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.

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*HG*90-130
- S*HL*20-75
- S*HK*90-130 W*HB, W*HE

IntelliPak™ 2 models
- S*HJ090-162
- W*HCA-C

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.
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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.
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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

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

Table 1. Acronyms (continued)

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

Notes:
1. Echelon, LON, LONWORKS, LonBuilder, NodeBuilder, LonManager, LonTalk, LonUsers, Neuron, 3120, 3150, the Echelon logo, and the LonUsers logo are trademarks of Echelon Corporation registered in the United States and other countries. LonLink, LonResponse, LonSupport, LonMaker, and LonPoint are trademarks of Echelon Corporation.
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.


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.
Commonly Used Acronyms

**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.
Commonly Used Acronyms

**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 SATemp Setpoint after supply air temperature reset has been applied.

**Supply Air Temperature Reset.** A function that shifts the SATemp Setpoint an amount based on the value of another parameter—typically ZoneTemp or Outdoor AirTemp. 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 - 5V or 0 - 10V depending on the module selected)
Commonly Used Acronyms

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 TraneTracer 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 TraneTracer 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.
Commonly Used Acronyms

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.
Commonly Used Acronyms

**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
General Status Display

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.

<table>
<thead>
<tr>
<th>Top Left Field:</th>
<th>Top Right Field:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stop by Network</td>
<td>Supply Fan ON</td>
</tr>
<tr>
<td>Initializing</td>
<td>Diagnostics</td>
</tr>
</tbody>
</table>

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

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.

<table>
<thead>
<tr>
<th>Top Left Field:</th>
<th>Top Middle Field:</th>
<th>Top Right Field:</th>
</tr>
</thead>
<tbody>
<tr>
<td>VVDA OA Flow</td>
<td>380.0 CCFM</td>
<td>Supply Fan ON</td>
</tr>
<tr>
<td>Occupied</td>
<td>Cool 2</td>
<td>Diagnostics</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Ventilation Override Mode</th>
<th>Diagnostics</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESSURIZE</td>
<td></td>
</tr>
</tbody>
</table>

Used With: LCI or BCI Options
Top Left Field: PRESSURIZE
Top Right Field: (blank)
Bottom Left Field: PRESSURIZE
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.

<table>
<thead>
<tr>
<th>Ventilation Override Mode</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostics</td>
<td></td>
</tr>
</tbody>
</table>

Used With: VOM Option
Possible Values: A, B, C, D, E, OFF
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.

<table>
<thead>
<tr>
<th>NO CONFIGURATION PRESENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESS CONFIGURATION KEY</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>MODULE SOFTWARE VERSION MISMATCHED</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESS CONFIGURATION KEY</td>
</tr>
</tbody>
</table>

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.)*

<table>
<thead>
<tr>
<th>Adjustable Function</th>
<th>Factory Preset</th>
<th>Changed To</th>
<th>To adjust press...</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Function</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit Address (Comm3/Comm4only)</td>
<td>1</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>System Mode</td>
<td>Auto</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Supply Fan Mode</td>
<td>Auto</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Unit Start Delay</td>
<td>0</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Single Zone VAV Econ Control</td>
<td>Enabled</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Single Zone VAV Heat Control</td>
<td>Disabled</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Daytime Warm-up</td>
<td>Disabled</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Morning Warm-up</td>
<td>Enabled</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Morning Warm-up type</td>
<td>Cycling</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Supply Air Tempering</td>
<td>Disabled</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Unoccupied Mechanical Cooling</td>
<td>Enable</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Unoccupied Heating</td>
<td>Enable</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Unoccupied Mechanical Cooling</td>
<td>Enable</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Unoccupied Heating</td>
<td>Enable</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Occupied Dehumidification</td>
<td>Enable</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Unoccupied Dehumidification</td>
<td>Enable</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Occupied Humidification</td>
<td>Disable</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Unoccupied Humidification</td>
<td>Disable</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Rapid Restart Economizer Control</td>
<td>Disable</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>VCM Preheat Output</td>
<td>Disable</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Demand Limit Definition - Cooling</td>
<td>None</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Demand Limit Definition - Heating</td>
<td>None</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Compressor Lead/Lag</td>
<td>Enable</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Evap Temperature Limit</td>
<td>35 F</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Coil Frost Cutout Temp</td>
<td>30 F</td>
<td>___________</td>
<td>Setup</td>
</tr>
<tr>
<td>Isolation Damper Interlock</td>
<td>Disable</td>
<td>___________</td>
<td>Setup</td>
</tr>
</tbody>
</table>

**Information Format**

| Display Text | English | ___________ | Setup |
| Display Units | English | ___________ | Setup |

**VAV Control**

| SA Temp Reset Cool | None | ___________ | Setup |
## General Status Display

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

<table>
<thead>
<tr>
<th>Adjustable Function</th>
<th>Factory Preset</th>
<th>Changed To</th>
<th>To adjust press...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset Cool Start Temp (Zone/OA)</td>
<td>(72/90)</td>
<td>Setup</td>
<td></td>
</tr>
<tr>
<td>Reset Cool End Temp (Zone/OA)</td>
<td>(69/70)</td>
<td>Setup</td>
<td></td>
</tr>
<tr>
<td>Reset Cool Max Amount</td>
<td>5</td>
<td>Setup</td>
<td></td>
</tr>
<tr>
<td>SA Temp Reset Heat</td>
<td>None</td>
<td>Setup</td>
<td></td>
</tr>
<tr>
<td>Reset Heat Start Temp (Zone/OA)</td>
<td>(65/10)</td>
<td>Setup</td>
<td></td>
</tr>
<tr>
<td>Reset Heat End Temp (Zone/OA)</td>
<td>(68/60)</td>
<td>Setup</td>
<td></td>
</tr>
<tr>
<td>Reset Heat Max Amount</td>
<td>10</td>
<td>Setup</td>
<td></td>
</tr>
<tr>
<td>VAV Box Stroke Time</td>
<td>6 Min</td>
<td>Setup</td>
<td></td>
</tr>
<tr>
<td>Max Occ. IGV/VFD Command</td>
<td>100 %</td>
<td>Setup</td>
<td></td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Adjustable Function</th>
<th>Factory Preset</th>
<th>Changed To</th>
<th>To adjust press...</th>
</tr>
</thead>
<tbody>
<tr>
<td>OA Flow Calibration Gain (Left)</td>
<td>1.0</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>OA Flow Calibration Offset (Left)</td>
<td>0 CFM</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>OA Flow Calibration Gain (Right)</td>
<td>1.0</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>OA Flow Calibration Offset (Right)</td>
<td>0 CFM</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>OA Normalization</td>
<td>100 CCFM</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>OA Flow Calibration Data - Altitude:</td>
<td>0 Ft</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>RTM Alarm Output Definition</td>
<td>Any Active Diagnostic</td>
<td></td>
<td>Setup</td>
</tr>
</tbody>
</table>

GBAS Input/Output Definitions

<table>
<thead>
<tr>
<th>GBAS (0-5) Analog Input 1 Definitions</th>
<th>Not Assigned</th>
<th></th>
<th>Setup</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBAS (0-5) Analog Input 2 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>GBAS (0-5) Analog Input 3 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>GBAS (0-5) Analog Input 4 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>GBAS (0-5) Output 1 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>GBAS (0-5) Output 2 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>GBAS (0-5) Output 3 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>GBAS (0-5) Output 4 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>GBAS (0-5) Output 5 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GBAS (0-10) Analog Input 1 Definitions</th>
<th>Not Assigned</th>
<th></th>
<th>Setup</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBAS (0-10) Analog Input 2 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>GBAS (0-10) Analog Input 3 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>GBAS (0-10) Analog Input 4 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>GBAS (0-10) Output 1 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>GBAS (0-10) Output 2 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>GBAS (0-10) Output 3 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>GBAS (0-10) Output 4 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>GBAS (0-10) Output 5 Definitions</td>
<td>Not Assigned</td>
<td></td>
<td>Setup</td>
</tr>
</tbody>
</table>

Ventilation Override Definition

Temperature Input Offset for...

<table>
<thead>
<tr>
<th>RTM Zone Temperature</th>
<th>0 deg F</th>
<th></th>
<th>Setup</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTM Aux Temperature</td>
<td>0 deg F</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Outdoor Air Temperature</td>
<td>0 deg F</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Heat Aux Temperature</td>
<td>0 deg F</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Return Air Temperature</td>
<td>0 deg F</td>
<td></td>
<td>Setup</td>
</tr>
</tbody>
</table>

Device Characteristics...

Outside Air Damper (if equipped)

<table>
<thead>
<tr>
<th>Actuator Setup</th>
<th>Direct</th>
<th></th>
<th>Setup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Stroke Time</td>
<td>30 sec</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Max Voltage</td>
<td>10 VDC</td>
<td></td>
<td>Setup</td>
</tr>
</tbody>
</table>
## General Status Display

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

<table>
<thead>
<tr>
<th>Adjustable Function</th>
<th>Factory Preset</th>
<th>Changed To</th>
<th>To adjust press...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min Voltage</td>
<td>2 VDC</td>
<td>Setup</td>
<td></td>
</tr>
</tbody>
</table>

**Supply Fan IGV/VFD (if equipped)**
- Actuator Setup: Direct
- Max Stroke Time: 30/0 sec
- Max Voltage: 10 VDC
- Min Voltage: 2 VDC

**Return Fan VFD (if equipped)**
- Actuator Setup: Direct
- Max Stroke Time: 60/0 sec
- Max Voltage: 10 VDC
- Min Voltage: 2 VDC

**Exhaust Damper/VFD (if equipped)**
- Actuator Setup: Direct
- Max Stroke Time: 60 sec
- Max Voltage: 10 VDC
- Min Voltage: 0 VDC

**Hydronic Heat (if equipped)**
- Actuator Setup: Direct
- Max Stroke Time: 60 sec
- Max Voltage: 10 VDC
- Min Voltage: 2 VDC

**Low Ambient Damper Ckt-1 (if equipped)**
- Actuator Setup: Direct
- Max Stroke Time: 60 sec
- Max Voltage: 10 VDC
- Min Voltage: 2 VDC

**Low Ambient Damper Ckt-2 (if equipped)**
- Actuator Setup: Direct
- Max Stroke Time: 60 sec
- Max Voltage: 10 VDC
- Min Voltage: 2 VDC

**Cond Fan VFD Ckt -1 (if equipped)**
- Actuator Setup: Direct
- Max Stroke Time: 60 sec
- Max Voltage: 10 VDC
- Min Voltage: 0 VDC
Table 2. Factory Presets List (continued) (Note: Listed items availability is dependent on unit configuration.)

<table>
<thead>
<tr>
<th>Adjustable Function</th>
<th>Factory Preset</th>
<th>Changed To</th>
<th>To adjust press...</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cond Fan VFD Ckt-2 (if equipped)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actuator Setup</td>
<td>Direct</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Max Stroke Time</td>
<td>60 sec</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Max Voltage</td>
<td>10 VDC</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Min Voltage</td>
<td>0 VDC</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td><strong>Modulating Gas Heat Actuator (if equipped)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actuator Setup (IPak 1(^{(a)})/IPak 2(^{(b)}))</td>
<td>(Reverse/Direct)</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Max Stroke Time</td>
<td>90 sec</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Max Voltage</td>
<td>10 VDC</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Min Voltage (IPak 1/IPak 2(^{(c)}))</td>
<td>(5 VDC/2 VDC)</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td><strong>Outdoor Air Bypass Damper (if equipped)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actuator Setup</td>
<td>Direct</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Max Stroke Time</td>
<td>60 sec</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Max Voltage</td>
<td>10 VDC</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Min Voltage</td>
<td>2 VDC</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td><strong>Exhaust Bypass Damper (if equipped)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actuator Setup</td>
<td>Direct</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Max Stroke Time</td>
<td>60 sec</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Max Voltage</td>
<td>10 VDC</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Min Voltage</td>
<td>2 VDC</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td><strong>Variable Speed Comp (if equipped)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actuator Setup</td>
<td>Direct</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Max Stroke Time</td>
<td>30 sec</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Max Voltage</td>
<td>10 VDC</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td>Min Voltage</td>
<td>0 VDC</td>
<td></td>
<td>Setup</td>
</tr>
<tr>
<td><strong>Default Setpoints</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply Air Cooling (VAV/SZVAV)(^{(a)})</td>
<td>(55 F/50 F)</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Supply Air Heating (VAV/SZVAV)(^{(a)})</td>
<td>(100 F/105 F)</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>SA Cool Deadband (VSPD)(^{(a)})</td>
<td>(8.0 F/2.0 F)</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>SA Heat Deadband</td>
<td>4.0 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>DWU Initiate</td>
<td>67 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>DWU Terminate</td>
<td>71 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Occupied Zone Cooling</td>
<td>74 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Occupied Zone Heating</td>
<td>71 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Zone Derived Setpoint</td>
<td>4 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Unoccupied Zone Cooling</td>
<td>85 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Unoccupied Zone Heating</td>
<td>60 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Unoccupied Zone MWU</td>
<td>72 F</td>
<td></td>
<td>Setpoints</td>
</tr>
</tbody>
</table>
### General Status Display

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

<table>
<thead>
<tr>
<th>Adjustable Function</th>
<th>Factory Preset</th>
<th>Changed To</th>
<th>To adjust press...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid Restart Critical Temp(a)</td>
<td>90 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Occ Dehumidification</td>
<td>60%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Occ Dehumid Hysteresis Offset</td>
<td>5%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Unocc Dehumidification</td>
<td>60%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Unocc Dehumid Hysteresis Offset</td>
<td>5%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Supply Air Reheat Setpoint</td>
<td>70 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Supply Air Reheat Deadband</td>
<td>4 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Maximum Reheat Valve Limit</td>
<td>85%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Dehumid Ovrd High Zone Temp</td>
<td>75 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Dehumid Ovrd Low Zone Temp</td>
<td>68 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Cond Coil Purge Interval</td>
<td>90 Min</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Occ Humidification</td>
<td>30%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Occ Humidification Hysteresis Offset</td>
<td>5%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Unocc Humidification</td>
<td>30%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Unocc Humidification Hysteresis Offset</td>
<td>5%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Economizer Cooling Setpoint Suppression (CV)</td>
<td>3 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Reference Enthalpy</td>
<td>25 BTU/LB</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Economizer Drybulb Enable Stpt</td>
<td>75 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Supply Air Low Limit</td>
<td>50 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>VCM Preheat Actuate Temp</td>
<td>35 F</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Design Min CO2 (DCV)</td>
<td>1000 PPM</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>DCV Min CO2</td>
<td>800 PPM</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Design Min OA Flow (DCV)</td>
<td>220 CCFM</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>DCV Min OA Flow</td>
<td>67 CCFM</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>DCV Min OA Flow Deadband</td>
<td>5 CCFM</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Min OA Flow w/ VCM</td>
<td>Set per unit size</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Min OA Flow Deadband</td>
<td>Set per unit size</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Design Min OA Damper Position (DCV)</td>
<td>15%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>DCV Min OA Damper Position</td>
<td>5%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>OA Damper Min Position (non-DCV)</td>
<td>15%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>OAD Min Position w/IGV/VFD at 0%</td>
<td>25%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>OAD Min Position w/IGV/VFD at 50%</td>
<td>20%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>OAD Min Position w/IGV/VFD at 100%</td>
<td>15%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>OAD Min Position (Default)</td>
<td>15%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Supply Air Pressure</td>
<td>2.0 IWC</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Supply Air Pressure High Limit</td>
<td>4.0 IWC</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Supply Air Pressure Deadband</td>
<td>0.5 IWC</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Max Return Plenum Pressure</td>
<td>0.8 IWC</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Return Plenum Pressure Deadband</td>
<td>0.1 IWC</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Space Pressure - Setpoint</td>
<td>0.08 IWC</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Space Pressure - Deadband</td>
<td>.04 IWC</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Space Pressure Low Limit</td>
<td>-0.2 IWC</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Exhaust Enable Point</td>
<td>25%</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Exhaust Inhibit Point</td>
<td>DISABLE</td>
<td></td>
<td>Setpoints</td>
</tr>
<tr>
<td>Adjustable Function</td>
<td>Factory Preset</td>
<td>Changed To</td>
<td>To adjust press...</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>----------------</td>
<td>------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Low Ambient Comp. Lockout (Standard Units)</td>
<td>50 F</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Low Ambient Comp. Lockout (Low Ambient Units)</td>
<td>0 F</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Standby Freeze Avoidance</td>
<td>0%</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Recovery Frost Avoidance Setpoint</td>
<td>27 F</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Setpoint Source Selection For...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply Air Temp Cooling</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Supply Air Temp Heating</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Occupied Zone Cooling</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Occupied Zone Heating</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Unoccupied Zone Cooling</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Unoccupied Zone Heating</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Morning Warm-Up</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Economizer Dry Bulb Enable</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Outside Damper Minimum Position</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Occupied Dehumidification</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Unoccupied Dehumidification</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Supply Air Reheat</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Occupied Humidity</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Unoccupied Humidity</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Minimum Outside Air Flow Rate</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Supply Air Pressure</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
<tr>
<td>Space Pressure</td>
<td>Hi Default</td>
<td>_________</td>
<td>Setpoints</td>
</tr>
</tbody>
</table>

(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
General Status Display

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.
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.
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**

<table>
<thead>
<tr>
<th>VVDA OA Flow  350.0 CCFM</th>
<th>Supply Fan ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupied</td>
<td>Cool 4</td>
</tr>
<tr>
<td>Diagnostics</td>
<td></td>
</tr>
</tbody>
</table>

- Press Next/Previous keys to navigate.

**GENERAL SYSTEM STATUS SUBMENU SCREENS**

**General System Status Submenu**

- Press ENTER to View Data in this Submenu

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

- Press Next/Previous keys to navigate.

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

- Press Next/Previous keys to navigate.

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

- Press Next/Previous keys to navigate.

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

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

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

• Press Next/Previous keys to navigate.

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

Exhaust Fan 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.

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
DISABLED By BAS/Network
Stage: 0,1,2,3,4,5,6
K*: ON, OFF
### STATUS Menu

**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  
  - DISABLED 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  
  - DISABLED 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  
  - DISABLED By BAS/Network
- **Position:** 0 to 100%

**OR**

**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  
  - DISABLED 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

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

• 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
STATUS Menu

Compressor Status Submenu
Press ENTER to View Data in This Submenu

• 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.

**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.

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:** Units w/DX Cooling

**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"]

**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"]

**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.

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:**  
**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]

**Used With:** IPak 2 DX Cooling  
**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

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

• Press Next/Previous keys to navigate.

**Circuit 1**

Evap Diff: 5.0°F
Enter Evap: 48.5°F
Leave Evap: 53.5°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.

**Circuit 1**

Saturated Condensing Temp: 100.0°F

• Press Next/Previous keys to navigate.

**Used With:** DX Cooling

**Possible Values:**

Evap Diff: 0.0 to 200.0°F
Enter Evap: -40.0 to 200.0°F
Leave Evap: -40 to 200.0°F

**Used With:** DX Cooling,

**Possible Values:**

Temp: -40.0 to 200.0°F
**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.

**Circuit 2**

**Saturated Condensing Temp:** 97.0°F

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

**Circuit 1**

**Cond Fan Staging**

**K1:** ON  
**K2:** ON

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

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

**Circuit 2**

**Cond Fan Staging**

**K5:** ON  
**K6:** ON

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

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

**Condenser Fan Speed:**

**Circuit 1:** 100%  
**Circuit 2:** 100%

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

- Press **Next/Previous** keys to navigate.
### STATUS Menu

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Used With:</th>
<th>Possible Values:</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condenser Sump Water Temp</td>
<td>73.1°F</td>
<td>DX Cooling w/Water-Cooled Condensers</td>
<td>Temp: 0.0 to 200.0°F</td>
<td></td>
</tr>
<tr>
<td>Condenser Sump Heater Relay</td>
<td>OFF</td>
<td></td>
<td>Relay: ON, OFF</td>
<td></td>
</tr>
<tr>
<td>&quot;Cond Sump Heater Relay&quot; only shown if Sump Heater installed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Press <strong>Next/Previous</strong> keys to navigate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condenser Sump Pump Relay Command</td>
<td>ON</td>
<td>DX Cooling w/Water-Cooled Condensers</td>
<td>Relay: ON, OFF Proving: FLOW, NO FLOW</td>
<td></td>
</tr>
<tr>
<td>Condenser Sump Pump Proving</td>
<td>FLOW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Press <strong>Next/Previous</strong> keys to navigate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condenser Sump Fill Relay</td>
<td>OFF</td>
<td>DX Cooling w/Water-Cooled Condensers</td>
<td>Relay: ON, OFF</td>
<td></td>
</tr>
<tr>
<td>Condenser Sump Fill Valve</td>
<td>OPEN</td>
<td></td>
<td>Valve: CLOSED, OPEN</td>
<td></td>
</tr>
<tr>
<td>• Press <strong>Next/Previous</strong> keys to navigate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condenser Sump Drain Relay</td>
<td>ON</td>
<td>DX Cooling w/Water-Cooled Condensers</td>
<td>Sump Drain Relay: ON, OFF</td>
<td></td>
</tr>
<tr>
<td>Condenser Sump Drain Valve</td>
<td>CLOSED</td>
<td></td>
<td>Sump Drain Valve: CLOSED, OPEN</td>
<td></td>
</tr>
<tr>
<td>&quot;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.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Press <strong>Next/Previous</strong> keys to navigate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cond Sump Water Level Max Input</td>
<td>OPEN</td>
<td>DX Cooling w/Water-Cooled Condensers</td>
<td>Max Input: CLOSED, OPEN</td>
<td></td>
</tr>
<tr>
<td>Cond Sump Water Level Min Input</td>
<td>CLOSED</td>
<td></td>
<td>Min Input: CLOSED, OPEN</td>
<td></td>
</tr>
<tr>
<td>• Press <strong>Next/Previous</strong> keys to navigate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Sump Drain Request</td>
<td>INACTIVE</td>
<td>DX Cooling w/Water-Cooled Condensers</td>
<td>ACTIVE, INACTIVE</td>
<td></td>
</tr>
<tr>
<td>• Press <strong>Next/Previous</strong> keys to navigate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reheat Coil Pumpout Relay</td>
<td>OFF</td>
<td>DX Cooling w/Dehumidification</td>
<td>Relay: ON, OFF</td>
<td></td>
</tr>
<tr>
<td>Reheat Coil Pumpout Valve</td>
<td>CLOSED</td>
<td></td>
<td>Valve: CLOSED, OPEN</td>
<td></td>
</tr>
<tr>
<td>• Press <strong>Next/Previous</strong> keys to navigate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dehumid Reheat Valve Position: 0%
Dehumid Cooling Valve Position: 100%

- Press Next/Previous keys to navigate.

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

- Press Next/Previous keys to navigate.

ECONOMIZER STATUS SUBMENU SCREENS

- 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%

“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.
STATUS Menu

Active Outside Air Enthalpy  29.5 BTU/LB
ECEM Return Air Enthalpy     34.0 BTU/LB

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

Used With: Units w/Economizer
Possible Values:
OA Enthalpy: 10 to 35 BTU/LB
RA Enthalpy: 10 to 35 BTU/LB

• Press Next/Previous keys to navigate.

Active Outside Air Temperature  86.0°F
ECEM Return Air Temperature     78.0°F

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

Used With: Units w/Economizer
Possible Values:
OA Temp: -40 to 200°F
RA Temp: -40 to 200°F

• Press Next/Previous keys to navigate.

Active Outside Air Humidity       30 %RH
ECEM Return Air Humidity          62 %RH

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

Used With: Units w/Economizer
Possible Values:
OA Humidity: 10 to 90%
RA Humidity: 10 to 90%

• 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
Press ENTER to View Data in this Submenu

Demand Control Ventilation is  ENABLED
Space CO2 Level:         600 PPM

“Space CO2 Level” is shown only if “Demand Control Ventilation” is ENABLED

Used With: Units w/Fresh Air Options

Used With: All Units
Possible Values:
DCV:  ENABLED, DISABLED
CO2 Level: 50 to 2200 PPM

• 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

<table>
<thead>
<tr>
<th>Target</th>
<th>250.0 CCFM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deadband</td>
<td>5.0 CCFM</td>
</tr>
<tr>
<td>OA Flow</td>
<td>234.3 CCFM</td>
</tr>
</tbody>
</table>

**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

---

### Active Min OA Flow Setpoint

<table>
<thead>
<tr>
<th>Setpoint</th>
<th>140.3 CCFM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deadband</td>
<td>6.8 CCFM</td>
</tr>
<tr>
<td>OA Flow</td>
<td>143.5 CCFM</td>
</tr>
</tbody>
</table>

**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

---

### Active Min OA Flow Setpoint

<table>
<thead>
<tr>
<th>Setpoint</th>
<th>140.3 CCFM</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2 Level</td>
<td>1100 PPM</td>
</tr>
<tr>
<td>OA Damper Pos</td>
<td>99 %</td>
</tr>
</tbody>
</table>

**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

---

### Outside Air Flow

<table>
<thead>
<tr>
<th>Total</th>
<th>335.4 CCFM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>167.2 CCFM</td>
</tr>
<tr>
<td>Right</td>
<td>168.2 CCFM</td>
</tr>
</tbody>
</table>

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

**Possible Values:**
- 0 to 650 CCFM

---

### Outside Air Damper Target

<table>
<thead>
<tr>
<th>Target</th>
<th>27 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position</td>
<td>24 %</td>
</tr>
</tbody>
</table>

**Used With:** Units w/Fresh Air Options

**Possible Values:**
- 0 to 100%

---

### VCM Preheater Output Control

<table>
<thead>
<tr>
<th>Control</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aux Temp Input</td>
<td>47.2 °F</td>
</tr>
</tbody>
</table>

**Used With:** Fresh Air Measurement (VCM) w/DCV or OA Damper Min Position

**Ventilation:** ENABLED

**Possible Values:**
- Output Control: ON, OFF
- Aux Temp Input: -40.0 to 200.0°F

---

**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*

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

| **Return Fan Relay:**                    | **ON** |
| **Return Airflow Proving:**              | **ON** |

- 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.

- 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.

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

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

- 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*

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

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.

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.

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.

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.
### STATUS Menu

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Used With</th>
<th>Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Wheel Relay</td>
<td>ON</td>
<td>Units w/Energy Recovery Option</td>
<td>ON, OFF</td>
</tr>
<tr>
<td>Energy Wheel Proving</td>
<td>ON</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Used With</th>
<th>Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside Air Bypass Damper Pos</td>
<td>0%</td>
<td>Units w/Energy Recovery Option</td>
<td>0 to 100%</td>
</tr>
<tr>
<td>Exhaust Air Bypass Damper Pos</td>
<td>15%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Used With</th>
<th>Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Wheel Frost Avoidance</td>
<td>INACTIVE</td>
<td>Units w/Energy Recovery Option</td>
<td>ACTIVE, INACTIVE; Frost Avoidance: ACTIVE, INACTIVE; Exhaust Temp: -40.0 to 200.0°F</td>
</tr>
<tr>
<td>Leaving Recovery Exhaust Temp</td>
<td>45.0°F</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Used With</th>
<th>Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPM Preheat Relay</td>
<td>OFF</td>
<td>Units w/Energy Recovery Option w/Preheat</td>
<td>ON, OFF</td>
</tr>
</tbody>
</table>

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

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

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

### CONTROLLING SETPOINT STATUS SUBMENU SCREENS

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Used With</th>
<th>Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Supply Air Cooling STP From HI (KEYPAD) SETPOINT MENU Is</td>
<td>55°F</td>
<td>All Units</td>
<td>40 to 90°F</td>
</tr>
</tbody>
</table>

- Press **Next/Previous** keys to navigate.
Active Supply Air Heating STP From
HI (KEYPAD) SETPOINT MENU Is 100°F

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 180°F

• Press Next/Previous keys to navigate.

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

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

• Press Next/Previous keys to navigate.

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

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

• Press Next/Previous keys to navigate.

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

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 90°F

• Press Next/Previous keys to navigate.

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

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 88°F

• Press Next/Previous keys to navigate.
STATUS Menu

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
- BASNETWORK
Range: 52 to 90°F

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
- BASNETWORK
Range: 50 to 88°F

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
- BASNETWORK
Range: 52 to 90°F

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 95°F

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
- BASNETWORK
Range: 40 to 65%

- Press Next/Previous keys to navigate.
STATUS Menu

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%

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 80°F

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%

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%

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 90°F

- Press Next/Previous keys to navigate.
STATUS Menu

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/NW 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/NW 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/NW 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/NW NETWORK
Range: 0 to Max Unit Airflow
[See "Table 6. Max Unit Airflows" on page 90 in the Setpoints Section]
Active Supply Air Pressure STP From HI (KEYPAD) SETPOINT MENU is 2.0 IWC

- Press Next/Previous keys to navigate.

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

- Press Next/Previous keys to navigate.

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

- Press Next/Previous keys to navigate.

Active Space Pressure Deadband 0.1 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

Controlling Sensor Status Submenu
Press ENTER to View Data in This Submenu

- Press the Next key to skip this Submenu.

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

- Press Next/Previous keys to navigate.

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

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

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

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

Used With: All Units

Used With: All Units
Possible Values:
RTM Supply Air Temp Input
BAS/Network
### Status Menu

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

- **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 200°F

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

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

- **Used With:** CVZT or VVZT Units  
- **Possible Values:**  
  [See “Possible Values:” Above]

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

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

- **Used With:** All Units  
- **Possible Values:**  
  [See “Possible Values:” Above]

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

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

- **Used With:** Units w/MWU ENABLED  
- **Possible Values:**  
  [See “Possible Values:” Above]

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

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

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

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

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

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

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

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

- **Used With:** Units w/Fresh Air Measurement (VCM) w/DCV, or CO₂ Reset ENABLED  
- **Possible Values:**  
  VCM SPACE CO₂ INPUT  
  BAS/NETWORK SENSOR  
  Range: 50 to 2000 PPM

- **Press Next/Previous keys to navigate.**
### Status Menu

**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 200°F

**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]

**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 200°F

**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%

**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

**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
STATUS Menu

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 200°F

• 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

Temp Measured By Sensor Connected To
HEAT MODULE AUX TEMP INPUT 82.0°F
Used With: Units w/Heat Installed

Temp Measured By Sensor Connected To
ECEM RETURN AIR TEMP INPUT 78.0°F
Used With: Units w/Comparative Enthalpy Installed

Temp Measured By Sensor Connected To
VCM MODULE AUX TEMP INPUT 50.0°F
Used With: Units w/VCM Module Installed

End of Submenu (NEXT) to Enter STATUS
Used With: All Units

LOCAL HARDWIRED INPUT STATUS SUBMENU SCREENS

Local Hardwired Input Status Submenu
Press ENTER to View Data in This Submenu
Used With: All Units

IntelliPak II Config Input: CLOSED
Dehumidification Config Input: OPEN
Possible Values: OPEN/CLOSED

RTM Supply Airflow Proving: FLOW
RTM Exhaust Airflow Proving: FLOW
“RTM Exhaust...” shown for Power Exhaust w/o Return Fan.
“RTM Return...” shown for Power Exhaust w/ Return Fan.
Possible Values: Flow, No Flow
Bottom Left Field:
RTM Exhaust Airflow Proving
RTM Return Airflow Proving

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

- **RTM Remote Min Position Pot Input** 0 %
  
  *Note:* If potentiometer input is out of range (> 350 ohms) this screen will not appear.

  • Press Next/Previous keys to navigate.

- **RTM Supply Air Pressure Input** 2.1 IWC
  
  • Press Next/Previous keys to navigate.

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

  “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 %
  
  • Press Next/Previous keys to navigate.

- **ECEM Space Pressure Input** 0.08 IWC
  
  • Press Next/Previous keys to navigate.

- **VCM Outside Air Flow Input** 350.0 CCFM
  
  • Press Next/Previous keys to navigate.

- **VCM CO₂ Level Input** 1512 PPM
  
  • Press Next/Previous keys to navigate.

- **MPM Return Plenum Pressure Input** 0.0 IWC
  
  • Press Next/Previous keys to navigate.

**Used With:**
- Units w/Outside Air Damper and Minimum Position Source is RTM
- Units w/Supply Air Pressure
- Units w/Economizer Option
- Units w/Dehumid. or Humid. Option
- Units w/Statitrac Option
- Units w/Fresh Air Measurement (VCM) w/DCV, or C02 Reset is ENABLED

**Possible Values:**
- 0 to 100%
- 0 to 5.0 IWC
- 10 to 90%
- 0 to Max Unit Airflow
- 0 to 2000 PPM
- -0.7 to 3.5 IWC
Compr Diff Pressure Control is Installed

- Press Next/Previous keys to navigate.

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

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

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

- Press Next/Previous keys to navigate.

Used With: Units w/GBAS (5VDC) Installed
Possible Values: OPEN, CLOSED
**STATUS Menu**

**GBAS 0-5VDC Module Relay Output Status**

<table>
<thead>
<tr>
<th>Output</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OFF</td>
</tr>
</tbody>
</table>

*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.

**GBAS (5VDC) Hardware Configuration**

*The Value Returned From This Input: XXX*

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

*Possible Values: 0-255*

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

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

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

**GBAS (10VDC) Module Status Submenu**

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

**GBAS (10VDC) Analog Input 1**

- **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.

**GBAS (0-10VDC) Demand Limit Input Status**

- **Open**

*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]

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 CO2 LEVEL
ACTIVE COOLING CAPACITY
ACTIVE HEATING CAPACITY
ACTIVE OA DAMPER POSITION
ACTIVE OUTDOOR AIRFLOW

• 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

• Press Next/Previous keys to navigate.

Unit Control: BAS/NETWORK
Unit Address:

“Unit Address” only shown if unit has TCI installed.

• Press Next/Previous keys to navigate.

GENERAL UNIT FUNCTIONS SETUP SUBMENU SCREENS

General Unit Functions Setup Submenu
Press ENTER to Review or Adjust

• 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.

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

- Press Next/Previous keys to navigate.

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

- Press Next/Previous keys to navigate.

Daytime Warmup Function: ENABLED

- Press Next/Previous keys to navigate.

Morning Warmup Function: ENABLED
Morning Warmup Type: FULL CAPACITY

- Press Next/Previous keys to navigate.

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

- Press Next/Previous keys to navigate.
### SETUP Menu

<table>
<thead>
<tr>
<th>Setting</th>
<th>Status</th>
<th>Used With</th>
<th>Factory Presets</th>
<th>Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unocc Mech Cooling Function</td>
<td>ENABLED</td>
<td>Units w/DX Cooling, or Air Handler w/Chilled Water, and w/Heat Installed</td>
<td>ENABLED</td>
<td>ENABLED, DISABLED</td>
</tr>
<tr>
<td>Unocc Heating Function</td>
<td>ENABLED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupied Dehumid Function</td>
<td>ENABLED</td>
<td>Units w/Dehumidification</td>
<td></td>
<td>ENABLED, DISABLED</td>
</tr>
<tr>
<td>Unoccupied Dehumid Function</td>
<td>ENABLED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occ Humidification Function</td>
<td>DISABLED</td>
<td>Units w/Humidification</td>
<td>DISABLED</td>
<td>ENABLED, DISABLED</td>
</tr>
<tr>
<td>Unocc Humidification Function</td>
<td>DISABLED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rapid Restart Economizer Ctrl</td>
<td>DISABLED</td>
<td>Rapid Restart Units</td>
<td>DISABLED</td>
<td>ENABLED, DISABLED</td>
</tr>
<tr>
<td>Compressors Used for Cooling Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VCM Preheater Output Control</td>
<td>ENABLED</td>
<td>Units w/Fresh Air Measurement (VCM) Option</td>
<td>DISABLED</td>
<td>ENABLED, DISABLED</td>
</tr>
<tr>
<td>Demand Limit Definition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooling</td>
<td>None</td>
<td>Units w/DX Cooling and/or Heat, and GBAS(5VDC), GBAS(10VDC) or BAS/Network Installed</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Heating</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compressor Lead/Lag Function</td>
<td>ENABLED</td>
<td>Units w/DX Cooling</td>
<td>ENABLED</td>
<td>ENABLED, DISABLED</td>
</tr>
</tbody>
</table>

- Press Next/Previous keys to navigate.

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.

- "Heating" only shown if unit has heat installed.

*allowed only w/DX Cooling ≥ 40Ton
Low Charge Protection Function: ENABLED
Evap Temperature Limit Setpoint Shown

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: 35ºF

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: 30ºF

• Press Next/Previous keys to navigate.

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

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

Press the Next key to skip this Submenu.

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

"Heating" only shown if unit has heat installed.

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

<table>
<thead>
<tr>
<th><strong>Supply Air Temp Zone Reset For Cooling:</strong></th>
<th><strong>Supply Air Temp OA Reset For Cooling:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Temp: 72°F End Temp: 69°F</td>
<td>Start Temp: 90°F End Temp: 70°F</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th><strong>Supply Air Temp Zone Reset For Heating:</strong></th>
<th><strong>Supply Air Temp OA Reset For Heating:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Temp: 65°F End Temp: 68°F</td>
<td>Start Temp: 10°F End Temp: 60°F</td>
</tr>
</tbody>
</table>

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

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

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

**Used With:** Units w/SA Cooling Reset  
Type Set to “ZONE”  
**Factory Presets:**  
Start Temp: 65°F  
End Temp: 68°F  
**Possible Values:**  
Start Temp: 50 to 89°F  
End Temp: 51 to 90°F

**Used With:** Units w/SA Heating Reset  
Type Set to “OA”  
**Factory Presets:**  
Start Temp: 10°F  
End Temp: 60°F  
**Possible Values:**  
Start Temp: 0 to 94°F  
End Temp: 1 to 95°F
Supply Air Temp Zone Reset For Heating:
Maximum Amount of Reset Applied: 10°F

- Press Next/Previous keys to navigate.

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

- Press Next/Previous keys to navigate.

VAV Box Max Stroke Time: 6 Min

- Press Next/Previous keys to navigate.

Max Occupied IGV/VFD Command: 100%

- Press Next/Previous keys to navigate.

Used With: Units w/SA Heating Reset
Type Set to “ZONE”
Factory Presets: 10°F
Possible Values: 10 to 90°F

Used With: Units w/SA Heating Reset
Type Set to “OA”
Factory Presets: 10°F
Possible Values: 10 to 90°F

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

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

- Press Next/Previous keys to navigate.

Economizer Ctrl Enable Type: REFERENCE
When Comparative Enthalpy Not Available

- Press Next/Previous keys to navigate.

Unocc Air Economizer Function: ENABLED

- 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

- Press the Next key to skip this Submenu.

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

- 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.

- Press Next/Previous keys to navigate.
**Sump Water Heater Setpoint:** 38°F  
*Low Sump Temp Activates Heater Output*

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

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

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

**Cond Temp Control Band**  
*Temporary Low Limit Suppression: 10°F*

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

**Cond Temp**  
*Efficiency Check Point: 105°F*

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

**Cond Temp**  
*Low Ambient Control Point: 90°F*

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

**Alternate Unit Refrigerant Type:** ENABLED

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

---

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

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

**Used With:** Units w/DX Cooling  
**Factory Presets:**  
- **Upper Limit:** 10°F  
- **Lower Limit:** 0°F  
**Possible Values:**  
- **Upper Limit:** 0 to 20°F  
- **Lower Limit:** 0 to 20°F

**Used With:** Units w/DX Cooling w/Low Ambient Option  
**Factory Presets:**  
- **Upper Limit:** 90°F  
- **Lower Limit:** 80°F  
**Possible Values:**  
- **Upper Limit:** 80 to 100°F  
- **Lower Limit:** 80 to 100°F

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

---

2  
*End of Submenu (NEXT) to Enter SETUP*

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

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 Ctrl, 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, VZT, 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

- Press Next/Previous keys to navigate.

For Zone Reset Function, Use Sensor
Connected To: RTM ZONE TEMP INPUT

- Press Next/Previous keys to navigate.

For Rapid Restart Function, Use Sensor
Connected To: RTM ZONE TEMP INPUT

- Press Next/Previous keys to navigate.

Monitor Specific Temp Input, Use Sensor
Connected To: RTM ZONE TEMP INPUT

- 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

Press ENTER to Review or Adjust

- Press the Next key to skip this Submenu.

Demand Controlled Ventilation: ENABLED
DCV Setpoint Modified By Space CO2 Level

- Press Next/Previous keys to navigate.
SETUP Menu

**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)

<table>
<thead>
<tr>
<th>Gain</th>
<th>Offset</th>
<th>CCFM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

"Left" refers to the flow station on the left side of the unit when looking into the unit’s airstream.

- Press Next/Previous keys to navigate.

**OA Flow Calibration Data** (Right)

<table>
<thead>
<tr>
<th>Gain</th>
<th>Offset</th>
<th>CCFM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

"Right" refers to the flow station on the right side of the unit when looking into the unit’s airstream.

- Press Next/Previous keys to navigate.
Maximum OA Flow at Design Conditions
OA Normalization: 350 CCFM

- Press Next/Previous keys to navigate.

OA Flow Calibration Data
Altitude: 0 Ft.

This correction factor is used to adjust airflow calculations due to density of air at different altitudes.

<table>
<thead>
<tr>
<th>Feet</th>
<th>Meters</th>
<th>C.F.</th>
<th>Feet</th>
<th>Meters</th>
<th>C.F.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1.00</td>
<td>5500</td>
<td>1650</td>
<td>0.91</td>
</tr>
<tr>
<td>500</td>
<td>150</td>
<td>0.99</td>
<td>6000</td>
<td>1800</td>
<td>0.90</td>
</tr>
<tr>
<td>1000</td>
<td>300</td>
<td>0.98</td>
<td>6500</td>
<td>2000</td>
<td>0.89</td>
</tr>
<tr>
<td>1500</td>
<td>450</td>
<td>0.97</td>
<td>7000</td>
<td>2150</td>
<td>0.88</td>
</tr>
<tr>
<td>2000</td>
<td>600</td>
<td>0.97</td>
<td>7500</td>
<td>2300</td>
<td>0.87</td>
</tr>
<tr>
<td>2500</td>
<td>750</td>
<td>0.96</td>
<td>8000</td>
<td>2450</td>
<td>0.86</td>
</tr>
<tr>
<td>3000</td>
<td>900</td>
<td>0.95</td>
<td>8500</td>
<td>2600</td>
<td>0.85</td>
</tr>
<tr>
<td>3500</td>
<td>1050</td>
<td>0.94</td>
<td>9000</td>
<td>2750</td>
<td>0.85</td>
</tr>
<tr>
<td>4000</td>
<td>1200</td>
<td>0.93</td>
<td>9500</td>
<td>2900</td>
<td>0.84</td>
</tr>
<tr>
<td>4500</td>
<td>1350</td>
<td>0.92</td>
<td>10000</td>
<td>3050</td>
<td>0.83</td>
</tr>
<tr>
<td>5000</td>
<td>1500</td>
<td>0.91</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Press Next/Previous keys to navigate.

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]

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.]
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 VFD - 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)
Setup Menu

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**

<table>
<thead>
<tr>
<th>Menu Description</th>
<th>Used With:</th>
<th>Example Settings</th>
<th>Possible Values:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventilation Override Definitions</td>
<td>Units w/VOM Installed</td>
<td>Press ENTER to Review or Adjust</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Press the Next key to skip</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>this Submenu.</td>
<td></td>
</tr>
<tr>
<td>Ventilation Override Definition Mode A</td>
<td>Units w/VOM Installed</td>
<td>Supply Fan ON</td>
<td>ON, OFF</td>
</tr>
<tr>
<td>Supply Fan IGV/VFD</td>
<td></td>
<td>• Press Next/Previous keys to</td>
<td>IN CONTROL, MIN,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>navigate.</td>
<td>MAX</td>
</tr>
<tr>
<td>Exhaust Fan/Dampers</td>
<td>Units w/VOM and Power</td>
<td>OFF/OPEN</td>
<td>ON/OPEN, OFF/CLOSED</td>
</tr>
<tr>
<td></td>
<td>Exhaust w/Statitrac</td>
<td>• Press Next/Previous keys to</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>navigate.</td>
<td></td>
</tr>
<tr>
<td>Return Fan/Exhaust Dampers</td>
<td>Units w/VOM and Return Fan</td>
<td>OFF/CLOSED</td>
<td>OFF/CLOSED, ON/OPEN</td>
</tr>
<tr>
<td></td>
<td>with Statitrac Installed</td>
<td>• Press the Next key to navigate</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>forward.</td>
<td></td>
</tr>
<tr>
<td>Exhaust Fan</td>
<td>Units w/VOM and Power</td>
<td>ON</td>
<td>ON, OFF</td>
</tr>
<tr>
<td></td>
<td>Exhaust w/o Statitrac Installed</td>
<td>• Press Next/Previous keys to</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>navigate.</td>
<td></td>
</tr>
<tr>
<td>Return Fan VFD Command</td>
<td>Units w/VOM and Return Fan</td>
<td>Min</td>
<td>Return Fan VFD Command: MIN, MAX</td>
</tr>
<tr>
<td></td>
<td>with Statitrac Installed</td>
<td>• Press Next/Previous keys to</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>navigate.</td>
<td></td>
</tr>
<tr>
<td>Outside Air Dampers</td>
<td>Units w/VOM and Economizer</td>
<td>OPEN</td>
<td>OPEN, CLOSED</td>
</tr>
<tr>
<td></td>
<td>Option</td>
<td>• Press Next/Previous keys to</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>navigate.</td>
<td></td>
</tr>
<tr>
<td>VAV Box Relay</td>
<td>Units w/VOM Installed</td>
<td>DEENERGIZED</td>
<td>ENERGIZED,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Press Next/Previous keys to</td>
<td>DEENERGIZED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>navigate.</td>
<td></td>
</tr>
</tbody>
</table>
### SETUP Menu

| Ventilation Override Definition Mode A | Used With: Units w/VOM and Heat Installed  
| Heat                                | Possible Values: OFF, IN CONTROL |
|                                     | • Press Next/Previous keys to navigate. |
| Ventilation Override Definition Mode A | Used With: Units w/ and OA Preheater Function Enabled  
| VCM Preheater State                | Possible Values: OFF, IN CONTROL |
|                                     | • Press Next/Previous keys to navigate. |
| Ventilation Override Definition Mode A | Used With: Units w/VOM Installed  
| Ventilation Override Relay            | Possible Values: ENERGIZED, DEENERGIZED |
|                                     | • Press Next/Previous keys to navigate. |
| Ventilation Override Definition Mode A | Used With: Units w/VOM Installed and Mode Not Locked  
| Enter Password to Lock Definition:   | |
| 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 | Used With: Units w/VOM Mode Locked  
| Supply Fan                           | 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 | Used With: All Units  
| Supply Fan                           | 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

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.

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

• 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

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".

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

If Enter was pressed, proceed to the following 3 screens.
Assign Diagnostic to Alarm Output 1?
Any Active Diagnostic  (Yes)

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”.

If Enter was pressed, proceed to the following screen.

Assign Diagnostic to Alarm Output 1?
RTM Zone Temp Sensor Failure  (Yes)

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

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

GBAS (10VDC) Module I/O Assignments
Press ENTER to Review or Adjust

• Press the Next key to skip this Submenu.
GBAS (10VDC) Analog Input 1 Assignment

**NOT ASSIGNED**

**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**

**Press ENTER to Review or Adjust**

- 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)**

**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**

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.

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

**Factory Presets:** NOT ASSIGNED

**Possible Values:** [See "Possible Values" in GBAS(5VDC) Above]

---

**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)

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**

*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  

• 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)  

*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  

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.

**Assign Diagnostic to Alarm Output?**  
**RTM Zone Temp Sensor Failure**  
(Yes)  

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

- Press the Next key to skip this Submenu.

Temperature Calibration Offset For RTM Zone Temperature Input 0.0°F

- Press Next/Previous keys to navigate.

Temperature Calibration Offset For RTM Aux Temperature Input 0.0°F

- Press Next/Previous keys to navigate.

Temperature Calibration Offset For RTM Outside Air Temperature Input 0.0°F

- Press Next/Previous keys to navigate.

Temperature Calibration Offset For Heat Module Aux Temp Input 0.0°F

- Press Next/Previous keys to navigate.

Temperature Calibration Offset For ECEM Return Air Temperature Input 0.0°F

- 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

- **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:** VVDA Units  
  - **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.**
SETUP Menu

Actuator Setup    Supply Fan IGV/VFD Cmd
Max Voltage                     10.0 VDC

Used With: VVDA Units
Factory Presets: 10.0 VDC
Possible Values: 0 to 10.0 VDC

• Press Next/Previous keys to navigate.

Actuator Setup    Supply Fan IGV/VFD Cmd
Direct/Reverse Act         DIRECT ACTING

Used With: VVDA Units
Factory Presets: DIRECT ACTING
Possible Values: DIRECT ACTING, REVERSE ACTING

• Press Next/Previous keys to navigate.

Actuator Setup            Return Fan VFD
Max Stroke Time                   30 Sec

Used With: Units w/Return Fan Option
Factory Presets: 30 Sec
Possible Values: 1 to 255 Sec

• Press Next/Previous keys to navigate.

Actuator Setup            Return Fan VFD
Min Voltage                      0.0 VDC

Used With: Units w/Return Fan Option
Factory Presets: 0 VDC
Possible Values: 0 to 10.0 VDC

• Press Next/Previous keys to navigate.

Actuator Setup            Return Fan VFD
Max Voltage                     10.0 VDC

Used With: Units w/Return Fan Option
Factory Presets: 10.0 VDC
Possible Values: 0 to 10.0 VDC

• Press Next/Previous keys to navigate.

Actuator Setup            Return Fan VFD
Direct/Reverse Act         DIRECT ACTING

Used With: Units w/Return Fan Option
Factory Presets: Direct Acting
Possible Values: Direct, Reverse

• Press Next/Previous keys to navigate.

Actuator Setup        Exhaust Damper/VFD
Max Stroke Time                   60 Sec

Used With: Units w/Power Exhaust
Factory Presets: 60 Sec
Possible Values: 1 to 255 Sec

• Press Next/Previous keys to navigate.

Actuator Setup        Exhaust Damper/VFD
Min Voltage                      2.0 VDC

Used With: Units w/Power Exhaust
Factory Presets: 2.0 VDC
Possible Values: 0 to 10.0 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.
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

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/Air-Cooled Condensers
**Factory Presets:** 60 Sec
**Possible Values:** 1 to 255 Sec

**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
**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 1
**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 1 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 1
**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 1 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 1
**Direct/Reverse Act**  DIRECT ACTING

**Used With:** Units w/DX Cooling, w/Water-Cooled Condensers  
**Factory Preset:** DIRECT  
**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

**Actuator Setup**  Cond Fan VFD Ckt 2
Max Stroke Time  60 Sec

- Press Next/Previous keys to navigate.

**Used With:** Units w/DX Cooling, w/Air-Cooled Condensers
**Factory Presets:** 60 Sec
**Possible Values:** 1 to 255 Sec

**Actuator Setup**  Num 2 Low Ambient
Min Voltage  2.0 VDC

**Actuator Setup**  Cond Fan VFD Ckt 2
Min Voltage  0.0 VDC

- Press Next/Previous keys to navigate.

**Used With:** Units w/DX Cooling, w/Air-Cooled Condensers
**Factory Presets:** 2.0 VDC
**Possible Values:** 0 to 10.0 VDC

**Actuator Setup**  Num 2 Low Ambient
Max Voltage  10.0 VDC

**Actuator Setup**  Cond Fan VFD Ckt 2
Max Voltage  10.0 VDC

- Press Next/Previous keys to navigate.

**Used With:** Units w/DX Cooling, w/Air-Cooled Condensers
**Factory Presets:** 10.0 VDC
**Possible Values:** 0 to 10.0 VDC

**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
### Actuator Setup

<table>
<thead>
<tr>
<th>Cond Fan VFD Ckt 2</th>
<th>Direct/Reverse Act</th>
<th>DIRECT ACTING</th>
</tr>
</thead>
</table>

- Press Next/Previous keys to navigate.

### Modulating Gas Heat

<table>
<thead>
<tr>
<th>Max Stroke Time</th>
<th>90 Sec</th>
</tr>
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</table>

- Press Next/Previous keys to navigate.

<table>
<thead>
<tr>
<th>Min Voltage</th>
<th>2.0 VDC</th>
</tr>
</thead>
</table>

- Press Next/Previous keys to navigate.

<table>
<thead>
<tr>
<th>Max Voltage</th>
<th>10 VDC</th>
</tr>
</thead>
</table>

- Press Next/Previous keys to navigate.

### Exh Bypass Damper

<table>
<thead>
<tr>
<th>Max Stroke Time</th>
<th>60 Sec</th>
</tr>
</thead>
</table>

- Press Next/Previous keys to navigate.

<table>
<thead>
<tr>
<th>Min Voltage</th>
<th>2.0 VDC</th>
</tr>
</thead>
</table>

- Press Next/Previous keys to navigate.

---

**Used With:** Units w/DX Cooling, w/Water-Cooled Condensers
**Factory Preset:** DIRECT
**Possible Values:** DIRECT, REVERSE

**Used With:** All Rooftop Units and Air Handlers when Modulating Gas is installed
**Factory Presets:** 90 Sec
**Possible Values:** 1 to 255 Sec

**Used With:** All Rooftop Units and Air Handlers when Modulating Gas is installed
**Factory Presets:** 2 VDC
**Possible Values:** 0 to 10.0 VDC

**Used With:** All Rooftop Units and Air Handlers when Modulating Gas is installed
**Factory Presets:** 10 VDC
**Possible Values:** 0 to 10.0 VDC

**Used With:** All Rooftop Units and Air Handlers Modulating Gas is installed
**Factory Presets:** Direct Acting
**Possible Values:** Direct Acting, Reverse Acting

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** 60 Sec
**Possible Values:** 1 to 255 Sec

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** 2.0 VDC
**Possible Values:** 0 to 10.0 VDC
## SETUP Menu

### Actuator Setup - Exh Bypass Damper
- **Max Voltage**: 10.0 VDC

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** 10.0 VDC
**Possible Values:** 0 to 10.0 VDC

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

### Actuator Setup - Exh Bypass Damper
- **Direct/Reverse Act**: DIRECT ACTING

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** DIRECT
**Possible Values:** DIRECT, REVERSE

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

### Actuator Setup - OA Bypass Damper
- **Max Stroke Time**: 60 Sec

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** 60 Sec
**Possible Values:** 1 to 255 Sec

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

### Actuator Setup - OA Bypass Damper
- **Min Voltage**: 2.0 VDC

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** 2.0 VDC
**Possible Values:** 0 to 10.0 VDC

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

### Actuator Setup - OA Bypass Damper
- **Max Voltage**: 10.0 VDC

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** 10.0 VDC
**Possible Values:** 0 to 10.0 VDC

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

### Actuator Setup - OA Bypass Damper
- **Direct/Reverse Act**: DIRECT ACTING

**Used With:** All IPak 2 units with Energy Recovery installed.
**Factory Preset:** DIRECT
**Possible Values:** DIRECT, REVERSE

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

### Actuator Setup - Variable Speed Comp
- **Max Stroke Time**: 30 Sec

**Used With:** Units w/Variable Speed Compressor Installed.
**Factory Preset:** 30 Sec
**Possible Values:** 1 to 255 Sec

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

### Actuator Setup - Variable Speed Comp
- **Min Voltage**: 0.0 VDC

**Used With:** Units w/Variable Speed Compressor Installed.
**Factory Preset:** 0.0 VDC
**Possible Values:** 0 to 10.0 VDC

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

### Actuator Setup - Variable Speed Comp
- **Max Voltage**: 10.0 VDC

**Used With:** Units w/Variable Speed Compressor Installed.
**Factory Preset:** 10.0 VDC
**Possible Values:** 0 to 10.0 VDC

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

Actuator Setup       Variable Speed Comp
Direct/Reverse Act         DIRECT ACTING

Used With: Units w/Variable Speed
Compressor Installed.
Factory Preset: DIRECT ACTING
Possible Values: DIRECT ACTING,
REVERSE ACTING

• Press Next/Previous keys to navigate.

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.

- 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.

- Press Next/Previous keys to navigate.

**Default Daytime Warmup Setpoints**

| Initiate: 67°F | Terminate: 71°F |

- 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.

**Derived Zone Setpoint Deadband:** 2.0°F

*Used When Only One Setpoint is Available*

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

**Default Unoccupied Zone Temp Setpoints**

*Cool:* 85°F  
*Heat:* 60°F  
*Morn Warmup:* 72°F

**Note:** Minimum difference of 2°F 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.

**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.

### HUMIDITY CONTROL SETPOINT SUBMENU SCREENS

**Humidity Control Setpoint Submenu**

Press ENTER to Review or Adjust

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

**Dehumidify if Space Humidity Above Occ Dehumidification Setpoint:** 60%

- Press **Next/Previous** keys to navigate.
**Stop Dehumid if Space RH Below STP Minus**

**Occ Dehumid Hysteresis Offset:** 5%

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

**Dehumidify if Space Humidity Above**

**Unocc Dehumidification Setpoint:** 60%

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

**Stop Dehumid if Space RH Below STP Minus**

**Occ Dehumid Hysteresis Offset:** 5%

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

**Default Supply Air Reheat Stpt:** 70°F

**Supply Air Reheat Deadband:** 4°F

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

**In Active Dehumidification Mode, Limit**

**Maximum Reheat Valve Position To:** 85%

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

**Dehumid Ovrd High Zone Temp Stpt:** 75°F

**Dehumid Ovrd Low Zone Temp Stpt:** 68°F

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

**Cond Coil Purge Interval Setpt:** 90 Min

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

**Humidify if Space Humidity Below**
Occ Humidification Setpoint: 30%

- Press Next/Previous keys to navigate.

**Stop Humid if Space RH Above STP Plus**
Occ Humid Hysteresis Offset: 5%

- Press Next/Previous keys to navigate.

**Humidify if Space Humidity Below**
Unocc Humidification SETPOINT: 30%

- Press Next/Previous keys to navigate.

**Stop Humid if Space RH Above STP Plus**
Unocc Humid Hysteresis Offset: 5%

- 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

- Press the Next key to skip this Submenu.

When Economizer Cooling, Reduce Zone Temperature Cooling Setpoint By: 1.5°F

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

**Reference Enthalpy. Enable Air Econ**
When OA Enthalpy is Below: 25 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

*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

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

**VCM Preheat ON If VCM Aux Temp Below**
Ventilation Preheat Setpoint: 35°F

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

**Default Design Min CO₂ Setpt:** 1000 PPM
**Default DCV Min CO₂ Setpoint:** 400 PPM

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

**Used With:** Units w/Economizer
**Factory Presets:** 25 BTU/LB
**Possible Values:** 19 to 28 BTU/LB

**Used With:** Units w/Economizer
**Factory Presets:** 75°F
**Possible Values:** 50 to 140°F

**Used With:** CVZT Units, or non-VVZT Units Operating in Unoccupied Economizer Cooling Mode
**Factory Presets:** 50°F
**Possible Values:** 40 to 65°F

**Used With:** Units w/Fresh Air Measurement (VCM) w/DCV, or OA Damper Min Position w/DCV, and Preheat Enabled
**Factory Presets:** 35°F
**Possible Values:** 35 to 75°F

**Used With:** Units w/Fresh Air Measurement (VCM) w/DCV, or OA Damper Min Position w/DCV
**Factory Presets:**
- Design Min CO₂: 1000 PPM
- DCV Min CO₂: 400 PPM
**Possible Values:**
- Design Min CO₂: 150 to 2000 PPM
- DCV Min CO₂: 50-1900 PPM
SETPOINT Menu

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

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

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

<table>
<thead>
<tr>
<th>Product</th>
<th>Capacity (Tons)</th>
<th>Max Airflow Range (CFM)</th>
<th>Deadband Range (CFM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPak 1</td>
<td>20 to 25</td>
<td>0 to 14000</td>
<td>500 to 2000</td>
</tr>
<tr>
<td>IPak 1</td>
<td>30</td>
<td>0 to 17000</td>
<td>500 to 2000</td>
</tr>
<tr>
<td>IPak 1</td>
<td>40</td>
<td>0 to 22000</td>
<td>500 to 2000</td>
</tr>
<tr>
<td>IPak 1</td>
<td>50 to 55</td>
<td>0 to 28000</td>
<td>500 to 2000</td>
</tr>
<tr>
<td>IPak 1</td>
<td>60 to 75</td>
<td>0 to 33000</td>
<td>700 to 2000</td>
</tr>
<tr>
<td>IPak 1</td>
<td>90 to 130</td>
<td>0 to 46000</td>
<td>1000 to 2000</td>
</tr>
<tr>
<td>IPak 2</td>
<td>90 to 105</td>
<td>0 to 45000</td>
<td>500 to 2000</td>
</tr>
<tr>
<td>IPak 2</td>
<td>120 to 150</td>
<td>0 to 58500</td>
<td>500 to 2000</td>
</tr>
</tbody>
</table>

- Press Next/Previous keys to navigate.
SETPOINT Menu

Default Design Min OA Damper Pos: 15%
Default DCV Min OA Damper Pos Stp: 10%

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%

• Press Next/Previous keys to navigate.

Default OA Damper Min Position: 15%
With IGV/VPD 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.

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%

• Press Next/Previous keys to navigate.

Default OA Damper Min Position: 20%
With IGV/VPD 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%).

Used With: VVZT Units w/OA Damper, And OA CFM Compensation Enabled
Factory Presets: 20%
Possible Values: 0 to 100%

• Press Next/Previous keys to navigate.

Default OA Damper Min Position: 10%
With IGV/VPD 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.

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%

• Press Next/Previous keys to navigate.

OR

Default OA Damper Min Position: 15%

Note: If unit has TRAQ, this setpoint is only used in case of flow station failure.

Used With: Units w/OA Damper Option, DCV Disabled, OACFM Compensation Disabled
Factory Presets: 15%
Possible Values: 0 to 100%

• Press Next/Previous keys to navigate.

End Of Submenu (NEXT) To Enter SETPOINT

Used With: All units

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

**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.

**Max Return Plenum Pressure Stp:** 0.8 IWC  
**Deadband:** 0.2 IWC

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

**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.

**Exhaust Enable Point. Enable Exhaust Fan When Outside Air damper is Above:** 25%  
- 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

**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

**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  
**Possible Values:**  
Setpoint: -0.2 to 0.3 IWC  
Deadband: 0.02 to 0.2 IWC  
Low Limit: -0.4 to 0.2 IWC

**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.

Low Ambient Comp Lockout Temp: 50°F
Comp(s) OFF if OA Temp Below This Value

- Press Next/Previous keys to navigate.

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.

Frost Avoidance ON When LRE Temp Below Recovery Frost Avoidance Setpoint: 27°F

- Press Next/Previous keys to navigate.

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.

For Supply Air Temp Cooling Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU

- 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

- Press Next/Previous keys to navigate.

Used With: Units w/DX Cooling
Factory Presets: 50°F
Possible Values: -20 to 80°F

- Press Next/Previous keys to navigate.

Used With: Units w/Hydronic Heat
Factory Preset: Disabled
Possible Values: Disabled, 1 to 100%

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.

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: 27°F
Possible Values: 0 to 60°F

- Press Next/Previous keys to navigate.

Used With: All Units
Factory Presets: For All Setpoint Source Selections the Factory Presets will be:
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

- Press Next/Previous keys to navigate.

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

For Occ Zone Temp Cooling Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU

- Press Next/Previous keys to navigate.

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

For Occ Zone Temp Heating Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU

- Press Next/Previous keys to navigate.

Used With: CVZT or VVZT Units w/Heat, And VV/CVDA Units w/Heat and DWU Enabled
Possible Values:
[Same as “Possible Values” Above]

For Unocc Zone Temp Cooling Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU

- Press Next/Previous keys to navigate.

Used With: Units w/Cooling
Possible Values:
[Same as “Possible Values” Above]

For Unocc Zone Temp Heating Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU

- Press Next/Previous keys to navigate.

Used With: Units w/Heat Installed
Possible Values:
[Same as “Possible Values” Above]

For Morning Warmup Temp Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU

- Press Next/Previous keys to navigate.

Used With: Units w/Heat Installed
Possible Values:
- HI (KEYPAD) SETPOINT MENU
- NSB PANEL SETPOINT INPUT
- GBAS (5VDC) MODULE
- GBAS (10VDC) MODULE
SETPOINT Menu

For Economizer Dry Bulb Enable, Use Setpoint From: HI (KEYPAD) SETPOINT MENU

- Press Next/Previous keys to navigate.

For Default OA Damper Min Position, Use Setpoint From: HI (KEYPAD) SETPOINT MENU

- Press Next/Previous keys to navigate.

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.

For Occ Dehumidification Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU

- Press Next/Previous keys to navigate.

For Unocc Dehumidification Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU

- Press Next/Previous keys to navigate.

For Occ Humidification Control, Use Setpoint From: HI (KEYPAD) SETPOINT MENU

- Press Next/Previous keys to navigate.

For Unocc Humidification Control, 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

Used With: Units w/Economizer Option
Possible Values:
HI (KEYPAD) SETPOINT MENU
REMOTE MIN POS POT INPUT
GBAS(5VDC) MODULE
GBAS(10VDC) MODULE

Used With: All Units

Used With: Units w/Dehumidification Option
Possible Values:
HI (KEYPAD) SETPOINT MENU
GBAS(5VDC) MODULE
GBAS(10VDC) MODULE

[Same as “Possible Values” Above]

Used With: Units w/Humidification Option
Possible Values:
[Same as “Possible Values” Above]

[Same as “Possible Values” Above]
SETPOINT Menu

For Supply Air Reheat Control, Use
Setpoint From: HI (KEYPAD) SETPOINT MENU

Used With: Units w/Dehumidification Option
Possible Values:
[Same as “Possible Values” Above]

• Press Next/Previous keys to navigate.

End Of Submenu (NEXT) To ENTER SRC SEL

Used With: All units.

• Press Next/Previous keys to navigate.

For Min Outside Air Flow Rate Ctrl, Use
Setpoint From: HI (KEYPAD) SETPOINT MENU

Used With: Units w/Fresh Air Measurement (VCM) Option
Possible Values:
HI (KEYPAD) SETPOINT MENU
GBAS 0-5 VDC MODULE
GBAS 0-10VDC Module

• Press Next/Previous keys to navigate.

For Supply Air Pressure Control, Use
Setpoint From: HI (KEYPAD) SETPOINT MENU

Used With: VVDA Units
Possible Values:
[Same as “Possible Values” Above]

• Press Next/Previous keys to navigate.

For Space Pressure Control, Use
Setpoint From: HI (KEYPAD) SETPOINT MENU

Used With: Units w/Statitrac Option
Possible Values:
[Same as “Possible Values” Above]

• Press Next/Previous keys to navigate.

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.

- 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.

- Press Next/Previous keys to navigate.
CONFIGURATION Menu

### Configuration - Model Num Digit 2
**Heating Type:** GAS
- **Used With:** All Units.
- **Possible Values:**
  - ELECTRIC
  - GAS
  - HYDRONIC
  - EXTERNAL HEAT
  - NONE (COOLING ONLY)

### Configuration - Model Num Digit 5, 6, 7
**Unit Capacity:** 90
- **Used With:** All Units w/DX Cooling
- **Possible Values:**
  - Multiple Selections: 20 through 162 Tons

### Configuration - Model Num Digit 5, 6, 7
**Unit Capacity CFM:** 16100-45000
- **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
- **Used With:** Air Handler Units
- **Possible Values:**
  - NO COOLING
  - DX COOLING
  - CHILLED WATER

### Configuration - Model Num Digit 9
**Electric Heat Capacity:** 90 KW
- **Used With:** Units w/Electric Heat Option
- **Possible Values:**
  - 30, 50, 70, 110, 130, 150, 170, 190 KW

### Configuration - Model Num Digit 9
**Gas Heat Type:** STAGED
- **Used With:** Units w/Gas Heat Option
- **Possible Values:**
  - STAGED
  - MODULATING

### Configuration - Model Num Digit 17 or 11
**Exhaust/Return:** NONE
- **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

**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.**
Configuration - Model Num Digit 17 or 20

Single Zone VAV VVZT: 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)

- 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
CONFIGURATION Menu

Configuration - Model Num Digit 21 or 16
Economizer FDD                  Installed

• Press Next/Previous keys to navigate.

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.

Configuration - Model Num Digit 21 or 23
Comparative Enthalpy:            INSTALLED

• Press Next/Previous keys to navigate.

Configuration - Model Num Digit 24
Final Filters:                   INSTALLED

• Press Next/Previous keys to navigate.

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.

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.
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 Menu**

**Configuration - Model Num Digit 34 or 28 GBAS 0-5 VDC Module**  
INSTALLED

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

**Configuration - Model Num Digit 34 or 28 GBAS 0-10 VDC Module**  
INSTALLED

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

**Configuration - Model Num Digit 21 or 34 Rapid Restart:**  
INSTALLED

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

- **Possible Values:**
  - NOT INSTALLED
  - 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

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

**Used With:** All Units

**Possible Values:**
- NOT INSTALLED
- INSTALLED

**Used With:** All Units

**Possible Values:**
- NOT INSTALLED
- 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.
Unit Model Number

Used With: All Units
Possible Values:
Model Number information as reflected on the unit nameplate.

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.

• Press Next/Previous keys to navigate.

Software Revision Number: INVALID
RTM 24.00

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

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.

• Press Next/Previous keys to navigate.

Software Revision Number: INVALID
Multiple Compressor Module (MCM) 15.00

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
GBAS 0-5 VDC Module 5.0

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
GBAS 0-10 VDC Module 2.00

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 Override (VOM) 3.00

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.
### CONFIGURATION Menu

<table>
<thead>
<tr>
<th>Module Name</th>
<th>Revision Number</th>
<th>Used With</th>
<th>Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust/Comp Enthalpy Module</td>
<td>INVALID</td>
<td>All Units</td>
<td>[See “RTM Possible Values” Above]</td>
</tr>
<tr>
<td>Software Revision Number:</td>
<td>Invalid</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** See RTM above for discussion on INVALID.

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

<table>
<thead>
<tr>
<th>Module Name</th>
<th>Revision Number</th>
<th>Used With</th>
<th>Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Module</td>
<td>INVALID</td>
<td>All Units</td>
<td>[See “RTM Possible Values” Above]</td>
</tr>
<tr>
<td>Software Revision Number:</td>
<td>Invalid</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** See RTM above for discussion on INVALID.

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

<table>
<thead>
<tr>
<th>Module Name</th>
<th>Revision Number</th>
<th>Used With</th>
<th>Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Human Interface (HI)</td>
<td>INVALID</td>
<td>All Units</td>
<td>[See “RTM Possible Values” Above]</td>
</tr>
<tr>
<td>Software Revision Number:</td>
<td>Invalid</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** See RTM above for discussion on INVALID.

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

<table>
<thead>
<tr>
<th>Module Name</th>
<th>Revision Number</th>
<th>Used With</th>
<th>Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote Human Interface (RHI)</td>
<td>INVALID</td>
<td>All Units</td>
<td>[See “RTM Possible Values” Above]</td>
</tr>
<tr>
<td>Software Revision Number:</td>
<td>Invalid</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** See RTM above for discussion on INVALID.

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

<table>
<thead>
<tr>
<th>Module Name</th>
<th>Revision Number</th>
<th>Used With</th>
<th>Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventilation Control Module (VCM)</td>
<td>INVALID</td>
<td>All Units</td>
<td>[See “RTM Possible Values” Above]</td>
</tr>
<tr>
<td>Software Revision Number:</td>
<td>Invalid</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** See RTM above for discussion on INVALID.

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

<table>
<thead>
<tr>
<th>Module Name</th>
<th>Revision Number</th>
<th>Used With</th>
<th>Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAS Communications: Comm5</td>
<td>INVALID</td>
<td>All Units</td>
<td>[See “RTM Possible Values” Above]</td>
</tr>
<tr>
<td>Software Revision Number:</td>
<td>Invalid</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** See RTM above for discussion on INVALID.

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

<table>
<thead>
<tr>
<th>Module Name</th>
<th>Revision Number</th>
<th>Used With</th>
<th>Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-Purpose Module (MPM)</td>
<td>INVALID</td>
<td>All Units</td>
<td>[See “RTM Possible Values” Above]</td>
</tr>
<tr>
<td>Software Revision Number:</td>
<td>Invalid</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** See RTM above for discussion on INVALID.

- Press **Next/Previous** keys to navigate.
Software Revision Number: INVALID
Modulating Dehumid Module (MDM) 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
VSM Module 1.0

Used With: 40 to 70 Ton IPak 1 Units w/ VVDA, CVDA, or VVZT w/ VSC Installed
Possible Values: [See “RTM Possible Values” Above]

Note: See RTM above for discussion on INVALID.

• 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.

Used With: CVDA or CVZT Units, w/o Return Fan Option
Possible Values: ON, OFF, AUTO

OR

Used With: VVDA or VVZT Units w/o Return Fan Option
Possible Values:
Fan: ON, OFF, AUTO
IGV/VFD Cmd: 0 to 100 %
SERVICE MODE Menu (Local Human Interface only)

<table>
<thead>
<tr>
<th>Supply Fan OFF</th>
<th>IGV/VFD Cmd 0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return Fan OFF</td>
<td>VFD Cmd 0%</td>
</tr>
</tbody>
</table>

**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.

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: ON

**RTM Alarm Output**  
On

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.

Used With: All Units  
Possible Values:  
ON, OFF

**ENERGY RECOVERY CONTROL SUBMENU SCREENS**

<table>
<thead>
<tr>
<th>Energy Recovery Control Submenu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press ENTER to Review or Adjust</td>
</tr>
</tbody>
</table>

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.

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%  

Used With: Units w/Energy Recovery Option  
Possible Values:  
0 to 100%
SERVICE MODE Menu (Local Human Interface only)

End Of Submenu (NEXT) For Service Mode

- 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

- 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.

- Press Next/Previous keys to navigate.

Condenser Fan Relay K1: OFF
Condenser Fan Speed Ckt1: 0%

- Press Next/Previous keys to navigate.

Condenser Fan Relay K5: OFF
Condenser Fan Speed Ckt2: 0%

- Press Next/Previous keys to navigate.

Used With: Units w/Energy Recovery Option

Used With: Units w/DX Cooling

Used With: Units w/Water-Cooled Condensers
Factoy Preset: AUTO
Possible Values: AUTO, MANUAL

Used With: Units > 75 Tons, w/Water-Cooled Condensers
Possible Values:
- Fan Relay: ON, OFF
- Fan Speed: 0 to 100%
SERVICE MODE Menu (Local Human Interface only)

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)

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.
SERVICE MODE Menu (Local Human Interface only)

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.

**AND**

Compressor Relays (MCM 1)
K3: OFF   K4: OFF

- **Used With:** IPak 2 Units w/DX Cooling, 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.
SERVICE MODE Menu (Local Human Interface only)

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.

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.

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.

End Of Submenu (NEXT) For Service Mode

- Press Next/Previous keys to navigate.
Hydronic Heat/Chilled Water Relay

<table>
<thead>
<tr>
<th>State/Relays</th>
<th>K11</th>
<th>K12</th>
<th>K1</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Cool On</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Heat On</td>
<td>ON</td>
<td>OFF</td>
<td>Note 1</td>
</tr>
<tr>
<td>Override</td>
<td>ON</td>
<td>OFF</td>
<td>Note 2</td>
</tr>
</tbody>
</table>

**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.

Modulating Gas Heat / Chilled Water Relay

<table>
<thead>
<tr>
<th>State/Relays</th>
<th>K11</th>
<th>K12</th>
<th>K1</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Cool On</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Heat On</td>
<td>ON</td>
<td>OFF</td>
<td>Note 1</td>
</tr>
<tr>
<td>Override</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

**Note:** K1 turns ON when the output is commanded > 0%.

- Press Next/Previous keys to navigate.

Chilled Water Actuator

- Press Next/Previous keys to navigate.

Hydronic Heat Actuator

- Press Next/Previous keys to navigate.

Modulating Gas Heat Actuator

- Press Next/Previous keys to navigate.
**SERVICE MODE Menu (Local Human Interface only)**

### 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

<table>
<thead>
<tr>
<th>All Units Gas Heat</th>
<th>IntelliPak 1 Electric Heat</th>
<th>IntelliPak 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage</strong></td>
<td><strong>K11</strong></td>
<td><strong>K12</strong></td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Stage 1</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>Stage 2</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>Stage 3</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>Stage 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- 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.

### Ventilation Override Module Output Relay  
**OFF**

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

### VCM Preheater State  
**OFF**

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

### 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/VOM Option  
**Possible Values:** ON, OFF

**Used With:** Units w/Fresh Air Measurement (VCM) Option  
**Possible Values:** ON, OFF

**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.

GBAS 0-10VDC Module Analog Outputs
#1 0 v  #2 0 v  #3 0 v  #4 0 v

Used With: Units w/GBAS(10VDC)
Option
Possible Values: ON, OFF

GBAS 0-10VDC Module Analog Outputs
#1 0 v  #2 0 v  #3 0 v  #4 0 v

Used With: Units w/GBAS(10VDC)
Option
Possible Values: 0 to 10.0 v (volts)

Press the Next key to navigate forward.

Status/Annunc Test     Sys On (Blinking)
Heat: OFF     Cool: OFF     Service: OFF

Used With: All Units
Possible Values:
HEAT: ON, OFF
COOL: ON, OFF
SERVICE: ON, OFF

- Press Next/Previous keys to navigate.

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 Event Log 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

<table>
<thead>
<tr>
<th>No Active Diagnostics (NEXT) History Log</th>
</tr>
</thead>
</table>

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: [Redacted]

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)
DIAGNOSTICS Menu

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

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 Fail
- 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 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)
DIAGNOSTICS Menu

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...

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...

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...

Active Diagnostics  Manual
Please Wait, Updating Diagnostic Log

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:
Heat Fail
Dirty Filter
Dirty Final Filter
Dirty Recovery Filter
Ventilation Override Mode A, B, C, D, E

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:

Used With: All units
Factory Presets: N/A
Possible Values: + (Plus) and - (Minus)

Used With: All units
Factory Presets: N/A
Possible Values: Manual, Auto, or Info
Active Diagnostics ---- Info
"Diagnostic Buffer Is Already Empty!"

**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
**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.

**Note:** The "Local HI" (Local Human Interface) is located at the unit.

**OR**

### REMOTE HI COMMUNICATIONS LOSS
**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
**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.

**Used With:** All units
**Factory Presets:** N/A
**Possible Values:** Manual, Auto, or Info

---

**Used With:** All units

**Used With:** All Units

**Used With:** Units w/Remote Human Interface Option
**Possible Values:**
Unit Number: 1, 2, 3, 4

**Used With:** All Units
**Diagnostics Menu**

**OR**

<table>
<thead>
<tr>
<th>Problem: Improper Human Interface Configuration</th>
<th>Used With: All Units w/Remote Human Interface Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem: Noisy Communications link or a second Remote HI has been installed on the link.</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Problem: Module Software Version Mismatch</th>
<th>Used With: All Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>DIAGNOSTIC DISPLAYED</th>
<th>REASON FOR DIAGNOSTIC</th>
<th>UCM’S REACTION</th>
<th>RESET REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Auto Reset Return Pressure Limit</strong></td>
<td><strong>Problem:</strong> The return plenum pressure exceeded the <em>Return Plenum Pressure High Limit Setpoint</em> (3.5 iwc non-adjustable) continuously for 1 second.</td>
<td>The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog outputs closed/stop fan speed, dampers, modulating heat, etc.</td>
<td>(PAR) An automatic reset occurs when the return plenum pressure drops below the <em>Return Plenum Pressure High Limit Setpoint</em>, the IGV/VFD have closed/stopped, and 15 seconds have elapsed since the shutdown command was issued.</td>
</tr>
<tr>
<td><strong>Used With:</strong> Return Fan w/Power Exhaust w/Statitrac.</td>
<td><strong>Module:</strong> MPM</td>
<td><strong>Check:</strong> Return/Outside Damper, Exhaust Damper linkage. Return Plenum Pressure reading.</td>
<td></td>
</tr>
<tr>
<td><strong>Auto Reset SA Static Pressure Limit</strong></td>
<td><strong>Problem:</strong> The supply air static pressure exceeded the <em>SA Static Pressure High Limit Setpoint</em> for at least one second continuously.</td>
<td>The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog outputs closed/stop fan speed, dampers, modulating heat, etc.</td>
<td>(PAR) An automatic reset occurs when the supply air pressure drops below the <em>SA Static Pressure High Limit Setpoint</em>, the IGV/VFD have closed/stopped, and 15 seconds have elapsed since the shutdown command was issued.</td>
</tr>
<tr>
<td><strong>Used With:</strong> VVDA units, or CVDA/CVZT units with supply air pressure sensor installed.</td>
<td><strong>Module:</strong> RTM</td>
<td><strong>Check:</strong> SA Pressure Sensor Assembly, Isolation Dampers, ductwork, BAS system control of VAV Boxes.</td>
<td></td>
</tr>
<tr>
<td><strong>BAS Module Communications Failure</strong></td>
<td><strong>Problem:</strong> The RTM has lost communications with the LCI or BCI.</td>
<td>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.</td>
<td>(PAR) An automatic reset occurs after communication has been restored.</td>
</tr>
<tr>
<td><strong>Used With:</strong> BAS system control is expected.</td>
<td><strong>Check:</strong> Check all unit wiring and terminations between the RTM and LCI/BCI modules.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Module:</strong> BAS</td>
<td><strong>BAS/Network Comm Failure</strong></td>
<td><strong>Problem:</strong> The LCI or BCI has lost communications with the Network for &gt; 15 minutes.</td>
<td>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.</td>
</tr>
<tr>
<td><strong>Used With:</strong> BAS system control is expected.</td>
<td><strong>Check:</strong> 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).</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Module:</strong> BAS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## DIAGNOSTICS Menu

Table 7  Diagnostics Troubleshooting Chart (continued)

<table>
<thead>
<tr>
<th>DIAGNOSTIC DISPLAYED</th>
<th>REASON FOR DIAGNOSTIC</th>
<th>UCM’S REACTION</th>
<th>RESET REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Blocked Air Return Failure</strong></td>
<td><strong>Problem:</strong> The low pressure limit on the VCM module is detected closed for 1 second.</td>
<td>The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog outputs closed/stop fan speed, dampers, modulating heat, etc.</td>
<td><strong>(PMR)</strong> 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.</td>
</tr>
<tr>
<td><strong>Used With:</strong> Option available w/Fresh Air Measurement (VCM), OA Damper w/DCV or CO₂ Reset installed.</td>
<td><strong>Check:</strong> 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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Module:</strong> VCM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CO₂ Sensor Failure</strong></td>
<td><strong>Problem:</strong> The CO₂ Sensor input is out of range.</td>
<td>All DCV (Demand Control Ventilation) functions, or CO₂ reset functions, will cease and the unit will fall-back to the default outside air damper minimum position arbitration logic.</td>
<td><strong>(PAR)</strong> An automatic reset occurs after the CO₂ Sensor transducer input receives a signal that is within range for 10 continuous seconds.</td>
</tr>
<tr>
<td><strong>Used With:</strong> DCV option or CO₂ reset function installed.</td>
<td><strong>Check:</strong> Wiring between the VCM and customer terminal block, and between the terminal block and sensor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Module:</strong> VCM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Compressor Contactor/ Drive Fail (Ckt-1 or Ckt-2)</strong></td>
<td><strong>Problem:</strong> 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.</td>
<td>All compressors on the associated circuit will be locked out and prevented from operation.</td>
<td><strong>(PMR)</strong> 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.</td>
</tr>
<tr>
<td><strong>Used With:</strong> See compressor protection devices on MCM control wiring schematic.</td>
<td><strong>Check:</strong> The circuits contactor, side contacts, wiring, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Module:</strong> MCM</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 7. Diagnostics Troubleshooting Chart (continued)

<table>
<thead>
<tr>
<th>DIAGNOSTIC DISPLAYED</th>
<th>REASON FOR DIAGNOSTIC</th>
<th>UCM’S REACTION</th>
<th>RESET REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compressor Trip (Ckt-1 or Ckt-2)</strong></td>
<td><strong>Problem:</strong> 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. <strong>Check:</strong> All compressor protection devices in the associated refrigerant circuit's 115v contactor control wiring circuit.</td>
<td>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. During the (PMR), all compressors on the associated circuit will be locked out and prevented from operation.</td>
<td>(PMR) A manual reset 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. <strong>Note:</strong> <em>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.</em></td>
</tr>
<tr>
<td><strong>Condenser Pressure Sensor Failure (Ckt-1 or Ckt-2)</strong></td>
<td><strong>Problem:</strong> The saturated condenser pressure sensor input is out of range for the given circuit. <strong>Check:</strong> Wiring from the MPM to the pressure sensor. The input voltage range should be between: 0.625 and 4.80VDC.</td>
<td>All compressors on the associated circuit will be locked out and prevented from operation.</td>
<td>(PAR) An automatic reset occurs after the Condenser Pressure Sensor input returns to within range for 10 continuous seconds.</td>
</tr>
<tr>
<td><strong>Condenser Sump Heater Failure Manual</strong></td>
<td><strong>Problem:</strong> 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. <strong>Check:</strong> Actual water level, minimum level switch, heater power circuitry.</td>
<td>The unit will perform Sump Water Freeze Protection function.</td>
<td>(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.</td>
</tr>
<tr>
<td><strong>Condenser Sump Pump Manual Fail</strong></td>
<td><strong>Problem:</strong> 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. <strong>Check:</strong> Wiring to sump pump, contactor, and auxiliary contacts. Check for pump operation.</td>
<td>A compressor lockout is generated on all circuits.</td>
<td>(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.</td>
</tr>
</tbody>
</table>
### Table 7. Diagnostics Troubleshooting Chart (continued)

<table>
<thead>
<tr>
<th>DIAGNOSTIC DISPLAYED</th>
<th>REASON FOR DIAGNOSTIC</th>
<th>UCM’S REACTION</th>
<th>RESET REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cond Sump Max Level Failure</strong></td>
<td><strong>Problem:</strong> The condenser sump water level reaching the <strong>Cond Sump Max Level Switch</strong> is considered an undesirable condition indicating a problem with the mechanical float valve or some other water control mechanism. <strong>Check:</strong> Max level switch, float apparatus, and wiring.</td>
<td><strong>The Cond Sump Fill Relay</strong> will be de-energized.</td>
<td><strong>(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.</strong></td>
</tr>
<tr>
<td><strong>Cond Sump Min Level or Drain Fail</strong></td>
<td><strong>Problem:</strong> <strong>Min Level Fail:</strong> The Cond Sump Water Sump Fill Relay is energized, the 30-minute fill timer expired and the <strong>Cond Water Sump Min Level Input</strong> has not closed. <strong>Drain Fail:</strong> The Cond Sump Min Level Input has remained CLOSED for 5 continuous minutes after a Cond Sump Drain Request has occurred. <strong>Check:</strong> wiring from the MCM to the Sump Fill valve, water flow to the sump, sump min level switch and associated wiring.</td>
<td>All compressor circuits are locked out due to inability to determine if the sump has sufficient water level. De-energize the Heat relay.</td>
<td><strong>(PAR) An automatic reset occurs after: Min Level Fail: the Cond Water Sump Min Level Input is closed for 10 continuous seconds. Drain Fail: the Cond Sump Min Level is open for 10 continuous seconds. Both: clear the diagnostic and compressor lockouts.</strong></td>
</tr>
<tr>
<td><strong>Condenser Sump Temp Sensor Failure</strong></td>
<td><strong>Problem:</strong> The <strong>Condenser Sump Temperature Sensor</strong> input is out of range. (Temperature &lt; -40F or Temperature &gt; 200 F). <strong>Check:</strong> 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.</td>
<td>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.</td>
<td><strong>(PAR) An automatic reset occurs and the sump is allowed to fill after the Condenser Sump Temp Input rises above 40F for 10 seconds.</strong></td>
</tr>
<tr>
<td>DIAGNOSTIC DISPLAYED</td>
<td>REASON FOR DIAGNOSTIC</td>
<td>UCM’S REACTION</td>
<td>RESET REQUIRED</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------------------</td>
<td>----------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Condenser Sump Min Level Short Cycle Failure</td>
<td><strong>Problem:</strong> The <em>Sump Min Level Input</em> has opened three times without 60 seconds of continuous sump pump operation. <strong>Check:</strong> Water flow rate, leaking drain, faulty min level switch or wiring.</td>
<td>A compressor lockout is generated on all circuits.</td>
<td>(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.</td>
</tr>
<tr>
<td>Cond Temp Sensor Failure (Ckt-1 or Ckt-2)</td>
<td><strong>Problem:</strong> The saturated condenser temperature sensor input is out of range for the given circuit. <strong>Check:</strong> 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.</td>
<td>All compressors on the associated circuit will be locked out and prevented from operation.</td>
<td>(PAR) An automatic reset occurs after the Condenser Temp Sensor input returns to its allowable range within 10 seconds.</td>
</tr>
<tr>
<td>Dirty Filter</td>
<td><strong>Problem:</strong> The dirty filter switch input on the RTM has closed for more than 60 continuous seconds. <strong>Check:</strong> Dirty filters, shorted wiring, failed switch, tubing.</td>
<td>An Information Only Diagnostic is set.</td>
<td>(INFO) An automatic reset occurs after the Dirty Filter input reopens for 60 continuous seconds.</td>
</tr>
<tr>
<td>Dirty Final Filter</td>
<td><strong>Problem:</strong> The dirty final filter switch input on the RTM has closed for more than 60 continuous seconds. <strong>Check:</strong> Dirty filters, shorted wiring, failed switch, tubing.</td>
<td>An Information Only diagnostic is set.</td>
<td>(INFO) An automatic reset occurs after the Recovery Filter proving switch input reopens for 60 continuous seconds.</td>
</tr>
<tr>
<td>Dirty Recovery Filter</td>
<td><strong>Problem:</strong> The dirty recovery filter switch input on the MPM has closed for more than 60 continuous seconds. <strong>Check:</strong> Dirty filters, shorted wiring, failed switch, tubing.</td>
<td>An Information Only diagnostic is set.</td>
<td>(INFO) An automatic reset occurs after the Recovery Filter proving switch input reopens for 60 continuous seconds.</td>
</tr>
</tbody>
</table>
Table 7. Diagnostics Troubleshooting Chart (continued)

<table>
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</tr>
</thead>
</table>
| ECEM Communications Failure Module: ECEM | **Problem:** The RTM has lost communications with the ECEM.  
**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.  
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 Module: GBAS(5VDC/10VDC) | **Problem:** The GBAS input assigned to Economizer DryBulb Setpoint is out of range. (Temperature <50 F or Temperature > 140 F)  
**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 Module: RTM | **Problem:** The circuit wired to the Emergency Stop Input has opened. This can occur by design or unintentionally.  
**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 outputs 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>
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<tbody>
<tr>
<td>Energy Recovery Wheel Proof Failure</td>
<td>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. Check: Wheel operation, dirty wheel material, temperature sensor integrity.</td>
<td>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.</td>
<td>(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.</td>
</tr>
<tr>
<td>Module: MPM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entering Evaporator Temperature Sensor Failure (Ckt-1 or Ckt-2)</td>
<td>Problem: The Entering Evap Temp Sensor input for the given circuit is out of range. (Temperature &lt; -55 F or Temperature &gt; 209 F) 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.</td>
<td>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.</td>
<td>(PAR) An automatic reset occurs after the entering Evaporator Temperature Sensor input returns to within range continuously for 10 seconds.</td>
</tr>
<tr>
<td>Used With: DX cooling.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Module: MCM</td>
<td></td>
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</tr>
<tr>
<td>Evaporator Temperature Sensor Failure (Ckt-1 and Ckt-2)</td>
<td>Problem: The Evap Temp Sensor input for the given circuit is out of range. (Temperature &lt; -55 F or Temperature &gt; 209 F) 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.</td>
<td>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.</td>
<td>(PAR) An automatic reset occurs after the evaporator temperature input returns to its allowable range for 10 seconds.</td>
</tr>
<tr>
<td>Used With: DX cooling.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Module: MCM</td>
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</table>
## Table 7. Diagnostics Troubleshooting Chart (continued)

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</thead>
<tbody>
<tr>
<td>Excessive Outdoor Air</td>
<td>Problem: The voltage feedback from the OA Damper actuator indicates the damper has failed OPEN (&gt; 10% of commanded value) during ventilation mode for 5 continuous minutes. 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.</td>
<td>(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.</td>
<td></td>
</tr>
<tr>
<td>Used With: FDD operation.</td>
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<td></td>
</tr>
<tr>
<td>Module: RTM/VSM</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Exhaust Fan Failure</td>
<td>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. 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.</td>
<td>(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.</td>
<td></td>
</tr>
<tr>
<td>Used With: Power Exhaust w/ or w/o Statitrac option, and when Return Fan is not installed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Module: RTM</td>
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### Table 7. Diagnostics Troubleshooting Chart (continued)

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</table>
| **GBAS 0-5VDC Module Communications Failure** | Problem: The RTM has lost communications with the GBAS(5VDC) Module.  
Check: Check unit wiring between RTM and GBAS. | The UCM will initiate the following actions:  
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.  
b. All active Setpoints that source this GBAS will revert to their Human Interface default values.  
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** | Problem: The RTM has lost communications with the GBAS(10VDC) Module.  
Check: Check unit wiring between RTM and GBAS. | The UCM will initiate the following actions:  
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.  
b. All active Setpoints that source this GBAS will revert to their Human Interface default values.  
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)** | 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).  
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. |

**Used With:** Heat options.

**Module:** HEAT
### Table 7. Diagnostics Troubleshooting Chart (continued)

<table>
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<tr>
<td><strong>Heat Failure</strong></td>
<td>Problem: The Gas or Electric heat controls has failed or has marginal performance and the Heat Fail Input has closed: a. for more than 80 seconds, b. for 10 consecutive occurrences (each lasting 5 seconds or more) within a 210 second period. (This is typically caused when the gas heater's igniter failed to light the gas, or because the electric heat section became too hot.) Check Gas Heat: External ignition controller, wiring, combustion fan motor and airflow operation, etc. Check Electric Heat: Wiring, sufficient airflow, etc.</td>
<td>An Information Only diagnostic is set.</td>
<td>(INFO) An automatic reset occurs after the Heat Fail input remains open for 210 seconds continuously.</td>
</tr>
<tr>
<td><strong>Heat Module Communication Failure</strong></td>
<td>Problem: The RTM has lost communications with the HEAT module. Check: Check unit wiring between RTM and HEAT module.</td>
<td>An &quot;All Heat Off&quot; request is sent to the heat operation function: a. On staged gas or electric heat units, all heat module outputs will be de-energized. 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.</td>
<td>(PAR) An automatic reset occurs after communication has been restored.</td>
</tr>
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<td>DIAGNOSTIC DISPLAYED</td>
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</table>
| **High Comp Press Diff Failure (Ckt1 and Ckt2)**  
Used With: Low Vi  
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.  
**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)**  
Used With: DX cooling.  
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:  
a. less than the Evaporator Temperature Differential Setpoint for a period of ten minutes, and...  
b. greater than the *Evaporator Temperature Differential Setpoint* minus 5 F.  
**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**  
Used With: Energy Recovery Wheel option.  
Module: MPM | **Problem:** The *Leaving Recovery Exhaust Temp* sensor is out of range. (Temp < -55 F or Temp > 209 F)  
**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)

<table>
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</table>
| Low Air Temperature Limit Trip (formerly: Freezestat Trip)| Problem: The Low Air Temperature Limit Trip condition has been detected. This can occur if either of the following occurs:  
  a. the Hydronic Heat Low Air Temperature Limit input closes for > 1 second, or  
  b. the Chilled Water Low Air Temperature Limit input opens for > 1 second.  
  Check: Proper outside air damper actuator/linkage setup. | The UCM will initiate the following actions;  
  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.  
  b. An “All Heat OFF” request is issued to the heat control function.  
  c. A “Fan Off” request is sent to the supply fan and the return fan control functions.  
  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. |
<p>| Low Pressure Control Open (Ckt-1 or Ckt-2)               | Problem: The LPC Switch Input on the given circuit is detected open for at least 6 seconds. | 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. |
| Used With: DX cooling.                                   |                                                                                        |                                                                                                                                                                                                              |                                                                                                |
| Module: MCM                                              |                                                                                        |                                                                                                                                                                                                              |                                                                                                |
| Low Refrigerant Charge (Ckt-1 or Ckt-2)                  | 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. | 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. |
| Used With: DX cooling.                                   |                                                                                        |                                                                                                                                                                                                              |                                                                                                |
| Module: MCM                                              |                                                                                        |                                                                                                                                                                                                              |                                                                                                |</p>
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<tbody>
<tr>
<td>Manual Reset Return Pressure Limit Trip</td>
<td>Problem: The return plenum pressure has exceeded the Return Plenum Pressure High Limit (3.5 IWC). Check: Check return plenum pressure, exhaust/return damper actuators, return pressure transducer assembly and wiring, etc.</td>
<td>The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog outputs 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.</td>
<td></td>
</tr>
<tr>
<td>Manual Reset Supply Air Static Pressure Limit Trip</td>
<td>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. Check: Supply air ductwork, supply fan speed control, supply air pressure transducer assembly and wiring.</td>
<td>A “Supply Air Pressure Shutdown” signal is sent to the following functions: a. Compressor Staging Control, b. Economizer Actuator Control, c. Heat Operation, d. Supply Fan/Return Fan Control, e. IGV / VFD Control, f. Exhaust Fan Control, 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.</td>
<td></td>
</tr>
<tr>
<td>Manual Reset Space Press Low Limit Trip</td>
<td>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. Check: Check return plenum pressure, exhaust/return damper actuators, etc.</td>
<td>The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog outputs 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. Note: See Auto Reset Space Press Low Limit Trip Above.</td>
<td></td>
</tr>
<tr>
<td>MCM Communications Failure</td>
<td>Problem: The RTM has lost communications with the MCM module. Check: Check unit wiring between RTM and MCM module.</td>
<td>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.</td>
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### Table 7. Diagnostics Troubleshooting Chart (continued)

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<tbody>
<tr>
<td><strong>MDM Communications Failure</strong>&lt;br&gt;Module: MDM</td>
<td><strong>Problem:</strong> The RTM has lost communications with the MDM module.&lt;br&gt;<strong>Check:</strong> Check unit wiring between RTM and MDM module.</td>
<td>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)</td>
<td>(PAR) An automatic reset occurs after one complete set of the required IPC packets has been received.</td>
</tr>
<tr>
<td><strong>MPM Communications Failure</strong>&lt;br&gt;Module: MPM</td>
<td><strong>Problem:</strong> The RTM has lost communications with the MPM module.&lt;br&gt;<strong>Check:</strong> Check unit wiring between RTM and MPM module.</td>
<td>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.&lt;br&gt;b. For evaporative condensing units, a lockout request is issued, for all circuits, to the compressors staging control function.</td>
<td>(PAR) An automatic reset occurs after one complete set of the required IPC packets has been received.</td>
</tr>
<tr>
<td><strong>Minimum Outdoor Air Flow Setpoint Failure</strong>&lt;br&gt;Used With: Fresh Air Measurement (VCM) option.&lt;br&gt;Module: VCM</td>
<td><strong>Problem:</strong> The GBAS input assigned to <em>Minimum Outdoor Air Flow Setpoint</em> is out of range. (OAFlowStp is $&lt; 0$ or OAFlowStp $&gt; \text{Max Unit Airflow}^1$)&lt;br&gt;<strong>Check:</strong> Wiring and external devices on the associated GBAS input.</td>
<td>The Active Minimum OA Flow Setpoint reverts to the default Minimum OA Flow Setpoint of the Human Interface.</td>
<td>(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).</td>
</tr>
<tr>
<td><strong>Mode Input Failure</strong>&lt;br&gt;Module: RTM</td>
<td><strong>Problem:</strong> The RTM Mode input is out of range. ($R &lt; 1\text{k ohm}$ or $R &gt; 40\text{k ohm}$)&lt;br&gt;<strong>Check:</strong> Mode input resistance should be between 1 Kohm and 40 Kohms. If so, check field/unit wiring between Sensor and RTM.</td>
<td>The system mode reverts to the default (HI set) System Mode.</td>
<td>(INFO) An automatic reset occurs after the Mode input returns to its allowable range for 10 seconds.</td>
</tr>
</tbody>
</table>

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1. See **Setpoints** menu *Min OA Flow Setpoint* for max unit airflows table.
# DIAGNOSTICS Menu

Table 7. Diagnostics Troubleshooting Chart (continued)

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<tr>
<td><strong>Morning Warmup Setpoint Failure</strong></td>
<td><strong>Problem:</strong> The GBAS input assigned to MWU Setpoint is out of range (Temp &lt; 50 F or Temp &gt; 90 F).</td>
<td>The Active MWU Setpoint reverts to the default MWU Setpoint from the Human Interface.</td>
<td>(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).</td>
</tr>
<tr>
<td><strong>Module:</strong> RTM</td>
<td><strong>Check:</strong> Wiring and external devices on the associated GBAS input.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **NSB Panel Communication Failure** | **Problem:** The RTM has lost communications with the NSB Panel (Night SetBack Panel or programmable zone sensor). | a. The unit reverts to the next lower priority mode switching source (typically the HI default mode).  
  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. |
| **Module:** NSB Panel              | **Check:** Check field/unit wiring between RTM and NSB Panel.                        |                                                                               |                                                                               |
| **NSB Panel Zone Temp Sensor Failure** | **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). | a. If the external sensor has failed the NSB will revert to its local value and no diagnostic will be generated.  
  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). |
| **Module:** NSB Panel              | **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. |                                                                               |                                                                               |
| **OA Humidity Sensor Failure**     | **Problem:** The outside air humidity sensor data is out of range (Humidity < 10% or Humidity > 90%). | 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. |
| **Used With:** Comparative Enthalpy option. | **Check:** Check field/unit wiring between RTM and the sensor. |                                                                               |                                                                               |
| **Module:** RTM                    |                                                                                        |                                                                               |                                                                               |
### DIAGNOSTICS Menu

Table 7. Diagnostics Troubleshooting Chart (continued)

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<tr>
<td><strong>OA Temperature Sensor Failure</strong></td>
<td><strong>Problem:</strong> The RTM OA Temperature Sensor has been assigned to at least one function, and this sensor signal is out of range (Temp &lt; -55 F or Temp &gt; 209 F).</td>
<td><strong>Check:</strong> 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.</td>
<td><strong>(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.</strong></td>
</tr>
<tr>
<td><strong>Occupied Dehumidification Setpoint Failure</strong></td>
<td><strong>Problem:</strong> The GBAS input assigned to Occupied Dehumidification Setpoint is out of range (Humidity &lt; 10% or Humidity &gt; 90%).</td>
<td><strong>Check:</strong> Wiring and external devices on the associated GBAS input.</td>
<td><strong>(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).</strong></td>
</tr>
<tr>
<td><strong>Occupied Humidification Setpoint Failure</strong></td>
<td><strong>Problem:</strong> The GBAS input assigned to Occupied Humidification Setpoint is out of range (Humidity &lt; 10% or Humidity &gt; 90%).</td>
<td><strong>Check:</strong> Wiring and external devices on the associated GBAS input.</td>
<td><strong>(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).</strong></td>
</tr>
<tr>
<td><strong>Occupied Zone Cool Setpoint Failure</strong></td>
<td><strong>Problem:</strong> The source assigned to Occupied Zone Cool Setpoint is out of range (Temperature &lt; 45 F or Temperature &gt; 94 F).</td>
<td><strong>Check:</strong> Wiring and external devices on the associated RTM input.</td>
<td><strong>(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).</strong></td>
</tr>
<tr>
<td>DIAGNOSTIC DISPLAYED</td>
<td>REASON FOR DIAGNOSTIC</td>
<td>UCM’S REACTION</td>
<td>RESET REQUIRED</td>
</tr>
<tr>
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</tr>
<tr>
<td>Occupied Zone Heat Setpoint Failure</td>
<td>Problem: The source assigned to Occupied Zone Heat Setpoint is out of range (Temperature &lt; 45 F or Temperature &gt; 94 F). Check: Wiring and external devices on the associated RTM input.</td>
<td>The Active Occupied Zone Heating Setpoint reverts to the default Occupied Zone Heating Setpoint of the Human Interface.</td>
<td>(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).</td>
</tr>
<tr>
<td>Outdoor Air Damper Not Modulating</td>
<td>Problem: The voltage feedback from the OA Damper actuator indicates the damper has failed CLOSED (&lt; 10% of commanded value) during ventilation mode for 5 continuous minutes. Check: OA Damper apparatus for linkage binding or failure. Wiring/voltages between actuator and VSM. Wiring/voltages between the RTM and actuator.</td>
<td>None. Only an information diagnostic is annunciatiated.</td>
<td>(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.</td>
</tr>
<tr>
<td>RTM Auxiliary Temperature Sensor Failure</td>
<td>Problem: The RTM Aux Temperature Sensor has been assigned to at least one function, and this sensor signal is out of range (Temp &lt; -55 F or Temp &gt; 209 F). 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.</td>
<td>The functions with the RTM Aux Temperature input designated as their sensor are disabled.</td>
<td>(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.</td>
</tr>
</tbody>
</table>
### DIAGNOSTICS Menu

<table>
<thead>
<tr>
<th>DIAGNOSTIC DISPLAYED</th>
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<th>UCM’S REACTION</th>
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</thead>
</table>
| **RTM Space Humidity Sensor Failure**  
Used With: Dehumidification or Humidification option.  
Module: RTM | **Problem:** The RTM space humidity sensor data is out of range (Humidity < 1% or Humidity > 100%).  
**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**  
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).  
**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**  
Used With: Dehumidification or Humidification option, or Comparative Enthalpy installed.  
Module: ECEM | **Problem:** The return air humidity sensor data is out of range (Humidity < 10% or Humidity > 90%).  
**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**  
Used With: Rapid Restart.  
Module: RTM | **Problem:** The GBAS(5VDC) hardware configuration module or input has failed, or has been changed since the last power cycle.  
**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)

<table>
<thead>
<tr>
<th>DIAGNOSTIC DISPLAYED</th>
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</tr>
</thead>
</table>
| **Return Air Temperature Sensor Failure**  
**Used With:** Comparative Enthalpy installed, or Energy Recovery Wheel option.  
**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).  
**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**  
**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.  
**Check:** The return fan drive and belt. Faulty wiring with the return fan proving switch circuit.  
**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 outputs 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. |
### Return Plenum Pressure Sensor Failure

**Used With:** Return Fan option.

**Module:** MPM

**Problem:** The return plenum pressure sensor input is out of range and one of the following is occurring:

a. The return plenum pressure sensor value has risen above +3.5 IWC
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.

b. The return fan is off and the return plenum pressure sensor value has fallen below -0.75 IWC.

**Check:** Return pressure transducer assembly, tubing and wiring. Return fan drive and belt. Wiring between the MPM and sensor.

**UCM’s Reaction:** The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog outputs closed/stop, fan speed, dampers, modulating heat, etc.

**Reset Required:** (PAR) An automatic reset occurs after the return plenum pressure input returns to within range for 10 continuous seconds.

### Rooftop Module Data Storage Error

**Used With:** All units.

**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.

**Check:**

a. Make sure the proper Human Interface version is installed in the unit.

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.

**UCM’s Reaction:** The diagnostic will be displayed at the top level status screen, and unit operation will be prevented.

**Reset Required:** (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

**Module:** SCM

**Problem:** The RTM has lost communications with the SCM.

**Check:** Check unit wiring between RTM and SCM module.

**UCM’s Reaction:** 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.

**Reset Required:** (PAR) An automatic reset occurs after communication has been restored.
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>SZVAV HW Configuration Failure</td>
<td><strong>Problem:</strong> The GBAS(5VDC) hardware configuration module or input has failed, or has been changed since the last power cycle. <strong>Check:</strong> the wire harness, the GBAS(5VDC) config module input. Refer to the Human Interface GBAS(5VDC) status screen for proper index value.</td>
<td>The unit will not honor the Single Zone VAV control sequence. The unit will perform normal Zone Temperature control (CVZT).</td>
<td>(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.</td>
</tr>
<tr>
<td>Space Press Low Limit Trip Auto Reset</td>
<td><strong>Problem:</strong> The building’s space pressure has dropped below the <em>Building Pressure Low Limit Setpoint</em> for the 1st or 2nd time out of 3 occurrences <strong>Check:</strong> Check return plenum pressure, exhaust/return damper actuators, etc.</td>
<td>The unit will trip all outputs, de-energize dx cooling, staged heating, fans, etc., and will drive all analog outputs closed/stop, fan speed, dampers, modulating heat, etc.</td>
<td>(PAR) An auto reset occurs when the building’s space pressure has risen above the Building Pressure Low Limit Setpoint plus .02 IWC. <strong>Note:</strong> 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.</td>
</tr>
<tr>
<td>Space Press Low Limit Trip Warning</td>
<td><strong>Problem:</strong> The building’s space pressure has dropped below the <em>Building Pressure Low Limit Setpoint</em> plus 0.02 IWC. <strong>Check:</strong> Check return plenum pressure, exhaust/return damper actuators, etc.</td>
<td>Information only.</td>
<td>(PAR) An auto reset occurs when the building's space pressure has risen above the Building Pressure Low Limit Setpoint plus .03 IWC.</td>
</tr>
</tbody>
</table>
## Table 7. Diagnostics Troubleshooting Chart (continued)

<table>
<thead>
<tr>
<th>DIAGNOSTIC DISPLAYED</th>
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<tbody>
<tr>
<td><strong>Space Pressure Sensor Failure</strong></td>
<td><strong>Problem:</strong> The unit is reading a signal that is out of range for the <em>Space Pressure Sensor</em> transducer input (During calibration: V &lt; 40 mV or V &gt; 420 mV; During operational times: V &lt; 40 mV or V &gt; 0.75 V). 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.</td>
<td>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.</td>
<td>(PAR) An automatic reset occurs after the designated Space Pressure transducer sends a signal within range for 10 continuous seconds.</td>
</tr>
<tr>
<td><strong>Space Static Pressure Setpoint Failure</strong></td>
<td><strong>Problem:</strong> The GBAS input assigned to the <em>Space Static Pressure Setpoint</em> is out of range (Input &lt; 0.03 IWC or Input &gt; 0.20 IWC). Check: The wiring between the GBAS input assigned to this setpoint and the external device.</td>
<td>The <em>Active Space Pressure Setpoint</em> will revert to the default <em>Space Pressure Setpoint</em> from the Human Interface.</td>
<td>(PAR) An automatic reset occurs after the source input assigned to the <em>Space Pressure Setpoint</em> input returns to within range for 10 continuous seconds, or after a different, valid <em>Space Pressure Setpoint</em> source is applied (BAS/Network).</td>
</tr>
<tr>
<td><strong>Supply Air Pressure Sensor Failure</strong></td>
<td><strong>Problem:</strong> The Supply Air Pressure sensor voltage input is out of range (Input &lt; 40mV or Input &gt; 4.75V) Check: Check field/unit wiring between Sensor and RTM.</td>
<td>The IGV will drive closed or supply fan speed to minimum, and the following functions are disabled; a. SA Pressure Control b. SA Static Pressure Limit</td>
<td>(PAR) An automatic reset occurs after the SA Pressure input returns to its allowable range for 10 seconds.</td>
</tr>
<tr>
<td><strong>Supply Air Pressure Setpoint Failure</strong></td>
<td><strong>Problem:</strong> The GBAS input assigned to the <em>Supply Air Pressure Setpoint</em> is out of range (Input &lt; 1.0 IWC or Input &gt; 4.3 IWC). Check: The wiring between the GBAS input assigned to this setpoint and the external device.</td>
<td>The default <em>Supply Air Pressure Setpoint</em> at the Human Interface will become the <em>Active Supply Air Pressure SETPOINT</em>.</td>
<td>(PAR) An automatic reset occurs after the source input assigned to the <em>Supply Air Pressure Setpoint</em> input returns to within range for 10 continuous seconds, or after a different, valid <em>Supply Air Pressure Setpoint</em> source is applied (BAS/Network).</td>
</tr>
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</table>
### Table 7. Diagnostics Troubleshooting Chart (continued)

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</thead>
<tbody>
<tr>
<td>Supply Air Reheat Setpoint Failure</td>
<td><strong>Problem:</strong> The GBAS input assigned to the <em>Supply Air Reheat Setpoint</em> is out of range (Temp &lt; 60 F or Temp &gt; 90 F).</td>
<td>The Active <em>Supply Air Reheat Setpoint</em> reverts to the default <em>Supply Air Reheat Setpoint</em> defined at the Human Interface.</td>
<td>(PAR) An automatic reset occurs after the source input assigned to the <em>Supply Air Reheat Setpoint</em> input returns to within range for 10 continuous seconds, or after a different, valid <em>Supply Air Reheat Setpoint</em> source is applied (BAS/Network).</td>
</tr>
<tr>
<td><strong>Used With:</strong> Dehumidification option.</td>
<td><strong>Check:</strong> The wiring between the GBAS input assigned to this setpoint and the external device.</td>
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<td></td>
</tr>
<tr>
<td><strong>Module:</strong> RTM</td>
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</tr>
<tr>
<td>Supply Air Temperature Cool Setpoint Failure</td>
<td><strong>Problem:</strong> The source assigned to SA <em>Temp Cool Setpoint</em> is out of range (Temp &lt; 35 F or Temp &gt; 95 F).</td>
<td>The Active <em>Supply Air Temp Cool Setpoint</em> reverts to the default <em>Supply Air Temp Cool Setpoint</em> defined at the Human Interface.</td>
<td>(PAR) An automatic reset occurs after the source input assigned to the <em>Supply Air Temp Cool Setpoint</em> input returns to within range for 10 continuous seconds, or after a different, valid <em>Supply Air Temp Cool Setpoint</em> source is applied (BAS/Network).</td>
</tr>
<tr>
<td><strong>Used With:</strong> VVDA.</td>
<td><strong>Check:</strong> Wiring and external devices on the associated RTM input.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Module:</strong> RTM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply Air Temperature Heat Setpoint Failure</td>
<td><strong>Problem:</strong> The source assigned to SA <em>Temp Heat Setpoint</em> is out of range (Temperature &lt; 35 F or Temperature &gt; 185 F).</td>
<td>The Active <em>Supply Air Temp Heat Setpoint</em> reverts to the default <em>Supply Air Temp Heat Setpoint</em> defined at the Human Interface.</td>
<td>(PAR) An automatic reset occurs after the source input assigned to the <em>Supply Air Temp Heat Setpoint</em> input returns to within range for 10 continuous seconds, or after a different, valid <em>Supply Air Temp Heat Setpoint</em> source is applied (BAS/Network).</td>
</tr>
<tr>
<td><strong>Used With:</strong> VVDA.</td>
<td><strong>Check:</strong> Wiring and external devices on the associated RTM input.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Module:</strong> RTM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply Air Temperature Sensor Failure</td>
<td><strong>Problem:</strong> The <em>RTM Supply Air Temperature Sensor</em> signal is out of range (Temp &lt; -55 F or Temp &gt; 209 F).</td>
<td>These unit functions are disabled: a. Supply Air Tempering b. Economizing c. On CV units, the Supply Air Temperature low limit function is disabled. d. On VAV units, the Supply Air Temperature Control heating and cooling functions are disabled.</td>
<td>(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.</td>
</tr>
<tr>
<td><strong>Used With:</strong> All units.</td>
<td><strong>Check:</strong> 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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Module:</strong> RTM</td>
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</tbody>
</table>
## Supply Fan Failure

**Module:** RTM

**Problem:** There is no supply airflow 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.

**Check:** Check belts, linkages, etc. on the Supply Fan assembly. If these are ok, check field/unit wiring between RTM and Supply Fan. 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:
  a. Compressor staging/Chilled Water control
  b. Heat operation
  c. Supply fan control and proof of operation
  d. Return fan control and proof of operation
  e. Exhaust fan control and proof of operation
  f. Exhaust actuator control
  g. Economizer actuator control
  h. IGV / VFD control

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

**Used With:** Required w/ units with isolation dampers (fire dampers) installed to insure proper airflows and proving switch operation.

**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.

**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 outputs closed/stop, fan speed, dampers, modulating heat, etc.

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.
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<tr>
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<tr>
<td><strong>Unit HI Communications Failure</strong>&lt;br&gt;<strong>Module:</strong> RTM</td>
<td><strong>Problem:</strong> The RTM has lost communications with the Unit mounted (local) Human Interface (HI).&lt;br&gt;<strong>Check:</strong> Field/unit wiring between RTM and Local HI.</td>
<td>A fail-safe function in the HI will:&lt;br&gt;a. disallow any interaction between the HI and the RTM or any other modules.&lt;br&gt;b. render all HI keystrokes ineffective, and&lt;br&gt;c. cause the following to be displayed on the unit-mounted HI display: LOCAL HI COMMUNICATIONS LOSS CHECK COMM LINK WIRING BETWEEN MODULES (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.)</td>
<td><em>(INFO)</em> 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.</td>
</tr>
</tbody>
</table>

| **Unit Economizing When It Should Not Used With:** FDD operation.<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 announced. | *(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)

<table>
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<tr>
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<tbody>
<tr>
<td><strong>Unit Not Economizing When It Should</strong> Used With: FDD operation. Module: RTM/VSM</td>
<td><strong>Problem:</strong> Problem: The voltage feedback from the OA Damper actuator indicates the damper has failed CLOSED (&lt; 10% of commanded value) during economizer cooling mode for 5 continuous minutes. <strong>Check:</strong> OA Damper apparatus for linkage binding or failure. Wiring/ voltages between actuator and VSM. Wiring/voltages between the RTM and actuator.</td>
<td>None. Only an information diagnostic is annunciated.</td>
<td>(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.</td>
</tr>
<tr>
<td><strong>Unoccupied Dehumidification Setpoint Failure</strong> Module: RTM</td>
<td><strong>Problem:</strong> The GBAS input assigned to Unoccupied Dehumidification Setpoint is out of range (Humidity &lt; 10% or Humidity &gt; 90%). <strong>Check:</strong> Wiring and external devices on the associated GBAS input.</td>
<td>The Active Unoccupied Dehumidification Setpoint reverts to the default Unoccupied Dehumidification Setpoint from the Human Interface.</td>
<td>(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).</td>
</tr>
<tr>
<td><strong>Unoccupied Humidification Setpoint Failure</strong> Module: RTM</td>
<td><strong>Problem:</strong> The GBAS input assigned to Unoccupied Humidification Setpoint is out of range (Humidity &lt; 10% or Humidity &gt; 90%). <strong>Check:</strong> Wiring and external devices on the associated GBAS input.</td>
<td>The Active Unoccupied Humidification Setpoint reverts to the default Unoccupied Humidification Setpoint from the Human Interface.</td>
<td>(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).</td>
</tr>
</tbody>
</table>
### Table 7. Diagnostics Troubleshooting Chart (continued)

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<tbody>
<tr>
<td>Unoccupied Zone Cool Setpoint Failure</td>
<td>Problem: The source assigned to Unoccupied Zone Cool Setpoint is out of range (Temperature &lt; 45 F or Temperature &gt; 94 F). Check: Wiring and external devices on the associated RTM input.</td>
<td>The Active Unoccupied Zone Cooling Setpoint reverts to the default Unoccupied Zone Cooling Setpoint of the Human Interface.</td>
<td>(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).</td>
</tr>
<tr>
<td>Module: RTM</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Unoccupied Zone Heat Setpoint Failure</td>
<td>Problem: The source assigned to Unoccupied Zone Heat Setpoint is out of range (Temperature &lt; 45 F or Temperature &gt; 94 F). Check: Wiring and external devices on the associated RTM input.</td>
<td>The Active Unoccupied Zone Heating Setpoint reverts to the default Unoccupied Zone Heating Setpoint of the Human Interface.</td>
<td>(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).</td>
</tr>
<tr>
<td>Module: RTM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VCM Aux Temp. Sensor Failure.</td>
<td>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 &lt; -40 F or Temp &gt; 200 F). 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.</td>
<td>The functions with the VCM Aux Temperature Sensor input designated as their sensor are disabled.</td>
<td>(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.</td>
</tr>
<tr>
<td>Module: VCM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VCM Communications Failure.</td>
<td>Problem: The RTM has lost communications with the VCM module. Check: Check unit wiring between RTM and VCM module.</td>
<td>Airflow measurement will be disabled and the unit will revert to the default OA Damper Minimum Position. CO2 sensor value will be disabled, DCV functionality will be disabled.</td>
<td>(PAR) An automatic reset occurs after communication has been restored.</td>
</tr>
<tr>
<td>Module: VCM</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 7. Diagnostics Troubleshooting Chart (continued)

<table>
<thead>
<tr>
<th>DIAGNOSTIC DISPLAYED</th>
<th>REASON FOR DIAGNOSTIC</th>
<th>UCM’S REACTION</th>
<th>RESET REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Velocity Pressure Sensor Failure</td>
<td>Problem: The velocity pressure input signal of the designated flow station is out of range (During calibration: volts &lt; 40 mV or volts &gt; 420 mV, During operational times: volts &lt; 40 mV or volts &gt; 0.75 V).</td>
<td>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.</td>
<td>(PAR) An automatic reset occurs after the designated velocity pressure transducer sends a signal within range for 10 continuous seconds.</td>
</tr>
<tr>
<td>Used With: IPak 1 Fresh Air Measurement (VCM) option.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Module: VCM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Velocity Pressure Sensor Failure (Left or Right)</td>
<td>Problem: The velocity pressure input signal of the designated flow station is out of range (During calibration: volts &lt; 40 mV or volts &gt; 420 mV, During operational times: volts &lt; 40 mV or volts &gt; 0.75 V).</td>
<td>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.</td>
<td>(PAR) An automatic reset occurs after the designated velocity pressure transducer sends a signal within range for 10 continuous seconds.</td>
</tr>
<tr>
<td>Note: “Left” and “Right” are the left side of the unit, or right side, relative to someone facing the control box of the unit.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used With: IPak 2 Fresh Air Measurement (VCM) option.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Module: VCM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOM Communications Failure</td>
<td>Problem: The RTM has lost communications with the VOM module.</td>
<td>Ventilation override actions will not be allowed, and the VOM Output relay will be de-energized.</td>
<td>(PAR) An automatic reset occurs after communication has been restored.</td>
</tr>
<tr>
<td>Module: VOM</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>INHIBIT DISPLAYED</th>
<th>REASON FOR INHIBIT</th>
<th>UCM’S REACTION</th>
<th>RESET CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled By Compressor Protection</td>
<td>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.</td>
<td>All compressors and condenser fans on the affected circuit will be disabled.</td>
<td>The compressors on the affected circuit will remain OFF for a period of 15 minutes on the first 3 occurrences. If a 4th occurrence occurs before the compressor(s) run uninhibited for more than 3 minutes a manual lockout will be generated.</td>
</tr>
<tr>
<td>Input: MCM Ckt Compressor Proving Input</td>
<td>Check: Compressor contactor and switch, high pressure cutout switch, compressor protection devices, breakers, fuses, wiring, etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8. Compressor Inhibit Troubleshooting Chart

| VSM Communications Failure Module: VSM | Problem: The RTM has lost communications with the VSM module. | 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. |

Table 7. Diagnostics Troubleshooting Chart (continued)
## Table 8. Compressor Inhibit Troubleshooting Chart (continued)

<table>
<thead>
<tr>
<th>INHIBIT DISPLAYED</th>
<th>REASON FOR INHIBIT</th>
<th>UCM'S REACTION</th>
<th>RESET CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled By Contactor/ Drive Fail</td>
<td><strong>Problem:</strong> 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.</td>
<td>All compressors and condenser fans on the affected circuit will be disabled.</td>
<td>The compressors on the affected circuit will remain OFF on a manual lockout.</td>
</tr>
<tr>
<td><strong>Input:</strong> Ckt Compressor Proving Input</td>
<td><strong>Check:</strong> Compressor contactor and switch, high pressure cutout switch, compressor protection devices, breakers, fuses, wiring, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disabled By Low Pressure Cutout</td>
<td><strong>Source:</strong> The circuit’s LPC switch of the affected circuit has opened while at least one compressor on the circuit is being requested ON.</td>
<td>All compressors and condenser fans on the affected circuit will be disabled.</td>
<td>If the LPC is OPEN at the time the compressor is started a manual lockout will be generated.</td>
</tr>
<tr>
<td><strong>Input:</strong> Ckt Low Pressure Switch</td>
<td><strong>Check:</strong> Switch, wiring, charge.</td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>Disabling By Bad Cond Temp Sensor</td>
<td><strong>Source:</strong> The circuit’s condenser temperature sensor has failed, or some aspect of the wiring has failed.</td>
<td>All compressors and condenser fans on the affected circuit will be disabled.</td>
<td>If a 3rd occurrence occurs before the compressor(s) run uninhibited for more than 3 minutes a manual lockout will be generated.</td>
</tr>
<tr>
<td><strong>Input:</strong> Ckt Saturated Condenser Temperature Sensor</td>
<td><strong>Check:</strong> Wiring, pin connections for frayed or marginal crimp/insertion. Sensor resistance values.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 8. Compressor Inhibit Troubleshooting Chart (continued)

<table>
<thead>
<tr>
<th>INHIBIT DISPLAYED</th>
<th>REASON FOR INHIBIT</th>
<th>UCM’S REACTION</th>
<th>RESET CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled By Demand Limit</td>
<td><strong>Source:</strong> The UCM is in an active demand limit or BAS capacity limit event and this compressor is affected. <strong>Check:</strong> Changed HI request for Demand Limit amount. GBAS demand limit input has shorted to ground, or GBAS10 input has opened to 24vdc. Wiring. BAS request.</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Disabled By Frost Protection</td>
<td><strong>Source:</strong> 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. <strong>Check:</strong> Low load conditions. Refrigerant charge. Sensor operation and wiring.</td>
<td>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.</td>
<td>Once the Leaving Evap Temperature sensor value increases sufficiently the inhibits of all compressors will be removed after a predetermined time.</td>
</tr>
<tr>
<td>Disabled By BAS Network Lockout</td>
<td><strong>Source:</strong> A BAS request to lock all compressors has been received. <strong>Check:</strong> BAS front-end programming/scheduling.</td>
<td>All compressors will be locked out as long as the request is persisted.</td>
<td>The request to lockout has been removed.</td>
</tr>
<tr>
<td>Disabled By Minimum Off Time</td>
<td><strong>Source:</strong> Normal unit operation. <strong>Check:</strong> n/a</td>
<td>Once a compressor is turned OFF, it will remain OFF for a predetermined amount of time.</td>
<td>Automatic.</td>
</tr>
<tr>
<td>Disabled By Low Ambient Lockout</td>
<td><strong>Source:</strong> The UCM has determined that the Outside Air Temperature is below the allowable designed operating setpoint of the refrigeration system. <strong>Check:</strong> Proper Outside Air Temperature sensor operation. Configuration of the designed low ambient function.</td>
<td>All compressors and condenser fans will be disabled.</td>
<td>The lockout will be removed once the outside air temperature has exceeded the setpoint value by some amount.</td>
</tr>
</tbody>
</table>
### DIAGNOSTICS Menu

#### Table 8. Compressor Inhibit Troubleshooting Chart (continued)

<table>
<thead>
<tr>
<th>INHIBIT DISPLAYED</th>
<th>REASON FOR INHIBIT</th>
<th>UCM'S REACTION</th>
<th>RESET CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled By Ventilation</td>
<td>Source: The UCM is in an active VOM mode or an active BAS Override mode.</td>
<td>All compressors will be inhibited.</td>
<td>The lockout will be removed once all request for VOM and BAS Override are removed.</td>
</tr>
<tr>
<td>Override</td>
<td>Check: VOM module wiring, connectors, etc., BAS request.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Disabled By LPC Delay</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Input:</strong> Condenser Temperature Sensor for the Circuit.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Source:</strong> Low Condenser Temperature sensor values on the affected circuit were</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>detected at the first compressor start on that circuit.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Check:</strong> Condenser temperature sensor.</td>
<td></td>
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<tr>
<td></td>
<td>The second compressor on the affected circuit will be inhibited for a predetermined</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>amount of time based on the value of the Condenser temperature at first compressor</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>start.</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>The lockout will be removed after the predetermined time.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Disabled By Coil Purge Request</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Input:</strong> Hardcoded 60 minute timer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Source:</strong> The UCM is configured with Hot Gas Reheat and compressors on the reheat</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>circuit have been active for a accumulated time of 60 minutes without changing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>modes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Check:</strong> N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>At least one compressor on the reheat circuit will be inhibited.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The lockout will be removed once the request for purge mode is terminated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Disabled By Low Charge Protection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Input:</strong> The Evaporator Leaving and Entering Temperature Sensor Difference has</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>exceeded the setpoint.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Source:</strong> The calculated evaporator temperature differential has exceeded</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Evaporator Differential Setpoint after 10 minutes of compressor operation on that</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>circuit.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Check:</strong> Refrigerant charge or reset setpoint to proper value.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All compressors and condenser fans on the affected circuit will be disabled.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A manual lockout of this circuit will be performed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Disabled By Evap Temp Sensor Fail</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Input:</strong> Ckt Evaporator Temperature Sensor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Source:</strong> The circuit’s entering or leaving temperature sensor has failed, or</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>some aspect of the wiring has failed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Check:</strong> Wiring, pin connections for frayed or marginal crimp/insertion. Sensor</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>resistance values.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All compressors and condenser fans on the affected circuit will be disabled.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The circuit will remain inhibited until the sensor is reporting a value within the</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>normal sensing range.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 8. Compressor Inhibit Troubleshooting Chart (continued)

<table>
<thead>
<tr>
<th>INHIBIT DISPLAYED</th>
<th>REASON FOR INHIBIT</th>
<th>UCM'S REACTION</th>
<th>RESET CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled By Low Reheat Evap Temp</td>
<td><strong>Source</strong>: Excessively low suction pressures during active Hot Gas Reheat mode.</td>
<td>All compressors and condenser fans on the given circuit will be affected and eventually be disabled.</td>
<td>The inhibit will be removed once the temperature has risen to greater than 45°F.</td>
</tr>
<tr>
<td>Input: Leaving Evaporator Temperature Sensor</td>
<td><strong>Check</strong>: Low airflows through evaporator, low refrigerant charge, Leaving Evap Temp Sensor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disabled By Communications Failures</td>
<td><strong>Source</strong>: Communications with one or more modules providing compressor support has been lost.</td>
<td>All compressors will be locked out.</td>
<td>Communications has been re-established.</td>
</tr>
<tr>
<td>Input: Communications Wiring/ Modules</td>
<td><strong>Check</strong>: Module wiring, connectors and module operation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disabled By Comp Press Differential</td>
<td><strong>Check</strong>: Condenser fan speed and staging operation. Proper values for entering and leaving evaporator temperature sensors.</td>
<td>One or more compressors on the affected circuit will be inhibited.</td>
<td>Conditions of refrigerant for the affected circuit have returned to normal.</td>
</tr>
<tr>
<td>Input: Condensing and Evaporator temperature sensors. Condenser fan speed and staging control.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disabled By High Ambient Protection</td>
<td><strong>Source</strong>: The saturated condensing temperature of at least one circuit has exceeded the target setpoint for the given unit configuration.</td>
<td>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.</td>
<td>The saturated condensing temperature of both circuits has reduced sufficiently below the target setpoint for the given unit configuration.</td>
</tr>
<tr>
<td>Input: Ckt Condenser Fan Staging and Speed Modulation.</td>
<td><strong>Note</strong>: The effects of ambient temperature are considered to have an excessive influence on the saturated condensing temperature's operating points.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Check</strong>: Condenser fan speed and staging operation.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 8. Compressor Inhibit Troubleshooting Chart (continued)

<table>
<thead>
<tr>
<th>INHIBIT DISPLAYED</th>
<th>REASON FOR INHIBIT</th>
<th>UCM'S REACTION</th>
<th>RESET CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited By High Suction Pressure Conditions</td>
<td><strong>Source:</strong> The estimated suction pressure has exceeded the target setpoint for the given unit configuration.</td>
<td>Units with variable speed compressors will limit the operation of those compressors to within a specified range.</td>
<td>The estimated suction pressure has reduced sufficiently below the target setpoint for the given unit configuration.</td>
</tr>
<tr>
<td><strong>Input:</strong> Entering and Leaving Evaporator Temperature Sensors.</td>
<td><strong>Check:</strong> Entering and Leaving Temperature Sensors. Wiring, connections.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Module Input/Output Descriptions

#### Table 9. Module I/O Descriptions

<table>
<thead>
<tr>
<th>UNIT MODULE</th>
<th>ANALOG INPUTS</th>
<th>ANALOG OUTPUTS</th>
<th>BINARY INPUTS</th>
<th>BINARY OUTPUTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Human Interface Module</strong> (LHI or RHI)</td>
<td>• None</td>
<td>• None</td>
<td>• None</td>
<td>• None</td>
</tr>
<tr>
<td><strong>Rooftop Module</strong> (RTM)</td>
<td>• Zone Temp Sensor</td>
<td>• O/A Damper Output</td>
<td>• Emergency Stop</td>
<td>• Occupied/Unoccupied</td>
</tr>
<tr>
<td></td>
<td>• S/A Temp Sensor</td>
<td>• IGV/VFD Outputs</td>
<td>• Dehumidification Configuration Input</td>
<td>• Relay</td>
</tr>
<tr>
<td></td>
<td>• O/A Temp Sensor</td>
<td></td>
<td>• External Auto/Stop</td>
<td>• Alarm Relay</td>
</tr>
<tr>
<td></td>
<td>• Mode Input (from remote panel)</td>
<td></td>
<td>• Occupied/Unoccupied</td>
<td>• Supply Fan Relay</td>
</tr>
<tr>
<td></td>
<td>• Cooling Setpoint (from remote panel)</td>
<td></td>
<td>• Supply Airflow Proof</td>
<td>• LED 1-4 Transistor</td>
</tr>
<tr>
<td></td>
<td>• Heating Setpoint (from remote panel)</td>
<td></td>
<td>• Dirty Filter</td>
<td>• Exhaust/return Fan Relay</td>
</tr>
<tr>
<td></td>
<td>• S/A Pressure Transducer</td>
<td></td>
<td>• VAV Changeover</td>
<td>• Humidification Relay</td>
</tr>
<tr>
<td></td>
<td>• O/A Humidity Sensor</td>
<td></td>
<td>• IntelliPak 2 Configuration Input</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Aux Temp Sensor</td>
<td></td>
<td>• Dirty Final Filter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Economizer Min. Pos.</td>
<td></td>
<td>• Exhaust/Return Airflow</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Space Humidity Sensor</td>
<td></td>
<td>• IntelliPak 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Outdoor Airflow Proof</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Filter Changeover</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Supply Airflow</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Dirty/Return Filter</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Humidification</td>
<td></td>
</tr>
</tbody>
</table>
### Table 9. Module I/O Descriptions (continued)

<table>
<thead>
<tr>
<th>UNIT MODULE</th>
<th>ANALOG INPUTS</th>
<th>ANALOG OUTPUTS</th>
<th>BINARY INPUTS</th>
<th>BINARY OUTPUTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multiple Circuit Compressor Module (MCM)</strong></td>
<td>• Leaving Evap Temp Sensor (Ckt-1)</td>
<td>• Low Pressure Control (Ckt-1)</td>
<td>• Condenser Fan Speed (Low Ambient Ckt-1)</td>
<td>• Compressor Relay (K11)</td>
</tr>
<tr>
<td></td>
<td>• Leaving Evap Temp Sensor (Ckt-2)</td>
<td>• Low Pressure Control (Ckt-2)</td>
<td>• Condenser Fan Speed (Low Ambient Ckt-2)</td>
<td>• Compressor Relay (K12)</td>
</tr>
<tr>
<td></td>
<td>• Entering Evap Temp Sensor (Ckt-1)</td>
<td>• Compressor Proving (Ckt-1)</td>
<td>• Condenser Proving (Ckt-1)</td>
<td>• Compressor Relay (K3)</td>
</tr>
<tr>
<td></td>
<td>• Entering Evap Temp Sensor (Ckt-2)</td>
<td>• Water Level Min</td>
<td>• Condenser Proving (Ckt-2)</td>
<td>• Compressor Relay (K4)</td>
</tr>
<tr>
<td></td>
<td>• Saturated Condenser Temp Sensor (Ckt-1)</td>
<td>• Water Level Max</td>
<td>• Sump Pump Proving</td>
<td>• Condenser Fan 1A</td>
</tr>
<tr>
<td></td>
<td>• Saturated Condenser Temp Sensor (Ckt-2)</td>
<td>• Sump Pump Proving</td>
<td>• External Sump Drain Request</td>
<td>• Condenser Fan 1B</td>
</tr>
<tr>
<td></td>
<td>• Sump Water Temp (Ckt-1)</td>
<td>• Low VI Config</td>
<td>• Sump Pump ON/OFF</td>
<td>• Condenser Fan 2A</td>
</tr>
<tr>
<td></td>
<td>• Condenser Fan Speed (Low Ambient Ckt-2)</td>
<td>• Sump Heat ON/OFF</td>
<td>• Sump Heat Drain</td>
<td>• Condenser Fan 2B</td>
</tr>
<tr>
<td>Heat Module (HEAT)</td>
<td>• Morning Warmup Temperature Sensor (Heat Aux Temp)</td>
<td>• HW Freeze Status</td>
<td>• Heat 1 (K11) Relay</td>
<td>• VOM Relay</td>
</tr>
<tr>
<td>Exhaust/Comparative Enthalpy Module (ECEM)</td>
<td>• Return Air Temperature Sensor</td>
<td>• (Heat Fail w/ Staged)</td>
<td>• Heat 2 (K12) Relay</td>
<td>• VOM Mode A Contacts</td>
</tr>
<tr>
<td></td>
<td>• Return Air Humidity Sensor</td>
<td>• CW Freeze Status</td>
<td>• Heat 3 (K1) Relay</td>
<td>• VOM Mode B Contacts</td>
</tr>
<tr>
<td></td>
<td>• Space Pressure</td>
<td>• Preheater Relay</td>
<td></td>
<td>• VOM Mode C Contacts</td>
</tr>
<tr>
<td>Ventilation Control Module (VCM)</td>
<td>• Front Velocity Pressure Transducer</td>
<td>• Pressure Calibration</td>
<td></td>
<td>• VOM Mode D Contacts</td>
</tr>
<tr>
<td></td>
<td>• Back Velocity Pressure Transducer</td>
<td>• None</td>
<td></td>
<td>• VOM Mode E Contacts</td>
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<tr>
<td></td>
<td>• Auxiliary Temperature</td>
<td>• Preheater Relay</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Space CO2 Sensor</td>
<td>• Pressure Calibration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ventilation Override Module (VOM)</td>
<td>• None</td>
<td>• None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable Speed Compressor Module (VSM)</td>
<td>• None</td>
<td>• VOM Mode A Contacts</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• OA Damper Actuator feedback voltage.</td>
<td>• VOM Mode B Contacts</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Variable Speed Compressor Command</td>
<td>• VOM Mode C Contacts</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• None</td>
<td>• VOM Mode D Contacts</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• None</td>
<td>• VOM Mode E Contacts</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• None</td>
<td>• VOM Relay</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### DIAGNOSTICS Menu

#### Generic BAS Module 5V (GBAS5)
- **Configuration Module**
- Analog Input 1
- Analog Input 2
- Analog Input 3
- Analog Input 4

**Note:**
1. Each of these inputs can be configured as defined in GBAS(5VDC) input assignments.
2. No 2 inputs can be assigned to the same definition.
3. The min voltage (0.5vdc) is associated with the min range of the assigned setpoint.
4. The max voltage (4.5vdc) is associated with the max range of the assigned setpoint.

- None

#### Generic BAS Module 10V (GBAS10)
- Analog Input 1
- Analog Input 2
- Analog Input 3
- Analog Input 4

**Note:**
1. Each of these inputs can be configured as defined in GBAS(10VDC) input assignments.
2. No 2 inputs can be assigned to the same definition.
3. The min voltage (0.5vdc) is associated with the min range of the assigned setpoint.
4. The max voltage (9.5vdc) is associated with the max range of the assigned setpoint.

- Analog Output 1
- Analog Output 2
- Analog Output 3
- Analog Output 4

**Note:**
1. Each output can be configured as defined in GBAS(10VDC) analog output assignments.
2. The min voltage (0.5vdc) is associated with the min range of the assigned value.
3. The max voltage (9.5vdc) is associated with the max range of the assigned value.

- Binary Input 1
- Binary Output 1
- Binary Output 2
- Binary Output 3
- Binary Output 4
- Binary Output 5

**Note:**
1. This input is designated as the GBAS5 Demand Limit Input
2. These outputs, when energized, indicated the diagnostic(s) assigned to them under GBAS5 output assignments are active.

<table>
<thead>
<tr>
<th>UNIT MODULE</th>
<th>ANALOG INPUTS</th>
<th>ANALOG OUTPUTS</th>
<th>BINARY INPUTS</th>
<th>BINARY OUTPUTS</th>
</tr>
</thead>
</table>
| **Generic BAS Module 5V (GBAS5)** | - Configuration Module  
- Analog Input 1  
- Analog Input 2  
- Analog Input 3  
- Analog Input 4  | - None | - Binary Input 1  
**Note:** This input is designated as the GBAS5 Demand Limit Input | - Binary Output 1  
- Binary Output 2  
- Binary Output 3  
- Binary Output 4  
- Binary Output 5  | - Binary Output 1  
**Note:** These outputs, when energized, indicated the diagnostic(s) assigned to them under GBAS5 output assignments are active. |

<table>
<thead>
<tr>
<th>UNIT MODULE</th>
<th>ANALOG INPUTS</th>
<th>ANALOG OUTPUTS</th>
<th>BINARY INPUTS</th>
<th>BINARY OUTPUTS</th>
</tr>
</thead>
</table>
| **Generic BAS Module 10V (GBAS10)** | - Analog Input 1  
- Analog Input 2  
- Analog Input 3  
- Analog Input 4  | - Analog Output 1  
- Analog Output 2  
- Analog Output 3  
- Analog Output 4  | - Binary Input 1  
**Note:** This input is designated as the GBAS10 Demand Limit Input | - Binary Output 1  
**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)

<table>
<thead>
<tr>
<th>UNIT MODULE</th>
<th>ANALOG INPUTS</th>
<th>ANALOG OUTPUTS</th>
<th>BINARY INPUTS</th>
<th>BINARY OUTPUTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-Purpose Module (MPM)</td>
<td>• Return Air Plenum Pressure</td>
<td>• Outdoor Air Bypass Damper</td>
<td>• Dirty Recovery Filter</td>
<td>• Energy Recovery Wheel</td>
</tr>
<tr>
<td></td>
<td>• Liquid Line Pressure Ckt 1</td>
<td>• Exhaust Air Bypass Damper/Return Fan Speed</td>
<td></td>
<td>• Return Air Plenum Pressure</td>
</tr>
<tr>
<td></td>
<td>• Liquid Line Pressure Ckt 2</td>
<td></td>
<td></td>
<td>• Energy Recovery Calibration</td>
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<td></td>
<td>• Leaving Recovery Temperature</td>
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<td></td>
<td>• Energy Recovery Preheat</td>
</tr>
<tr>
<td>Modulating Dehumidification Module (MDM)</td>
<td></td>
<td>• Reheat Valve Output (Phase A &amp; B)</td>
<td>• Reheat Pumpout Relay</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cooling Valve Output (Phase A &amp; B)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interprocessor Communications Bridge Module (IPCB)</td>
<td>• None</td>
<td>• None</td>
<td>• None</td>
<td>• None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
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