functions:<br>a. Compressor Staging Control,<br>b. Economizer Actuator Control,<br>c. Heat Operation,<br>d. Supply Fan/Return Fan Control,<br>e. IGV / VFD Control,<br>f. Exhaust Fan Control<br>g. Exhaust Actuator Control | (PMR) A manual reset is required and can be accomplished at the Human Interface or by Tracer, or by cycling the power to the RTM. |
| **Manual Reset Space Press Low Limit Trip**<br><br>**Used With:** Return Fan w/ Statitrac.<br><br>**Module:** RTM | **Problem:** The building's space pressure has dropped below the *Building Pressure Low Limit Setpoint* for the 3rd time without the building pressure ever rising above *Building Pressure Setpoint* bottom deadband.<br><br>**Check:** Check return plenum pressure, exhaust/ return damper actuators, etc. | The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog ouputs closed/stop, fan speed, dampers, modulating heat, etc. | (PMR) A manual reset is required anytime after the Diagnostic is set. The Diagnostic can be reset by the Human Interface or Tracer, or by cycling power to the RTM.<br><br>***Note:*** *See* ***Auto Reset Space Press Low Limit Trip*** *Above.* |
| **MCM Communications Failure**<br><br>**Module:** MCM | **Problem:** The RTM has lost communications with the MCM module.<br><br>**Check:** Check unit wiring between RTM and MCM module. | A "Lockout" request is sent to the Compressor Staging Control function. And a fail-safe function in the MCM will cause all MCM outputs to be zeroed and de-energized. | (PAR) An automatic reset occurs after communication has been restored. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **MDM Communications Failure**<br><br>**Module:** MDM | **Problem:** The RTM has lost communications with the MDM module.<br><br>**Check:** Check unit wiring between RTM and MDM module. | All active commands and setpoints provided by the MDM module will be canceled and/or ignored. All binary outputs will be de-energized and analog output set to fail-safe. Dehumidification control function is disabled and a compressor lockout request is issued for the Reheat Circuit (IPak 1: Ckt-2, IPak 2:Ckt-1) | (PAR) An automatic reset occurs after one complete set of the required IPC packets has been received. |
| **MPM Communications Failure**<br><br>**Module:** MPM | **Problem:** The RTM has lost communications with the MPM module.<br><br>**Check:** Check unit wiring between RTM and MPM module. | a. All active commands provided by the MPM module will be canceled and/or ignored. Return fan control function is disabled and a "Unit Shutdown" request is issued.<br>b. For evaporative condensing units, a lockout request is issued, for all circuits, to the compressors staging control function. | (PAR) An automatic reset occurs after one complete set of the required IPC packets has been received. |
| **Minimum Outdoor Air Flow Setpoint Failure**<br><br>**Used With:** Fresh Air Measurement (VCM) option.<br><br>**Module:** VCM | **Problem:** The GBAS input assigned to *Minimum Outdoor Air Flow Setpoint* is out of range. (OAFlowStp is < 0 or OAFlowStp > Max Unit Airflow[1]<br><br>**Check:** Wiring and external devices on the associated GBAS input.<br><br>[1]See **Setpoints** menu *Min OA Flow Setpoint* for max unit airflows table. | The *Active Minimum OA Flow Setpoint* reverts to the default *Minimum OA Flow Setpoint* of the Human Interface. | (PAR) An automatic reset occurs after the Minimum OA Flow Setpoint input returns to within range for 10 continuous seconds, or after a different, valid *Active Minimum OA Flow Setpoint* value is specified (BAS/Network). |
| **Mode Input Failure**<br><br>**Module:** RTM | **Problem:** The RTM Mode input is out of range. (R < 1k ohm or R > 40k ohm)<br><br>**Check:** Mode input resistance should be between 1 Kohm and 40 Kohms. If so, check field/unit wiring between Sensor and RTM. | The system mode reverts to the default (HI set) System Mode. | (INFO) An automatic reset occurs after the Mode input returns to its allowable range for 10 seconds. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Morning Warmup Setpoint Failure**<br><br>**Module:** RTM | **Problem:** The GBAS input assigned to *MWU Setpoint* is out of range (Temp < 50 F or Temp > 90 F).<br><br>**Check:** Wiring and external devices on the associated GBAS input. | The *Active MWU Setpoint* reverts to the default *MWUSetpoint* from the Human Interface. | (PAR) An automatic reset occurs after the GBAS input assigned to the *MWU Setpoint* input returns to within range for 10 continuous seconds, or after a different, valid *MWU Setpoint* source is applied (BAS/Network). |
| **NSB Panel Communication Failure**<br><br>**Module:** NSB Panel | **Problem:** The RTM has lost communications with the NSB Panel (Night SetBack Panel or programmable zone sensor).<br><br>**Check:** Check field/unit wiring between RTM and NSB Panel. | a. The unit reverts to the next lower priority mode switching source (typically the HI default mode).<br>b. if the NSB Panel Zone Sensor is the designated sensor source for any functions, those functions are disabled. | (PAR) An automatic reset occurs after communication has been restored. |
| **NSB Panel Zone Temp Sensor Failure**<br><br>**Module:** NSB Panel | **Problem:** The *NSB Panel's* zone temp sensor input is out of range. (This input is at the *NSB Panel*, not on the Rooftop unit itself).<br><br>**Check:** If an external sensor is connected to the *NSB Panel* zone sensor input the internal *NSB Panel* zone sensor should be disabled, therefore verify external sensor's resistance. If in valid range, check wiring between sensor and the *NSB Panel*. | a. If the external sensor has failed the NSB will revert to its local value and no diagnostic will be generated.<br>b. If the local sensor has failed also, or is the only sensor of the two being used, the unit will generate the diagnostic and set all of the associated functions to disabled. | (PAR) An automatic reset occurs after the NSB Panel's sensor returns to within range for 10 continuous seconds, or after a different, valid *Active Zone Temp Sensor* value is specified (BAS/Network). |
| **OA Humidity Sensor Failure**<br><br>**Used With:** Comparative Enthalpy option.<br><br>**Module:** RTM | **Problem:** The outside air humidity sensor data is out of range (Humidity < 10% or Humidity > 90%).<br><br>**Check:** Check field/unit wiring between RTM and the sensor. | The Economizer Enable r.e Enthalpy function reverts to Dry-Bulb Temperature changeover ("Level 1") control. | (PAR) An automatic reset occurs after the OA Humidity input returns to its allowable range for 10 seconds. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **OA Temperature Sensor Failure**<br><br>**Used With:** Comparative Enthalpy, DX cooling, Energy Recovery Wheel options.<br><br>**Module:** RTM | **Problem:** The RTM *OA Temperature Sensor* has been assigned to at least one function, and this sensor signal is out of range (Temp < -55 F or Temp > 209 F).<br><br>**Check:** The HI value and wiring between the RTM module and the sensor. Removing the plug from the RTM module there should be no shorts, opens and sensor resistance should be between 830 ohms and 345.7Kohms. | Unit functions that are disabled include:<br>a. Low Ambient CompressorLockout<br>b. The Outside Air Damper drives to minimum position.<br>c. On VAV units with SA Temp Reset type selected as OA Temp Reset, the Reset type reverts to NONE for the duration of the failure. | (PAR) An automatic reset occurs after the OA Temp input returns to its allowable range. In order to prevent rapid cycling of the Diagnostic, there is a 10 second delay before the automatic reset. |
| **Occupied Dehumidification Setpoint Failure**<br><br>**Module:** RTM | **Problem:** The GBAS input assigned to *Occupied Dehumidification Setpoint* is out of range (Humidity < 10% or Humidity > 90%).<br><br>**Check:** Wiring and external devices on the associated GBAS input. | The *Active Occupied Dehumidification Setpoint* reverts to the default Occupied Dehumidification *Setpoint* from the Human Interface. | (PAR) An automatic reset occurs after the GBAS input assigned to the *Occupied Dehumidification Setpoint* input returns to within range for 10 continuous seconds, or after a different, valid *Occupied Dehumidification Setpoint* source is applied (BAS/ Network). |
| **Occupied Humidification Setpoint Failure**<br><br>**Module:** RTM | **Problem:** The GBAS input assigned to *Occupied Humidification Setpoint* is out of range (Humidity < 10% or Humidity > 90%).<br><br>**Check:** Wiring and external devices on the associated GBAS input. | The *Active Occupied Humidification Setpoint* reverts to the default Occupied Humidification *Setpoint* from the Human Interface. | (PAR) An automatic reset occurs after the GBAS input assigned to the *Occupied Humidification Setpoint* input returns to within range for 10 continuous seconds, or after a different, valid *Occupied Humidification Setpoint* source is applied (BAS/ Network). |
| **Occupied Zone Cool Setpoint Failure**<br><br>**Used With:** CVZT units.<br><br>**Module:** RTM | **Problem:** The source assigned to *Occupied Zone Cool Setpoint* is out of range (Temperature < 45 F or Temperature > 94 F).<br><br>**Check:** Wiring and external devices on the associated RTM input. | The *Active Occupied Zone Cooling Setpoint* reverts to the default *Occupied Zone Cooling Setpoint* of the Human Interface. | (PAR) An automatic reset occurs after the source input assigned to the *Occupied Zone Cooling Setpoint* input returns to within range for 10 continuous seconds, or after a different, valid *Occupied Zone Cooling Setpoint* source is applied (BAS/Network). |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Occupied Zone Heat Setpoint Failure**<br><br>**Used With:** CVZT units, VVDA/CVDA units w/DWU option.<br><br>**Module:** RTM | **Problem:** The source assigned to *Occupied Zone Heat Setpoint* is out of range (Temperature < 45 F or Temperature > 94 F).<br><br>**Check:** Wiring and external devices on the associated RTM input. | The *Active Occupied Zone Heating Setpoint* reverts to the default *Occupied Zone Heating Setpoint* of the Human Interface. | (PAR) An automatic reset occurs after the source input assigned to the *Occupied Zone Heating Setpoint* input returns to within range for 10 continuous seconds, or after a different, valid *Occupied Zone Heating Setpoint* source is applied (BAS/Network). |
| **Outdoor Air Damper Not Modulating**<br><br>**Used With: FDD operation.**<br><br>**Module: RTM / VSM** | **Problem:** The voltage feedback from the OA Damper actuator indicates the damper has failed CLOSED (< 10% of commanded value) during ventilation mode for 5 continuous minutes.<br>**Check:** OA Damper apparatus for linkage binding or failure. Wiring/ voltages between actuator and VSM. Wiring/voltages between the RTM and actuator. | None. Only an information diagnostic is annunciated. | (INFO) An automatic reset occurs when any of the following occurs: 1) the unit control has changed, or stopped, or 2) the feedback voltage has returned within its expected range. |
| **RTM Auxiliary Temperature Sensor Failure**<br><br>**Module:** RTM | **Problem:** The *RTM Aux Temperature Sensor* has been assigned to at least one function, and this sensor signal is out of range (Temp < -55 F or Temp > 209 F).<br><br>**Check:** The HI value and wiring between the RTM module and the sensor. Removing the plug from the RTM module there should be no shorts, opens and sensor resistance should be between 830 ohms and 345.7Kohms. | The functions with the *RTM Aux Temperature* input designated as their sensor are disabled. | (PAR) An automatic reset occurs after the designated temperature input returns to its allowable range. In order to prevent rapid cycling of the diagnostic, there is a 10 seconds delay before the automatic reset. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **RTM Space Humidity Sensor Failure**<br><br>**Used With:** Dehumidification or Humidification option.<br><br>**Module:** RTM | **Problem:** The RTM space humidity sensor data is out of range (Humidity < 1% or Humidity > 100%).<br><br>**Check:** Check field/unit wiring between RTM and the sensor. | The dehumidification and humidification functions are disabled if the *RTM Space Humidity Sensor* is selected as sensor source for these functions. | (PAR) An automatic reset occurs after the *RTM Space Humidity Sensor* input returns to within range continuously for 10 seconds. |
| **RTM Zone Temperature Sensor Failure**<br><br>**Module:** RTM | **Problem:** The *RTM Zone Temperature Sensor* has been assigned to at least one function, and this sensor signal is out of range (Temp < -55 F or Temp > 209 F).<br><br>**Check:** The HI value and wiring between the RTM module and the sensor. Removing the plug from the RTM module there should be no shorts, opens and sensor resistance should be between 830 ohms and 345.7Kohms. | The functions with the *RTM Zone Temperature Sensor* input designated as their sensor are disabled. | (PAR) An automatic reset occurs after the designated temperature signal returns to its allowable range. In order to prevent rapid cycling of the diagnostic, there is a 10 second delay before the automatic reset. |
| **RA Humidity Sensor Failure**<br><br>**Used With:** Dehumidification or Humidification option, or Comparative Enthalpy installed.<br><br>**Module:** ECEM | **Problem:** The return air humidity sensor data is out of range (Humidity < 10% or Humidity > 90%).<br><br>**Check:** Check field/unit wiring between ECEM and the sensor. | The Economizer Enable r.e. Enthalpy function reverts to Reference Enthalpy changeover ("Level 2") control. | (PMR) An automatic reset occurs after the RA Humidity input returns to its allowable range continuously for 10 seconds. |
| **Rapid Restart HW Configuration Failure**<br><br>**Used With:** Rapid Restart.<br><br>**Module:** RTM | **Problem:** The GBAS(5VDC) hardware configuration module or input has failed, or has been changed since the last power cycle.<br>**Check:** The wire harness, the GBAS(5VDC) module config input. Refer to the Human Interface GBAS(5VDC) status screen for proper index value. | The unit will not honor the Rapid Restart start sequence. Normal unit start times and DX interstage will be honored. | (PAR) An automatic reset occurs after the user has accessed and followed the instructions on the Human Interface Rapid Restart configuration menu. Press + or - key then press the ENTER key to reset the configuration. Power down the unit, troubleshoot then power up the unit and return to this screen for verification. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Return Air Temperature Sensor Failure**<br><br>**Used With:** Comparative Enthalpy installed, or Energy Recovery Wheel option.<br><br>**Module:** ECEM | **Problem:** The ECEM *RA Temperature Sensor* has been assigned to at least one function, and this sensor signal is out of range (Temp < -55 F or Temp > 209 F).<br><br>**Check:** The HI value and wiring between the ECEM module and the sensor. Removing the plug from the ECEM module there should be no shorts, opens and sensor resistance should be between 830 ohms and 345.7Kohms. | The Economizer Enable r.e. Enthalpy function reverts to Reference Enthalpy changeover ("Level 2") control. | (PAR) An automatic reset occurs after the RA Temperature input returns to its allowable range continuously for 10 seconds. |
| **Return Fan failure**<br><br>**Module:** RTM | **Problem:** The return fan proving input is detected OPEN for 40 continuous seconds during any period of time in which the return fan relay is ON.<br><br>**Check:** The return fan drive and belt. Faulty wiring with the return fan proving switch circuit.<br>***Note:*** *A communications error from the MPM will also cause a return fan failure lockout.* | The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog ouputs closed/stop, fan speed, dampers, modulating heat, etc. | (PMR) A manual reset is required anytime after the diagnostic is set. The diagnostic can be reset by the Human Interface or Tracer, or by cycling power to the RTM. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Return Plenum Pressure Sensor Failure**<br><br>**Used With:** Return Fan option.<br><br>**Module:** MPM | **Problem:** The return plenum pressure sensor input is out of range and one of the following is occurring:<br>a. The return plenum pressure sensor value has risen above +3.5 IWC<br>b. The return fan is on, the return fan speed is 100%, and the return plenum pressure sensor value has fallen below -0.75 IWC.<br>b. The return fan is off and the return plenum pressure sensor value has fallen below -0.75 IWC.<br><br>**Check:** Return pressure transducer assembly, tubing and wiring. Return fan drive and belt. Wiring between the MPM and sensor. | The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog ouputs closed/stop, fan speed, dampers, modulating heat, etc. | (PAR) An automatic reset occurs after the return plenum pressure input returns to within range for 10 continuous seconds. |
| **Rooftop Module Data Storage Error**<br><br>**Used With:** All units.<br><br>**Module:** RTM | **Problem:** There is an older version Human Interface (prior to 32.xx) installed in the unit or There was a data transmission error.<br><br>**Check:**<br>a. Make sure the proper Human Interface version is installed in the unit.<br>b. This can also be caused by an intermittent power loss. Turn the unit off for 1-2 minutes, then back on again. If diagnostic persists, then the RTM may need to be replaced. | The diagnostic will be displayed at the top level status screen, and unit operation will be prevented. | (PMR) A manual reset is required anytime after the diagnostic is set. The diagnostic can be reset by the Human Interface or Tracer, or by cycling power to the RTM. |
| **SCM Communications Failure**<br><br>**Module:** SCM | **Problem:** The RTM has lost communications with the SCM.<br><br>**Check:** Check unit wiring between RTM and SCM module. | A "Lockout" request is sent to the compressor staging control function. And a fail-safe function in the SCM will cause all SCM outputs to be zeroed and de-energized. | (PAR) An automatic reset occurs after communication has been restored. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **SZVAV HW Configuration Failure**<br><br>**Used With:** SZVAV units.<br><br>**Module:** RTM | **Problem:** The GBAS(5VDC) hardware configuration module or input has failed, or has been changed since the last power cycle.<br>**Check:** the wire harness, the GBAS(5VDC) config module input. Refer to the Human Interface GBAS(5VDC) status screen for proper index value. | The unit will not honor the Single Zone VAV control sequence. The unit will perform normal Zone Temperature control (CVZT). | (PAR) An automatic reset occurs after the user has accessed and followed the instructions on the Human Interface SZVAV configuration menu. Press + or - key then press the ENTER key to reset the configuration. Power down the unit, troubleshoot then power up the unit and return to this screen for verification. |
| **Space Press Low Limit Trip Auto Reset**<br><br>**Used With:** Return Fan w/ Statitrac.<br><br>**Module:** RTM | **Problem:** The building's space pressure has dropped below the *Building Pressure Low Limit Setpoint* for the 1st or 2nd time out of 3 occurrences<br><br>**Check:** Check return plenum pressure, exhaust/ return damper actuators, etc. | The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog ouputs closed/stop, fan speed, dampers, modulating heat, etc. | (PAR) An auto reset occurs when the building's space pressure has risen above the Building Pressure Low Limit Setpoint plus .02 IWC.<br><br>***Note:*** *Each occurrence will increment a counter which upon the third occurrence will generate a manual reset diagnostic. The counter will be cleared if the building pressure ever exceeds the building pressure setpoint bottom deadband.* |
| **Space Press Low Limit Trip Warning**<br><br>**Used With:** Return Fan w/ Statitrac.<br><br>**Module:** RTM | **Problem:** The building's space pressure has dropped below the *Building Pressure Low Limit Setpoint* plus 0.02 IWC.<br><br>**Check:** Check return plenum pressure, exhaust/ return damper actuators, etc. | Information only. | (PAR) An auto reset occurs when the building's space pressure has risen above the Building Pressure Low Limit Setpoint plus .03 IWC. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Space Pressure Sensor Failure**<br><br>**Used With:** Power Exhaust w/Statitrac option (Building pressure control).<br><br>**Module:** ECEM | **Problem:** The unit is reading a signal that is out of range for the *Space Pressure Sensor* transducer input (During calibration: V < 40 mV or V > 420 mV, During operational times: V < 40 mV or V > 0.75 V).<br><br>**Check:** Check unit wiring between sensor and ECEM, and solenoid and ECEM. Check the transducer assembly tubing and operation of the calibration solenoid which should shunt the ambient pressure (Windbird) to both the high and low ports of the transducer for a duration of 1 sec. every minute. | The Space Pressure Control function is disabled, and the exhaust fan and the exhaust damper actuator are controlled as if the unit did not have Statitrac. Default exhaust enable point is used. | (PAR) An automatic reset occurs after the designated Space Pressure transducer sends a signal within range for 10 continuous seconds. |
| **Space Static Pressure Setpoint Failure**<br><br>**Used With:** Power Exhaust w/Statitrac option (Building pressure control).<br><br>**Module:** ECEM | **Problem:** The GBAS input assigned to the *Space Static Pressure Setpoint* is out of range (Input < 0.03 IWC or Input > 0.20 IWC).<br><br>**Check:** The wiring between the GBAS input assigned to this setpoint and the external device. | The *Active Space Pressure Setpoint* will revert to the default *Space Pressure Setpoint* from the Human Interface. | (PAR) An automatic reset occurs after the source input assigned to the *Space Pressure Setpoint* input returns to within range for 10 continuous seconds, or after a different, valid *Space Pressure Setpoint* source is applied (BAS/ Network). |
| **Supply Air Pressure Sensor Failure**<br><br>**Used With:** VVDA.<br><br>**Module:** RTM | **Problem:** The Supply Air Pressure sensor voltage input is out of range (Input < 40mV or Input > 4.75V)<br><br>**Check:** Check field/unit wiring between Sensor and RTM. | The IGV will drive closed or supply fan speed to minimum, and the following functions are disabled;<br>a. SA Pressure Control<br>b. SA Static Pressure Limit | (PAR) An automatic reset occurs after the SA Pressure input returns to its allowable range for 10 seconds. |
| **Supply Air Pressure Setpoint Failure**<br><br>**Used With:** VVDA.<br><br>**Module:** RTM | **Problem:** The GBAS input assigned to the *Supply Air Pressure Setpoint* is out of range (Input < 1.0 IWC or Input > 4.3 IWC).<br><br>**Check:** The wiring between the GBAS input assigned to this setpoint and the external device. | The default *Supply Air Pressure Setpoint* at the Human Interface will become the *Active Supply Air Pressure SETPOINT*. | (PAR) An automatic reset occurs after the source input assigned to the *Supply Air Pressure Setpoint* input returns to within range for 10 continuous seconds, or after a different, valid *Supply Air Pressure Setpoint* source is applied (BAS/Network). |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Supply Air Reheat Setpoint Failure**<br><br>**Used With:** Dehumidification option.<br><br>**Module:** RTM | **Problem:** The GBAS input assigned to the *Supply Air Reheat Setpoint* is out of range (Temp< 60 F or Temp > 90 F).<br><br>**Check:** The wiring between the GBAS input assigned to this setpoint and the external device. | The *Active Supply Air Reheat Setpoint* reverts to the default *Supply Air Reheat Setpoint* defined at the Human Interface. | (PAR) An automatic reset occurs after the source input assigned to the *Supply Air Reheat Setpoint* input returns to within range for 10 continuous seconds, or after a different, valid *Supply Air Reheat Setpoint* source is applied (BAS/Network). |
| **Supply Air Temperature Cool Setpoint Failure**<br><br>**Used With:** VVDA.<br><br>**Module:** RTM | **Problem:** The source assigned to *SA Temp Cool Setpoint* is out of range (Temp < 35 F or Temp > 95 F).<br><br>**Check:** Wiring and external devices on the associated RTM input. | The *Active Supply Air Temp Cool Setpoint* reverts to the default *Supply Air Temp Cool Setpoint* defined at the Human Interface. | (PAR) An automatic reset occurs after the source input assigned to the *Supply Air Temp Cool Setpoint* input returns to within range for 10 continuous seconds, or after a different, valid *Supply Air Temp Cool Setpoint* source is applied (BAS/Network). |
| **Supply Air Temperature Heat Setpoint Failure**<br>**Used With:** VVDA.<br><br>**Module:** RTM | **Problem:** The source assigned to *SA Temp Heat Setpoint* is out of range (Temperature < 35 F or Temperature > 185 F).<br><br>**Check:** Wiring and external devices on the associated RTM input. | The *Active Supply Air Temp Heat Setpoint* reverts to the default *Supply Air Temp Heat Setpoint* defined at the Human Interface. | (PAR) An automatic reset occurs after the source input assigned to the *Supply Air Temp Heat Setpoint* input returns to within range for 10 continuous seconds, or after a different, valid *Supply Air Temp Heat Setpoint* source is applied (BAS/Network). |
| **Supply Air Temperature Sensor Failure**<br><br>**Used With:** All units.<br><br>**Module:** RTM | **Problem:** The *RTM Supply Air Temperature Sensor* signal is out of range (Temp < -55 F or Temp > 209 F).<br><br>**Check:** The HI value and wiring between the RTM module and the sensor. Removing the plug from the RTM module there should be no shorts, opens and sensor resistance should be between 830 ohms and 345.7Kohms. | These unit functions are disabled:<br>a. Supply Air Tempering<br>b. Economizing<br>c. On CV units, the Supply Air Temperature low limit function is disabled.<br>d. On VAV units, the Supply Air Temperature Control heating and cooling functions are disabled. | (PAR) An automatic reset occurs after the designated Supply Air Temperature input returns to its allowable range. In order to prevent rapid cycling of the Diagnostic, there is a 10 second delay before the automatic reset. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Supply Fan Failure**<br><br>**Module:** RTM | **Problem:** There is no supply irflow indication after the supply fan has been requested on. The supply airflow proving input is detected OPEN for 40 continuous seconds during any period of time in which the supply fan relay is ON. This input is ignored for up to 5 minutes after the supply fan is first started, until airflow is first detected.<br><br>**Check:** Check belts, linkages, etc. on the Supply Fan assembly. If these are ok, check field/unit wiring between RTM and Supply Fan.<br>If Supply Fan will run in service mode, then verify airflow proving switch and wiring. | "OFF or "Close" requests are issued as appropriate to the following functions:<br>a. Compressor staging/ Chilled Water control<br>b. Heat operation<br>c. Supply fan control and proof of operation.<br>d. Return fan control and proof of operation.<br>e. Exhaust fan control and proof of operation<br>f. Exhaust actuator control<br>g. Economizer actuator control<br>h. IGV / VFD control | (PMR) A manual reset is required anytime after the Diagnostic is set. The Diagnostic can be reset by the Human Interface or Tracer, or by cycling power to the RTM. |
| **Supply Fan Proving Failure**<br><br>**Used With:** Required w/ units with isolation dampers (fire dampers) installed to insure proper airflows and proving switch operation.<br><br>**Module:** RTM | **Problem:** The unit has isolation dampers and the *Isolation Damper Interlock* function is set to ENABLED. When the supply fan is requested OFF the unit expects the proving input to OPEN and will prevent the supply fan relay on the RTM from turning on again if being requested to do so. If the switch does not open within 5 minutes this diagnostic will occur.<br><br>**Check:** Check the supply fan airflow proving switch and wiring. | The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog ouputs closed/stop, fan speed, dampers, modulating heat, etc. | (PMR) A manual reset is required anytime after the Diagnostic is set. The Diagnostic can be reset by the Human Interface or Tracer, or by cycling power to the RTM. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Unit HI Communications Failure**<br><br>**Module:** RTM | **Problem:** The RTM has lost communications with the Unit mounted (local) Human Interface (HI).<br><br>**Check:** Field/unit wiring between RTM and Local HI. | A fail-safe function in the HI will:<br>a. disallow any interaction between the HI and the RTM or any other modules.<br>b. render all HI keystrokes ineffective, and<br>c. cause the following to be displayed on the unit-mounted HI display: LOCAL HI COMMUNICATIONS LOSS CHECK COMM LINK WIRING BETWEEN MODULES<br>(If the unit has a remote HI option, then on the remote HI module, this diagnostic will be reported and displayed as any other automatic reset diagnostic.) | (INFO) An automatic reset occurs after communication has been restored between the RTM and the HI. When the failure screen is cleared, the General display is restored and HI interaction with the interaction with the RTM is again permitted. |
| **Unit Economizing When It Should Not**<br><br>**Used With: FDD operation.**<br><br>**Module: RTM / VSM** | **Problem:** Problem: The voltage feedback from the OA Damper actuator indicates the damper has failed OPEN (> 10% of commanded value) during economizer cooling mode for 5 continuous minutes.<br>**Check:** OA Damper apparatus for linkage binding or failure. Wiring/ voltages between actuator and VSM. Wiring/voltages between the RTM and actuator. | None. Only an information diagnostic is annunciated. | (INFO) An automatic reset occurs when any of the following occurs: 1) the unit control has changed, or stopped, or 2) the feedback voltage has returned within its expected range. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Unit Not Economizing When It Should**<br><br>**Used With: FDD operation.**<br><br>**Module: RTM / VSM** | **Problem:** Problem: The voltage feedback from the OA Damper actuator indicates the damper has failed CLOSED (< 10% of commanded value) during economizer cooling mode for 5 continuous minutes.<br>**Check:** OA Damper apparatus for linkage binding or failure. Wiring/ voltages between actuator and VSM. Wiring/voltages between the RTM and actuator. | None. Only an information diagnostic is annunciated. | (INFO) An automatic reset occurs when any of the following occurs: 1) the unit control has changed, or stopped, or 2) the feedback voltage has returned within its expected range. |
| **Unoccupied Dehumidification Setpoint Failure**<br><br>**Module:** RTM | **Problem:** The GBAS input assigned to *Unoccupied Dehumidification Setpoint* is out of range (Humidity < 10% or Humidity > 90%).<br>**Check:** Wiring and external devices on the associated GBAS input. | The *Active Unoccupied Dehumidification Setpoint* reverts to the default Unoccupied Dehumidification *Setpoint* from the Human Interface. | (PAR) An automatic reset occurs after the GBAS input assigned to the *Unoccupied Dehumidification Setpoint* input returns to within range for 10 continuous seconds, or after a different, valid *Unoccupied Dehumidification Setpoint* source is applied (BAS/ Network). |
| **Unoccupied Humidification Setpoint Failure**<br><br>**Module:** RTM | **Problem:** The GBAS input assigned to *Unoccupied Humidification Setpoint* is out of range (Humidity < 10% or Humidity > 90%).<br><br>**Check:** Wiring and external devices on the associated GBAS input. | The *Active Unoccupied Humidification Setpoint* reverts to the default Unoccupied Humidification *Setpoint* from the Human Interface. | (PAR) An automatic reset occurs after the GBAS input assigned to the *Occupied Humidification Setpoint* input returns to within range for 10 continuous seconds, or after a different, valid *Occupied Humidification Setpoint* source is applied (BAS/ Network). |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Unoccupied Zone Cool Setpoint Failure**<br><br>**Module:** RTM | **Problem:** The source assigned to *Unoccupied Zone Cool Setpoint* is out of range (Temperature < 45 F or Temperature > 94 F).<br><br>**Check:** Wiring and external devices on the associated RTM input. | The *Active Unoccupied Zone Cooling Setpoint* reverts to the default *Unoccupied Zone Cooling Setpoint* of the Human Interface. | (PAR) An automatic reset occurs after the source input assigned to the *Unoccupied Zone Cooling Setpoint* input returns to within range for 10 continuous seconds, or after a different, valid *Unoccupied Zone Cooling Setpoint* source is applied (BAS/Network). |
| **Unoccupied Zone Heat Setpoint Failure**<br><br>**Module:** RTM | **Problem:** The source assigned to *Unoccupied Zone Heat Setpoint* is out of range (Temperature < 45 F or Temperature > 94 F).<br><br>**Check:** Wiring and external devices on the associated RTM input. | The *Active Unoccupied Zone Heating Setpoint* reverts to the default *Unoccupied Zone Heating Setpoint* of the Human Interface. | (PAR) An automatic reset occurs after the source input assigned to the *Unoccupied Zone Heating Setpoint* input returns to within range for 10 continuous seconds, or after a different, valid *Unoccupied Zone Heating Setpoint* source is applied (BAS/Network). |
| **VCM Aux Temp. Sensor Failure.**<br><br>**Module:** VCM | **Problem:** At least one enabled unit function has the *VCM Aux Temperature Sensor* input designated as its sensor, and the signal is out of range (Temp < -40 F or Temp > 200 F).<br><br>**Check:** The HI value and wiring between the VCM module and the sensor. Removing the plug from the VCM module there should be no shorts, opens and sensor resistance should be between 830 ohms and 345.7Kohms. | The functions with the *VCM Aux Temperature Sensor* input designated as their sensor are disabled. | (PAR) An automatic reset occurs after the designated temperature input returns to its allowable range. In order to prevent rapid cycling of the Diagnostic, there is a 10 seconds delay before the automatic reset. |
| **VCM Communications Failure.**<br><br>**Module:** VCM | **Problem:** The RTM has lost communications with the VCM module.<br><br>**Check:** Check unit wiring between RTM and VCM module. | Airflow measurement will be disabled and the unit will revert to the default *OA Damper Minimum Position*. $CO_2$ sensor value will be disabled, DCV functionality will be disabled. | PAR) An automatic reset occurs after communication has been restored. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **Velocity Pressure Sensor Failure**<br><br>**Used With:** IPak 1 Fresh Air Measurement (VCM) option.<br><br>**Module:** VCM | **Problem:** The velocity pressure input signal is out of range (During calibration: volts < 40 mV or volts > 420 mV, During operational times: volts < 40 mV or volts > 0.75 V).<br><br>**Check:** Check unit wiring between sensor and VCM, and solenoid and VCM. Check the transducer assembly tubing and operation of the calibration solenoid which should shunt the differential pressure of the track sensor to both the high and low ports of the transducer for a duration of 1 sec. every minute. | Airflow measurement will be disabled and the unit will revert to *OA CFM Compensation Function* if enabled, or to the default *OA Damper Minimum Position*. | (PAR) An automatic reset occurs after the designated velocity pressure transducer sends a signal within range for 10 continuous seconds. |
| **Velocity Pressure Sensor Failure (Left or Right)**<br><br>***Note:*** *"Left" and "Right" are the left side of the unit, or right side, relative to someone facing the control box of the unit.*<br><br>**Used With:** IPak 2 Fresh Air Measurement (VCM) option.<br><br>**Module:** VCM | **Problem:** The velocity pressure input signal of the designated flow station is out of range (During calibration: volts < 40 mV or volts > 420 mV, During operational times: volts < 40 mV or volts > 0.75 V).<br><br>**Check:** Check unit wiring between sensor and VCM, and solenoid and VCM. Check the transducer assembly tubing and operation of the calibration solenoid which should shunt the differential pressure of the traq sensor to both the high and low ports of the transducer for a duration of 1 sec. every minute. | Airflow measurement will be disabled and the unit will revert to *OA CFM Compensation Function* if enabled, or to the default *OA Damper Minimum Position*. | (PAR) An automatic reset occurs after the designated velocity pressure transducer sends a signal within range for 10 continuous seconds. |
| **VOM Communications Failure**<br><br>**Module:** VOM | **Problem:** The RTM has lost communications with the VOM module.<br><br>**Check:** Check unit wiring between RTM and VOM module. | Ventilation override actions will not be allowed, and the VOM Output relay will be de-energized. | (PAR) An automatic reset occurs after communication has been restored. |

**Table 7. Diagnostics Troubleshooting Chart (continued)**

| DIAGNOSTIC DISPLAYED | REASON FOR DIAGNOSTIC | UCM'S REACTION | RESET REQUIRED |
|---|---|---|---|
| **VSM Communications Failure**<br><br>**Module:** VSM | **Problem:** The RTM has lost communications with the VSM module.<br><br>**Check:** Check unit wiring between RTM and VSM module. Check VSM power supply input. | A "Lockout" request is sent to the Compressor Staging/ Speed Control function for the variable speed compressor circuit. A fail-safe function in the MCM will cause the MCM variable speed command output to be zeroed. | (PAR) An automatic reset occurs after communication has been restored. |

# Compressor Inhibits

There are a number of compressor inhibits that may, or may not, be associated with a diagnostics. The Troubleshooting Chart below list all of the possible inhibit conditions as displayed under each Compressor Relay Status:

1. Inhibit Displayed: The string displayed at the HI, associated module, and "used with" info.
2. Reason For Inhibit: The condition which caused the failure mode, and troubleshooting tips.
3. UCM's Reaction: The type of failure, and the unit's response to the failure with additional information.
4. Reset Conditions: The conditions that must exist to clear the diagnostic.

**Table 8. Compressor Inhibit Troubleshooting Chart**

| INHIBIT DISPLAYED | REASON FOR INHIBIT | UCM'S REACTION | RESET CONDITIONS |
|---|---|---|---|
| **Disabled By Compressor Protection**<br><br>**Input:** MCM Ckt Compressor Proving Input | **Problem:** The circuit's proving input of the affected circuit has opened, due to one or more of the electro-mechanical devices located in the main 115vac control has tripped or experienced a failed condition, after at least one compressor has been commanded ON.<br><br>**Check:** Compressor contactor and switch, high pressure cutout switch, compressor protection devices, breakers, fuses, wiring, etc. | All compressors and condenser fans on the affected circuit will be disabled. | The compressors on the affected circuit will remain OFF for a period of 15 minutes on the first 3 occurrences.<br><br>If a 4th occurrence occurs before the compressor(s) run uninhibited for more than 3 minutes a manual lockout will be generated. |

**Table 8. Compressor Inhibit Troubleshooting Chart (continued)**

| INHIBIT DISPLAYED | REASON FOR INHIBIT | UCM'S REACTION | RESET CONDITIONS |
|---|---|---|---|
| **Disabled By Contactor / Drive Fail**<br><br>**Input:** Ckt Compressor Proving Input | **Problem:** The circuit's proving input of the affected circuit has opened, due to one or more of the electro-mechanical devices located in the main 115vac control has tripped or experienced a failed condition, prior to a compressor being commanded ON.<br><br>**Check:** Compressor contactor and switch, high pressure cutout switch, compressor protection devices, breakers, fuses, wiring, etc. | All compressors and condenser fans on the affected circuit will be disabled. | The compressors on the affected circuit will remain OFF on a manual lockout. |
| **Disabled By Low Pressure Cutout**<br><br>**Input:** Ckt Low Pressure Switch | **Source:** The circuit's LPC switch of the affected circuit has opened while at least one compressor on the circuit is being requested ON.<br><br>**Check:** Switch, wiring, charge. | All compressors and condenser fans on the affected circuit will be disabled. | If the LPC is OPEN at the time the compressor is started a manual lockout will be generated.<br><br>If the LPC OPENs after the compressor is commanded ON, the compressors/ condenser fans on the affected circuit will remain OFF for at least the normal 3 minute minimum OFF time.<br><br>If a 3rd occurrence occurs before the compressor(s) run uninhibited for more than 3 minutes a manual lockout will be generated. |
| **Disabled By Bad Cond Temp Sensor**<br><br>**Input:** Ckt Saturated Condenser Temperature Sensor | **Source:** The circuit's condenser temperature sensor has failed, or some aspect of the wiring has failed.<br><br>**Check:** Wiring, pin connections for frayed or marginal crimp/insertion. Sensor resistance values. | All compressors and condenser fans on the affected circuit will be disabled. | The circuit will remain inhibited until the sensor is reporting a value within the normal sensing range. |

**Table 8. Compressor Inhibit Troubleshooting Chart (continued)**

| INHIBIT DISPLAYED | REASON FOR INHIBIT | UCM'S REACTION | RESET CONDITIONS |
|---|---|---|---|
| **Disabled By Demand Limit**<br><br>**Input:** BAS or GBAS Request for Demand Limit. HI setup parameter for Percent Reduction. | **Source:** The UCM is in an active demand limit or BAS capacity limit event and this compressor is affected.<br><br>**Check:** Changed HI request for Demand Limit amount. GBAS5 demand limit input has shorted to ground, or GBAS10 input has opened to 24vdc. Wiring. BAS request. | All compressors will be inhibited for the duration of the request. If all compressors on a given circuit are inhibited the condenser fans on that circuit will terminate as well. | The request for Demand Limit has been removed, or the value for Demand Limit at the Human Interface has been changed to NONE and/or the inhibit value from BAS has been removed. |
| **Disabled By Frost Protection**<br><br>**Input:** Ckt Leaving Evaporator Temperature Sensor | **Source:** At least one compressor on the affected circuit is ON and the circuit's Leaving Evap Sensor has fallen below the Low Leaving Evap Setpoint for a predetermined time.<br><br>**Check:** Low load conditions. Refrigerant charge. Sensor operation and wiring. | The last compressor that was turned ON will be inhibited. If the condition remains the next compressor will be inhibited after a predetermined time and this will continue until all compressors on the affected circuit are inhibited if necessary. | Once the Leaving Evap Temperature sensor value increases sufficiently the inhibits of all compressors will be removed after a predetermined time. |
| **Disabled By BAS Network Lockout**<br><br>**Input:** BAS Front-End Programming. | **Source:** A BAS request to lock all compressors has been received.<br><br>**Check:** BAS front-end programming/scheduling. | All compressors will be locked out as long as the request is persisted. | The request to lockout has been removed. |
| **Disabled By Minimum Off Time**<br><br>**Input:** Normal Staging. | **Source:** Normal unit operation.<br><br>**Check:** n/a | Once a compressor is turned OFF, it will remain OFF for a predetermined amount of time. | Automatic. |
| **Disabled By Low Ambient Lockout**<br><br>**Input:** Outdoor Air Temperature Sensor, and HI Low Ambient Lockout Setpoint. | **Source:** The UCM has determined that the Outside Air Temperature is below the allowable designed operating setpoint of the refrigeration system.<br><br>**Check:** Proper Outside Air Temperature sensor operation. Configuration of the designed low ambient function. | All compressors and condenser fans will be disabled. | The lockout will be removed once the outside air temperature has exceeded the setpoint value by some amount. |

**Table 8. Compressor Inhibit Troubleshooting Chart (continued)**

| INHIBIT DISPLAYED | REASON FOR INHIBIT | UCM'S REACTION | RESET CONDITIONS |
|---|---|---|---|
| **Disabled By Ventilation Override**<br><br>**Input:** VOM Module Inputs or BAS Emergency Override Operation. | **Source:** The UCM is in an active VOM mode or an active BAS Override mode.<br><br>**Check:** VOM module wiring, connectors, etc., BAS request. | All compressors will be inhibited. | The lockout will be removed once all request for VOM and BAS Override are removed. |
| **Disabled By LPC Delay**<br><br>**Input:** Condenser Temperature Sensor for the Circuit. | **Source:** Low Condenser Temperature sensor values on the affected circuit were detected at the first compressor start on that circuit.<br><br>**Check:** Condenser temperature sensor. | The second compressor on the affected circuit will be inhibited for a predetermined amount of time based on the value of the Condenser temperature at first compressor start. | The lockout will be removed after the predetermined time. |
| **Disabled By Coil Purge Request**<br><br>**Input:** Hardcoded 60 minute timer. | **Source:** The UCM is configured with Hot Gas Reheat and compressors on the reheat circuit have been active for a accumulated time of 60 minutes without changing modes.<br><br>**Check:** N/A | At least one compressor on the reheat circuit will be inhibited. | The lockout will be removed once the request for purge mode is terminated. |
| **Disabled By Low Charge Protection**<br><br>**Input:** The Evaporator Leaving and Entering Temperature Sensor Difference has exceeded the setpoint. | **Source:** The calculated evaporator temperature differential has exceeded Evaporator Differential Setpoint after 10 minutes of compressor operation on that circuit.<br><br>**Check:** Refrigerant charge or reset setpoint to proper value. | All compressors and condenser fans on the affected circuit will be disabled. | A manual lockout of this circuit will be performed. |
| **Disabled By Evap Temp Sensor Fail**<br><br>**Input:** Ckt Evaporator Temperature Sensor. | **Source:** The circuit's entering or leaving temperature sensor has failed, or some aspect of the wiring has failed.<br><br>**Check:** Wiring, pin connections for frayed or marginal crimp/insertion. Sensor resistance values. | All compressors and condenser fans on the affected circuit will be disabled. | The circuit will remain inhibited until the sensor is reporting a value within the normal sensing range. |

**Table 8. Compressor Inhibit Troubleshooting Chart (continued)**

| INHIBIT DISPLAYED | REASON FOR INHIBIT | UCM'S REACTION | RESET CONDITIONS |
|---|---|---|---|
| **Disabled By Low Reheat Evap Temp**<br><br>**Input:** Leaving Evaporator Temperature Sensor | **Source:** Excessively low suction pressures during active Hot Gas Reheat mode.<br><br>**Check:** Low airflows through evaporator, low refrigerant charge, Leaving Evap Temp Sensor. | All compressors and condenser fans on the given circuit will be affected and eventually be disabled. | The inhibit will be removed once the temperature has risen to greater than 45°F. |
| **Disabled By Communications Failures**<br><br>**Input:** Communications Wiring/ Modules | **Source:** Communications with one or more modules providing compressor support has been lost.<br><br>**Check:** Module wiring, connectors and module operation. | All compressors will be locked out. | Communications has been re-established. |
| **Disabled By Comp Press Differential**<br><br>**Input:** Condensing and Evaporator temperature sensors. Condenser fan speed and staging control. | **Check:** Condenser fan speed and staging operation. Proper values for entering and leaving evaporator temperature sensors. | One or more compressors on the affected circuit will be inhibited. | Conditions of refrigerant for the affected circuit have returned to normal. |
| **Disabled By High Ambient Protection**<br><br>**Input:** Ckt Condenser Fan Staging and Speed Modulation. | **Source:** The saturated condensing temperature of at least one circuit has exceeded the target setpoint for the given unit configuration.<br><br>**Note:** The effects of ambient temperature are considered to have an excessive influence on the saturated condensing temperature's operating points.<br><br>**Check:** Condenser fan speed and staging operation. | The control will attempt to reduce the pressure by reducing the number of compressors operating on all circuits. All compressors will be inhibited for a predetermined amount of time if the pressure remains high. | The saturated condensing temperature of both circuits has reduced sufficiently below the target setpoint for the given unit configuration. |

**Table 8. Compressor Inhibit Troubleshooting Chart (continued)**

| INHIBIT DISPLAYED | REASON FOR INHIBIT | UCM'S REACTION | RESET CONDITIONS |
|---|---|---|---|
| **Limited By High Suction Pressure Conditions**<br><br>**Input:** Entering and Leaving Evaporator Temperature Sensors. | **Source:** The estimated suction pressure has exceeded the target setpoint for the given unit configuration.<br><br>**Check:** Entering and Leaving Temperature Sensors. Wiring, connections. | Units with variable speed compressors will limit the operation of those compressors to within a specified range. | The estimated suction pressure has reduced sufficiently below the target setpoint for the given unit configuration. |

# Module Input/Output Descriptions

**Table 9. Module I/O Descriptions**

| UNIT MODULE | ANALOG INPUTS | ANALOG OUTPUTS | BINARY INPUTS | BINARY OUTPUTS |
|---|---|---|---|---|
| **Human Interface Module (LHI or RHI)** | • None | • None | • None | • None |
| **Rooftop Module (RTM)** | • Zone Temp Sensor<br>• S/A Temp Sensor<br>• O/A Temp Sensor<br>• Mode Input (from remote panel)<br>• Cooling Setpoint (from remote panel)<br>• Heating Setpoint (from remote panel)<br>• S/A Pressure Transducer<br>• O/A Humidity Sensor<br>• Aux Temp Sensor<br>• Economizer Min. Pos.<br>• Space Humidity Sensor | • O/A Damper Output<br>• IGV/VFD Outputs | • Emergency Stop<br>• Dehumidification Configuration Input<br>• External Auto/Stop<br>• Occupied/ Unoccupied<br>• Supply Airflow Proof<br>• Dirty Filter<br>• VAV Changeover<br>• IntelliPak 2 Configuration Input<br>• Dirty Final Filter<br>• Exhaust/Return Airflow | • Occupied/ Unoccupied<br>• Relay<br>• Alarm Relay<br>• Supply Fan Relay<br>• LED 1-4 Transistor<br>• Exhaust/return Fan Relay<br>• Humidification Relay |

**Table 9. Module I/O Descriptions (continued)**

| UNIT MODULE | ANALOG INPUTS | ANALOG OUTPUTS | BINARY INPUTS | BINARY OUTPUTS |
|---|---|---|---|---|
| **Multiple Circuit Compressor Module (MCM)** | • Leaving Evap Temp Sensor (Ckt-1)<br>• Leaving Evap Temp Sensor (Ckt-2)<br>• Entering Evap Temp Sensor (Ckt-1)<br>• Entering Evap Temp Sensor (Ckt-2)<br>• Saturated Condenser Temp Sensor (Ckt-1)<br>• Saturated Condenser Temp Sensor (Ckt-2)<br>• Sump Water Temp (Ckt-1) | • Condenser Fan Speed<br>• (Low Ambient Ckt-1)<br>• Condenser Fan Speed<br>• (Low Ambient Ckt-2) | • Low Pressure Control (Ckt-1)<br>• Low Pressure Control (Ckt-2)<br>• Compressor Proving (Ckt-1)<br>• Compressor Proving (Ckt-2)<br>• Water Level Min<br>• Water Level Max<br>• Sump Pump Proving<br>• External Sump Drain Request<br>• Low VI Config | • Compressor Relay (K11)<br>• Compressor Relay (K12)<br>• Compressor Relay (K3)<br>• Compressor Relay (K4)<br>• Condenser Fan 1A<br>• Condenser Fan 1B<br>• Condenser Fan 2A<br>• Condenser Fan 2B<br>• Sump Pump ON/OFF<br>• Sump Heat ON/OFF<br>• Sump Fill<br>• Sump Drain |
| **Heat Module (HEAT)** | • Morning Warmup Temperature Sensor (Heat Aux Temp) | • Modulating Heat / Chilled Water Actuator | • HW Freeze Status<br>• (Heat Fail w/ Staged)<br>• CW Freeze Status | • Heat 1 (K11) Relay<br>• Heat 2 (K12) Relay<br>• Heat 3 (K1) Relay |
| **Exhaust / Comparative Enthalpy Module (ECEM)** | • Return Air Temperature Sensor<br>• Return Air Humidity Sensor<br>• Space Pressure | • Exhaust Fan Speed-Damper | • None | • Space Pressure Calibration Solenoid |
| **Ventilation Control Module (VCM)** | • Front Velocity Pressure Transducer<br>• Back Velocity Pressure Transducer<br>• Auxiliary Temperature<br>• Space $CO_2$ Sensor | • Outside Air CFM (PCB Only) | • None | • Preheater Relay<br>• Pressure Calibration |
| **Ventilation Override Module (VOM)** | | • None | • VOM Mode A Contacts<br>• VOM Mode B Contacts<br>• VOM Mode C Contacts<br>• VOM Mode D Contacts<br>• VOM Mode E Contacts | • VOM Relay |
| **Variable Speed Compressor Module (VSM)** | • None<br>• OA Damper Actuator feedback voltage. | • Variable Speed Compressor Command | • None | • None |

**Table 9. Module I/O Descriptions (continued)**

| UNIT MODULE | ANALOG INPUTS | ANALOG OUTPUTS | BINARY INPUTS | BINARY OUTPUTS |
|---|---|---|---|---|
| **Generic BAS Module 5V (GBAS5)** | • Configuration Module<br>• Analog Input 1<br>• Analog Input 2<br>• Analog Input 3<br>• Analog Input 4<br>***Note:***<br>1. Each of these inputs can be configured as defined in GBAS(5VDC) input assignments.<br>2. No 2 inputs can be assigned to the same definition.<br>3. The min voltage (0.5vdc) is associated with the min range of the assigned setpoint.<br>4. The max voltage (4.5vdc) is associated with the max range of the assigned setpoint. | • None | • Binary Input 1<br>***Note:*** *This input is designated as the GBAS5 Demand Limit Input* | • Binary Output 1<br>• Binary Output 2<br>• Binary Output 3<br>• Binary Output 4<br>• Binary Output 5<br>***Note:*** *These outputs, when energized, indicated the diagnostic(s) assigned to them under GBAS5 output assignments are active.* |
| **Generic BAS Module 10V (GBAS10)** | • Analog Input 1<br>• Analog Input 2<br>• Analog Input 3<br>• Analog Input 4<br>***Note:***<br>1. Each of these inputs can be configured as defined in GBAS(10VDC) input assignments.<br>2. No 2 inputs can be assigned to the same definition.<br>3. The min voltage (0.5vdc) is associated with the min range of the assigned setpoint.<br>4. The max voltage (9.5vdc) is associated with the max range of the assigned setpoint. | • Analog Output 1<br>• Analog Output 2<br>• Analog Output 3<br>• Analog Output 4<br>***Note:***<br>1. Each output can be configured as defined in GBAS(10VDC) analog output assignments.<br>2. The min voltage (0.5vdc) is associated with the min range of the assigned value.<br>3. The max voltage (9.5vdc) is associated with the max range of the assigned value. | • Binary Input 1<br>***Note:*** *This input is designated as the GBAS10 Demand Limit Input* | • Binary Output 1<br>***Note:*** *This output, when energized, indicates the diagnostic(s) assigned to them under GBAS10 output assignments are active.* |

**Table 9. Module I/O Descriptions (continued)**

| UNIT MODULE | ANALOG INPUTS | ANALOG OUTPUTS | BINARY INPUTS | BINARY OUTPUTS |
|---|---|---|---|---|
| **Multi-Purpose Module (MPM)** | • Return Air Plenum Pressure<br>• Liquid Line Pressure Ckt 1<br>• Liquid Line Pressure Ckt 2<br>• Leaving Recovery Temperature | • Outdoor Air Bypass Damper<br>• Exhaust Air Bypass Damper/Return Fan Speed | • Dirty Recovery Filter | • Energy Recovery Wheel<br>• Return Air Plenum Pressure Calibration<br>• Energy Recovery Preheat |
| **Modulating Dehumidification Module (MDM)** | | • Reheat Valve Output (Phase A & B)<br>• Cooling Valve Output (Phase A & B) | | • Reheat Pumpout Relay |
| **Interprocessor Communications Bridge Module (IPCB)** | • None | • None | • None | • None |

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