



TRANE™

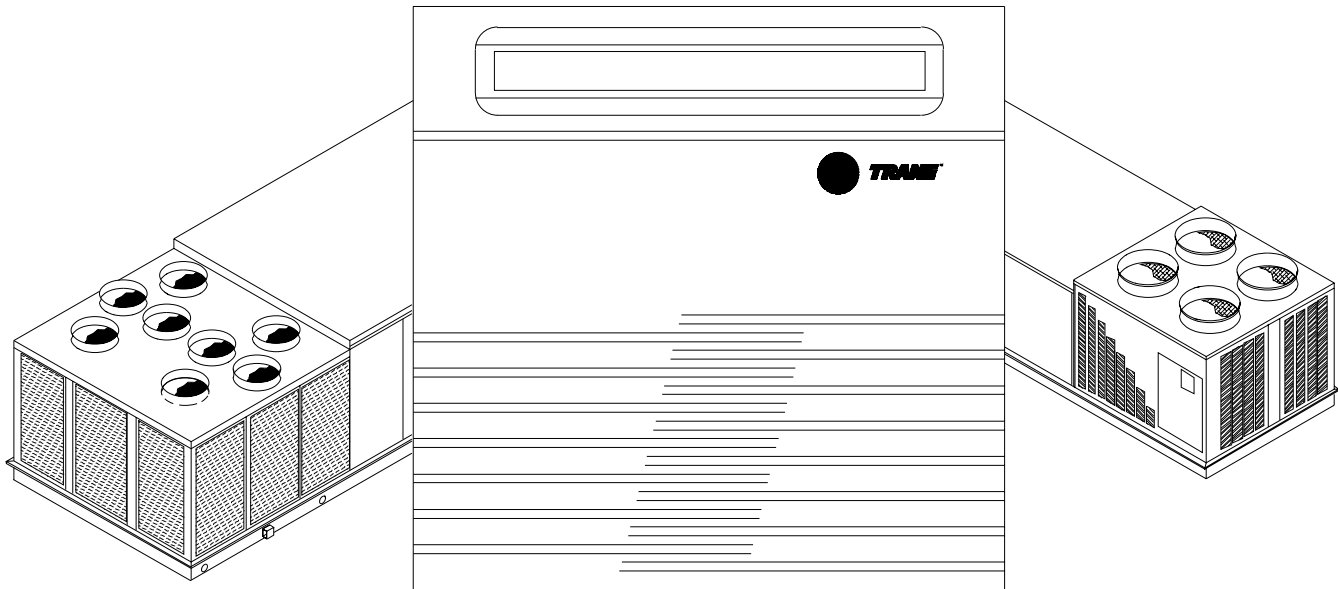
Programming Troubleshooting Guide

SAHF-PTG-4

Library	Service Literature
Product Section	Unitary
Product	Rooftop Air Conditioning (Comm. SZ, 20 - 130 Tons)
Model	SAH_, SEH_, SFH_, SSH_, SXH_
Literature Type	Programming, Trouble Shooting Guide
Sequence	4
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Supersedes	New

INTELLIPAK®

**Commercial Single-Zone Rooftop Air
Conditioners with VAV Controls**



Models

SAHF -C20, -C25, -C30, -C40, -C50, -C55, -C60, -C70, -C75
SEHF -C20, -C25, -C30, -C40, -C50, -C55, -C60, -C70, -C75
SFHF -C20, -C25, -C30, -C40, -C50, -C55, -C60, -C70, -C75
SLHF -C20, -C25, -C30, -C40, -C50, -C55, -C60, -C70, -C75
SSHF -C20, -C25, -C30, -C40, -C50, -C55, -C60, -C70, -C75
SXHF -C20, -C25, -C30, -C40, -C50, -C55, -C60, -C70, -C75

SXHG -C90, -D11, -D12, -D13
SEHG -C90, -D11, -D12, -D13
SFHG -C90, -D11, -D12, -D13
SLHG -C90, -D11, -D12, -D13
SSHG -C90, -D11, -D12, -D13

With 3-D™ Scroll Compressors

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Since the Trane Company has a policy of continuous product improvement, it reserves the right to change specifications and design without notice.

About The Manual

Literature Change History

SAHF-PTG-4 (February 1999)

Original issue of this manual; provides specific programming, diagnostic, and troubleshooting information for S_HF with "T" and later design sequence and S_HG with "N" and later design sequence Variable Air Volume (VAV) Controls

Overview of Manual

Note: One copy of the appropriate service literature ships inside the control panel of each unit.

This manual is divided into multiple sections. Each section provides the operator with specific information about the system operating parameters and their related screens.

By carefully following the screen layout within this manual while scrolling through the Human Interface screens, the operator can monitor operating status, set specific operating parameters, and diagnose system problems.

Screens that are displayed throughout this manual may not appear on the Human Interface while scrolling in the various menus. The screens that are "Configuration" dependent are labeled. Follow the appropriate steps for each screen as they appear and proceed through each section.

Refer to the Table of Contents and Index for specific topics contained in this manual and supporting manuals.

Completion of the "Start-Up" and "Test Mode" procedures in the applicable Installation, Operation and Maintenance manual, before attempting to operate or service this equipment will minimize the risk of improper operation.

Note: The procedures discussed in this manual should only be performed by qualified, experienced HVAC technicians.

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Manual Used with:

SXH_-IOM-4 (2/99) and W_HB-IOM-3 (2/99)

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General Information

Commonly Used Acronyms

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

Act = active	Min = minimum
AH = Air Handler	Misc = miscellaneous
Annunc = Annunciater	MCM = multiple compressor module
AS = AirSide	Mod = modulating
Aux = auxiliary	MWU = morning warm-up
BAS = building automation systems	NSB = night setback panel
ccfm = (100 cfm) cubic-feet-per-minute	Num = number
Cfg = Configured, configuration	O/A = outside air
cfm = cubic-feet-per-minute	Occ = occupied
ckt = circuit	Pos = position
Cmd = command	Pot = potentiometer
Comp (s) = compressor, compressors	PPM = parts per million
Cond = condenser, condensers	Press = pressure
Config = configured, configuration	Propor = proportional
Ctrl = control	psig = pounds-per-square-inch gauge pressure
CV = constant volume	PWS = part-winding start
Cy = cycle	R/A = return air
CW = clockwise	Refrig = refrigerant
CCW = counterclockwise	RHI = Remote Human Interface
Dflt = default	RH = right-hand
Diag = diagnostic	rpm = revolutions-per-minute
Dmpr = damper	RT = rooftop unit
DWU = Daytime Warm-up	RTM = rooftop module
E/A = exhaust air	SA = supply air
ECEM = exhaust control/enthalpy module	SAP = supply air pressure
Econ = economizer, economizing	Sat = saturated
Ent = entering	SCM = single compressor module
Evap = evaporator	Setpt = setpoint
F/A = fresh air	SF = supply fan
Funct = function	SRC = source
GBAS = generic building automation system (module)	Stg = stage
Heat = Heat, heating	Stnd = standard
HEAT = where all caps HEAT (module)	STP = setpoint
HGBP = hot gas bypass	Sw = switch
Hi = high	SZ = single-zone (unit airflow)
HI = where all caps Human Interface	TCI = Tracer communications interface (module)
HVAC = heating, ventilation and air conditioning	Temp = temperature
ICS = Integrated Comfort System	UCM = unit control (module)
IGV = inlet guide vanes	Unocc = unoccupied
I/O = input/output	VAV = variable air volume
Indep = Independent	VCM = ventilation control module
IOM = installation/operation/ maintenance manual	VDC = volts DC
IPC = interprocessor communications	Ventil = ventilation
IPCB = interprocessor communications bridge (module)	VFD = variable frequency drive
IWC = inches water column	VOM = ventilation override module
LH = left-hand	W/ = with
Lo = low	w.c. = water column
Manif = manifolded	WU = warmup
Max = maximum	XL = across-the-line start

General Information

Glossary of Terms

Carefully review these definitions since they are used throughout this document and the I.O.M.. Knowledge of these terms is essential in gaining an understanding of how these units operate.

Active Setpoint

The setpoint which is currently being used for control by the setpoint source selection.

Compressor Protection Switch

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.

Control Band

The range of temperatures or pressures which would normally be maintained by the various control functions.

Control Point

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

Deadband

As applied to SA temp control, this refers to a range of temperatures equally spaced above and below the SA temp control point in which the control algorithm is satisfied.

Economizer Zone Temp Setpoint Suppression

a parameter used for setting the Zone Temp setpoint at a lower value than the mechanical cooling zone temp setpoint.

External Stop

a binary input on the RTM that allows unit shutdown when connected to a field-supplied switch.

Low Ambient Compressor Lockout

A function which prevents compressor operation at low outdoor ambient temperatures.

Night SetBack (NSB)

Applies to the control of the rooftop unit during unoccupied periods.

OA Reset

Outdoor Air Reset - Supply Air Temperature Reset based on Outdoor Air Temperature.

Occupied Zone Low Temperature Limit Setpoint

the temperature that initiates Daytime Warmup.

Purge

a function which causes zone air to be purged and replaced by outside air.

Reference Enthalpy

an outdoor enthalpy value above which economizing will be disabled.

Remote Human Interface

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

The maximum amount of reset allowed.

Reset End Temperature

the temperature at which the maximum reset amount will occur.

Reset Start Temperature

the temperature at which reset will begin.

Space Pressure

the pressure in the building as measured by the Space Pressure Transducer, referenced to outside (atmospheric) pressure.

Supply Air Pressure High Limit

a pressure limit to prevent unit casing and/or ductwork overpressurization.

Statitrac

a trademark for control of 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

turning on heat when the supply air temperature drops 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 supply air temperature setpoint after supply air temp reset has been applied.

Supply Air Temperature Reset

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

General Information

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 (CV or VAV), 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 and 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 (1U48)

(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 (SCM & MCM - Size Specific)

The Compressor module, (Single Circuit & Multiple Circuit), upon receiving a request for mechanical cooling, energizes the appropriate compressors and condenser fans. It monitors the compressor operation through feedback information it receives from various protection devices.

Heat Module (1U50)

(Standard on all heating units) The Heat module directs the unit's heater to stage up and down to bring the temperature in the controlled space to within the applicable heating setpoint.

Exhaust/Comparative Enthalpy Module (1U52)

(Option - used with Statitrac and/or comparative enthalpy) The ECEM receives data from the return air humidity sensor, the return air temperature sensor, and the return air space pressure transducer and controls the exhaust fans and dampers to maintain set space pressure and humidity levels.

Generic BAS Module (1U51)

(Optional - used on units with additional requirements to interface with non-Trane building control systems) The Generic BAS module links the Rooftop UCM with non-Trane building control systems and enables communication (input/output interface) between the systems. It can accept external setpoints for cooling, heating, demand limiting, and S/A pressure.

Ventilation Override Module (1U53)

(Optional - used on units with special ventilation requirements) The Ventilation Override module can control the unit's air handling functions to perform customer specified functions such as space pressurization, exhaust, purge, unit off, etc.

Interprocessor Communications Board (IPCB - used with Optional Remote Human Interface)

The Interprocessor Communication Board expands communications from the unit's 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".

Trane Communications Interface Module (TCI) (Optional - used with Trane ICS™ Systems)

The Trane Communication Interface module allows external setpoints for most of the unit functions to be communicated to the unit's UCM network via a Trane ICS™ system or a Summit™ Tracer system. DIP Switch settings on the TCI module for these applications should be; Switches 1, 2, and 3 are "Off".

Human Interface Module

The Human Interface (HI) Module illustrated in Figure 2-1 is the device which 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 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 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.

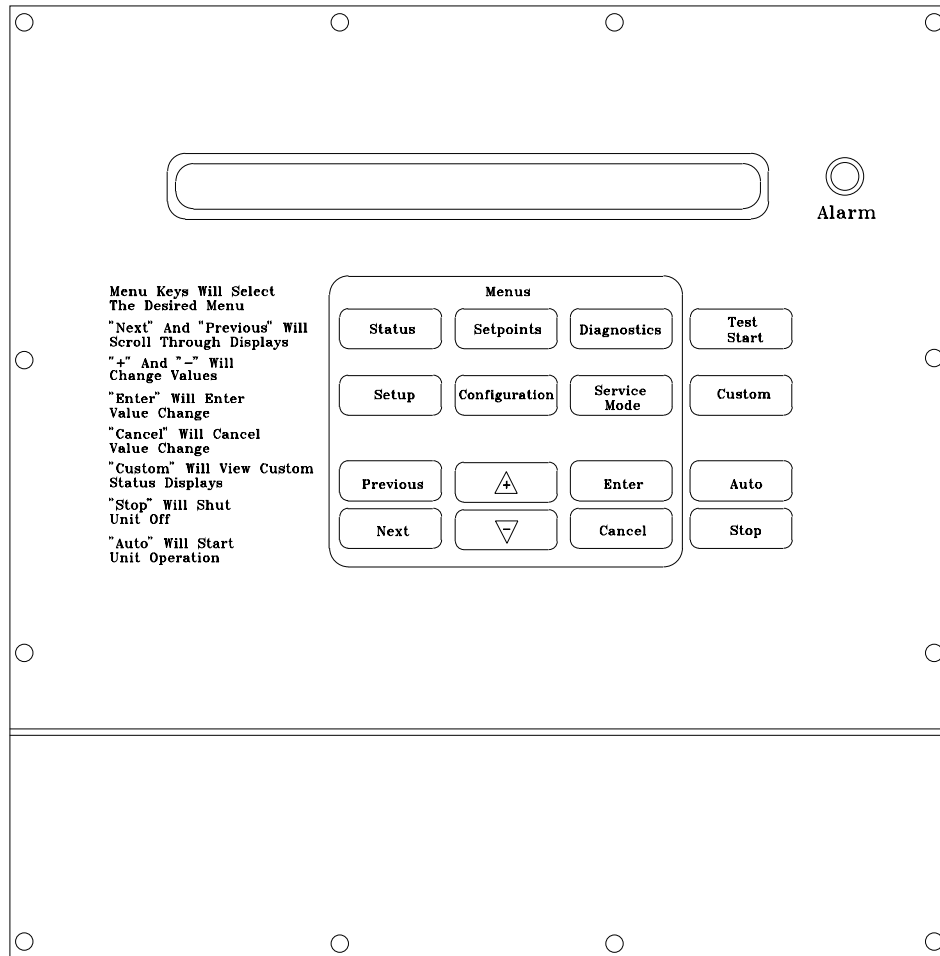
1. Unit Status (Unit Off or Stopped) (The unit is configured and operational, but is not running). This screen shows state, mode, and function information when the unit is off or stopped.
2. Unit Status (Unit On) (The unit is configured and operational, and is running). This screen shows state, mode, and function information when the unit is on.
3. VOM Active (a ventilation override command was received) This screen shows that the unit is in a Ventilation Override Mode.

General Information

4. No Configuration (the unit needs to be configured). This screen shows that required configuration data is missing.

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.

Figure 2-1
Human Interface Module



Menu Keys

The six keys illustrated in Figure 2-2 in the MENU area (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.

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 lock-out setpoints. Pressing the STATUS key while viewing any of the data screens will cause the LCD to go back to the operating status screen.

General Information

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 unit function failures. 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: 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.

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 2-2, (ENTER, CANCEL, + (Plus), - (Minus), PREVIOUS, and NEXT are used to modify the data within the screens (change values, move the cursor, confirm choices, etc...)

ENTER Key

This 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 temperature or pressure value of the setpoint. When working with a status menu, it will add the current status display to the custom menu. When viewing the setup or service test screens, it will increase setpoints or toggle choices On or Off at each edit point.

- (Minus) Key

This key when viewing the setpoint screen will decrease the temperature or pressure value of the setpoint. When viewing the setup or service test screens, it will decrease setpoints or toggle choices On or Off at each edit point. When viewing the custom menu, pressing the - (Minus) key will remove the status screen from the custom menu. When viewing diagnostics screens it has no function.

PREVIOUS Key

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

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 from one edit point to another.

Unit Operation Keys

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 shut-down, 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.

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.

TEST START Key (SERVICE)

Pressing this key while viewing any screen in the SERVICE Mode menu will start the service test. When viewing status, setup, setpoint, and diagnostics screens, it has no function.

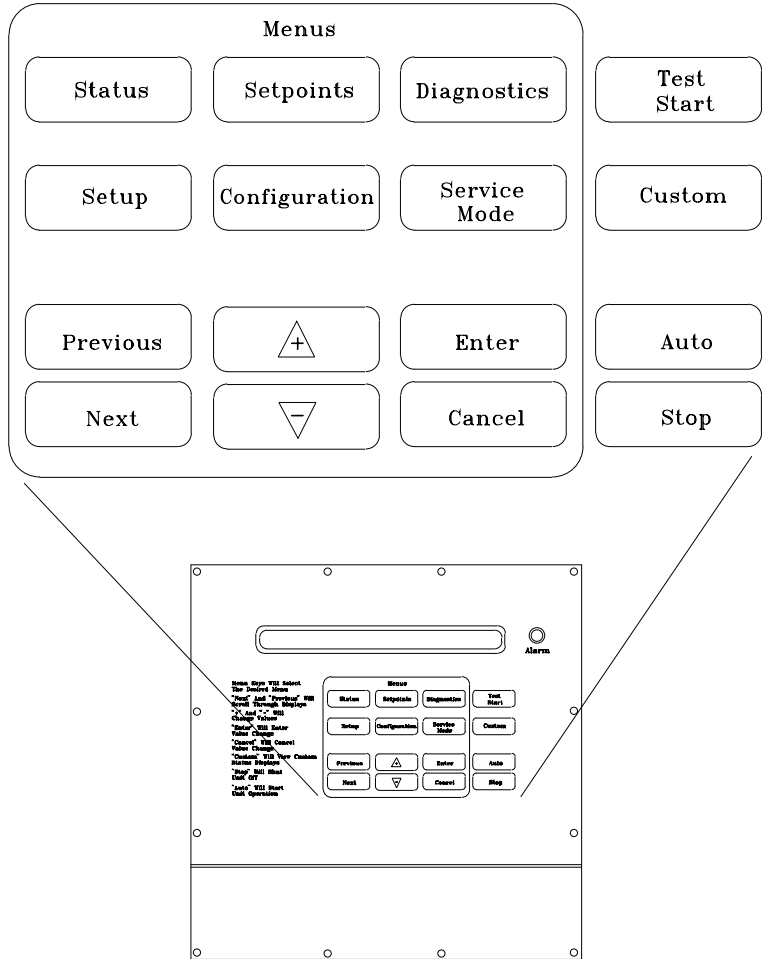
General Information

CUSTOM Key

The Custom 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.

Figure 2-2
Human Interface Keypad



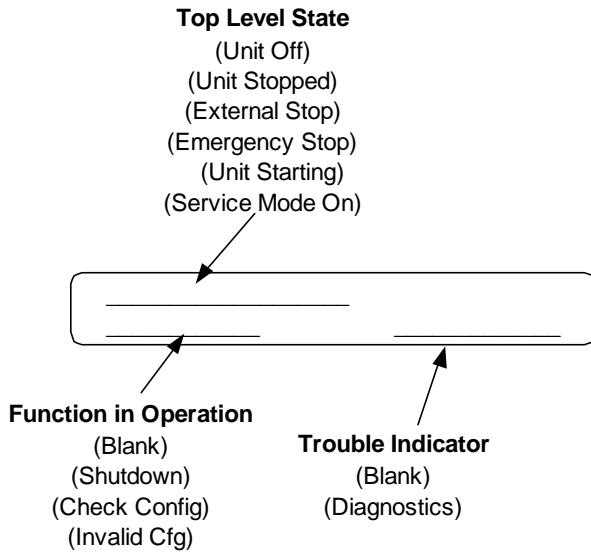
General Status Display

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 four general status display screens. The operator will then be able to enter key-strokes 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.

General Information

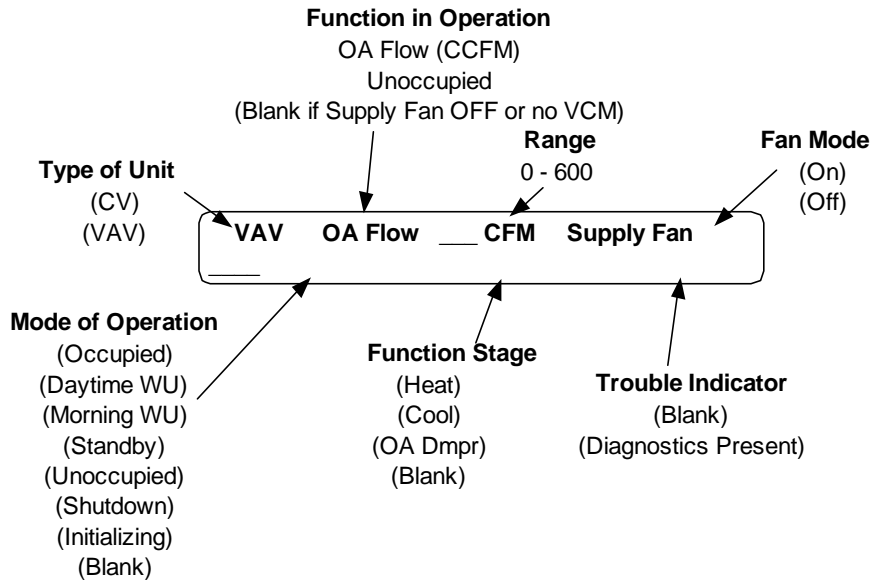
Unit “Off” or “Stopped”

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.



Unit “On”

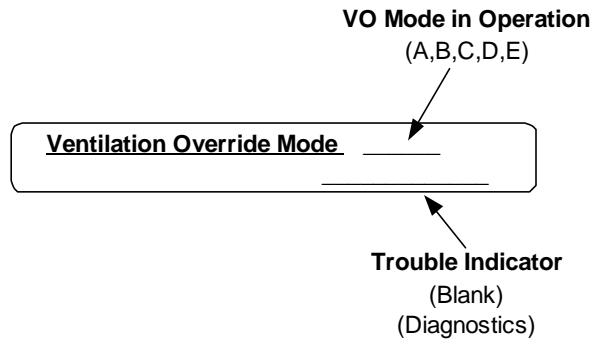
If the unit has entered an operating state (running), the following display will appear on the Human Interface LCD screen. When this screen is being displayed, the only functional keys are the six menu keys (STATUS, SETPOINTS, DIAGNOSTICS, SETUP, CONFIGURATION, AND SERVICE MODE), the AUTO key, the CUSTOM key, and the STOP key.



General Information

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.



No Configuration

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.

No Configuration Present _____
Press Configuration Key _____

Factory Presets

The UCM controlled unit has many operating functions whose settings are preset at the factory, but may be modified to meet the unique requirements of each job. The following list identifies each of the unit's adjustable functions and the value assigned to it. If these factory presets match your 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 your 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: Record any changes made to the factory-preset values in the corresponding space provided.

General Information

	Factory Preset	Changed To	See page... to adjust	To adjust Press....
Control Parameters				
Default system mode	Auto	_____	25	SETUP
Demand limit definition for cooling	None	_____	27	SETUP
Demand limit definition for heating	None	_____	27	SETUP
Economizer minimum position w/o IGV / VFD	15%	_____	44	SETUP
Economizer minimum position w IGV / VFD @ 0%	15%	_____	44	SETUP
Economizer minimum position w IGV / VFD @ 100%	10%	_____	44	SETUP
Exhaust enable point	25%	_____	45	SETUP
Morning Warmup type	Full	_____	26	SETUP
Power-up start time delay	0 seconds	_____	27	SETUP
Supply air low limit	50 deg F	_____	43	SETUP
Supply Air Temperature deadband for cooling	8 deg F	_____	42	SETUP
Supply Air Temperature deadband for heating	4 deg F	_____	42	SETUP
Supply Air Temperature OA reset start temp cooling	90 deg F	_____	28	SETUP
Supply Air Temperature OA reset end temp cooling	70 deg F	_____	28	SETUP
Supply Air Temperature OA reset start temp heating	10 deg F	_____	28	SETUP
Supply Air Temperature OA reset end temp heating	60 deg F	_____	28	SETUP
Supply Air Temperature reset type cooling	None	_____	27	SETUP
Supply Air Temperature reset type heating	None	_____	27	SETUP
Supply Air Temperature zone reset start temp cooling	72 deg F	_____	28	SETUP
Supply Air Temperature zone reset end temp cooling	69 deg F	_____	28	SETUP
Supply Air Temperature zone reset start temp heating	65 deg F	_____	28	SETUP
Supply Air Temperature zone reset end temp heating	68 deg F	_____	28	SETUP
Supply Air Temperature reset maximum amount cooling	5 deg F	_____	28	SETUP
Supply Air Temperature reset maximum amount heating	10 deg F	_____	29	SETUP
Unit Address	1	_____	25	SETUP
Unit Control	ICS (Tracer)	_____	25	SETUP
Default Setpoints				
Daytime warmup - initiate	67 deg F	_____	43	SETPOINTS
Daytime warmup - terminate	71 deg F	_____	43	SETPOINTS
Low ambient compressor lockout (Std. units)	50 deg F	_____	45	SETPOINTS
Space pressure - deadband	0.1 iwc	_____	44	SETPOINTS
Space pressure - setpoint	0.08 iwc	_____	44	SETPOINTS
Supply air temp - cooling	55 deg F	_____	45	SETPOINTS
Supply air temp - heating	100 deg F	_____	45	SETPOINTS
Unoccupied zone temp - cool	85 deg F	_____	43	SETPOINTS
Unoccupied zone temp - heat	60 deg F	_____	43	SETPOINTS
unoccupied zone temp - morn warmup	72 deg F	_____	43	SETPOINTS
Functions enable/disable				
Compressor lead/lag	Enable	_____	27	SETUP
Daytime warmup	Enable	_____	26	SETUP
Morning warmup	Enable	_____	26	SETUP
Supply air tempering	Enable	_____	26	SETUP
Unoccupied economizer	Enable	_____	29	SETUP
Unoccupied heating	Enable	_____	26	SETUP
Unoccupied mechanical cooling	Enable	_____	26	SETUP

General Information

	Factory Preset	Changed To	See page... to adjust	To adjust Press....
GBAS Input/Output Assignments...				
GBAS analog input assignments	Not Assigned	_____	35	SETUP
GBAS output assignments	Not Assigned	_____	36	SETUP
Information format				
Text displays	English	_____	25	SETUP
Unit displays	English	_____	25	SETUP
Reference enthalpy				
	25 Btu/lb	_____	43	SETUP
RTM alarm output assignments				
	Any Active Diagnostic	_____	36	SETUP
Sensor source selection for...				
Daytime warmup	Heat MWU	_____	26	SETUP
Monitor	RTM Zone Temp	_____	31	SETUP
Morning warmup	Heat MWU	_____	31	SETUP
Unoccupied zone control	RTM Zone Temp	_____	31	SETUP
Zone reset	RTM Aux Temp	_____	31	SETUP
Setpoint source selection for...				
Cooling supply air temp	Default	_____	45	SETUP
Heating supply air temp	Default	_____	45	SETUP
Morning warmup	Default	_____	46	SETUP
Unoccupied zone cooling	Default	_____	45	SETUP
Unoccupied zone heating	Default	_____	45	SETUP
Actuator setup...				
(Direct/reverse action)	Direct Acting	_____	38 - 41	SETUP
(Max stroke time)	30 seconds	_____	38 - 41	SETUP
(Max voltage)	10 VDC	_____	38 - 41	SETUP
(Min voltage)	2 VDC	_____	38 - 41	SETUP
Coil frost cutout temperature				
	30 deg F	_____	27	SETUP
Condenser temp control band...				
(Temporary low limit suppression)	10 deg F	_____	30	SETUP
(Upper limit)	120 deg F	_____	29	SETUP
(Low limit)	80 deg F	_____	29	SETUP
Condenser Temp...				
(Efficiency check point)	105 deg F	_____	30	SETUP
(Low ambient control point)	90 deg F	_____	30	SETUP
Control Algorithm tuning parameters	N/A	_____	41	SETUP
Max IGV position occupied	100%	_____	29	SETUP
Temperature input offset for...				
(Heat morning warmup)	0 deg F	_____	37	SETUP
(Return air)	0 deg F	_____	37	SETUP
(RTM zone temperature)	0 deg F	_____	37	SETUP
(RTM aux temperature)	0 deg F	_____	37	SETUP
(Outdoor air)	0 deg F	_____	37	SETUP
Ventilation override definition				
		_____	33	SETUP

General Information

Password Protected Screens

Some of the operating displays on the Human Interface LCD screen are intended to be accessed by qualified users only, 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 pre-defined 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

1. Press the NEXT key until the following screen is displayed.

Configuration is Password Protected
Please Enter Password: _____

2. Press the + or - keys in this sequence (+ - - -) to access this restricted screen.
3. Press the ENTER key to confirm the password and enter the menu.
4. Press the NEXT key until the following screen is displayed.

Ventilation Override Mode _____
Enter Password To Lock Definition:

1. Press the + or - keys in this sequence (+ - - +) to lock each VO Mode.
2. Press the ENTER key to confirm the password and Lock the definitions.
3. Press the NEXT key until the following screen is displayed.

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 password and Lock the definitions.
3. Press the NEXT key until the following screen is displayed.

Diagnostic Log is Password Protected
Please Enter Password: _____

1. Press the + or - keys in this sequence (- + + -) to access this restricted screen.
2. Press the ENTER key to confirm the password and Lock the definitions.
3. Press the NEXT key until the following screen is displayed.

System Operating Status

STATUS Menu

The STATUS menu is used to view various operating conditions such as temperatures and humidity levels. It's 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. 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.

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.

Press the STATUS key to begin viewing the status screens.

Note: The range for all temperature inputs is -40 to 200 F. "ERR" will appear if the temperature is out of range.

Press the STATUS key to enter into the status menu. The "STATUS MODE" will automatically return to the power up screen after 30 minutes, if no keys are pressed.

VAV OA FLOW 350.0 CCFM SUPPLY FAN ON
OCCUPIED OA DMPR 0% DIAGNOSTICS

1. Press the NEXT key until the following screen is displayed.

General System Status Submenu
Press ENTER to View Data in This Submenu

1. Pressing the NEXT key will bypass this section.

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

1. Pressing the NEXT key will scroll forward through the screens.
2. Pressing the PREVIOUS key will scroll backwards to view the previously displayed screen.
3. Press the + (Plus) key while viewing any screen to add that screen to the custom menu. Refer to the custom menu for the creation and maintenance of customized menus.
4. Press the NEXT key until the following screen is displayed. (if applicable)

Exhaust Fan OFF
Exhaust Damper/VFD Opening to 32 %

Used With: All Units

Used With: All Units
Possible Values: Fan = ON, OFF
Airflow = FLOW, NO FLOW

Exhaust Fan OFF Space Pressure 0.00 IWC
Exhaust Damper/VFD Opening to 32 %

1. Press the NEXT key until the following screen is displayed. (if applicable)

Used With: All units when Power Exhaust without Statitrac is installed
Possible Values: Fan= ON, OFF, Damper= 0 to 100%

Used With: All units when Power Exhaust with Statitrac is installed
Possible Values: Fan= ON, OFF, Damper= 0 to 100%

System Operating Status

Electric Heat **ENABLED**
Stage 1 OFF **Stage 2** OFF **Stage 3** OFF

1. Press the NEXT key until the following screen is displayed.
(If applicable)

Gas Heat **ENABLED**
Stage 1 OFF **Stage 2** OFF

1. Press the NEXT key until the following screen is displayed.
(If applicable)

Hydronic Heat **ENABLED** **0 %**
Low Air Temp Limit **OK**

1. Press the NEXT key until the following screen is displayed.
(If applicable)

Mod Gas Heat **ENABLED** **0 %**

1. Press the NEXT key until the following screen is displayed.
(If applicable)

Active Min OA Flow Setpoint **342.0 CCFM**
OA Flow **350.0 CCFM** **OA Damper Pos** **0 %**

1. Press the NEXT key until the following screen is displayed.
(If applicable)

Active Min OA Flow Setpoint **342.0 CCFM**
CO2 Level **1512 PPM** **OA Damper Pos** **0 %**

1. Press the NEXT key until the following screen is displayed.
(If applicable)

OA Preheat Output Control: **ON**

1. Press the NEXT key until the following screen is displayed.
(If applicable)

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

Used With: All units when Electric Heat is installed
Possible Values: ON, OFF

Used With: All units when staged gas heat is installed
Possible Values: ENABLED, DISABLED
Stages = OFF, ON

Used With: All units when hydronic heat is installed
Possible Values: ENABLED, DISABLED, the valve position may be 0% to 100% open
Low temp air may be OK or tripped

Used With: All units when modulating gas heat is installed
Possible Values: ENABLED, DISABLED, the valve position may be 0% to 100% open

Used With: All units when ventilation control module is installed
Possible Values: 0 to Max Unit Airflow

Used With: All units when ventilation control module is installed and CO2 reset is enabled
Possible Values: 0 to Max Unit Airflow

Used With: All units when ventilation control module is installed and preheat is enabled
Possible Values: ON, OFF

System Operating Status

Compressor Status Submenu
Press ENTER to View Data in This Submenu

1. Pressing the NEXT key will bypass this section.

Compressor Relay K10 **OFF**
Enabled

3. Press the NEXT key until the following screen is displayed.

Compressor Relay K11 **OFF**
Enabled

Disabled By:

Compressor Protection	Frost Protection
Contactors Failure	Tracer Lockout
Low Pressure Cutout	Minimum OFF Time
Bad Cond Temp Sensor	Low Ambient Lockout
Demand Limit	Ventilation Override

OR

Compressor Relay K11 **OFF**
Enabled

1. Press the NEXT key until the following screen is displayed.

Compressor Relay K12 **OFF**
Enabled

1. Press the NEXT key until the following screen is displayed.

Compressor Relay K3 **OFF**
Enabled

1. Press the NEXT key until the following screen is displayed.

Compressor Relay K4 **OFF**
Enabled

Compressor Relays may be Disabled By:

Compressor Protection	Frost Protection
Contactors Failure	Tracer Lockout
Low Pressure Cutout	Minimum OFF Time
Bad Cond Temp Sensor	Low Ambient Lockout
Demand Limit	Ventilation Override

1. Press the NEXT key until the following screen is displayed.

Active Outside Air Temperature **86.0 F**
Low Ambient Comp Lockout Temp: **32 F**

1. Press the NEXT key until the following screen is displayed.

Used With: All Rooftop Units and Air Handlers when DX Cooling is installed.

Used With: 20, 25 & 30 Ton Rooftop units and Air Handlers when DX cooling is installed

Possible Values: K10 = ON, OFF

Used With: 20, 25 & 30 Ton Rooftop units and Air Handlers (Casings 1, 2 or 3) when DX cooling is installed

Possible Values: K11 = ON, OFF

Used With: 40 thru 130 Ton Rooftop units and Air Handlers (Casings 4, 5, 6 or 9) when DX Cooling is installed

Possible Values: K11 = ON, OFF, LOCKED, ENABLED, DISABLED

Used With: 40 thru 130 Ton Rooftop units and Air Handlers (Casings 4, 5, 6 or 9) when DX Cooling is installed

Possible Values: K12 = ON, OFF, LOCKED, ENABLED, DISABLED

Used With: 40 thru 130 Ton Rooftop units and Air Handlers (Casings 4, 5, 6 or 9) when DX Cooling is installed

Possible Values: K3 = ON, OFF, LOCKED, ENABLED, DISABLED

Used With: 40 thru 130 Ton Rooftop units and Air Handlers (Casings 4, 5, 6 or 9) when DX Cooling is installed

Possible Values: K4 = ON, OFF, LOCKED, ENABLED, DISABLED

Used With: All Rooftop Units and Air Handlers when DX Cooling is installed

Possible Values: Lockout Temp = -20 to 80 F

System Operating Status

Compressor Module Ckt 1

Evap Temp 75.0 F Sat Cond Temp 81.0 F

1. Press the NEXT key until the following screen is displayed. (if applicable)

Compressor Module Ckt 2

Evap Temp 72.0 F Sat Cond Temp 97.0 F

1. Press the NEXT key until the following screen is displayed.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

Economizer Status Submenu

Press ENTER to View Data in This Submenu

1. Pressing the NEXT key will bypass the next section.

Air Economizing: DISABLED

Outside Air Damper Pos: 0 %

1. Press the NEXT key until the following screen is displayed.

Active Outside Air Enthalpy 12.0 BTU/LB

ECEM Return Air Enthalpy 34.0 BTU/LB

1. Press the NEXT key until the following screen is displayed.

Active Outside Air Temperature 86.0 F

ECEM Return Air Temperature 78.0 F

1. Press the NEXT key until the following screen is displayed. (if applicable)

Active Outside Air Humidity 30 %

ECEM Return Air Humidity 62 %

1. Press the NEXT key until the following screen is displayed.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

Used With: All Rooftop Units and Air Handlers when DX cooling is installed

Used With: 40 - 130 Ton Rooftop Units and Air Handlers (Casings 4, 5, 6 or 9) when DX Cooling is installed

Used With: All Units when an economizer is installed

Used With: All units when an Economizer is installed.
Possible Values: Economizing: ENABLED/DISABLED
Outside Air: Opening To/Closing To
0 - 100%

Used With: All Units when an Economizer is installed.
"RA Enth" is displayed if Comparative Enthalpy is installed.
Possible Values: 10 to 99 BTU/LB

Used With: All Units when an Economizer is installed.
"RA Enth" is displayed if Comparative Enthalpy is installed.

Used With: All Units when an Economizer is installed.
"RA Humidity" is displayed if Comparative Enthalpy is installed.
Possible Values: 0 to 100 %

System Operating Status

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

1. Pressing the NEXT key will bypass this section.

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

1. Press the NEXT key until the following screen is displayed.

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

1. Press the NEXT key until the following screen is displayed.

Active Daytime Warmup Setpoints Initiate: 67 F Terminate: 71 F

1. Press the NEXT key until the following screen is displayed.

Active Unoccupied Zone Cooling STP From HI (KEYPAD) SETPOINT MENU Is 85 F

1. Press the NEXT key until the following screen is displayed.
(if applicable)

Active Unoccupied Zone Heating STP From HI (KEYPAD) SETPOINT MENU Is 60 F

1. Press the NEXT key until the following screen is displayed.
(if applicable)

Active Morning Warmup Setpoint From HI (KEYPAD) SETPOINT MENU Is 72 F

1. Press the NEXT key until the following screen is displayed.
(if applicable)

Active Min OA Flow Setpoint From REMOTE MIN POS POT INPUT 342.0 CFM

1. Press the NEXT key until the following screen is displayed.
(if applicable)

Used With: All Units

Used With: All Units

Possible Values: HI (Keypad) Setpoint Menu
Zone Sensor Setpnt Input
NSB Panel Setpoint Input
GBAS 0-5 VDC Module
ICS (Tracer)

Used With: All Units with Hydronic Heat or
Modulating Gas Heat

Possible Values: HI (Keypad) Setpoint Menu
Zone Sensor Setpnt Input
NSB Panel Setpoint Input
GBAS 0-5 VDC Module
ICS (Tracer)

Used With: All Units with Gas, Electric, Hydronic or
External Heat installed.

Possible Values: HI (Keypad) Setpoint Menu

Used With: All Units

Possible Values: HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPNT INPUT
NSB PANEL SETPOINT INPUT
GBAS 0-5 VDC MODULE
ICS (TRACER)
Setpoint range: 50 F to 90 F

Used With: All Units when Gas, Electric, Hydronic
or External Heat is installed

Possible Values: HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPNT INPUT
NSB PANEL SETPOINT INPUT
GBAS 0-5 VDC MODULE
ICS (TRACER)
Setpoint range: 50 F to 90 F

Used With: All Units when Gas, Electric, Hydronic
or External Heat is installed

Possible Values: HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPNT INPUT
NSB PANEL SETPOINT INPUT
ICS (TRACER)
Setpoint range: 50 F to 90 F

Used With: All Units when VCM is installed

Possible Values: HI (KEYPAD) SETPOINT MENU
GBAS 0 - 5 VDC MODULE
Setpoint range: 0 to Max Unit Airflow

Refer to the table in the setpoint section, "Default Min
OA Flow Setpoint Screen" for max airflow setpoints.

System Operating Status

**Active Space Pressure Setpoint From
HI (KEYPAD) SETPOINT MENU is 0.00 IWC**

1. Press the NEXT key until the following screen is displayed.
(if applicable)

Active Space Pressure Deadband 0.00 IWC

1. Press the NEXT key until the following screen is displayed.

**Comp(s) OFF If OA Temp Below This Value
Low Ambient Comp Lockout Temp: 32 F**

1. Press the NEXT key until the following screen is displayed.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

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

1. Pressing the NEXT key will bypass this section.

**Active Supply Air Temp Sensor Input From
RTM ZONE TEMP INPUT is 50.0 F**

1. Press the NEXT key until the following screen is displayed.

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

1. Press the NEXT key until the following screen is displayed.
(if applicable)

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

1. Press the NEXT key until the following screen is displayed.
(if applicable)

Used With: All Units when Power Exhaust with Statitrac is installed

Possible Values: HI (KEYPAD) SETPOINT MENU
GBAS 0-5 VDC MODULE
ICS (TRACER)
Setpoint range: 0.03 to 0.30 IWC

Used With: All Units when Power Exhaust with Statitrac is installed

Possible Values: HI (KEYPAD) SETPOINT MENU
Setpoint range: 0.04 to 0.20 IWC

Used With: All Rooftop units and Air Handlers
when DX Cooling is installed

Possible Values: -20 F to 80 F

Used With: All Units

Used With: All Units

Possible Values: RTM Supply Air Temp Input
ICS (Tracer)

Used With: All units when Gas, Electric, Hydronic
or External Heat is installed and
DWU is 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
ICS (Tracer)
Setpoint range: 50 F to 90 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
ICS (Tracer)
Setpoint range: 50 F to 90 F

System Operating Status

**Active Morning WU Temp Sensor Input From
RTM_ZONE_TEMP_INPUT is 82.0 F**

1. Press the NEXT key until the following screen is displayed.
(if applicable)

**Active Zone Reset Sensor Input From
RTM_ZONE_TEMP_INPUT is 82.0 F**

1. Press the NEXT key until the following screen is displayed.
(if applicable)

**Active OA Temperature Sensor Input From
RTM_OUTSIDE_AIR_TEMP_INPUT is 86.0 F**

1. Press the NEXT key until the following screen is displayed.
(if applicable)

**Active Outside Air Humidity Input From
OA_HUMIDITY_SENSOR_INPUT is 30 %**

1. Press the NEXT key until the following screen is displayed.
(if applicable)

**Active Space Pressure Sensor Input From
ECEM_SPACE_PRESSURE_INPUT is 0.00 IWC**

1. Press the NEXT key until the following screen is displayed.
(if applicable)

**Temp Sensor Input Being Monitored:
RTM_ZONE_TEMP_INPUT is 82.0 F**

1. Press the NEXT key until the following screen is displayed.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

Used With: All Units when Gas, Electric, Hydronic or External Heat is installed and Morning Warmup is 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
ICS (Tracer)
Setpoint range: 50 F to 90 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
ICS (Tracer)
Setpoint range: 50 F to 90 F

Used With: All Units

Possible Values: RTM Outside Air Temp Input
ICS (Tracer)

Used With: All Units when an Economizer is installed

Possible Values: OA Humidity Sensor Input
ICS (Tracer)
Sensor range: 0 to 100%

Used With: All Units when Power Exhaust with Statitrac is installed

Possible Values: ECEM Space Pressure Input
ICS (Tracer)
Sensor range: 0.0 to 0.30 IWC

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
ICS (Tracer)
No Sensor Selected
Setpoint range: 50 F to 90 F

System Operating Status

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

1. Pressing the NEXT key will bypass this section.

Used With: All Units

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

1. Press the NEXT key until the following screen is displayed.

Used With: All Units

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

1. Press the NEXT key until the following screen is displayed.
(if applicable)

Used With: All Units

Temp Measured By Sensor Connected To
NSB Panel Temp Sensor Input 79.5 F

1. Press the NEXT key until the following screen is displayed.

Used With: All Units when Night Setback is installed

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

1. Press the NEXT key until the following screen is displayed.

Used With: All Units

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

1. Press the NEXT key until the following screen is displayed.
(if applicable)

Used With: All Units

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

1. Press the NEXT key until the following screen is displayed.

Used With: All Units when Gas, Electric, Hydronic or Modulating Heat is installed

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

1. Press the NEXT key until the following screen is displayed.
(if applicable)

Used With: All Units when Comparative Enthalpy is installed

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

1. Press the NEXT key until the following screen is displayed.

Used With: All Units when VCM is installed and OA Preheater is enabled

Compressor Module Ckt 1
Evap Temp 75.0 F Sat Cond Temp 81.0 F

1. Press the NEXT key until the following screen is displayed.
(if applicable)

Used With: All Rooftop Units and Air Handlers when DX cooling is installed

System Operating Status

Compressor Module Ckt 2

Evap Temp 72.0 F Sat Cond Temp 97.0 F

1. Press the NEXT key until the following screen is displayed.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

Misc Input Status Submenu

Press ENTER to View Data in This Submenu

1. Pressing the NEXT key will bypass this section.

RTM Supply Airflow Proving Input: FLOW

1. Press the NEXT key until the following screen is displayed.
(if applicable)

RTM Remote Min Position Pot Input 0 %

1. Press the NEXT key until the following screen is displayed.
(if applicable)

Active Outside Air Humidity 30 %

1. Press the NEXT key until the following screen is displayed.

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

1. Press the NEXT key until the following screen is displayed.

ECEM Space Pressure Input 0.00 IWC

1. Press the NEXT key until the following screen is displayed.
(if applicable)

VCM Outside Air Flow Input 350.0 CCFM

1. Press the NEXT key until the following screen is displayed.
(if applicable)

VCM CO2 Level Input 1512 PPM

1. Press the NEXT key until the following screen is displayed.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

Used With: 40 - 130 Ton Rooftop Units and Air Handlers (Casings 4, 5, 6 or 9) when DX Cooling is installed

Used With: All Units

Used With: All Units
Possible Values: FLOW, NO FLOW

Used With: All Units when Minimum Position Pot is assigned to function
Possible Values: 0 to 100%

Used With: All Units when an economizer is installed
Possible Values: 0 to 100 %

Used With: All Units when an economizer and Comparative Enthalpy is installed
Possible Values: 0 to 100 %

Used With: All Units when Power Exhaust with Statitrac is installed
Possible Values: 0.0 to 0.3 IWC

Used With: All Units when VCM is installed
Possible Values: 0 to Max Unit Air Flow
Refer to the table in the setpoint section, "Default Min OA Flow Setpoint Screen" for max airflow setpoints.

Used With: All Units when VCM is installed and CO2 Reset is enabled
Possible Values: 0 to 2000 PPM

System Operating Status

GBAS 0 - 5VDC Module Status Submenu
Press ENTER to View Data in This Submenu

1. Pressing the NEXT key will bypass this section.

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

1. Press the NEXT key to display GBAS 0-5 VDC inputs 2, 3 and 4.
2. Press the NEXT key until the following screen is displayed.

Used With: All Units when GBAS 0-5 VDC is installed

Used With: All Units when GBAS 0-5 VDC is installed

Possible Values: The inputs 1, 2, 3 & 4 may be assigned to Occ Zone Cooling setpoint, Occ Zone Heating setpoint, Unocc Zone Cooling setpoint, Unocc Zone Heating setpoint, Space Static Pressure setpoint, Min OA Flow setpoint, and "Not Assigned"

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

1. Press the NEXT key until the following screen is displayed.

Used With: All Units when GBAS 0-5 VDC is installed

Possible Values: OPEN, CLOSED

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

1. Press the NEXT key to display GBAS 0-5 VDC Outputs 2, 3, 4 and 5.
2. Press the NEXT key until the following screen is displayed.

Used With: All Units when GBAS 0-5 VDC is installed

Possible Values: ON, OFF

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

System Programming

After the unit is installed, the control module 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.

This section of the manual provides step by step instructions for programming this information. Also provided are instructions for checking unit operating status, accessing and clearing diagnostics, and performing service tests.

Some of the displays shown in this manual may not appear on the Human Interface (HI) LCD screen during programming. Only the applicable screens for the specific unit options and operating parameters will be displayed.

Start with the first setup screen in the SETUP menu and program the necessary information by completing the steps located below each illustrated window. Information that pertains to when the screens are applicable, the factory preset values, and the possible values that may be designated is located to the right of each programmable screen.

Ignore the steps that do not apply to your unit and application, and move on to the next applicable set of instructions in the manual. Continue this process until all applicable screens are programmed with the required information.

Press the SETUP key to display the following screen.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Unit Control: LOCAL
Unit Address: 32

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed

General Unit Functions Setup Submenu
Press ENTER to Review or Adjust

1. Pressing the NEXT key will bypass this section.

If Remote Panel Mode Input Not Present:
System Mode: AUTO

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

SETUP Menu

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, status, text display (language), temperature display (C or F), 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.

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.

Press the SETUP key to begin viewing or modifying the setup screens.

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.

Used With: All Units

Factory Presets: Text and Units: ENGLISH

Possible Values: Text: ENGLISH, FRENCH, SPANISH
Units: ENGLISH, SI

Used With: All Units when TCI is installed

Factory Presets: Control: LOCAL

Address: 32

Possible Values: Unit Control: LOCAL, ICS (Tracer)

Unit Address: 0 to 127 COMM 3

Unit Address: 37 to 127 COMM 4

Used With: All Units

Used With: All Units

Possible Values: System Mode = OFF/AUTO

System Programming

Demand Limit Definition:

Cooling: 100% Heating: 100%

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

VAV Control Functions Submenu
Press ENTER to Review or Adjust

1. Press the NEXT key until the following screen is displayed.

Supply Air Temp Reset Type:
Cooling: NONE

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Used With: All units when Gas, Electric or Hydronic heat is installed

Factory Presets: 100%

Possible Values: NONE, 50% or 100%

Used With: All Rooftop Units and Air Handlers when DX Cooling is installed

Factory Preset: ENABLED

Possible Values: ENABLED,
DISABLED = Stage Comp(s)
Up/Down In Fixed Sequence

Used With: All Units

Factory Preset: 0 Seconds

Possible Values: 0 - 255 Seconds

Used With: All Rooftop Units and Air Handlers when DX Cooling is installed

Factory Preset: 30 F

Possible Values: 25 F to 35 F

Used With: All Units

Used With: Rooftops and Air Handlers when no cooling is installed

Possible Values: Cool: NONE, ZONE, OA

Used With: All Units when Hydronic or Modulating Gas Heat is installed

Possible Values: Cool/Heat: NONE, ZONE, OA

System Programming

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Supply Air Temp Outside Air Reset For Cooling:
Start Temp: 90 F End Temp: 70 F

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Supply Air Temp Outside Air Reset For Cooling:
Maximum Amount of Reset Applied: 5 F

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Supply Air Temp Outside Air Reset For Heating:
Start Temp: 10 F End Temp: 60 F

1. Press the NEXT key until the following screen is displayed.

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

1. Press the NEXT key until the following screen is displayed.

Used With: All Units when Zone Cooling Reset is selected

Possible Values: Cool/Heat: ZONE, OA
Start Temp: Zone = 209, Outside Air = 70
End Temp: Zone = 210, Outside Air = 71

Used With: All Units when Zone Cooling Reset is selected

Possible Values: Cool/Heat: ZONE, OA
Start Temp: Zone = 209, Outside Air = 70
End Temp: Zone = 210, Outside Air = 71

Used With: All Units when Outside Air Cooling Reset is selected

Possible Values: Zone, OA
Reset: Zone = 72
Reset: Outside Air = 72

Used With: All Units when Outside Air Cooling Reset is selected

Possible Values: ZONE, OA
Reset: Zone = 72
Reset: Outside Air = 72

Used With: All Units when Zone Heating Reset is selected

Factory Presets: Start: 10 F, End: 60 F
Possible Values: OA
Start Temp: Zone = 211, Outside Air = 73
End Temp: Zone = 212, Outside Air = 74

Used With: All Units when zone heating reset is selected

Factory Presets: Start: 65 F, End: 68 F
Possible Values: ZONE, OA
Start Temp: Zone = 211, Outside Air = 73
End Temp: Zone = 212, Outside Air = 74

System Programming

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

1. Press the NEXT key until the following screen is displayed.

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

1. Press the NEXT key until the following screen is displayed.

VAV Box Max Stroke Time: 0 Min

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Max Occupied IGV/VFD Command: 100 %

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

Economizer Control Functions Submenu
Press ENTER to Review or Adjust

1. Pressing the NEXT key will bypass this section.

Unocc Air Economizer Function: ENABLED

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

Used With: All Units when outside air heating is selected

Possible Values: ZONE, OA

Reset: Zone = 75

Reset: Outside Air = 75

Used With: All Units when Outside Air Heating is selected

Possible Values: ZONE, OA

Reset: Zone = 75

Reset: Outside Air = 75

Used With: All Units

Factory Presets: 6 Min

Possible Values: 0 to 10

Used With: All Units when IGV/VFD is installed

Factory Presets: 100%

Possible Values: 0 to 100%

Used With: All Units when an economizer is installed

Used With: All Units when an economizer is installed

Factory Preset: ENABLED

Possible Values: ENABLED, DISABLED

System Programming

Head Pressure Ctrl Setup Submenu Press ENTER to Review or Adjust

1. Pressing the NEXT key will bypass this section.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Cond Temp Control Band Temporary Low Limit Suppression: 10 F

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Cond Temp Efficiency Check Point: 105 F

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Cond Temp Low Ambient Control Point: 90 F

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

Sensor Source Selections Submenu Press ENTER to Review or Adjust

1. Pressing the NEXT key will bypass this section.

For Daytime Warmup Temp Ctrl, Use Sensor Connected To: RTM_ZONE_TEMP_INPUT

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: Rooftops and Air Handlers when DX cooling is installed

Used With: All Rooftop Units and Air Handlers when DX cooling is installed

Factory Presets: Upper: 120 F, Lower: 80 F

Possible Values: Lower: 70 F to 90 F
Upper: 110 F to 130 F

Used With: All Rooftop Units and Air Handlers when DX Cooling is installed

Factory Preset: 10 F

Possible Values: 0 to 20 F

Used With: All Rooftop Units and Air Handlers when DX Cooling is installed

Factory Preset: 105 F

Possible Values: 95 F to 115 F

Used With: All Rooftop Units and Air Handlers when DX Cooling is installed

Factory Preset: 90 F

Possible Values: 80 F to 100 F

Used With: All Units

Used With: All Units when Gas, Electric, Hydronic or External Heat is installed

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

System Programming

**For Unoccupied Zone Temp Ctrl, Use Sensor
Connected To: RTM ZONE TEMP INPUT**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

**For Morning Warmup Temp Control, Use Sensor
Connected To: RTM ZONE TEMP INPUT**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

**Outside Air Ventilation Setup Submenu
Press ENTER to Review or Adjust**

1. Pressing the NEXT key will bypass this section.

**OA Flow Compensation Function: DISABLED
Use Fixed OA Damper Minimum Position**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units

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

Used With: All Units when Gas, Electric, Hydronic or
External Heat is installed

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

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

Used With: All Units

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
NO SENSOR SELECTED

Used With: All Units when VCM is installed

Used With: All Units with an economizer when
IGV/VFD is installed

Possible Values: ENABLED, DISABLED
Enabled 2nd line = "OA Damper Min Pos Depends
on IGV/VFD Pos"

Disabled 2nd line = "Use Fixed OA Damper
Minimum Position"

System Programming

OA Flow CO2 Reset Function: ENABLED

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

OR

OA Flow CO2 Reset Function: ENABLED
CO2 Start: 800 PPM CO2 Max: 1000 PPM

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

OA Flow Calibration Data:
Gain: 1.0 Offset: 0.0 CCFM

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

Used With: All Units when VCM is installed
Possible Values: ENABLED, DISABLED

Used With: All Units when VCM is installed
and CO2 Reset is enabled
Possible Values: ENABLED, DISABLED
CO2 Start = 0 to 1900 PPM
CO2 Max = 100 to 2000 PPM

Used With: All Units when VCM is installed
Factory Presets: Gain: 1.0, Offset: 0.0
Possible Values: Gain: 0.0 to 1.5
Offset: -25.0 to 25.0

System Programming

Ventilation Override Definitions

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 - Closed (if equipped)
Exhaust Fan - Off, (if equipped)
Exhaust Dampers - 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
OA Preheater State - Off (with VCM installed)

Ventilation Override Mode B - (Pressurize)

Supply Fan - On
Inlet Vanes - Open (if equipped)
Exhaust Fan - Off, (if equipped)
Exhaust Dampers - 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
OA Preheater State - Off (with VCM installed)

Ventilation Override Mode C - (Exhaust)

Supply Fan - Off
Inlet Vanes - Closed (if equipped)
Exhaust Fan - On, (if equipped)
Exhaust Dampers - 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-Deenergized
VO Relay-Energized
OA Preheater State - Off (with VCM installed)

Ventilation Override Mode D- (Purge)

Supply Fan - On
Inlet Vanes - Open (if equipped)
Exhaust Fan - On (if equipped)
Exhaust Dampers - 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
OA Preheater State - Off (with VCM installed)

Ventilation Override Mode E- (Purge with Duct Pressure Control)

Supply Fan - On
Inlet Vanes - Open (if equipped)
(Controlled by SA Pressure Control function, SA Pressure High Limit is disabled)
Exhaust Fan - On (if equipped)
Exhaust Dampers - 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
OA Preheater State - Off (with VCM installed)

”OFF” - will appear in the Ventilation Override screen after all VOM binary inputs have been reset (opened).

System Programming

Ventilation Override Definitions Press ENTER to Review or Adjust

1. Pressing the NEXT key will bypass this section.

Ventilation Override Definition	Mode A
Supply Fan	ON

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Ventilation Override Definition	Mode A
Exhaust Fan/Dampers	ON /OPEN

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Ventilation Override Definition	Mode A
Exhaust Fan	ON /OPEN

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Ventilation Override Definition	Mode A
Outside Air Dampers	OPEN

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Ventilation Override Definition	Mode A
Heat	OFF

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Ventilation Override Definition	Mode A
VAV Box Relay	DEENERGIZED

1. Press the NEXT key until the following screen is displayed.

Ventilation Override Definition	Mode A
OA Preheater State	IN CONTROL

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Ventilation Override Definition	Mode A
VO Relay	ENERGIZED

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units when VOM is installed

Used With: All Units when VOM is installed

Factory Presets: Refer to Definitions

Possible Values: ON, OFF

Used With: All Units when VOM and Power Exhaust with Statitrac is installed

Factory Presets: Refer to Definitions

Possible Values: ON /OPEN, OFF /CLOSED

Used With: All Units when VOM and Power Exhaust without Statitrac is installed

Factory Presets: Refer to Definitions

Possible Values: ON /OPEN, OFF /CLOSED

Used With: All Units when VOM and an economizer is installed

Factory Presets: Refer to the Definitions

Possible Values: OPEN/CLOSED

Used With: All Units when VOM and Gas, Electronic or Hydronic Heat is installed

Factory Presets: Refer to the Definitions

Possible Values: OFF, IN CONTROL

Used With: All Units

Factory Presets: Refer to the Definitions

Possible Values: ENERGIZED/DEENERGIZED

Used With: All Units when VOM is installed and OA preheater function is enabled

Factory Presets: Refer to the Definitions

Possible Values: IN CONTROL, OFF

Used With: All Units when VOM is installed

Factory Presets: Refer to the Definitions

Possible Values: ENERGIZED, DEENERGIZED

System Programming

Ventilation Override Definition Mode A
Enter Password to Lock Definition:

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Note: After locking a MODE (by entering the password), the display for that MODE becomes "Reporting" only and the definition can not 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

Ventilation Override Mode A Is Locked
Supply Fan

Key functions for the locked VOM displays are as follows:

The ENTER, +, and - keys are disabled.

The PREVIOUS and NEXT keys will advance to the previous and next screens respectively. After all of the VOM modes have been viewed or modified, the following screen will be displayed.

Ventilation Override Mode B
Supply Fan

1. Follow the preceding steps used to program MODE "A" to program MODE B, "C", "D", and "E" if modifications are needed. After all of the Ventilation Override Definitions have been programmed, pressing the NEXT key will advance to the following screen.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

GBAS 0 - 5VDC Module I/O Assignments
Press ENTER to Review or Adjust

1. Pressing the NEXT key will bypass this section.

GBAS (0 - 5 VDC) Analog Input 1 Assignment
NOT ASSIGNED

1. Press the + or - key until the proper selection is displayed for the number 1 assignment.
2. Press the ENTER key to confirm this choice. Only one input definition can be assigned to each input and they can not be duplicated.
3. Press the NEXT key to advance to the number 2 input assignment screen and repeat steps 1 & 2. Follow these steps for input assignments 3 and 4.
4. Press the NEXT key until the following screen is displayed.

Used With: All Units

Factory Presets: Refer to the Definitions

Possible Values: + (Plus), - (Minus)

Used With: All Units when VO mode is locked

Factory Presets: Refer to the Definitions

Possible Values: N/A

Used With: All Units

Factory Presets: Refer to the Definitions

Possible Values: ON, OFF

Used With: All Units when GBAS 0-5VDC is installed

Used With: All Units when GBAS 0-5VDC is installed

Factory Presets: Not Assigned

Possible Values: Not Assigned, Occupied Zone
Cooling Setpoint, Unoccupied Zone
Cooling Setpoint, Occupied Zone
Heating Setpoint, Unoccupied Zone
Heating Setpoint, Space Static
Pressure Setpoint, Min OA Flow
Setpoint

System Programming

GBAS (0 - 5 VDC) Output 1 Alarm Assignments Press ENTER to Review or Adjust

1. Pressing the NEXT key will bypass this section.
2. Press the + or - key until the proper selection is displayed for the number 1 assignment. + (Plus) key will assign ALL Diagnostics and - (Minus) key will allow diagnostic selection.
3. Press the ENTER key to confirm this choice. If (Yes) was assigned to the Output assignment, the output 2 assignment screen will be displayed. Repeat step 1 for each of the remaining 4 Outputs. If (NO) was assigned, only one output assignment can be assigned to each output assignment and they can not be duplicated. Once the output diagnostics have been defined, press the NEXT key to advance to the number 2 output assignment screen and repeat steps 1 & 2.

Note: Assigning "Yes" to a GBAS output definition means that if the assigned diagnostic is present, the out assigned to it will be energized.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

RTM Alarm Output Diagnostic Assignments Press ENTER to Review or Adjust

1. Pressing the NEXT key will bypass this section.

Assign Diagnostic to RTM Alarm Output ? Any Active Diagnostic (No)

1. Press the ENTER key then the NEXT key to display the possible diagnostics that may be assigned to the RTM alarm output definition.
2. Press the + (Plus) key to assign "Yes" to the output definition or - (Minus) key to assign "No" to the output definition.
3. Press the ENTER key to confirm each selection.

Note: Assigning "Yes" to an Alarm output definition means that if the assigned diagnostic is present, the RTM alarm puput will be energized.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

Used With: All Units when GBAS 0-5VDC is 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 Fail

Comp Contactor Fail - Ckt 1

Comp Contactor Fail - Ckt 2

Output 3 = Heat Fail

Output 4 = Supply Fan Failure

Output 5 = Any Active Diagnostic

Possible Values: Refer to the list of active diagnostics that can be assigned to each of the five (5) output definitions in the "Diagnosing System Failures" section.

Used With: All Units

Used With: All Units

Factory Preset: Any Active Diagnostic

Possible Values: Refer to the list of active diagnostics that can be assigned to each of the five (5) GBAS output definitions in the "Diagnosing System Failures" section.

System Programming

Temperature Input Calibration

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
Press ENTER to Review or Adjust

1. Pressing the NEXT key will bypass this section.

Temperature Calibration Offset For
RTM Zone Temperature Input **0.0 F**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Temperature Calibration Offset For
RTM Aux Temperature Input **0.0 F**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

Used With: All Units

Used With: All Units
Factory Preset: 0.0 F
Possible Values: Plus or Minus 5.0 F

Used With: All Units
Factory Preset: 0.0 F
Possible Values: Plus or Minus 5.0 F

Used With: All Units
Factory Preset: 0.0 F
Possible Values: Plus or Minus 5.0 F

Used With: All Units when Gas, Electric, or Hydronic Heat is installed
Factory Preset: 0.0 F
Possible Values: Plus or Minus 5.0 F

Used With: All Units when comparative enthalpy is installed
Factory Preset: 0.0 F
Possible Values: Plus or Minus 5.0 F

System Programming

Actuator Setup **Exhaust Damper/VFD**
Max Voltage **10.0 VDC**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Actuator Setup **Exhaust Damper/VFD**
Direct/Reverse Act **DIRECT ACTING**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Actuator Setup **Hydronic**
Max Stroke Time **60 Sec**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Actuator Setup **Hydronic**
Min Voltage **2.0 VDC**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Actuator Setup **Hydronic**
Max Voltage **10.0 VDC**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Actuator Setup **Hydronic**
Direct/Reverse Act **DIRECT ACTING**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Actuator Setup **Num 1 Low Ambient**
Max Stroke Time **60 Sec**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units when Power Exhaust with Statitrac is installed

Factory Preset: 10.0 VDC

Possible Values: 0.1 to 10.0 Volts DC

Used With: All Units when Power Exhaust with Statitrac is installed

Factory Preset: DIRECT ACTING

Possible Values: DIRECT ACTING, REVERSE ACTING

Used With: All Units when Hydronic Heat is installed

Factory Preset: 60 Seconds

Possible Values: 1 - 255 Seconds

Used With: All Units when Hydronic Heat is installed

Factory Preset: 2.0 VDC

Possible Values: 0.0 to 9.9 Volts DC

Used With: All Units when Hydronic Heat is installed

Factory Preset: 0.0 VDC

Possible Values: 0.1 to 10.0 Volts DC

Used With: All Units when Hydronic Heat is installed

Factory Preset: DIRECT ACTING

Possible Values: DIRECT ACTING, REVERSE ACTING

Used With: All Rooftop Units and Air Handlers when DX Cooling is installed

Factory Preset: 60 Seconds

Possible Values: 1 - 255 Seconds

System Programming

Actuator Setup
Min Voltage

Num 1 Low Ambient
2.0 VDC

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Actuator Setup
Max Voltage

Num 1 Low Ambient
10.0 VDC

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Actuator Setup
Direct/Reverse Act

Num 1 Low Ambient
DIRECT ACTING

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Actuator Setup
Max Stroke Time

Num 2 Low Ambient
60 Sec

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Actuator Setup
Min Voltage

Num 2 Low Ambient
2.0 VDC

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Actuator Setup
Max Voltage

Num 2 Low Ambient
10.0 VDC

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Actuator Setup
Direct/Reverse Act

Num 2 Low Ambient
DIRECT ACTING

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Rooftop Units and Air Handlers when DX Cooling is installed

Factory Preset: 2.0 VDC

Possible Values: 0.0 to 9.9 Volts DC

Used With: All Rooftop Units and Air Handlers when DX Cooling is installed

Factory Preset: 10.0 VDC

Possible Values: 0.1 to 10.0 Volts DC

Used With: All Rooftop Units and Air Handlers when DX Cooling is installed

Factory Preset: DIRECT ACTING

Possible Values: DIRECT ACTING, REVERSE ACTING

Used With: 40 thru 130 Ton Rooftop units and Air Handlers (Casings 4, 5, 6 or 9) when DX Cooling is installed

Factory Preset: 60 Seconds

Possible Values: 1 - 255 Seconds

Used With: 40 thru 130 Ton Rooftop units and Air Handlers (Casings 4, 5, 6 or 9) when DX Cooling is installed

Factory Preset: 2.0 VDC

Possible Values: 0.0 to 9.9 Volts DC

Used With: 40 thru 130 Ton Rooftop units and Air Handlers (Casings 4, 5, 6 or 9) when DX Cooling is installed

Factory Preset: 10.0 VDC

Possible Values: 0.1 to 10.0 Volts DC

Used With: 40 thru 130 Ton Rooftop units and Air Handlers (Casings 4, 5, 6 or 9) when DX Cooling is installed

Factory Preset: DIRECT ACTING

Possible Values: DIRECT ACTING, REVERSE ACTING

System Programming

Actuator Setup **Modulating Gas Heat**
Max Stroke Time **60 Sec**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Actuator Setup **Modulating Gas Heat**
Min Voltage **5.0 VDC**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Actuator Setup **Modulating Gas Heat**
Max Voltage **10.0 VDC**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Actuator Setup **Modulating Gas Heat**
Direct/Reverse Act **REVERSE ACTING**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

Control Algorithm Tuning Parameters
Press ENTER to Review or Adjust

1. Contact the Trane Company before making any adjustments to these settings.
2. Press the ENTER key until the following screen is displayed.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

Used With: All Rooftop Units and Air Handlers when DX Cooling is installed and Modulating Gas is installed

Factory Preset: 60 Seconds

Possible Values: 1 - 255 Seconds

Used With: All Rooftop Units and Air Handlers when DX Cooling is installed and Modulating Gas is installed

Factory Preset:

5 VDC for units configured for 1000 MBH

6 VDC for units configured for 500 MBH

Used With: All Rooftop Units and Air Handlers when DX Cooling is installed and Modulating Gas is installed

Factory Preset: 10.0 VDC

Possible Values: 0.1 to 10.0 Volts DC

Used With: All Rooftop Units and Air Handlers when DX Cooling is installed and Modulating Gas is installed

Factory Preset: REVERSE ACTING

Possible Values: DIRECT ACTING, REVERSE ACTING

System Programming

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.

Press the SETPOINT key to begin viewing or modifying the unit Setpoints.

Default Supply Air Temp Setpoint(s)
Cooling: 67 F

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Default Supply Air Temp Setpoint(s)
Cooling: 67 F Heating: 71 F

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Supply Air Temperature Deadband
Cooling: 8.0 F

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Supply Air Temperature Deadband
Cooling: 8.0 F Heating: 4.0 F

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Used With: All Units
Factory Presets: 100 F
Possible Values: 40 F to 90 F

Used With: All Units
Factory Presets: 100 F
Possible Values: Cool: 40 F to 90 F
Heat: 40 F to 180 F

Used on Units: All Units
Factory Presets: 8.0 F
Possible Values: Cooling: 4 - 20 F

Used With: All Units with Heating SA Temp Deadband Screen shown only if (Hydronic or Modulating Gas) Heat installed
Factory Presets: Cooling: 8 F,
Heating: 4 F
Possible Values: Cooling: 4 to 20 F
Heating: 2 to 10 F

System Programming

Default Daytime Warmup Setpoints

Initiate: 67 F Terminate: 71 F

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Default Occupied Zone Temp Setpoint(s)

Heat: 71 F

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

When Economizer Cooling, Reduce Zone

Temperature Cooling Setpoint By: 1.5 F

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Default Unoccupied Zone Temp Setpoint(s)

Cool: 85 F

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Default Unoccupied Zone Temp Setpoint(s)

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Reference Enthalpy: Enable Air Econ

When OA Enthalpy is Below: 25 BTU/LB

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Supply Air Low Limit - Modulate Economizer

Toward Min Pos if SA Temp below: 50 F

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All units

Factory Presets: Initiate: 74 F, Terminate: 71 F

Possible Values: DWU Initiate: 50 F to 90 F
DWU Terminate: 50 F to 90 F

Used With: All Units when Gas, Electric, Hydronic or External Heat is installed and Daytime warmup is enabled

Factory Presets: Heat: 71 F

Possible Values: Heat: 50 F to 90 F
Minimum difference of 2 degrees F maintained between Heating & Cooling setpoints.

Used With: All Units when an economizer is installed

Factory Presets: 1.5 F

Possible Values: 0.0 to 3.0 F

Used With: All Units when cooling only

Factory Presets: 85 F

Possible Values: 50 F to 90 F

Used With: All Units when Gas, Electric, Hydronic or External Heat is installed

Factory Presets: Cool: 85 F, Heat: 60 F, Morning Warmup: 72 F

Possible Values: Cool: 50 F to 90 F, Heat: 50 F to 88 F
Morning Warmup: 50 F to 90 F

Minimum difference of 2 degrees F maintained between Heating & Cooling setpoints. Morning Warmup cannot be lower than Heating setpoint.

Used With: All Units when an economizer is installed

Factory Presets: 25 BTU/LB

Possible Values: 19 to 28 BTU/LB

Used With: All Units when an economizer is installed

Factory Presets: 50 F

Possible Values: 40 to 65 F

System Programming

Default OA Damper Min Position: 15 %

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

**Default OA Damper Minimum Position: 15 %
with IGV/VFD Command at Minimum (0 %)**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

**Default OA Damper Minimum Position: %
with IGV/VFD Command at Maximum (0 %)**

1. Press the NEXT key until the following screen is displayed.

**Default Min OA Flow Setpoint: 40 CCFM
Min OA Flow Deadband: 10.0 CCFM**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Unit Cap Tons	Max. Airflow (ccfm)	Airflow Deadband (ccfm)
20 - 25	140	5.00
30	170	5.00
40	220	5.00
50 - 55	280	5.00
60 - 75	330	7.00
90 - 130	460	10.00

CCFM = System design CFM / 100

**Preheat Output ON If Preheat Temp Below
Preheat Activation Temperature: 40 F**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

**Default Space Pressure Setpoint: 0.08 IWC
Space Pressure Deadband: 0.10 IWC**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Used With: All Units when an economizer is installed
Factory Presets: 15 %
Possible Values: 0 to 100 %

Used With: All units when an economizer and OA CFM Compensation and IGV/VFD or (VAV unit with IGV/VFD and VCM but No Air Economizer

Factory Presets: 15 %
Possible Values: 0 - 100 %

Used With: All Units with an economizer and Compensation and IGV/VFD or (VAV unit with IGV/VFD and VCM but No Air Economizer

Factory Presets: 10 %
Possible Values: 0 - 100 %

Used With: All Units when VCM is installed
Factory Presets: See Airflow Deadband in table below
Possible Values: Setpoint: 0 to Max Unit Airflow
Max Unit Airflow: See table below
Deadband: 5.0 to 20 CCFM

Used With: All Units when VCM is installed and preheat is enabled

Factory Presets: 35 F
Possible Values: 35 F to 75 F

Used With: All Units when Power Exhaust with Statitrac is installed

Factory Presets: Setpoint: 0.08 IWC
Deadband: 0.10 IWC
Possible Values: Setpoint: 0.03 to 0.30 IWC
Deadband: 0.04 to 0.20 IWC

System Programming

**Exhaust Enable Point. Enable Exhaust Fan
When Outside Air Damper Is Above: 25 %**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

**Low Ambient Comp Lockout Temp: 32 F
Comp (s) OFF If OA Temp Below This Value**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

**Setpoint Source Selections Submenu
Press ENTER to Review or Adjust**

1. Pressing the NEXT key will bypass this section.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units when Power Exhaust without Statitrac is installed

Factory Presets: 25 %

Possible Values: 0 to 100%

Used With: All Units

Factory Presets: 50 F

Possible Values: -20 F to 80 F

Used With: All Units

Used With: All Units

Factory Presets: Default

Possible Values: HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPOINT MENU
NSB PANEL SETPOINT INPUT
GBAS 0-5 VDC MODULE

Used With: All Units when Hydronic Heat or Modulating Gas Heat is installed

Factory Presets: Default

Possible Values: HI (KEYPAD) SETPOINT MENU
GENERIC BAS MODULE

Used With: All Units when Gas, Electric or Hydronic Heat is installed

Factory Presets: HI (KEYPAD) SETPOINT MENU

Possible Values: HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPOINT MENU
NSB PANEL SETPOINT INPUT
GBAS 0-5 VDC MODULE

Used With: All Units

Factory Presets: HI (KEYPAD) SETPOINT MENU

Possible Values: HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPOINT MENU
NSB PANEL SETPOINT INPUT
GBAS 0-5 VDC MODULE

Used With: All Units when Gas, Electric, Hydronic Heat or External Heat is installed

Factory Presets: HI (KEYPAD) SETPOINT MENU

Possible Values: HI (KEYPAD) SETPOINT MENU
ZONE SENSOR SETPOINT MENU
NSB PANEL SETPOINT INPUT
GBAS 0-5 VDC MODULE

System Programming

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

End of Submenu (NEXT) to Enter SETUP

1. Press the NEXT key until the following screen is displayed.

Used With: All units when Gas, Electric, Hydronic or External Heat is installed

Factory Presets: HI (KEYPAD) SETPOINT MENU

Possible Values: HI (KEYPAD) SETPOINT MENU
NSB PANEL SETPOINT INPUT

Used With: All Units when an economizer or VCM is installed

Factory Presets: HI (KEYPAD) SETPOINT MENU

Possible Values: HI (KEYPAD) SETPOINT MENU
REMOTE MIN POS POT INPUT

Used With: All Units when VCM and GBAS is installed

Factory Presets: HI (KEYPAD) SETPOINT MENU

Possible Values: HI (KEYPAD) SETPOINT MENU
GBAS 0-5VDC MODULE

Used With: All Units when Power Exhaust with Statitrac is installed

Factory Presets: HI (KEYPAD) SETPOINT MENU

Possible Values: HI (KEYPAD) SETPOINT MENU
GBAS 0-5VDC MODULE

System Configuration

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 Human Interface module has 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.

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.

Press the CONFIGURATION key to begin viewing or modifying the configuration screens.

Configuration - Model Num Digit 1
Unit Type ROOFTOP UNIT

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Configuration - Model Num Digit 2
Unit Type GAS

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Configuration - Model Num Digit 5, 6, 7
Unit Capacity 50

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Configuration - Model Num Digit 5
Unit Capacity 50

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Configuration - Model Num Digit 6
Cooling Type DX COOLING

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units

Possible Values: ROOFTOP UNIT, AIR HANDLER

Used With: All Units

Possible Values: ELECTRIC, GAS, HYDRONIC, EXTERNAL HEAT, NONE (COOLING ONLY)

Used With: All Rooftop Units

Possible Values: 20, 25, 30, 40, 50, 55, 60, 70, 75, 90, 105, 115, 130

Used With: Air Handlers

Possible Values: 20, 30, 40, 50, 60, 90

Used With: Air Handlers

Possible Values: CHILLED WATER, DX COOLING, NO COOLING

System Configuration

Configuration - Model Num Digit 9
Gas Heat Type MODULATING

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units when gas heat is installed
Possible Values: STAGED, MODULATING

Configuration - Model Num Digit 11
Power Exhaust 100% WITH STATITRAC

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units
Possible Values: NONE, 100% WITH STATITRAC, 50/100% WITHOUT STATITRAC

Configuration - Model Num Digit 16
Air Economizer INSTALLED

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units
Possible Values: INSTALLED, NOT INSTALLED

Configuration - Model Num Digit 17
System Control CV

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units
Possible Values: CV, VAV WITH IGCV/VFD, VAV WITHOUT IGCV/VFD

Configuration - Model Num Digit 19
Ambient Control STANDARD

1. Press the NEXT key until the following screen is displayed.

Used With: All Units
Possible Values: STANDARD, 0 Deg F

Configuration - Model Num Digit 21+
Comparative Enthalpy INSTALLED

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units
Possible Values: INSTALLED, NOT INSTALLED

Configuration - Model Num Digit 21+
GBAS 0 - 5 VDC Module INSTALLED

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units
Possible Values: INSTALLED, NOT INSTALLED

Configuration - Model Num Digit 21+
Ventilation Override (VOM) INSTALLED

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units
Possible Values: INSTALLED, NOT INSTALLED

System Configuration

Configuration - Model Num Digit 21+
Ventilation Control (VCM) INSTALLED

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units
Possible Values: INSTALLED, NOT INSTALLED

Configuration - Model Num Digit 21+
TC14 Communications Module INSTALLED

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units
Possible Values: INSTALLED, NOT INSTALLED

Configuration - Model Num Digit 21+
Remote Human Interface INSTALLED

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units
Possible Values: INSTALLED, NOT INSTALLED

Unit Model Number

1. Press the NEXT key until the following screen is displayed.

Used With: All Units unless RTM has been changed.
Possible Values: Model Number

Software Revision Number Report:
RTM 1.00

1. Press the NEXT key until the following screen is displayed.

Used With: All Units

Software Revision Number Report:
Single Compressor Module (SCM) 1.00

1. Press the NEXT key until the following screen is displayed.

Used With: All Units

Software Revision Number Report:
Multiple Compressor Module (MCM) 1.00

1. Press the NEXT key until the following screen is displayed.

Used With: All Units

Software Revision Number Report:
GBAS 0-5VDC Module 1.00

1. Press the NEXT key until the following screen is displayed.

Used With: All Units when GBAS is installed

Software Revision Number Report:
Ventilation Override (VOM) 1.00

1. Press the NEXT key until the following screen is displayed.

Used With: All Units when VOM is installed

Software Revision Number Report:
Exhaust/Comp Enthalpy Module 1.00

1. Press the NEXT key until the following screen is displayed.

Used With: All Units when comparative enthalpy or Power Exhaust is installed with Statitrac

System Configuration

Software Revision Number Report:
Heat Module **1.00**

1. Press the NEXT key until the following screen is displayed.

Used With: All units are not cooling only and without External Heat

Software Revision Number Report:
Unit Human Interface **12.00**

1. Press the NEXT key until the following screen is displayed.

Used With: All Units

Software Revision Number Report:
Remote Human Interface **1.00**

1. Press the NEXT key until the following screen is displayed.

Used With: All Units when Remote HI is installed

Software Revision Number Report:
Ventilation Control (VCM) **1.00**

1. Press the NEXT key until the following screen is displayed.

Used With: All Units when VCM is installed

Software Revision Number Report:
TCI4 Communications Module **1.00**

1. Press the NEXT key until the following screen is displayed.

Used With: All Units when TCI is installed

System Testing & Troubleshooting

SERVICE MODE Menu

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.

Supply Air Controls Supply Fan OFF

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.

RTM VAV Box Relay RTM Alarm Output

1. Press the NEXT key until the following screen is displayed.

Condenser Fan Outputs 1A OFF 1B OFF

1. Press the + or - key until the proper value is displayed.
"If "AUTO" is selected for any output on a circuit, then all outputs for that circuit are set to "AUTO".
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Condenser Fan Outputs 1A OFF 1B OFF 2A OFF 2B OFF

1. Press the + or - key until the proper value is displayed.
"If "AUTO" is selected for any output on a circuit, then all outputs for that circuit are set to "AUTO".
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Condenser Fan Speed Ckt 1 0 %

1. Press the + or - key until the proper value is displayed.
"If "AUTO" is selected for any output on a circuit, then all outputs for that circuit are set to "AUTO".
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

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.

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".

Used With: All Units
Possible Values: ON, OFF, AUTO

Used With: All Units
Possible Values: Unocc Output - 0 = occ
Unocc Output - 1 = unocc
Alarm Output - 0 = off
Alarm Output - 1 = on

Used With: 20, 25 & 30 Ton Rooftop Units & Air Handlers (Casings 1, 2, or 3) when DX Cooling is installed
Factory Presets: OFF
Possible Values: ON, OFF, AUTO

Used With: 40 - 130 Ton Rooftop Units & Air Handlers (Casings 4, 5, 6 or 9) when DX Cooling is installed
Factory Presets: OFF
Possible Values: ON, OFF, AUTO

Used With: 20, 25 & 30 Ton Rooftop Units & Air Handlers (Casings 1, 2 or 3) when DX Cooling is installed
Factory Presets: 0%
Possible Values: 0 to 100%, AUTO

System Testing & Troubleshooting

Condenser Fan Speed

Ckt 1 0 % Ckt 2 0 %

1. Press the + or - key until the proper value is displayed.
"If "AUTO" is selected for any output on a circuit, then all outputs for that circuit are set to "AUTO".
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Compressor Relays:

K10 OFF K11 OFF

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Compressor Relays:

K11 OFF K12 OFF K3 OFF K4 OFF

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Hydronic Heat

Actuator 0 %

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Modulating Gas Heat

Actuator 0 %

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Heat Stages

Stage Off

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: 40 - 130 Ton Rooftop Units & Air Handlers (Casings 4, 5, 6 or 9) when DX Cooling is installed

Factory Presets: 0%

Possible Values: 0 to 100%, AUTO

Used With: 20, 25 & 30 Ton Rooftop Units & Air Handlers (Casings 1, 2 or 3) when DX Cooling is installed

Factory Presets: OFF

Possible Values: ON, OFF

Used With: 40 - 130 Ton Rooftop Units & Air Handlers (Casings 4, 5, 6 or 9) when DX Cooling is installed

Factory Presets: OFF

Possible Values: ON, OFF

Used With: All Rooftop Units when Hydronic Heat is installed and Air Handlers when DX Cooling is installed

Factory Preset: 0%

Possible Values: 0 - 100%

Used With: All Rooftop Units when Modulating Gas is installed and Air Handlers when DX Cooling is installed

Factory Preset: 0%

Possible Values: 0 - 100%

Used With: All Units when Staged Gas or Electric Heat is installed

Factory Presets: OFF

Possible Values: OFF, Stage 1, 2, 3

System Testing & Troubleshooting

Relay State **COOL ON**
Hydro Heat/Chilled Water Output **0 %**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Relay State **HEAT ON**
Mod Gas Heat/Chilled Water Output **0 %**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Chilled Water
Actuator **0 %**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

OA Damper Pos **0 %**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

OA Damper Pos **0 %** **Exhaust Fan** **OFF**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

OA Damper Pos **0 %** **Exhaust** **0 %**
Exhaust Fan **OFF**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Used With: Air Handlers when Chilled Water cooling and Hydronic Heat is installed

Factory Presets: Relay State: HEAT ON
Hydro Output: 0%

Possible Values: Relay State: HEAT ON, COOL ON, OVERRIDE
Hydro Output: 0 to 100%

Used With: Air Handlers when Chilled Water cooling and Modulating Gas is installed

Factory Presets: Relay State: HEAT ON
Output: 0%

Possible Values: Relay State: HEAT ON, COOL ON, OVERRIDE
Output: 0 TO 100%

Used With: Air Handlers when Chilled Water cooling and Heat type is NOT Hydronic or Modulating Gas

Factory Preset: 0%

Possible Values: 0 to 100%

Used With: All Units when an economizer is installed without power exhaust

Factory Presets: OA Damper: 0%

Possible Values: OA Damper: 0 to 100%

Used With: All Units when an economizer with Power Exhaust without Statitrac is installed

Factory Presets: OA Damper Pos: 0%
Exhaust Fan: OFF

Possible Values: OA Damper Pos: 0 to 100%
Exhaust Fan: ON, OFF

Used With: All Units when an economizer and Power Exhaust with Statitrac is installed

Factory Presets: OA Damper Pos: 0%
Exhaust: 0%
Exhaust Fan: OFF

Possible Values: OA Damper: 0 to 100%
Exhaust: 0% to 100%
Exhaust Fan: ON, OFF

System Testing & Troubleshooting

Ventilation Override Module Output Relay
OFF

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units when VOM is installed
Factory Presets: OFF
Possible Values: ON, OFF

OA Preheater State **OFF**

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key until the following screen is displayed.

Used With: All Units when VCM is installed
Factory Presets: OFF
Possible Values: ON, OFF

GBAS 0-5 VDC Module Relay Outputs
#1 OFF #2 OFF #3 OFF #4 OFF #5 OFF

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Used With: All Units when GBAS 0-5VDC is installed
Factory Presets: OFF
Possible Values: 1, 2, 3, 4, 5 = ON, OFF

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

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

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

Start Test In **5 Seconds**
Press TEST START To Begin, STOP To Halt

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Press the NEXT key to advance the cursor.
4. Repeat steps 1 and 2 for the next value.
5. Press the NEXT key until the following screen is displayed (if applicable).

Used With: All Units
Factory Presets: 5 Seconds
Possible Values: 0 to 120 Seconds

System Testing & Troubleshooting

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 manually resettable diagnostics. 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 can not 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.

One of the following screens will be the first screen displayed when the DIAGNOSTIC" key is pressed.

Diagnostic Menu ---- Info
No Active Diagnostics (NEXT) History Log

OR

Press CANCEL to Clear All Active Manual
Diagnostics, or Press NEXT to View

1. Pressing the "CANCEL" key to clear the diagnostics will prompt the following screen.

Diagnostic Reset Is Password Protected
Please Enter Password: _____

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.

When a new diagnostic is displayed, the words "NOT VIEWED" are displayed with it. After viewing the last unviewed diagnostic, the words "NOT VIEWED" change to "VIEWED" for every diagnostic in the log. The diagnostic will remain this way as long as it is in the log. This allows the operator to distinguish between old and new diagnostics in the Event Log.

Pressing the NEXT key after reaching the last diagnostic in the Event Log advances the display to the first diagnostic in the Active list if any exist. If not, the display reverts back to the first Event Log diagnostic. If the Diagnostic Event Log is full (20 events), and another diagnostic occurs, the oldest diagnostic is pushed off the end of the list. If all 20 diagnostics in the list are active when the 21st occurs, then the oldest Active diagnostic is pushed off the end of the list. When an Active diagnostic is automatically or manually cleared in the Active buffer, its status in the Diagnostic Log changes from Active to History. If the operator does not clear an active diagnostic in the Active log, its status will still show as active in the Diagnostic 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.

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

System Testing & Troubleshooting

**Resetting Active Manual Diagnostics
Sending Reset Request**

and then the following screen will be displayed

**Resetting Active Manual Diagnostics
Updating Unit Data, Please Wait**

and then the following screen will be displayed

**Active Diagnostic ---- Info
Please Wait, Unit Is In Reset Mode**

OR

3. Pressing the "NEXT" key to view the diagnostics will prompt the following screen if a "MANUAL RESET" failure has occurred.

Active Diagnostic ---- Manual Reset **More**

Used With: All Units
Factory Presets: N/A

The word MORE will only appear if more than one failure has occurred.

Possible Values:

Emergency Stop	Compressor Trip - Ckt 2
Supply Fan Failure	Low Air Temp Limit Trip
Exhaust Fan Failure	Manual Reset SA Static Pres Limit
Low Pres Control Open - Ckt 1	Comp Contactor Fail - Ckt 1
Low Pres Control Open - Ckt 2	Comp Contactor Fail - Ckt 2
Compressor Trip - Ckt 1	

OR

Pressing the "NEXT" key to view the diagnostics will prompt the following screen if an "AUTO RESET" failure has occurred.

Used With: All Units
Factory Presets: N/A

Active Diagnostic ---- Auto Reset **More**

The word MORE will only appear if more than one failure has occurred.

Possible Values:

RTM Zone Temp Sensor Failure,	Heat AUX Temp Sensor Fail,	GBAS 0-5VDC Module Comm Failure
Supply Air Temp Sensor Failure,	Unocc Zone Cool Setpt Failure,	TCI Module Comm Failure,
RTM AUX Temp Sensor Failure,	Unocc Zone Heat Setpt Failure,	Tracer Communications Failure,
OA Temp Sensor Failure,	Supply Air Pres Setpt Failure,	NSB Panel Comm Failure,
Mode Input Failure,	Space Static Pres Setpt Failure,	Unit HI Communications Failure,
Occ Zone Cool Setpoint Failure,	Space Pressure Sensor Failure,	VOM Communications Failure,
Occ Zone Heat Setpoint Failure,	Return Air Temp Sensor Failure,	Supply Air Temp Cool Setpt Fail,
Supply Air Pres Sensor Failure,	RA Humidity Sensor Failure,	Supply Air Temp Heat Setpt Fail,
OA Humidity Sensor Failure,	Auto Reset SA Static Pres Limit	NSB Panel Zone Temp Sensor Fail
Evap Temp Sensor Failure - Ckt 1,	SCM Communications Failure,	CO ₂ Sensor Failure
Evap Temp Sensor Failure - Ckt 2,	MCM Communications Failure,	VCM Aux. Temp Sensor Failure
Cond Temp Sensor Failure - Ckt 1,	Heat Module Comm Failure,	Velocity Pressure Sensor Failure
Cond Temp Sensor Failure - Ckt 2,	ECEM Communications Failure,	VCM Module Comm Failure

OR

Pressing the "NEXT" key to view the diagnostics will prompt the following screen if an "Information Only" failure has occurred.

System Testing & Troubleshooting

Active Diagnostic ---- Info

More

The word MORE will only appear if more than one failure has occurred.

Note: Activation of any VOM Mode can be viewed within the "Active Diagnostic" screen.

and then the following screen will be displayed

Log 1

1. Pressing the "CANCEL" key to clear the diagnostics will prompt the following screen.

Diagnostic Log Is Password Protected Please Enter Password: _____

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 _____ Please Wait, Updating Diagnostic Log

If the "DIAGNOSTIC LOG" is empty when the "CANCEL" key is pressed, the following screen will be displayed.

Active Diagnostics ---- Info "Diagnostic Buffer Is Already Empty !"

Press the AUTO or STOP key to return to the top level status screen.

Failure Modes

When any condition results in the rooftop unit's inability to perform a normal function, it is said to have entered a failure mode. There are two types of failure modes.

1. An "Analog input out of range" failure mode.

This failure mode occurs when a sensing device such as a zone temperature sensor or a humidity sensor begins to transmit information that is outside its allowable range.

2. A "Fault recognition by input logic" failure mode.

This failure mode occurs when the UCM receives information that does not "make sense" or does not conform to its predefined logic.

Used With: All Units

Factory Presets: N/A

Possible Values: Heat Fail, Dirty Filter, Ventilation Override Mode A, B, C, D, or E, Rooftop Module Data Storage Error

Used With: All Units

Factory Presets: N/A

Possible Values: Log Number 1-20, Viewed or Not Viewed, Active or History, Manual, Auto, or Info., Any diagnostic listed under the previous screens associated with the type of diagnostic including VOM activated Mode.

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

Used With: All Units

Factory Presets: N/A

Possible Values: Manual, Auto, or Info

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 following Troubleshooting chart list possible Failure Modes and:

1. The Diagnostic Displayed on the Human Interface's LCD screen and if it is a PMR, PAR, INFO or HO diagnostic.
2. The condition which caused the failure mode to occur or the Reason for Diagnostic.
3. The UCM's Reaction to the failure mode.
4. The Reset Required to remove the diagnostic.

DIAGNOSTIC DISPLAYED	REASON FOR DIAGNOSTIC	UCM'S REACTION	RESET REQUIRED
<p>RTM Zone Temp Sensor Failure</p> <p>Problem: The RTM Zone Temperature sensor input is out of range.</p> <p>Check: Sensor resistance should be between 830 ohms (200 F) and 345.7Kohms (-40 F). If so, check field/unit wiring between Sensor and RTM.</p>	<p>At least one enabled unit function has the RTM Zone Temperature input designated as its sensor, and the unit is reading a signal that is out of range for this input (Temp < -55 F or Temp > 150 F).</p>	<p>The functions with the RTM Zone Temperature input designated as their sensor are disabled.</p>	<p>(PAR) An automatic reset occurs after the designated Zone 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.</p>
<p>Supply Air Temp Sensor Failure</p> <p>Problem: The Supply Air Temperature sensor input is out of range.</p> <p>Check: Sensor resistance should be between 830 ohms (200 F) and 345.7Kohms (-40 F). If so, check field/unit wiring between Sensor and RTM.</p>	<p>The unit is reading a signal that is out of range for the Supply Air Temperature input on the RTM (Temp < -55 F or Temp > 209 F).</p>	<p>These unit functions are disabled;</p> <ul style="list-style-type: none"> 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. 	<p>(PAR) An automatic reset occurs after the designated S/A 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.</p>
<p>RTM Aux Temp Sensor Failure</p> <p>Problem: The RTM Auxillary Temperature sensor data is out of range.</p> <p>Check: Sensor resistance should be between 830 ohms (200 F) and 345.7Kohms (-40 F). If so, check field/unit wiring between Sensor and RTM.</p>	<p>At least one enabled unit function has the RTM Auxillary Temperature input designated as its sensor, and the unit is reading a signal that is out of range for this input (Temp < -55 F or Temp > 209 F).</p>	<p>The functions with the RTM Aux Temp input designated as their sensor are disabled.</p>	<p>(PAR) An automatic reset occurs after the designated Zone Temp 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.</p>
<p>Occupied Zone Cool Setpt Failure</p> <p>Problem: The Occupied Zone Cooling Setpoint Input out of range.</p>	<p>The input designated as Occupied Zone Cooling setpoint source is out of range (Temp < 45 F or Temp > 94 F).</p>	<p>The active Occupied Zone Cooling Setpoint reverts to the default Occupied Zone Cooling setpoint.</p>	<p>(PAR) An automatic reset occurs after the designated Occupied Zone CSP input returns to its allowable range for 10 continuous seconds, or after a different, valid Occupied Zone CSP selection source is user-defined.</p>

DIAGNOSTIC DISPLAYED	REASON FOR DIAGNOSTIC	UCM'S REACTION	RESET REQUIRED
<p>OA Temp Sensor Failure</p> <p>Problem: The Outside Air Temperature sensor input is out of range.</p> <p>Check: Sensor resistance should be between 830 ohms (200 F) and 345.7Kohms (-40 F). If so, check field/unit wiring between Sensor and RTM.</p>	<p>The unit is reading a signal that is out of range for the Outside Air Temperature sensor input on the RTM. (Temp < -55 F or Temp > 209 F).</p>	<p>Unit functions that are disabled include;</p> <p>a. Low Ambient Compressor Lockout</p> <p>b. The Outside Air Damper drives to minimum position.</p> <p>c. On VAV units with SA Temp Reset type selected as OA Temp Reset, the Reset type reverts to NONE for the duration of the failure.</p>	<p>(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.</p>
<p>MODE Input Failure</p> <p>Problem: The RTM Mode input is out of range.</p> <p>Check: Mode input resistance should be between 1 Kohm and 40 Kohms. If so, check field/unit wiring between Sensor and RTM.</p>	<p>The mode input signal on the RTM is out of range (R < 1k ohm or R > 40k ohm).</p>	<p>The system mode reverts to the default (HI set) System Mode.</p>	<p>(INFO) An automatic reset occurs after the Mode input returns to its allowable range for 10 seconds.</p>
<p>Occupied Zone Heat Setpoint Failure</p> <p>Problem: The Occupied Zone Heating Setpoint Input is out of range.</p>	<p>The input designated as Occupied Zone Heating setpoint source is out of range (Temp < 45 F or Temp > 94 F).</p>	<p>The active Occupied Zone Heating Setpoint reverts to the default Occupied Zone Heating setpoint.</p>	<p>(PAR) An automatic reset occurs after the designated Occupied Zone HSP input returns to its allowable range for 10 continuous seconds, or after a different, valid Occupied Zone HSP selection source is user-defined.</p>
<p>NSB Panel Zone Temp Sensor Failure</p> <p>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).</p> <p>Check: If have an external sensor connected to the NSB Panel Zone Sensor input, then the internal NSB Panel zone sensor should be disabled. Verify sensor resistance. If in valid range, check wiring between Sensor and NSB Panel.</p>			

DIAGNOSTIC DISPLAYED	REASON FOR DIAGNOSTIC	UCM'S REACTION	RESET REQUIRED
<p>OA Humidity Sensor Failure</p> <p>Problem: The Outside Air Humidity sensor data is out of range.</p> <p>Check: Check field/unit wiring between Sensor and RTM.</p>	<p>The unit is reading a signal that is out of range for the Outside Air humidity sensor (Humidity < 5% or Humidity > 100%).</p>	<p>The Economizer Enable r.e Enthalpy function reverts to Dry-Bulb Temperature changeover ("Level 1") control.</p>	<p>(PAR) An automatic reset occurs after the OA Humidity input returns its allowable range for 10 seconds.</p>
<p>Emergency Stop</p> <p>Problem: The Emergency Stop input is open.</p>	<p>An open circuit has occurred on the Emergency Stop input caused either by a High Duct Temp T-stat trip, or the opening of field-provided contacts, switch, etc...</p>	<p>"OFF or "Close" requests are issued as appropriate to the following functions;</p> <ul style="list-style-type: none"> a. Compressor staging/Chilled Water Cooling control b. Heat operation c. Supply fan control and proof of operation d. Exhaust fan control and proof of operation. e. Exhaust actuator control f. Outside Air Damper Control g. On VAV units, IG/VFD control 	<p>(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.</p>
<p>Supply Fan Failure</p> <p>Problem: There is no supply airflow indication after the supply fan has been requested on.</p> <p>Check: Check belts, linkages, etc. on the Supply Fan assembly. If these are ok, check field/unit wiring between RTM and Supply Fan.</p> <p>If Supply Fan will run in service mode, then verify airflow proving switch and wiring.</p>	<p>The supply airflow input is detected OPEN for 40 continuous seconds during any period of time in which the supply fan binary output is ON. This input is ignored for up to 5 minutes after the supply fan is first started, until airflow is first detected.</p>	<p>"OFF or "Close" requests are issued as appropriate to the following functions;</p> <ul style="list-style-type: none"> a. Compressor staging /Chilled Water control b. Heat operation c. Supply fan control and proof of operation. d. Exhaust fan control and proof of operation e. Exhaust actuator control f. Economizer actuator control g. IG/VFD control 	<p>(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.</p>

DIAGNOSTIC DISPLAYED	REASON FOR DIAGNOSTIC	UCM'S REACTION	RESET REQUIRED
<p>Exhaust Fan Failure</p> <p>Problem: There is no exhaust airflow indication after the exhaust fan has been requested on.</p> <p>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.</p>	<p>The unit has power exhaust and the Exhaust Proving input is detected OPEN for 40 continuous seconds during any period of time in which the Exhaust Fan binary output is ON.</p>	<p>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.</p>	<p>(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 clyling power to the RTM.</p>
<p>Evap Temp Sensor Failure - Ckt 1 (20-30 ton units) Evap Temp Sensor Failure - Ckt 1 (CKT #1 40-130 Ton units)</p> <p>Problem: The Evaporator Temperature Sensor (Ckt #1) is out of range.</p> <p>Check: Sensor resistance should be between 830 ohms (200 F) and 345.7Kohms (-40 F). If so, check field/unit wiring between Sensor and MCM/SCM.</p>	<p>The unit is reading a signal that is out of range for the circuit #1 Evaporator Temperature sensor input (Temp < -55 F or Temp > 209 F).</p>	<p>The Coil Frost Protection function for refrigeration circuit #1 only is disabled.</p>	<p>(PAR) An automatic reset occurs after the #1 Evap Temp input return to its allowable range for 10 second</p>
<p>Evap Temp Sensor Failure - Ckt 2 (CKT #2 40-130 Ton units)</p> <p>Problem: The Evaporator Temperature Sensor (Ckt #2) input is out of range.</p> <p>Check: Sensor resistance should be between 830 ohms (200 F) and 345.7Kohms (-40 F). If so, check field/unit wiring between Sensor and MCM.</p>	<p>The unit is reading a signal that is out of range for the circuit #2 Evaporator Temperature sensor. (Temp < -55 F or Temp > 209 F).</p>	<p>The Coil Frost Protection function for refrigeration circuit no. 2 only is disabled.</p>	<p>(PAR) An automatic reset occurs after the #2 Evap Temp input return to its allowable range for 10 second</p>

DIAGNOSTIC DISPLAYED	REASON FOR DIAGNOSTIC	UCM'S REACTION	RESET REQUIRED
<p>Low Press Control Open - Ckt 1 (20-30 ton units) Low Pres Control Open - Ckt 1 (Ckt #1 40-130 Ton units)</p> <p>Problem: The Low Pressure Control (LPC) for Ckt #1 is open.</p> <p>Check: State of refrigerant charge for ckt #1.</p>	<p>The Ckt # 1 LPC input is detected open as described in the Compressor Protection function.</p>	<p>A "Lockout Ckt # 1" request is issued to the Compressor Staging Control function.</p>	<p>(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.</p>
<p>Low Press Control Open -Ckt 2 (Ckt #2 40-130 Ton units)</p> <p>Problem: The Low Pressure Control (LPC) for Ckt #2 is open.</p> <p>Check: State of refrigerant charge for ckt #2.</p>	<p>The Ckt # 2 LPC input is detected open as described in the Compressor Protection function.</p>	<p>A "Lockout Ckt # 2" request is issued to the Compressor Staging Control function.</p>	<p>(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.</p>
<p>TCI Module Comm Failure</p> <p>Problem: The RTM has lost communications with the TCI.</p> <p>Check: Check field/unit wiring</p>	<p>The RTM has lost communications with the TCI Module.</p>	<p>All active commands and setpoints provided by Tracer through the TCI will be cancelled and/or ignored. And where Tracer has been designated as setpoint source, local HI default setpoints will be used.</p>	<p>(PAR) An automatic reset occurs after communication has been restored.</p>
<p>Cond Temp Sensor Failure - Ckt 1 (20-30 ton units) Cond Temp Sensor Failure - Ckt 1 (Ckt #1 40-130 Ton units)</p> <p>Problem: The Saturated Condenser Temperature Input is out of range for Ckt #1.</p> <p>Check: Sensor resistance should be between 830 ohms (200 F) and 345.7Kohms (-40 F). If so, check field/unit wiring between Sensor and MCM/SCM.</p>	<p>The unit is reading a signal that is out of range for the circuit #1 Saturated Condenser Temperature sensor. (Temp < -55 F or Temp > 209 F).</p>	<p>A "Lockout Ckt # 1" request is issued to the Compressor Staging Control function.</p>	<p>(PAR) An automatic reset occurs after the #1 Condenser Temp input returns to its allowable range within 10 seconds.</p>

DIAGNOSTIC DISPLAYED	REASON FOR DIAGNOSTIC	UCM'S REACTION	RESET REQUIRED
<p>Cond Temp Sensor Failure - Ckt 2 (Ckt #2 40-130 Ton units)</p> <p>Problem: The Saturated Cond. Temp Input is out of range for Ckt #2.</p> <p>Check: Sensor resistance should be between 830 ohms (200 F) and 345.7Kohms (-40 F). If so, check field/unit wiring between Sensor and MCM.</p>	<p>The unit is reading a signal that is out of range for the circuit #2 Saturated Condenser Temperature sensor. (Temp < -55 F or Temp > 209 F).</p>	<p>A "Lockout Ckt #2" request is issued to the Compressor Staging Control function.</p>	<p>(PAR) An automatic reset occurs after the #2 Condenser Temp input returns to its allowable range within 10 seconds.</p>
<p>Compressor Trip - Ckt 1 (20-30 ton units) Compressor Trip - Ckt 1 (Ckt #1 40-130 Ton units)</p> <p>Problem: The Compressor Ckt #1 has tripped.</p>	<p>The Ckt #1 Compressor proving input is detected open continuously for more than 3 seconds when either or both compressor outputs on Ckt #1 are energized (as described in the Compressor Protection function).</p>	<p>A "Lockout Ckt #1" request is issued to the Compressor Staging Control function.</p>	<p>(PMR) A manual reset is required after this diagnostic occurs. The Diagnostic can be reset by the unit mounted Human Interface Module c Tracer, or by cycling power to the RTM.</p>
<p>Compressor Trip - Ckt 2 (Ckt #2 40-130 ton units)</p> <p>Problem: The Compressor Ckt #2 has tripped.</p>	<p>The Ckt #2 Compressor proving input is detected open continuously for more than 3 seconds when either or both compressor outputs on Ckt #1 are energized (as described in the Compressor Protection function).</p>	<p>A "Lockout Ckt #2" request is issued to the Compressor Staging Control function.</p>	<p>(PMR) A manual reset is required after this diagnostic occurs. The Diagnostic can be reset by the unit mounted Human Interface Module c Tracer, or by cycling power to the RTM.</p>
<p>HEAT Mod Aux Temp Sensor Fail (formerly: MWU Zone Sensor Fail)</p> <p>Problem: The HEAT Mod Aux Temp Sensor Input is out of range.</p> <p>Check: Sensor resistance should be between 830 ohms (200 F) and 345.7Kohms (-40 F). If so, check field/unit wiring between Sensor and HEAT Module.</p>	<p>At least one enabled unit function has the HEAT Module Auxillary Temperature input designated as its sensor, and the unit is reading a signal that is out of range for this input (Temp < -55 F or Temp > 209 F).</p>	<p>The functions that designated the Heat Module Auxillary Temperature Input as their input are disabled.</p>	<p>(PAR) An automatic reset occurs after the Heat Module Auxillary Temperature input returns to its allowable range for 10 seconds.</p>

DIAGNOSTIC DISPLAYED	REASON FOR DIAGNOSTIC	UCM'S REACTION	RESET REQUIRED
<p>Low Air Temp Limit Trip (formerly: Freezestat Trip)</p> <p>Problem: The Low Air Temp Limit has Tripped. (Units with Steam or Hot Water heating, or Air Handlers with Chilled Water Cooling)</p>	<p>A Low Air Temp Limit Trip is detected continuously for more than one second. This can occur if the Hydronic Heat Low Air Temp Limit input closes for > 1 second, or if the Chilled Water Low Air Temp Limit Trip input opens for > 1 second. On units with both Hydronic Heat and Chilled water, both Low Air Temp Limit inputs are active, and the unit will respond in the same manner regardless of which input is used.</p>	<p>The UCM will initiate the following actions;</p> <ul style="list-style-type: none"> 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 Control function. d. A "Close Damper" request is sent to the Economizer Actuator Control function. 	<p>(PMR) A manual reset is required after the Low Air Temp 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>
<p>Heat Failure</p> <p>Problem: The Heat has Failed. (Gas or Electric heat unit) Typically, this is because the gas heater's ignitor failed to light the gas, or because the electric heat section became too hot.</p>	<p>The Heat Fail input on the Heat module was closed:</p> <ul style="list-style-type: none"> a. for more than 80 seconds, b. for 10 consecutive occurrences (each lasting 5 seconds or more) within a 210 second period. 	<p>An Information Only diagnostic is set.</p>	<p>(INFO) An automatic reset occurs after the Heat Fail input remains open for 210 seconds continuously.</p>
<p>Unoccupied Zone Cool Setpt Failure</p> <p>Problem: The Unoccupied Zone Cooling Setpoint Input out of range.</p>	<p>The input designated as Unoccupied Zone Cooling setpoint source is out of range (Temp < 45 F or Temp > 94 F).</p>	<p>The active Unoccupied Zone Cooling Setpoint reverts to the default Unoccupied Zone Cooling setpoint.</p>	<p>(PAR) An automatic reset occurs after the designated Unoccupied Zone CSP input returns to its allowable range for 10 continuous seconds, or after a different, valid unoccupied Zone CSP selection source is user-defined.</p>

DIAGNOSTIC DISPLAYED	REASON FOR DIAGNOSTIC	UCM'S REACTION	RESET REQUIRED
<p>Unoccupied Zone Heat Setpt Failure</p> <p>Problem: The Unoccupied Zone Heating Setpoint Input is out of range.</p>	<p>The input designated as Unoccupied Zone Heating setpoint source is out of range (Temp < 45 F or Temp > 94 F).</p>	<p>The active Unoccupied Zone Heating Setpoint reverts to the default Unoccupied Zone Heating setpoint.</p>	<p>(PAR) An automatic reset occurs after the designated Unoccupied Zone HSP input returns to its allowable range for 10 continuous seconds, or after a different, valid unoccupied Zone HSP selection source is user-defined.</p>
<p>Return Air Temp Sensor Failure</p> <p>Problem: On units with the Comparative Enthalpy option, the Return Air Temperature sensor input is out of range.</p> <p>Check: Sensor resistance should be between 830 ohms (200 F) and 345.7Kohms (-40 F). If so, check field/unit wiring between Sensor and ECEM.</p>	<p>The unit is reading a signal that is out of range for the Return Air humidity sensor (Temp < -55 F or Temp > 209 F).</p>	<p>The Economizer Enable r.e. Enthalpy function reverts to Reference Enthalpy changeover ("Level 2") control.</p>	<p>(PAR) An automatic reset occurs after the RA Temp input returns to its allowable range continuously for 10 seconds.</p>
<p>SCM Communications Failure (20-30 Tons)</p> <p>Problem: The RTM has lost communications with the SCM.</p> <p>Check: Check field/unit wiring between RTM and SCM.</p>	<p>The RTM has lost communications with the SCM.</p>	<p>A "Lockout" request is sent to the Compressor Staging Control function. And a failsafe function in the SCM will cause all SCM outputs to be zeroed and deenergized.</p>	<p>(PAR) An automatic reset occurs after communication has been restored.</p>
<p>MCM Communications Failure (40-130 Tons)</p> <p>Problem: The RTM has lost communications with the MCM.</p> <p>Check: Check field/unit wiring between RTM and MCM.</p>	<p>The RTM has lost communications with the MCM.</p>	<p>A "Lockout" request is sent to the Compressor Staging Control function. And a failsafe function in the MCM will cause all MCM outputs to be zeroed and deenergized.</p>	<p>(PAR) An automatic reset occurs after communication has been restored.</p>

DIAGNOSTIC DISPLAYED	REASON FOR DIAGNOSTIC	UCM'S REACTION	RESET REQUIRED
<p>RA Humidity Sensor Failure</p> <p>Problem: On units with both Air Economizer and Comparative Enthalpy Installed: The Return Air Humidity sensor input is out of range.</p> <p>Check: Check field/unit wiring between Sensor and ECEM.</p>	<p>The unit is reading a signal that is out of range for the Return Air humidity sensor (Humidity < 5% or Humidity > 100%).</p>	<p>The Economizer Enable r.e. Enthalpy function reverts to Reference Enthalpy changeover ("Level 2") control.</p>	<p>(PMR) An automatic reset occurs after the RA Humidity input returns to its allowable range continuously for 10 seconds.</p>
<p>Heat Module Comm Failure</p> <p>Problem: The RTM has lost communications with the Heat Module.</p> <p>Check: Check field/unit wiring between RTM and Heat Module.</p>	<p>The RTM has lost communications with the Heat Module.</p>	<p>An "All Heat Off" request is sent to the Heat Operation function.</p> <p>If the unit has staged gas or electric heat, all Heat Module outputs will be zeroed and deenergized.</p> <p>If the unit has Hydronic Heat or Chilled Water installed, the unit will turn off the Supply fan and close the Outside Air Damper upon the occurrence of a HEAT Module comm failure. A failsafe function in the Heat Module will cause all water valves to be set to 100% to provide full water flow. Unless used for switching purposes (Air Handlers with Chilled Water and Mod Gas, or Chilled Water and Hydronic Heat) all binary outputs will be deenergized.</p>	<p>(PAR) An automatic reset occurs after communication has been restored.</p>
<p>Tracer Communications Failure</p> <p>Problem: The TCI has lost communications with Tracer.</p> <p>Check: Tracer (building control panel) is powered up and running properly. If so, check unit wiring between TCI and Tracer (building control panel).</p>	<p>The TCI has lost communications with the Tracer for > 15 minutes.</p>	<p>All active commands and setpoints provided by Tracer through the TCI will be cancelled and/or ignored. And where Tracer has been designated as setpoint source, local HI default setpoints will be used.</p>	<p>(PAR) An automatic reset occurs after communication between Tracer and TCI has been restored.</p>

DIAGNOSTIC DISPLAYED	REASON FOR DIAGNOSTIC	UCM'S REACTION	RESET REQUIRED
<p>ECEM Communications Failure</p> <p>Problem: The RTM has lost communications with the ECEM.</p> <p>Check: Check field/unit wiring between RTM and ECEM Module.</p>	<p>The RTM has lost communications with the ECEM.</p>	<p>If the unit has the Comparative Enthalpy option, the Economizer Enable r.e. Enthalpy function will revert to Level 2 enthalpy comparison.</p> <p>On units with Statitrac;</p> <ul style="list-style-type: none"> a. Space pressure control is deactivated, b. the Exhaust Fan Control function receives an "Exhaust Fan Fail" command, c. the Exhaust Damper control function receives a "Close Damper" request, and d. The Outside Air Damper is limited to minimum position. 	<p>(PAR) An automatic reset occurs after communication has been restored.</p>
<p>GBAS 0-5VDC Module Comm Failure</p> <p>Problem: The RTM has lost communications with the GBAS Module.</p> <p>Check: Check field/unit wiring between RTM and GBAS.</p>	<p>The RTM has lost communications with the GBAS Module.</p>	<p>The UCM will initiate the following actions;</p> <ul style="list-style-type: none"> a. If the Demand Limit input was closed prior to the communications loss, then the Demand Limit commands issued to the Heat Operation function (if applicable) and the Compressor Staging /Chilled Water Cooling function will be cancelled. b. If any of the GBAS setpoint control parameters are the HI-selected setpoint sources, then those setpoints will revert to the default HI setpoints. c. Any active GBAS output control parameters will be ignored. d. A failsafe function in the GBAS module will cause all GBAS outputs to be zeroed and deenergized. 	<p>(PAR) An automatic reset occurs after communication has been restored.</p>

DIAGNOSTIC DISPLAYED	REASON FOR DIAGNOSTIC	UCM'S REACTION	RESET REQUIRED
<p>VOM Communications Failure</p> <p>Problem: The RTM has lost communications with the VOM.</p> <p>Verify: Check field/unit wiring between RTM and VOM.</p>	<p>The RTM has lost communications with the VOM.</p>	<p>Ventilation override actions will not be allowed, and the VO Output relay will be deenergized.</p>	<p>(PAR) An automatic reset occurs after communication has been restored.</p>
<p>Comp Contactor Fail - Ckt 1 (20-30 ton units) Comp Contactor Fail - Ckt 1 (Ckt #1 40-130 Ton units)</p> <p>Problem: The Compressor Contactor for Ckt. #1 has malfunctioned.</p>	<p>The ckt #1 compressor proving input is detected closed continuously for more than 3 seconds while neither compressor output on Ckt #1 is closed.</p>	<p>A "Lockout Ckt #1 request is issued to the Compressor Staging Control function.</p>	<p>(PMR) A manual reset is required after the diagnostic is set. It can be reset by the HI or Tracer, or by cycling power to the RTM.</p>
<p>Comp Contactor Fail - Ckt 2 (Ckt #2 40-130 Ton units)</p> <p>Problem: The Compressor Contactor for Ckt. #2 has malfunctioned.</p>	<p>The ckt #2 compressor proving input is detected closed continuously for more than 3 seconds while neither compressor output on Ckt #2 is closed.</p>	<p>A "Lockout Ckt #2 request is issued to the Compressor Staging Control function.</p>	<p>(PMR) A manual reset is required after the diagnostic is set. It can be reset by the HI or Tracer, or by cycling power to the RTM.</p>
<p>Unit HI Communications Failure</p> <p>Problem: The RTM has lost communications with the Unit mounted (local) Human Interface (HI).</p> <p>Check: Field/unit wiring between RTM and Local HI.</p>	<p>The RTM has lost communications with the unit-mounted Human Interface.</p>	<p>A failsafe function in the HI will;</p> <ol style="list-style-type: none"> a. disallow any interaction between the HI and the RTM (or any other modules), b. render all HI keystrokes ineffective, and 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. 	<p>(INFO) An automatic reset occurs after communication has been restored between the RTM and the HI. When the failure screen is cleared, the General display is restored and HI interaction with the interaction with the RTM is again permitted.</p>

DIAGNOSTIC DISPLAYED	REASON FOR DIAGNOSTIC	UCM'S REACTION	RESET REQUIRED
<p>Dirty Filter</p> <p>Problem: There is a Dirty Filter.</p>	<p>The filter switch input on the RTM is closed for more than 60 seconds continuously.</p>	<p>An Information Only Diagnostic is set.</p>	<p>(INFO) An automatic reset occurs after the Dirty Filter input reopens for 60 continuous seconds.</p>
<p>NSB Panel Comm Failure</p> <p>Problem: The RTM has lost communications with the Night SetBack Panel (programmable zone sensor).</p> <p>Check: Field/unit wiring between RTM and NSB Panel.</p>	<p>The RTM has lost communications with the NSB panel.</p>	<p>The unit reverts to the next lower priority mode switching source (typically the HI default mode). If the NSB Panel Zone Sensor is the designated sensor source for any functions, those functions are disabled.</p>	<p>(PAR) An automatic reset occurs after communication has been restored.</p>
<p>Space Static Press Setpt Failure</p> <p>Problem: The active Space Static pressure setpoint is out of range.</p> <p>Check: Check Setpoint value. Also, if Space Pressure Setpoint source is</p>	<p>The unit is reading a signal that is out of range for the Space Static Pressure Setpoint (Input < 0.03 IWC or Input > 0.20 IWC).</p>	<p>The default Space Pressure setpoint will become the active Space Pressure setpoint.</p>	<p>(PAR) An automatic reset occurs after the designated Space Pressure setpoint source sends a signal with range for 10 continuous seconds, or after a different Space Pressure setpoint source is user-defined.</p>
<p>Space Pressure Sensor Failure</p> <p>Problem: The Space Pressure input signal is out of range.</p> <p>Check: Check field/unit wiring between Sensor and ECEM.</p>	<p>The unit is reading a signal that is out of range for the Space Pressure transducer input (During calibration: $V < 40 \text{ mV}$ or $V > 420 \text{ mV}$, During operational times: $V < 40 \text{ mV}$ or $V > 0.75 \text{ V}$).</p>	<p>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.</p>	<p>(PAR) An automatic reset occurs after the designated Space Pressure transducer sends a signal within range for 10 continuous seconds.</p>
<p>Rooftop Module Data Storage Error</p> <p>Problem: There was a data transmission error.</p> <p>Check: This can 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.</p>	<p>An error occurred while the RTM was writing data to its internal non-volatile memory (EEPROM).</p>	<p>An information only diagnostic will be displayed at the Human Interface.</p>	<p>(INFO) A manual reset may be made at the Human Interface, at Tracer, or by cycling power to the RTM.</p>

DIAGNOSTIC DISPLAYED	REASON FOR DIAGNOSTIC	UCM'S REACTION	RESET REQUIRED
<p>Supply Air Temp Cool Setpt Fail</p> <p>Problem: The active Supply Air Temperature Cooling setpoint is out of range.</p>	<p>The input designated as the SA Temp Cooling Setpoint is out of range (Temp < 35 F or Temp > 95 F).</p>	<p>The default HI-set SA Temp Cooling Setpoint becomes the active SA Temp Cooling Setpoint.</p>	<p>(PAR) An automatic reset occurs after the SA Temp Cooling setpoint input returns to within range for 10 continuous seconds, or after a different SA temp cooling setpoint selection source is user-defined.</p>
<p>Supply Air Temp Heat Setpt Fail</p> <p>Problem: The active Supply Air Temperature Heating setpoint is out of range.</p>	<p>The input designated as the SA Temp Heating Setpoint is out of range (Temp < 35 F or Temp > 185 F).</p>	<p>The default HI-set SA Temp Heating Setpoint becomes the active SA Temp Heating Setpoint.</p>	<p>(PAR) An automatic reset occurs after the SA Temp Heating setpoint input returns to within range for 10 continuous seconds, or after a different SA temp heating setpoint selection source is user-defined.</p>
<p>Supply Air Press Sensor Failure</p> <p>Problem: The Supply Air Pressure sensor voltage input is out of range.</p> <p>Check: Check field/unit wiring between Sensor and RTM.</p>	<p>The unit is reading a signal that is out of range for the Supply Air Pressure sensor voltage input (Input < 40mV or Input > 4.75V)</p>	<p>The IGVs will drive closed, and the following functions are disabled;</p> <ul style="list-style-type: none"> a. SA Pressure Control b. SA Static Pressure Limit 	<p>(PAR) An automatic reset occurs after the SA Pressure input returns its allowable range for 10 seconds.</p>
<p>CO2 Sensor Failure</p> <p>Problem: The VCM CO2 sensor input signal is out of range.</p> <p>Check: Check field/unit wiring between Sensor and VCM.</p>	<p>The unit is reading a signal that is out of range for the CO2 Sensor transducer input.</p>	<p>The CO2 Reset Function is disabled.</p>	<p>(PAR) An automatic reset occurs after the CO2 Sensor transducer input receives a signal that is within range for 10 continuous seconds.</p>
<p>VCM Communications Failure</p> <p>Problem: The RTM has lost communications with the VCM.</p> <p>Verify: Check field/unit wiring between RTM and VCM.</p>	<p>The RTM has lost communications with the VCM.</p>	<p>All active commands and setpoints provided by the VCM will be canceled and/or ignored. A failsafe function in the VCM will cause all outputs to be deenergized and/or set to zero. The Outside Air Damper Minimum Position function will revert to using the OA Flow compensation function if OA Flow Compensation is ENABLED or to the default minimum position function if OA Flow Compensation is DISABLED or not available.</p>	<p>(PAR) An automatic reset occurs after communication has been restored.</p>

DIAGNOSTIC DISPLAYED	REASON FOR DIAGNOSTIC	UCM'S REACTION	RESET REQUIRED
<p>Velocity Pressure Sensor Failure</p> <p>Problem: The Velocity Pressure input signal is out of range.</p> <p>Check: Check field/unit wiring between Sensor and VCM.</p>	<p>The unit is reading a signal that is out of range for the Velocity Pressure transducer input (During calibration: $V < 40 \text{ mV}$ or $V > 420 \text{ mV}$, During operational times: $V < 40 \text{ mV}$ or $V > 0.75 \text{ V}$).</p>	<p>The Minimum Airflow Control Function is disabled. The Outside Air Damper Minimum Position function will revert to using the OA Flow compensation function if OA Flow Compensation is ENABLED or to the default minimum position function if OA Flow Compensation is DISABLED or not available.</p>	<p>(PAR) An automatic reset occurs after the designated Space Pressure transducer sends a signal within range for 10 continuous seconds.</p>
<p>Supply Air Press Setpt Failure</p> <p>Problem: The SA pressure input signal is out of range.</p>	<p>The SA Pressure Setpoint input is sending a signal that is out of range (Input $< 1.0 \text{ IWC}$ or Input $> 4.3 \text{ IWC}$)</p>	<p>The default SA Pressure setpoint will become the active SA Pressure setpoint.</p>	<p>(PAR) An automatic reset occurs after the designated SA Pressure setpoint source sends a signal within range for 10 continuous seconds, or after a different SA Pressure setpoint source is user-defined.</p>
<p>Auto Reset SA Static Pres Limit</p> <p>Problem: The Supply Air Static Pressure went too high.</p>	<p>The SA static pressure exceeded the SA static pressure limit setpoint for at least one second continuously.</p>	<p>A "Supply Air Pressure Shutdown" signal is sent to the following functions;</p> <ol style="list-style-type: none"> Compressor Staging Control, Economizer Actuator Control, Heat Operation, 	<p>(PAR) An automatic reset occurs after the Inlet Vanes have closed. The Supply Fan will not be allowed to restart for 15 seconds after the diagnostic has occurred. An auto reset will also occur if the unit is</p>
<p>Manual Reset SA Static Press Limit</p> <p>Problem: The Supply Air static pressure went too high for the third consecutive time.</p>	<p>The Auto Reset Supply Air Static Pressure Limit diagnostic has occurred for the 3rd time while the unit is operating in occupied mode.</p>	<p>A "Supply Air Pressure Shutdown" signal is sent to the following functions;</p> <ol style="list-style-type: none"> Compressor Staging Control, Economizer Actuator Control, Heat Operation, 	<p>(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.</p>

UNIT MODULE	ANALOG INPUTS	ANALOG OUTPUTS	BINARY INPUTS	BINARY OUTPUTS
Rooftop Module	<ul style="list-style-type: none"> • Zone Temperature Sensor • S/A Temperature Sensor • Zone Reset Temperature Sensor • O/A Temperature Sensor • Mode Input Channel (from the remote panel) • Cooling Setpoint (from the remote panel) • Heating Setpoint (from the remote panel) • Supply Air Pressure Transducer • Outdoor Air Humidity Sensor 	<ul style="list-style-type: none"> • Economizer • Inlet Vanes 	<ul style="list-style-type: none"> • Emergency Stop • Emergency Stop • External Auto/Stop • Occupied/Unoccupied • Supply Airflow Proof • Dirty Filter • VAV Changeover 	<ul style="list-style-type: none"> • Occupied/Unoccupied Relay • Alarm Relay • Supply Fan Relay • LED 1-4 Transistor • Exhaust Fan Relay
Single Circuit Compressor Module (SCM)	<ul style="list-style-type: none"> • Evaporator Temperature Sensor • Saturated Condensor Temperature Sensor 	<ul style="list-style-type: none"> • Condensor Fan Speed (Low Ambient) 	<ul style="list-style-type: none"> • Low Pressure Control • High Pressure Control 	<ul style="list-style-type: none"> • Compressor Relay (K1) • Compressor Relay (K1) • Condensor Fan A • Condensor Fan B
Multiple Circuit Compressor Module (MCM)	<ul style="list-style-type: none"> • Evap Temperature Sensor (Ckt #1) • Evap Temperature Sensor (Ckt #2) • Saturated Condensor Temperature Sensor (Ckt #1) • Saturated Condensor Temperature Sensor (Ckt #2) 	<ul style="list-style-type: none"> • Condensor Fan Speed (Low Ambient Ckt #1) • Condensor Fan Speed (Low Ambient Ckt #2) 	<ul style="list-style-type: none"> • Low Pressure Control (Ckt #1) • Low Pressure Control (Ckt #2) • High Pressure Control (Ckt #1) • High Pressure Control (Ckt #2) 	<ul style="list-style-type: none"> • Compressor Relay (K1) • Compressor Relay (K1) • Compressor Relay (K3) • Compressor Relay (K4) • Condensor Fan 1A • Condensor Fan 1B • Condensor Fan 2A • Condensor Fan 2B
Heat Module	<ul style="list-style-type: none"> • Morning Warmup Temperature Sensor 	<ul style="list-style-type: none"> • Modulating Heat Actuator (Hydronic) 	<ul style="list-style-type: none"> • Heat Fail Freezestat, Contacts or Relays 	<ul style="list-style-type: none"> • Heat 1 (K1) Relay • Heat 2 (K2) Relay • Heat 3 (K3) Relay
Exhaust/Comparative Enthalpy Module (ECEM)	<ul style="list-style-type: none"> • Return Air Temperature Sensor • Return Air Humidity Sensor • Return Air Space Pressure Transducer 	<ul style="list-style-type: none"> • Exhaust Damper Actuator 	<ul style="list-style-type: none"> • Exhaust Air Proving Switch 	<ul style="list-style-type: none"> • Space Pressure Calibration Solenoid
Ventilation Override Module	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • VOM Mode A Contacts • VOM Mode B Contacts • VOM Mode C Contacts • VOM Mode D Contacts • VOM Mode E Contacts 	<ul style="list-style-type: none"> • VOM Relay

UNIT MODULE	ANALOG INPUTS	ANALOG OUTPUTS	BINARY INPUTS	BINARY OUTPUTS
Generic BAS Module	There are 4 analog inputs. Each input can be configured as one of the following definitions: the inputs 1, 2, 3, & 4 may be assigned to Occ Zone Cooling setpoint, Occ Zone Heating setpoint, Unocc Zone Cooling setpoint, Unocc Zone Heating setpoint, Space Static Pressure setpoint, or Min OA Flow setpoint. No 2 inputs can be assigned to the same definition.	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Demand Limit Contacts 	<ul style="list-style-type: none"> • Dirty Filter (K1) Relay • Refrigeration Fail (K2) Relay • Heat Fail (K3) Relay • Fan Fail (K4) Relay • TBD (K5) Relay
Human Interface Module	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None
Trane Communication Interface (TCI) Module	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None
Interprocessor Communications Bridge (IPCB) Module	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None

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