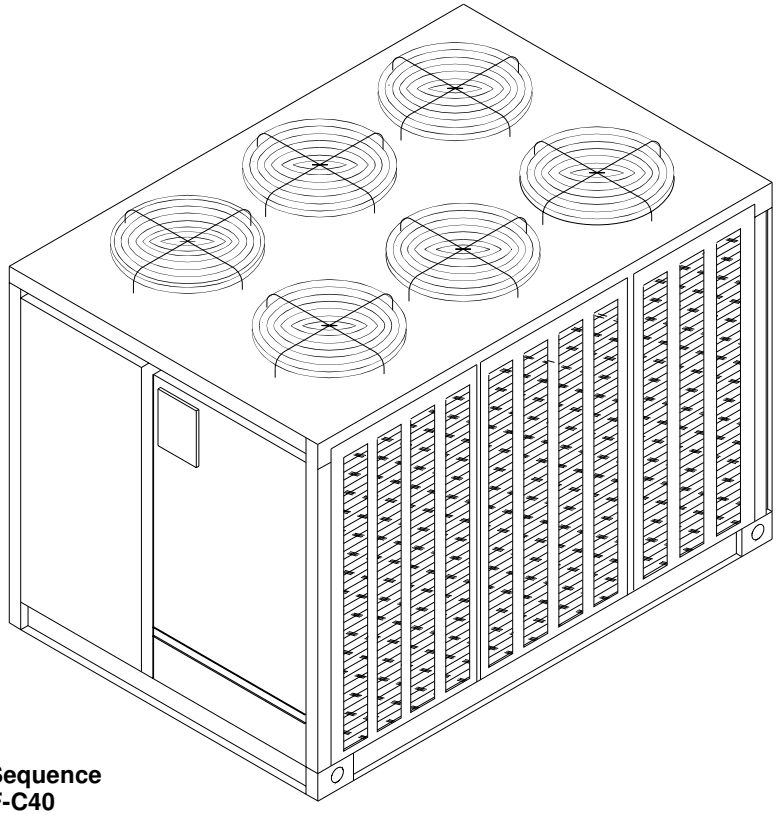
Programming Troubleshooting Guide

CGAF-PTG-1

Library	Service Literature
Product Section	Refrigeration
Product	Hermetic Scroll Liquid Chillers, Air Cooled
Model	CGAF
Literature Type	Programming, Trouble Shooting Guide
Sequence	1
Date	September 1997
File No.	SV-RF-CG-CGAF-PTG-1 9/97
Supersedes	New

IntelliPak®

Air-Cooled Cold Generator



Models

"A" and Later Design Sequence

CGAF-C20	**CGAF-C40**
CGAF-C25	**CGAF-C50**
CGAF-C30	**CGAF-C60**

With 3-D™ Scroll Compressors

http://www.trane.com

About The Manual

Literature Change History

CGAF-PTG-1 (September 1993)
Original issue of this manual; provides specific programming, diagnostic, and troubleshooting information CGAF units with “A” and later design sequence.

Overview of Manual

Note: One copy of this document ships inside the control panel of each unit and is customer property. It must be retained by the unit’s maintenance personnel.

These units are equipped with electronic control modules which provides operating functions that are significantly different than conventional units.

The manual is divided into 6 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, the operator can monitor operating status, set specific operating parameters, and diagnose system problems.

Before attempting to operate or service this equipment, refer to the “Start-Up” and “Test Mode” procedures in the applicable Installation, Operation and Maintenance manual, listed on the unit nameplate.

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

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

Table of Contents

Manual Used with:

CGAF-IOM-1 (9/97)

General Information

Model Number Description

All Trane products are identified by a multiple-character model number that precisely identifies a particular type of unit. An explanation of the alphanumeric identification code is provided below. Its use will enable the owner/operator, installing contractors, and service engineers to define the operation, specific components, and other options for any specific unit.

When ordering replacement parts or requesting service, be sure to refer to the specific model number, serial number, and DL number (if applicable) stamped on the unit nameplate.

Sample Model Number:	**CGAF - C30 4 A A B 0 D etc.**
Digit Number:	**1,2,3,4 5,6,7 8 9 10 11 12 13 +**

Digit 1,2 - Unit Function
CG = Cold Generator

Digit 3 - Unit Type
A = Air-Cooled Condenser

Digit 4 - Development Sequence
F = Sixth

Digit 5,6,7 - Nominal Capacity
C20 = 20 Tons
C25 = 25 Tons
C30 = 30 Tons
C40 = 40 Tons
C50 = 50 Tons
C60 = 60 Tons

Digit 8 - Power Supply
E = 200/60/3 P/S***
F = 230/60/3 P/S***
4 = 460/60/3 P/S***
5 = 575/50/3
9 = 380/50/3
D = 415/50/3
S = Special

Digit 9 - Heating Capacity
A = Standard

Digit 10 - Design Sequence
A = IntelliPak Controls

Digit 11 - Leaving Water Setpoint
A = 40 - 50 F w/o Ice Machine
B = 30 - 39 F w/o Ice Machine
D = 51 - 65 F w/o Ice Machine
E = 20 - 29 F w/o Ice Machine
1 = 40 - 50 F w Ice Machine
2 = 30 - 39 F w Ice Machine
3 = 51 - 65 F w Ice Machine
4 = 20 - 29 F w Ice Machine
S = Special

Digit 12 - Agency Approval
0 = None
1 = UL/CSA

Digit 13, etc. Miscellaneous
A = Communications Interface (TCI)
B = No Unit Heat Tape (50 Hz Units Only)
C = Compressor Current Sensing (CSM)
D = Non-Fused Unit-Mounted Disconnect
E = *Unit Isolators - Neoprene P/S
F = *Unit Isolators - Spring P/S
G = Superheat / Subcooling
H = Hot Gas Bypass
J = Generic BAS Module 0-5 VDC Input, Binary O.P
K = Stock Unit
M = *Remote Human Interface
N = Generic BAS Module 0-10 VDC Analog Output
P = Remote Setpoint Potentiometer P/S
Q = *Zone Sensor (Chilled Solution Reset) P/S
R = Phase / Voltage Monitoring
S = Special
T = *Flow Switch P/S
V = Copper Fin Condenser Coil
W = **Electronic Low Ambient Dampers P/S
Y = *Inter-Processor Comm Bridge (IPCB)
9 = Packed Stock Unit
* = Field Installed Options
** = Factory or Field Installed Option
*** Available on Pack Stock Units

Unit Nameplate
One Mylar unit nameplate is located on the outside upper left corner of the control panel door. It includes the unit model number, serial number, electrical characteristics, weight, refrigerant charge, as well as other pertinent unit data. A small metal nameplate with the Model Number, Serial Number, and Unit Weight is located just above the Mylar nameplate, and a third nameplate is located on the inside of the control panel door.

Hazard Identification

⚠ WARNING

Warnings are provided throughout this manual to indicate to installing contractors, operators, and service personnel of potentially hazardous situations which, if not avoided, COULD result in death or serious injury.

⚠ CAUTION

Cautions are provided throughout this manual to indicate to installing contractors, operators, and service personnel of potentially hazardous situations which, if not avoided, MAY result in minor or moderate injury.

Commonly Used Acronyms

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

A/D = Analog/Digital
BAS = Building Automation System
CAR = Circuit shuwdown - Auto Reset
Cf = Evaporator limit control integrator
CGA = Air cooled - Cold Generator
CGM = Cold generator module. Contains I/O for most chilled solution functions.
Comp(s) = compressor(s)
Cond = condenser
Ckt = circuit
CLE = Chilled solution flow integrator
CMR = Circuit shutdown - Manual Reset
CRS = Control response setpoint
CSA = Canadian Standards Association
CCW = counterclockwise
CW = clockwise
DBZ = Width of Dead Band Zone
DDT = Design Delta-T setpoint
Delta T = The temperature difference between EST & LST
Diag = diagnostics
EST = Entering solution temperature
Ent = Entering

Evap = Evaporator
Ext = External
GBAS = Generic Building Automation System Module
gfm = gallons per minute
HGBP = Hot gas bypass
HI = Human Interface
HO = History Only
HSLLS = Hot Start Load Limit setpoint
HVAC = Heating, Ventilation and Air Conditioning
I/O = Inputs/outputs
IAR = Information only Auto Reset
IBTS = Ice Build Terminate Setpoint
ICS = Integrated Comfort System
IFW = Informational Warning
IOM = installation/operation/maintenance manual
IPC = Interprocessor communications
IPCB Module = Interprocessor communicatons bridge module
IRDT = Ice Rebuild Delay Timer
LCD = Liquid Crystal Display
LED = Light Emitting Diode
LH = left-hand
LLSC = Low Leaving Solution Temperature Cutout Setpoint
LPC = Low Pressure Control Switch
LST = Leaving solution temperature
MAR = Machine shutdown - Auto Reset
Max = maximum
MCM = Multiple circuit compressor module
Min = minimum
Misc = miscellaneous
MMR = Machine shutdown - Manual Reset
Mod = module
Mon = monitor
NCS = Number of capacity steps
num = number
OA = Outdoor air
OAT = Outdoor air Temperature
PRT = Pump Run Timer
PSIG = pounds-per-square-inch gauge pressure
PWM = Pulse width modulated
RAM = Random Access Memory
RTM = rooftop module
ROM = Read Only Memory
S/W = Software
Sat - saturated
SCM = single circuit compressor module
SCT = Saturated Condensing Temperature
Soln = solution
STP = setpoint
TCI Module = Trane communications interface module
Temp = temperature
UCM = Unit Control Modules
UL = Underwriter's Laboratories
VFD = Variable Frequency Drive
w.c. = water column
XL = across-the-line start

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.

Chilled Solution Temperature Reset
A function that shifts the Leaving Solution Temp Setpoint an amount based on the value of another parameter—typically ZoneTemp, Entering Solution Temp or Outdoor Air Temp. The purpose of this function is to lower unit capacity to better meet load requirements.

Compressor Protection Switch
A pressure switch installed on the suction line that prevents compressor operation below the switch's setpoint.

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 LST control, this refers to a range of temperatures equally spaced above and below the CSS in which the control algorithm is satisfied. There is not adjustment of machine capacity within the deadband.

Emergency Stop
CGM binary input. Can be used for emergency shutdown of the unit by field-installed contacts. A diagnostic is produced when this input is open.

External Auto/Stop
A binary input on the CGM that allows the use of a field-supplied switch to perform normal unit on/off action.

Leaving Solution Setpoint
Active leaving solution setpoint. This setpoint is the control setpoint for process and comfort cooling.

Leaving Solution Temperature Control Point
The revised temperature setpoint after chilled solution temp reset has been applied.

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

Remote Human Interface
A human interface module designed to be mounted remotely from the unit. There will be 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.

Unit Control Module
This term is used to describe the set of electronic modules which make up the unit control system.

CGM Control System

Trane Large Commercial Cold Generator Units are controlled by a microelectronic control system that consists of a network of modules and are refered to as Cold Generator Modules (CGM).

The unit size, peripheral devices, options, etc... determine the number and type of modules that a particular unit may employ.

The CGM 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, and other electrical devices in the system to maintain set temperature levels.

The CGM provides some equipment protection functions both directly and indirectly, such as chilled water flow and compressor lockouts.

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

Cold Generator Module (CGM - Standard)
The Cold Generator Module (CGM) responds to cooling requests by energizing the proper unit components based on information received from other unit modules, sensors, remote panels, and customer supplied binary inputs. It initiates unit operation based on that information.

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.

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".

Generic Building Automation System Module (GBAS) (Optional - used with Non-Trane Building Control System)
The Generic Building Automation System (GBAS) module allows a non-Trane building control system to communicate with the unit and accepts external setpoints in form of analog inputs (0 - 5 DCV or 0 - 10 DCV depending on the module selected) and a binary Input for demand limit. Five (5) binary outputs are available on 0 - 5 DCV modules. One (1) binary output and four (4) analog outputs are available on the 0 - 10 DCV modules. Refer to the "Field Installed Control Wiring" section for the control wiring to the GBAS module and the various desired setpoints with the corresponding DC voltage inputs.

Current Sensing Module (CSM - Optional)
Current transformers located around two (2) of the main power leads for each compressor monitors the running current during compressor operation. The information is sent to the CGM and can be accessed through the "Compressor Status" submenu displayed at the Human Interface Module.

Superheat & Subcooling Module (SSM - Optional)
Monitors the system operating superheat and subcooling through the use of pressure transducers, liquid line, and suction line temperature sensors. The information is sent to the SSM and can be accessed through the "Compressor Status" submenu displayed at the Human Interface Module.

Power Disconnecting Switches

Manual Disconnect Switch
(Optional 1S14) Manual disconnect switch 1S14, located in the unit control panel, instead of the power terminal block 1TB1, allows the operator to disconnect power from the unit's "high" voltage (200V-575V) section, the 115V section, and the 24V section without having to open the control panel door. A description of its features and operation are given in the Installation, Operation, & Maintanence manual.

115V Control Circuit Switch (1S1)
Control circuit switch (1S1) is provided on all units and is located downstream of the 115V transformer 1T1. It allows the operator to disconnect power from the unit's 115V control components by placing the switch in the "Off" position.

24V Transformer Switch (1S70)
Transformer switch 1S70 is provided on all units and is located downstream of 24V transformers 1T2 and 1T3. It allows the operator to disconnect (24V) power from all of the unit's control modules by placing the switch in the "Off" position.

For a complete description of the 24V components and operation, refer to the latest edition of the applicable Installation, Operation and Maintenance manual listed on the unit nameplate.

General Information

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 unit the necessary parameters for unit operation.

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 unit status information unless the operator initiates other displays.

General Operation

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

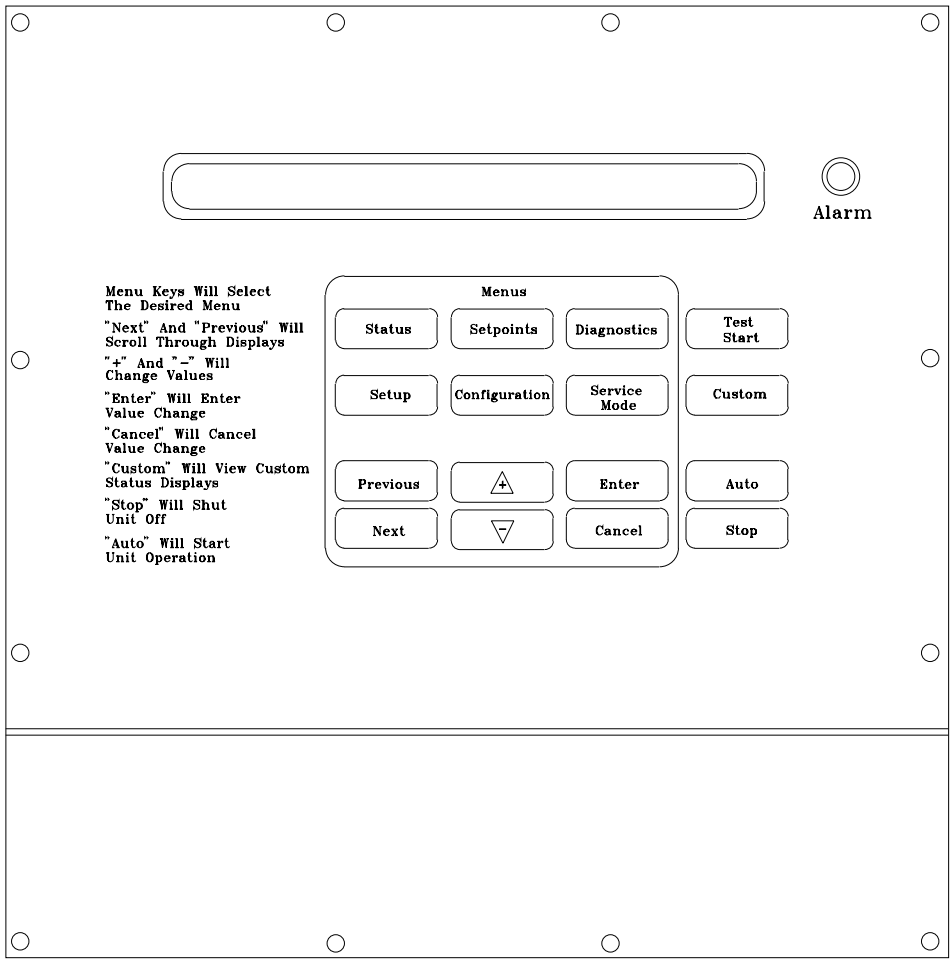
1. Unit Status (Unit Off or Stopped) (The unit is configured and operational, but is not running). This screen shows state, mode, and function information when the unit is off or stopped.

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. 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

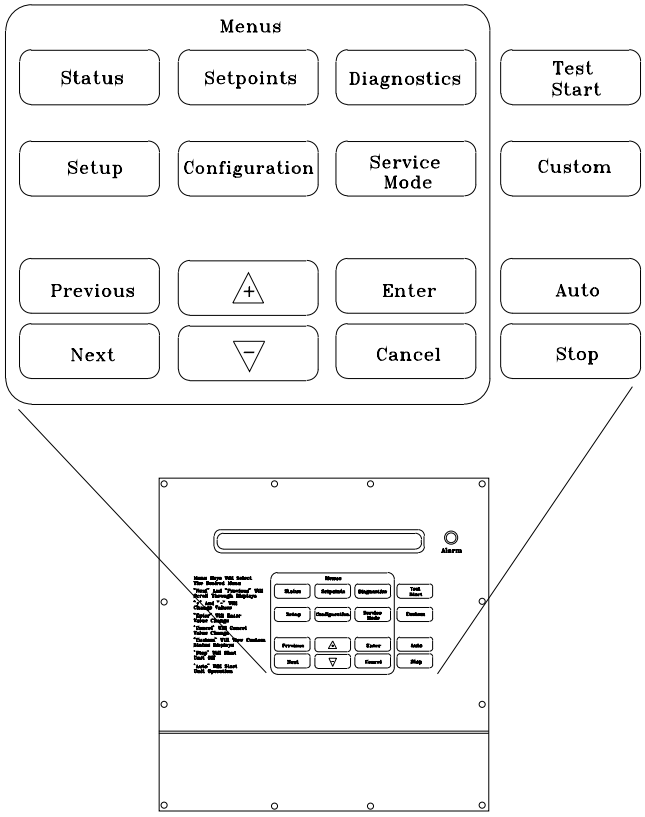


Menu Keys

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.

Figure 2-2
Human Interface Keypad



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, pump operation, compressor operation, as well as active cooling and compressor lockout setpoints. Pressing the STATUS key while viewing any of the data screens will cause the LCD to go back to the operating status screen.

SETPOINTS Key
Pressing the SETPOINTS key will cause the LCD screen to display the first of the setpoint screens where the operator will designate default temperature setpoints and setpoint source information. 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, installed options, 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 ranges, limits, percentages, etc. for the control of the 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 inFigure 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 shutdown, will cause the unit to begin operation in the appropriate mode no matter what level in the menu structure is currently being displayed. If the current display is an editable display, the AUTO key will confirm the desired edit.

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.

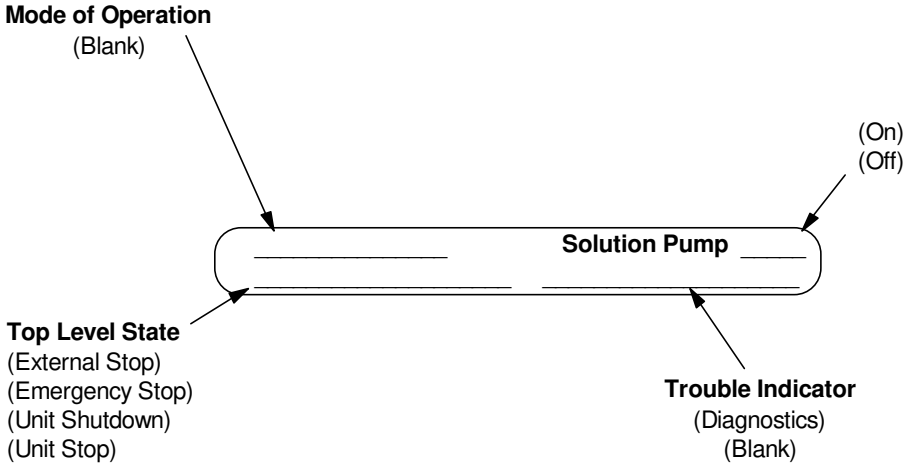
TEST START Key (SERVICE)
Pressing this key while viewing any screen in the SERVICE Mode menu will start the service test. When viewing status, setup, setpoint, and diagnostics screens, it has no function.

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 programed it can be accessed by pressing the CUSTOM key. To remove a status screen from the Custom menu, press the CUSTOM key, then press the NEXT key until the status screen that you want to remove appears, then press the - (Minus) key.

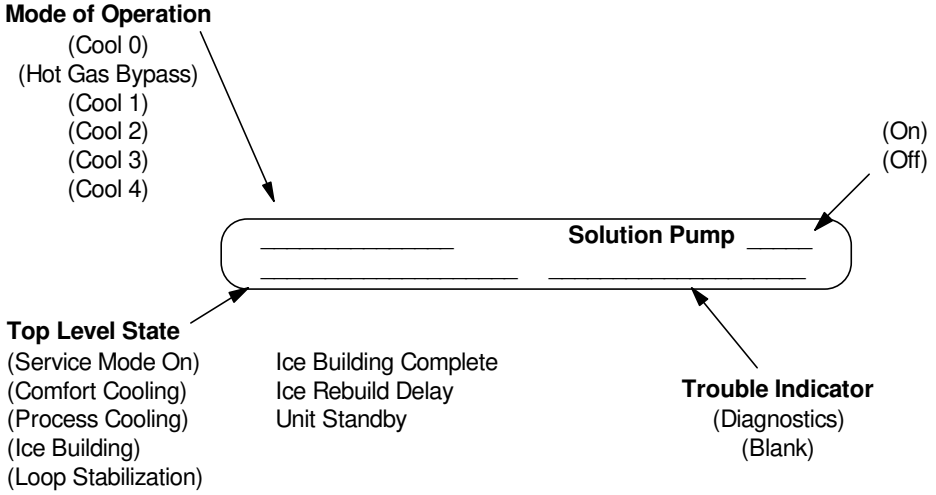
General Status Display

Anytime the unit is powered up, or the STATUS, AUTO, or STOP keys are pressed, the unit mounted Human Interface will display one of the following three general status display screens. The operator will then be able to enter keystrokes which will allow him to navigate through a set of menus and submenus in order to provide/access various monitoring, setup, and configuration infromation. The Human Interface will not display screens or parts of screens for which the unit is not configured.

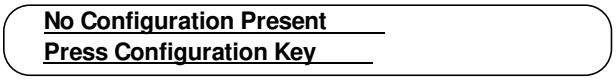
Unit "Off" or "Stopped"
If at power up the unit is not running, the following display will appear on the Human Interface LCD screen. When this screen is being displayed, the only functional keys are the six menu keys (STATUS, SETPOINTS, DIAGNOSTICS, SETUP, CONFIGURATION, AND SERVICE MODE), the AUTO key, 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.



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 CGM has been field replaced. Refer to the Configuration Menu.

General Information

Factory Presets

The CGM 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 and the"System Start-Up procedures in the Installation, Operation & Maintyenance manual has been completed, simply press the AUTO key at the Human Interface module to begin unit operation.

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.

	Factory Preset	Changed To	See page... to adjust	To adjust Press....
Setpoints				
Leaving Solution Setpoint	44 deg F	_____	34	SETPOINTS
Low Ambient Compressor Lockout Temperature Setpoint	40 deg F	_____	34	SETPOINTS
Hot Start Load Limit Setpoint	71 deg F	_____	34	SETPOINTS
Ice Building Terminate Temperature	27 deg F	_____	34	SETPOINTS
Low Leaving Solution Cutout Temperature	35 deg F	_____	34	SETPOINTS
Low Ambient Pump Override Temperature	35 deg F	_____	34	SETPOINTS
Use Leaving Solution Setpoint From:	HI STP Menu	_____	34	SETPOINTS
Use Ice Building Terminate Setpoint From:	HI STP Menu	_____	34	SETPOINTS
Use Hot Start Load Limit Setpoint From:	HI STP Menu	_____	35	SETPOINTS
Use Capacity Limit Setpoint From:	No Source Selected	_____	35	SETPOINTS
Information format				
Display Text in	English Language	_____	23	SETUP
Display Units in	English	_____	23	SETUP
Unit Control	Local	_____	23	SETUP
Unit Address	49	_____	23	SETUP
General Unit Functions Setup				
Delay unit Start	0 Seconds	_____	23	SETUP
Demand Limit Definition	None	_____	24	SETUP
Hot Gas Bypass Function	Disabled	_____	24	SETUP
Hot Gas Bypass Max Run Time	30 Minutes	_____	24	SETUP
Hot Start Time Interval	60 Minutes	_____	24	SETUP
Hot Operation Response Option	50% Capacity (Auto Reset Diag.)	_____	24	SETUP
Over/Under Voltage Response Option	Allow Normal Oper. (No Diag.)	_____	24	SETUP
Pumpdown Function	Disabled	_____	25	SETUP
Compressor Lead/Lag Function	Disabled	_____	25	SETUP
Default Chiller Solution Pump Mode	Auto	_____	25	SETUP
Evaporator Solution Pump Off Delay Time	30 Seconds	_____	25	SETUP
Loop Stabilization Time	120 Seconds	_____	25	SETUP
Low Ambient Compressor Lockout	Enabled	_____	25	SETUP
Leaving Solution Reset Type	None	_____	25	SETUP
Chiller Application	Comfort	_____	26	SETUP
Evaporator Solution Flow Switch Proving	Disabled	_____	25	SETUP
Phase Loss/Reversal Response Option	Allow Normal Oper. (Info Diag.)	_____	24	SETUP
OA Temp Reset Type: Start Temp	90 deg F	_____	26	SETUP
OA Temp Reset Type: End Temp	70 deg F	_____	26	SETUP
OA Temp Reset Type: Max Amount of Reset	5 deg F	_____	26	SETUP
Zone Temp Reset Type: Start Temp	78 deg F	_____	26	SETUP
Zone Temp Reset Type: End Temp	75 deg F	_____	26	SETUP
Zone Temp Reset Type: Max Amount of Reset	5 deg F	_____	26	SETUP
Entering Solution Temp Reset Type: Start Temp	45 deg F	_____	26	SETUP
Entering Solution Temp Reset Type: End Temp	40 deg F	_____	26	SETUP
Entering Solution Temp Reset Type: Max Amount	5 deg F	_____	26	SETUP

Factory Presets (Continued)

	Factory Preset	Changed To	See page... to adjust	To adjust Press....
Ice Building Control Fuctions				
Ice Building Function	Disabled	_____	26	SETUP
Ice Building Mode	One Time	_____	26	SETUP
Ice Rebuild Delay Time	360 Minutes	_____	26	SETUP
GBAS 0-5 VDC Module I/O Assignments				
GBAS (0-5 VDC) Analog Input 1 Assignment	Not Assigned	_____	27	SETUP
GBAS (0-5 VDC) Analog Input 2 Assignment	Not Assigned	_____	28	SETUP
GBAS (0-5 VDC) Analog Input 3 Assignment	Not Assigned	_____	28	SETUP
GBAS (0-5 VDC) Analog Input 4 Assignment	Not Assigned	_____	28	SETUP
GBAS (0-5 VDC) Binary Output 1 Definition	Indicate any comp is running	_____	28	SETUP
GBAS 0-5 V Output 1 Alarm Assignments	Any active diagnostic	_____	28	SETUP
GBAS (0-5 VDC) Binary Output 2 Definition	Indicate selected diagnostics	_____	29	SETUP
GBAS 0-5 V Output 2 Alarm Assignments	Comp protection LPC Open Ckt 1	_____	29	SETUP
	Comp protection LPC Open Ckt 2 (40-60 Ton)	_____	29	SETUP
	Compressor Trip Ckt 1	_____	29	SETUP
	Compressor Trip Ckt 2 (40 - 60 Ton)	_____	29	SETUP
	Comp Contactor Fail Ckt 1	_____	29	SETUP
	Comp Contactor Fail Ckt 2 (40 - 60 Ton)	_____	29	SETUP
	Low Press Control Open - Ckt 1	_____	29	SETUP
	Low Press Control Open - Ckt 2 (40-60 Ton)	_____	29	SETUP
GBAS (0-5 VDC) Binary Output 3 Definition	Indicate Unit at Max capacity	_____	29	SETUP
GBAS (0-5 VDC) Output 3 Alarm Assignments	Any active diagnostic	_____	29	SETUP
GBAS (0-5 VDC) Binary Output 4 Definition	Indicate selected diag alarms	_____	29	SETUP
GBAS (0-5 VDC) Output 4 Alarm Assignments	Any active diagnostic	_____	29	SETUP
GBAS (0-5 VDC) Binary Output 5 Definition	Indicate selected diag alarms	_____	29	SETUP
GBAS (0-5 VDC) Output 5 Alarm Assignments	Any active diagnostic	_____	29	SETUP
GBAS 0-10 VDC Module I/O Assignments				
GBAS (0-10 VDC) Analog Input 1 Assignment	Not Assigned	_____	29	SETUP
GBAS (0-10 VDC) Analog Input 2 Assignment	Not Assigned	_____	29	SETUP
GBAS (0-10 VDC) Analog Input 3 Assignment	Not Assigned	_____	29	SETUP
GBAS (0-10 VDC) Analog Input 4 Assignment	Not Assigned	_____	29	SETUP
GBAS (0-10 VDC) Binary Output Definition	Indicate selected diag alarms	_____	29	SETUP
GBAS (0-10 VDC) Output Alarm Assignments	Any active diagnostic	_____	30	SETUP
GBAS (0-10 VDC) Analog Output 1 Assignment	Leaving solution temp	_____	30	SETUP
GBAS (0-10 VDC) Analog Output 2 Assignment	Entering solution temp	_____	30	SETUP
GBAS (0-10 VDC) Analog Output 3 Assignment	Active cooling capacity	_____	30	SETUP
GBAS (0-10 VDC) Analog Output 4 Assignment	Outside air temperature	_____	30	SETUP
CGM alarm output definitions	Any Active Diagnostic	_____	30	SETUP

Factory Presets (Continued)

	Factory Preset	Changed To	See page... to adjust	To adjust Press....
Actuator Setup Definitions				
Number 1 Low Ambient Maximum Stroke	30 seconds	_____	31	SETUP
Number 1 Low Ambient Minimum Voltage	2.0v	_____	31	SETUP
Number 1 Low Ambient Maximum Voltage	10.0v	_____	31	SETUP
Number 1 Low Ambient Acting	Direct	_____	31	SETUP
Number 2 Low Ambient Maximum Stroke	30 seconds	_____	31	SETUP
Number 2 Low Ambient Minimum Voltage	2.0v	_____	31	SETUP
Number 2 Low Ambient Maximum Voltage	10.0v	_____	31	SETUP
Number 2 Low Ambient Acting	Direct	_____	31	SETUP
Ckt 1 Suction Line Pressure Transducer -- voltage at 0 PSIG	0.118 V	_____	32	SETUP
Ckt 1 Suction Line Pressure Transducer -- voltage at 100 PSIG	4.847 V	_____	32	SETUP
Ckt 2 Suction Line Pressure Transducer -- voltage at 0 PSIG	0.118 V	_____	32	SETUP
Ckt 2 Suction Line Pressure Transducer -- voltage at 100 PSIG	4.847 V	_____	32	SETUP
Ckt 1 Liquid Line Pressure Transducer -- voltage at 0 PSIG	0.118 V	_____	32	SETUP
Ckt 1 Liquid Line Pressure Transducer -- voltage at 400 PSIG	4.847 V	_____	32	SETUP
Ckt 2 Liquid Line Pressure Transducer -- voltage at 0 PSIG	0.118 V	_____	32	SETUP
Ckt 2 Liquid Line Pressure Transducer -- voltage at 400 PSIG	4.847 V	_____	32	SETUP
Head Pressure Control Setup				
Saturated condenser Temp Control Band (Lower Limit)	80 deg F	_____	27	SETUP
Saturated condenser Temp Control Band (Upper Limit)	120 deg F	_____	27	SETUP
Saturated condenser Temp Control Band (Temporary Low Limit Suppression)	10 deg F	_____	27	SETUP
Saturated condenser Temp (Efficiency Check Point)	105 deg F	_____	27	SETUP
Saturated condenser Temp (Low Ambient Control Point)	90 deg F	_____	27	SETUP

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

The following screens display the various programming sections that require a specific PASSWORD to be entered by a qualified operator in order to view or 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 Pasword: _____

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.

Diagnostic Reset is Password Protected
Please Enter Pasword: _____

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 Pasword: _____

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 ST ATUS 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.

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.

Cool 0	**Solution Pump Off**
Standby	**Diagnostics**

Used on Units: All Units
Possible Values: See "General Status" Display Description

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

Active Leaving Solution Setpoint	**55.0 F**
Temp: Entering 55.0 F	**Leaving 50.0 F**

Used on Units: All Units
Possible Values: Active Solution Setpoint = 0 - 99 F
Entering = 0 - 99.9 F
Leaving = 0 - 99.9 F

OR

This screen is displayed when the unit is in Ice Building.

Active Ice Build Terminate STP	**55.0 F**
Temp: Entering 55.0 F	**Leaving 50.0 F**

Used on Units: All Units
Possible Values: Active Ice Build Terminate STP = 0 - 99 F
Entering = 0 - 99.9 F
Leaving = 0 - 99.9 F

Note: The range for all temperature inputs are 0 to 99.9 F. "ERR" will appear if the temperature is out of range.

Compressor Status Submenu
Press ENTER to View Data in This Submenu

Used on Units: All Units

1. Press the ENTER key to advance to the following screen.
2. Press the NEXT key to bypass this menu and advance to "General Status Submenu"

The following screens are displayed for 20 through 30 Ton units.

Compressor Relay K10	**Off**
Enabled	

Used on Units: 20 thru 30 Ton Units
Possible Values: K10 - On, Off, Locked,
K11 - On, Off, Locked,

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

Compressor Relay K11	**Off**
Enabled	

Disabled By:

Compressor Protection	Tracer Lockout
Contactor Failure	Minimum Off Time
Low Pressure Cutout	Low Ambient Lockout
Bad Cond Temp Sensor	LPC Delay
Demand/Capacity Limit	Comprssor Protect LPC
Hot Start Operation	Evap Flow Protect
Phase Loss/Reversal	Over/Under Voltage
Evap Limit Control	Lo Leav Soln Cutout
Bad Leav Soln Sensor	Bad Ent Soln Sensor

OR

The following screens are displayed for 40 through 60 Ton units.

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

Used on Units: 40 thru 60 Ton Units
Possible Values: K3 - On, Off, Locked,
K4 - On, Off, Locked,
K11 - On, Off, Locked, or
K12 - On, Off, Locked

Disabled By:

Compressor Protection	Tracer Lockout
Contactor Failure	Minimum Off Time
Low Pressure Cutout	Low Ambient Lockout
Bad Cond Temp Sensor	LPC Delay
Demand/Capacity Limit	Comprssor Protect LPC
Hot Start Operation	Evap Flow Protection
Phase Loss/Reversal	Over/Under Voltage
Evap Limit Control	Lo Leav Soln Cutout
Bad Leav Soln Sensor	Bad Ent Soln Sensor

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

Compressor Module Ckt 1
Saturated Condensor Temperature 81.0 F

Used on Units: All Units
Possible Values: -40 to 200 F

1. Press the NEXT key until the following screen is displayed.
The following three screens are applicable when Superheat/ Subcool Module is installed.

Refrigerant Ckt 1 - Temperature Data
Suction 75.0 F Sat Liquid 81.0 F

Used on Units: With superheat/subcool module
Possible Values: -40 to 200 F

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

Refrigerant Ckt 1 - Pressure Data
Suction 72 PSIG Liquid 265 PSIG

Used on Units: With superheat/subcool module
Possible Values: Suction range 0 - 100 PSIG
Liquid range 0 - 400 PSIG
Comp Off

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

Refrigerant Circuit 1
Superheat 28.0 F Subcooling 18.0 F

Used on Units: With superheat/subcool module
Possible Values: 0 - 99.9 F
Comp Off

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

The following screens are displayed for 40 through 60 Ton units.

Compressor Module Ckt 2
Saturated Condenser Temperature 97.0 F

Used on Units: 40 Thru 60 Ton Units
Possible Values: -40 to 200 F

System Operating Status

1. Press the NEXT key until the following screen is displayed. The following three screens are applicable when Superheat/ Subcool Module is installed.

Refrigerant Ckt 2 - Temperature Data
Suction 72.0 F Sat Liquid 97.0 F

Used on Units: 40-60 Ton Units with superheat/subcool module
Possible Values: -40 to 200 F

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

Refrigerant Ckt 2 - Pressure Data
Suction 65 PSIG Liquid 251 PSIG

Used on Units: 40-60 Ton Units with superheat/subcool module
Possible Values: Suction range 0 - 100 PSIG
Liquid range 0 - 400 PSIG
Comp Off

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

Refrigerant Circuit 2
Superheat 28.0 F Subcooling 18.0 F

Used on Units: 40-60 Ton Units with superheat/subcool module
Possible Values: 0 - 99.9 F
Comp Off

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

Ckt 1 Liquid Line Solenoid Valve: OPEN

Used on Units: 20, 25 & 30 Ton Units
Possible Values: Open, Closed

OR

The following screen is displayed for 40 through 60 Ton units.

Ckt 1 Liquid Line Solenoid Valve: OPEN
Ckt 2 Liquid Line Solenoid Valve: CLOSED

Used on Units: 40 Thru 60 Ton Units
Possible Values: Open, Closed

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

Compressor 1A Phase Currents - Amps
Phase A 86 Phase B 84

Used on Units: All Units with Current Sensing Module
Possible Values: 0 - 255

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

Compressor 1B Phase Currents - Amps
Phase A 81 Phase C 78

Used on Units: All Units with Current Sensing Module
Possible Values: 0 - 255

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

The following screens are displayed for 40 through 60 Ton units.

Compressor 2A Phase Currents - Amps
Phase B 88 Phase C 90

Used on Units: 40-60 Ton Units with Current Sensing Module
Possible Values: 0 - 255

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

Compressor 2B Phase Currents - Amps
Phase A 93 Phase C 89

Used on Units: 40-60 Ton Units with Current Sensing Module
Possible Values: 0 - 255

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

End of Submenu (NEXT) to Re-enter STATUS

2. Pressing the NEXT key will display the beginning of the Submenu.
3. Press the NEXT key again to advance to the following screen.

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

1. Press the ENTER key until the following screen is displayed.
2. Press the NEXT key to bypass this menu and advance to "Controlling Setpoint Status Submenu"

CGM Evap Solution Pump Relay: OFF
Evap Soln Flow Switch Proving: FLOW

Used on Units: All Units
Possible Values: CGM Evap Solution Pump Relay = On, Off
Evap Soln Flow Switch Proving = Flow, No Flow

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

This screen is displayed when Voltage/Phase Monitor Option is installed.

Voltage/Phase Status: Normal
Line Voltage Is: 575

Used on Units: With Voltage/ Phase Monitor
Possible Values: Voltage/Phase Status = Normal, Low Voltage, High Voltage, Phase Loss, Phase Reversal
Voltage Range = 0.0 to 633.0

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

This screen is displayed when Hot Gas Bypass is installed.

CGM Hot Gas Bypass Control Relay: OFF

Used on Units: With Hot Gas Bypass option
Possible Values: On, Off

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

CGM Ice Building Control Relay: ON

Used on Units: With Ice Building Control
Possible Values: On, Off

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

This screen is displayed when Leaving Solution Setpoint Source is selected.

Setpoint Value Measured
CGM Ext Leaving Soln STP Input is 44.0 F

Used on Units: With CGM Ext Leaving Soln Setpoint Source selected
Possible Values: 0 - 99

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

End Of Sub-Menu (NEXT) To Re-enter STATUS

2. Pressing the NEXT key will display the beginning of the Submenu.
3. Press the NEXT key again to advance to the following screen.

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

Used on Units: All Units

1. Press the ENTER key until the following screen is displayed.
2. Press the NEXT key to bypass this menu and advance to "Temperature Input Status Submenu"

Active Leaving Solution Setpoint From
EXT LEAVING SOLN STP INPUT is 55.0 F

Used on Units: All Units
Possible Values: Human Interface STP Menu, Ext Leaving Soln STP Input, GBAS 0-10 VDC Module, GBAS 0-5 VDC Module, ICS (Tracer)
Setpoint Range = 0 - 99.9 F

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

This screen is displayed when Ice Building is enabled.

Active Ice Build Terminate Setpoint From
HUMAN INTERFACE STP MENU is 33.0 F

Used on Units: With Ice Building Option
Possible Values: Human Interface STP Menu, Ext Leaving Soln STP Input, GBAS 0-10 VDC Module, GBAS 0-5 VDC Module, ICS (Tracer)
Setpoint Range = 0 - 99.9 F

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

Active Hot Start Load Limit Setpt From
HUMAN INTERFACE STP MENU is 78.0 F

Used on Units: All Units
Possible Values: Human Interface STP Menu,
GBAS 0-10 VDC Module,
GBAS 0-5 VDC Module,
Setpoint Range = 0 - 99.9 F

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

Active Capacity Limit Setpoint From
HUMAN INTERFACE STP MENU is 63 %

Used on Units: With GBAS 5V or GBAS 10V or TCI
Possible Values: No Source Selected,
GBAS 0-10 VDC Module,
GBAS 0-5 VDC Module,
ICS (Tracer)
Setpoint Range = 0 - 99.9 F
Blank

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

End of Submenu (NEXT) to Re-enter STATUS

2. Pressing the NEXT key will display the beginning of the Submenu.
3. Press the NEXT key again to advance to the following screen.

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

1. Press the ENTER key until the following screen is displayed.
2. Press the NEXT key to bypass this menu and advance to "Misc Input Status Submenu"

Temp Measured By Sensor Connected To
CGM Entering Soln Temp Input 55 F

Used on Units: All Units
Possible Values: -40.0 to 200 F

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

Temp Measured By Sensor Connected To
CGM Leaving Soln Temp Input 50.0 F

Used on Units: All Units
Possible Values: -40.0 to 200 F

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

Temp Measured By Sensor Connected To
CGM Outside Air Temp Input 86.0 F

Used on Units: All Units
Possible Values: -40.0 to 200 F

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

Compressor Module Ckt 1
Saturated Condenser Temperature 81.0 F

Used on Units: All Units
Possible Values: -40.0 to 200 F

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

Refrigerant Ckt 1 - Temperature Data
Suction 75.0 F Liquid Line 81.0 F

Used on Units: With Superheat/Subcooling installed
Possible Values: -40.0 to 200 F

1. Press the NEXT key until the following screen is displayed.
The following screens are displayed for 40 through 60 Ton units.

Compressor Module Ckt 2
Saturated Condensor Temperature 97.0 F

Used on Units: 40 through 60 Ton
Possible Values: -40.0 to 200 F

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

Refrigerant Ckt 2 - Temperature Data
Suction 72.0 F Sat Liquid 97.0 F

Used on Units: 40-60 Ton with Superheat/Subcooling Module installed
Possible Values: -40.0 to 200 F

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

Temp Measured By Sensor Connected To
CGM Zone Temp Input 75.0 F

Used on Units: All Units
Possible Values: -40.0 to 200 F

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

Temp Measured By Sensor Connected To
CGM ICS Temp Input 62.0 F

Used on Units: With TCI Module Installed
Possible Values: -40.0 to 200 F

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

End of Submenu (NEXT) to Re-enter STATUS

2. Pressing the NEXT key will display the beginning of the Submenu.
3. Press the NEXT key again to advance to the following screen.

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

1. Press the ENTER key until the following screen is displayed.
2. Press the NEXT key to bypass this menu and advance to "GBAS 0-5VDC Module Status Submenu"

Volt/Phase Mon Analog Input: 5.00 VDC

Used on Units: With Voltage/Phase Monitor
Possible Values: 0.00 to 10.00 VDC

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

Volt/Phase Mon Binary Input: NORMAL

Used on Units: With Voltage/Phase Monitor
Possible Values: Normal, Phase Loss/Rev

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

CGM Ice Build Command Input: OFF

Used on Units: With Ice Building Control Option
Possible Values: Off, Build Ice

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

CGM Evap Soln Flow Switch Input: FLOW

Used on Units: All Units
Possible Values: Flow, No Flow

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

Refrigerant Ckt 1 - Pressure Data
Suction 72 PSIG Liquid 265 PSIG

Used on Units: All Units with Superheat/Subcooling
Possible Values: Suction = 0.0 to 100.0 PSIG
Liquid = 0.0 to 400.0 PSIG
Comp Off

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

Refrigerant Ckt 2 - Pressure Data
Suction 65 PSIG Liquid 251 PSIG

Used on Units: 40 - 60 Ton Units with Superheat/Cooling
Possible Values: Suction = 0.0 to 100.0 PSIG
Liquid = 0.0 to 400.0 PSIG
Comp Off

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

Compressor 1A Phase Currents - Amps
Phase A 86 Phase B 84

Used on Units: With Current Sensing Module
Possible Values: 0 to 255

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

Compressor 1B Phase Currents - Amps
Phase A 81 Phase C 78

Used on Units: With Current Sensing Module
Possible Values: 0 to 255

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

Compressor 2A Phase Currents - Amps
Phase B 88 Phase C 90

Used on Units: With Current Sensing Module on 40-60 Ton
Possible Values: 0 to 255

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

Compressor 2B Phase Currents - Amps
Phase A 93 Phase C 89

Used on Units: With Current Sensing Module on 40-60 Ton
Possible Values: 0 to 255

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

End of Submenu (NEXT) to Re-enter STATUS

2. Pressing the NEXT key will display the beginning of the Submenu.
3. Press the NEXT key again to advance to the following screen.

This screen is displayed when GBAS 0-5 VDC Module is installed

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

1. Press the ENTER key until the following screen is displayed.
2. Press the NEXT key to bypass this menu and advance to "GBAS 0-10VDC Module Status Submenu"

GBAS 0-5VDC Analog Input 1 0.00 VDC
Assigned: NOT ASSIGNED

Used on Units: With GBAS 0-5VDC Module
Possible Values: Input = 0.00 to 5.00 VDC
Assignment = Not Assigned
Leaving Solution Setpoint
Ice Build Terminate Setpoint
Hot Start Load Limit Setpoint
Capacity Limit Setpoint

3. Press the NEXT key to display Generic BAS Analog Input screens 2, 3, & 4.
4. Press the NEXT key to advance to the following screen.

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

Used on Units: With GBAS 0-5VDC Module
Possible Values: Open, Closed

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

GBAS (0-5VDC) Binary Output 1 OFF
Assigned: OUTPUT IS NOT ASSIGNED

Used on Units: With GBAS 0-5VDC Module
Possible Values: Output = On, Off
Assignment = Output Is Not Assigned
Indicate any comp is running
Indicate unit at max capacity
Indicate selected diag alarms

2. Press the NEXT key to display Generic BAS Binary Output screens 2, 3, 4 & 5.
3. Press the NEXT key to advance to the following screen.

End of Submenu (NEXT) to Re-enter STATUS

1. Pressing the NEXT key will display the beginning of the Submenu.
2. Press the NEXT key again to advance to the following screen.

This screen is displayed when GBAS 0-10 VDC Module is installed

GBAS 0-10VDC Module Status Submenu
Press ENTER to View Data in This Submenu

1. Press the ENTER key until the following screen is displayed.
2. Press the NEXT key to bypass this menu and advance to "General Status" Display Screen.

GBAS 0-10VDC Analog Input 1 0.00 VDC
Assigned: NOT ASSIGNED

Used on Units: With GBAS 0-10 VDC Module
Possible Values: Output = 0.00 - 10.00 VDC
Assignment = Output Is Not Assigned
Leaving Solution Setpoint
Ice Build Terminate Setpoint
Hot Start Load Limit Setpoint
Capacity Limit Setpoint

3. Press the NEXT key to display Generic BAS Analog Input screens 2, 3 & 4.
4. Press the NEXT key to advance to the following screen.

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

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

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

Used on Units: With GBAS 0-10 VDC Module
Possible Values: Open, Closed

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

GBAS 0-10VDC Analog Output 1 0.0 VDC
Assigned: NOT ASSIGNED

Used on Units: With GBAS 0-10 VDC Module
Possible Values: Output = On, Off
Assignment = Output Is Not Assigned
Indicate selected diag alarms
Indicate unit at max capacity
Indicate any comp is running

Used on Units: With GBAS 0-10 VDC Module
Possible Values: 0.0 to 10.0 VDC

Assignment = Leaving solution temperature
Entering solution temperature
Ckt1 saturated condenser temp
Ckt2 saturated condenser temp
Ckt1 suction temperature
Ckt2 suction temperature
Ckt1 suction pressure
Ckt2 suction pressure

Assignment = Ckt1 liquid line pressure
Ckt2 liquid line pressure
Ckt1 sat liquid temperature
Ckt2 sat liquid temperature
ICS Defined temperature
Outside air temperature
Capacity limit setpoint
Not Assigned
Active Cooling Capacity

2. Press the NEXT key to display Generic BAS Analog Output screens 2, 3 & 4.
3. Press the NEXT key to advance to the following screen.

End of Submenu (NEXT) to Re-enter STATUS

4. Pressing the NEXT key will display the beginning of the Submenu.
5. Press the AUTO or STOP key to return to the top level status information.

System Programming

After the unit is installed, the CGM must be programmed with certain setup information (chilled solution setpoints, ON and OFF times, system defaults, setpoint sources, etc...) 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 programing. 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.

SETUP Menu

The setup menu is used to input initial operating information such as control parameters, functions enable/disable, 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.

Information Format

1. Press the SETUP key to display the following screen.

Display Text in ENGLISH LANGUAGE
Display Units in ENGLISH

Used on Units: All
Factory Presets: English
Possible Values: Text = English, French, Spanish
Units = SI, English

2. Press the + or - key until the proper "language" is displayed.
3. Press the ENTER key to confirm this choice.
4. Press the NEXT key to advance the cursor to the "Units"
5. Press the + or - key until the proper "language" is displayed.
6. Press the ENTER key to confirm this choice.

Control Parameters

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

Unit control: LOCAL
Unit Address 49

Used on Units: All Units
Possible Values: Control = Local, ICS (Tracer)
Address: 49 to 54

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 to the "Address"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

General Unit Functions Setup Submenu
Press ENTER to Review or Adjust

1. To view the factory preset or to modified the factory presets to meet specific application requirements, press the ENTER key to advance to the following screens. If no adjustments are required, press the NEXT key to advance to the "Ice Building Control Functions Submenu".

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

Used on Units: All Units
Possible Values: 0 to 255 sec

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

Demand Limit Definition: NONE
Reduce cooling capacity by this amount

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 on Units: All Units
Possible Values: None - All Units
25% - 2 Ckt Only
50% - All Units
75% - 2 Ckt Only
100% - All Units

Compressor Lead/Lag Function: DISABLED
Stage Comp(s) Up/Down in Fixed Sequence

OR

Compressor Lead/Lag Function: ENABLED
1st On = Least Starts, 1st Off = Most 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.

Used on Units: All Units
Possible Values: Enabled, Disabled

Note: Lead\Lag can not be Enabled if Hot Gas Bypass is Enabled.

Hot Gas Bypass Function: DISABLED
Provides Cooling Level Less Than Cool 1

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 on Units: With Hot Gas Bypass Option installed
Possible Values: Enabled, Disabled
Note: Hot Gas Bypass can not be Enabled if Lead\Lag is Enabled.

Hot Gas Bypass Max Run Time 30 Min
Max HGBP Duration Until Shut Off Comp

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 on Units: With Hot Gas Bypass Option installed
Possible Values: 10 to 120 minutes

Capacity=50% if LST exceeds Hot Strt STP
during Hot Start Time Interval: 60 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.

Used on Units: All Units
Possible Values: 10 to 120 minutes

Hot Operation Response Option:
50% CAPACITY PER CKT, AUTO RESET DIAG

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 on Units: All Units
Possible Values: 50% Capacity per ckt (Auto Reset Diag)
Allow normal operation (Info Reset Diag)
Shut off compressors (Manual Reset Diag)

This screen displays when Voltage/Phase Monitor Option is installed

Over/Under Voltage Response Option:
SHUT OFF COMPRESSORS, AUTO RESET DIAG

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 on Units: With Voltage/Phase Monitor Option
Possible Values: Allow normal operation (Info Reset Diag)
Shut off compressors (Auto Reset Diag)
Allow normal operation (No Diag Issued)

This screen displays when Voltage/Phase Monitor Option is installed

Phase Loss/Reversal Response Option:
SHUT OFF COMPRESSORS, MANUAL RESET DIAG

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

Used on Units: All Units with voltage/phase monitor option
Possible Values: Allow normal operation (Info Reset Diag)
Shut off compressors (Manual Reset Diag)

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

Pumpdown Function: DISABLED

Used on Units: All Units
Possible Values: Enable, Disable

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 Chiller Solution Pump Mode: ON
Pump Always ON Except for Emergency STOP

OR

Default Chiller Solution Pump Mode: AUTO
Turn Pump ON As Requested By CGM Module

Used on Units: All Units
Possible Values: On, 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 until the following screen is displayed.

Evap Soln Pump Off Delay time 30 Sec
Delay Pump OFF Request By This Amount

Used on Units: All Units
Possible Values: 30 to 600 seconds

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.

Loop Stabilization Time: 120 Sec
Run Pump To Allow Soln Temp To Stabilize

Used on Units: All Units
Possible Values: 30 to 255 seconds

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 Compressor Lockout: ENABLED
Use Low Ambient Compressor Lockout STP

Used on Units: All Units
Possible Values: Enable, Disable

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.

Evap Soln Flow Switch Proving: DISABLED
Do Not Use Flow Switch Proving Input

OR

Evap Soln Flow Switch Proving: ENABLED
Lockout/Shut Off Comp(s) if No Flow

Used on Units: All Units
Possible Values: Enabled, Disabled

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.

Leaving Solution Reset Type:
NONE - NO RESET APPLIED

Used on Units: All Units
Possible Values: None - No Reset Applied
Outside Air Temp Reset
Zone Temp Reset
Entering Solution Temp Reset

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.

The following two screens will display when either OA, Zone, or ENT Soln Reset is selected.

Reset Type: Outside Air Temp Reset
Start Temp 70.0 F End Temp 50.0 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 to the "End Temp"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

Used on Units: All Units with Leaving Solution Reset
Possible Values:
Reset Type: Outside Air Temp Reset
Zone Temp Reset
Entering Soln Temp Reset
Start Temp OA: 66 - 125 F
Zone: 67 - 81 F
ENT Soln Temp Reset: 6 - 80 F
End Temp OA: 65 - 124 F
Zone: 66 - 80 F
ENT Soln Temp Reset: 5 - 79 F
Max Amount (Zone, OA, ENT Soln Temp Reset): 3 - 16 F

Reset Type: Outside Air Temp Reset
Maximum Amount of Reset Applied 5.0 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.

Select Type of Cooling Control Based On
Chiller Application: PROCESS COOLING

Used on Units: All Units
Possible Values: Comfort Cooling, Process 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.

End of Submenu (NEXT) to Re-enter SETUP

1. Pressing the NEXT key will display the beginning of the Submenu.
2. Press the NEXT key again to advance to the following screen.

The following screens are displayed with Ice Building Control Option.

Ice Building Control Functions Submenu
Press ENTER to Review or Adjust

1. To view the factory preset or to modify the factory presets to meet specific application requirements, press the ENTER key to advance to the following screens. If no adjustments are required, press the NEXT key to advance to the "Ice Building Control Functions Submenu".

Ice Building Function: DISABLED
Ice Building Mode: ONE TIME

Used on Units: Units with Ice Building Control Option
Possible Values: Function = Enabled, Disabled
Mode = One Time, Continuous

2. Press the + or - key until the proper "Function" is displayed.
3. Press the ENTER key to confirm this choice.
4. Press the NEXT key to advance the cursor to the "Mode"
5. Press the + or - key until the proper value is displayed.
6. Press the ENTER key to confirm this choice.
7. Press the NEXT key until the following screen is displayed.

Interval Between Ice Building Cycles.
Ice Rebuild Delay Time 360 Min

Used on Units: Units with Ice Building Control Option
Factory Preset: 360 Min
Possible Values: 30 to 1410 Minutes

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 Re-enter STATUS

1. Pressing the NEXT key will display the beginning of the Submenu.
2. Press the NEXT key again to advance to the following screen.

Head Pressure Ctrl Setup Submenu
Press ENTER to Review or Adjust

1.To view the factory preset or to modified the factory presets to meet specific application requirements, press the ENTER key to advance to the following screens. If no adjustments are required, press the NEXT key to advance to the "GBAS 0-5 VDC Module I/O Assignments"

Saturated Condenser Temp Control Band
Lower Limit 80 F Upper Limit 120 F

Used on Units: All Units
Possible Values: Lower Limit - 70 to 90 F
Upper Limit - 110 to 130 F

2. Press the + or - key until the proper "LowerLimit" is displayed.
3. Press the ENTER key to confirm this choice.
4. Press the NEXT key to advance the cursor to the "Upper Limit"
5. Press the + or - key until the proper value is displayed.
6. Press the ENTER key to confirm this choice.
7. Press the NEXT key until the following screen is displayed.

Saturated Condenser Temp Control Band
Temporary Low Limit Suppression 10 F

Used on Units: All Units
Possible Values: 0 to 20 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.

Saturated Condenser Temperature
Efficiency Check Point 105 F

Used on Units: All Units
Possible Values: 95 to 115 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.

Saturated Condenser Temperature
Low Ambient Control Point 90 F

Used on Units: All Units
Possible Values: 80 to 100 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 Re-enter STATUS

1. Pressing the NEXT key will display the beginning of the Submenu.
2. Press the NEXT key again to advance to the following screen.

This screen is displayed when GBAS 0-5 VDC Module is installed

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

1.To view the factory preset or to modified the factory presets to meet specific application requirements, press the ENTER key to advance to the following screens. If no adjustments are required, press the NEXT key to advance to "GBAS 0-10 VDC Module I/O Assignments"

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

Used on Units: With GBAS 0-5VDC Module
Factory Defaults: Not Assigned
Possible Values: Leaving Solution Setpoint
Ice Build Terminate Setpoint
Hot Start Load Limit Setpoint
Capacity Limit Setpoint

2. Press the + or - key until the proper value is displayed.
3. Press the ENTER key to confirm this choice.
4. Press the NEXT key to display Generic BAS Analog Input 2 screen.

3. Press the ENTER key to confirm this choice.
4. Press the NEXT key to display Generic BAS Analog Input 2 screen.
5. Press the + or - key until the proper value is displayed.
6. Press the ENTER key to confirm each choice.
7. Repeat steps 1 - 4 to display Generic BAS Analog Input screens 3 & 4.
8. Press the NEXT key to advance to the following screen.

Hot Start Load Limit Setpoint
Capacity Limit Setpoint

GBAS (0-5VDC) Binary Output 1 Definition
OUTPUT IS NOT ASSIGNED

Used on Units: With GBAS 0-5VDC Module
Factory Defaults: Indicate any comp is running
Possible Values: Not Assigned
Indicate Selected Diag Alarms
Indicate Unit at Max Capacity
Indicate any comp is running

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.

The following screens will display if "Indicate selected diagnostics alarms" is assigned to any of the 5 Binary Output Definitions.

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

1. To view the factory preset or to modified the factory presets to meet specific application requirements, press the ENTER key. If no adjustments are required, press the NEXT key to advance to the following screen.

Assign Diag To GBAS (0-5V) Output #1 ?
Any Active Diagnostic (No)

Used on Units: With GBAS 0-5VDC Module
Factory Defaults: Yes
Possible Values: Yes, No

2. Press the + or - key until the proper value is displayed. If "YES" is assigned to "Any Active Diagnostic", pressing the NEXT key will advance to the Binary Output 2 Definition screen. Assigning "NO" to the "Any Active Diagnostic" will advance to the selectable diagnostic screens.
3. Press the ENTER key to confirm each choice.
4. Press the NEXT key to scroll through each Active Diagnostic.

Active Diagnostics

CGM Zone Temp Sensor Failure
CGM OA Temp Sensor Failure
Extern Leaving Soln STP Input Fail
Emergency Stop
Low Leaving Soln Cutout Temp (Man)
Evap Solution Flow Loss
Comp Protection LPC Open - Ckt 1
Comp Protection LPC Open - Ckt 2
Cond Temp Sensor Failure - Ckt 1
Cond Temp Sensor Failure - Ckt 2
Compressor Trip - Ckt 1
Compressor Trip - Ckt 2
Hot Start Load Limit (Auto)
Hot Start Load Limit (Info)
Hot Start Load Limit STP Fail
SCM Communications Failure
MCM Communications Failure
Low Leaving Soln Cutout Temp (Auto)
Evap Solution Flow Proving Switch
GBAS 0-5VDC Module Comm Failure
TCI Module Comm Failure
TRACER Communications Failure
CGM Module Data Storage Error
Unit HI Communications Failure
Lo Ambient Evap Soln Pump Override
Comp Contactor Fail - Ckt 1
Comp Contactor Fail - Ckt 2
IBTS Adjusted To Maintain Min Diff
Hot Start Load Limit (Man)
LSS Adjusted To Maintain Min Diff
Ckt 1 Pumpdown Terminated by Time
Ckt 2 Pumpdown Terminated by Time
Phase Loss Indication (Man)
Phase Loss Indication (Info)
Phase Reversal Indication (Man)
Phase Reversal Indication (Info)
Overvoltage Indication (Auto)
Overvoltage Indication (Info)
Undervoltage Indication (Auto)
Undervoltage Indication (Info)
Volt/Phase Monitor Module Fail
Superheat/Subcool Module Comm Fail
Suction Pressure Sensor Fail Ckt 1
Suction Pressure Sensor Fail Ckt 2
Liquid Pressure Sensor Fail Ckt 1
Liquid Pressure Sensor Fail Ckt 2
Sat Liquid Temp Sensor Fail Ckt 1
Sat Liquid Temp Sensor Fail Ckt 2
Suction Temp Sensor Failure - Ckt 1
Suction Temp Sensor Failure - Ckt 2
GBAS 0-10VDC Module Comm Fail
Current Sensor Module Comm Fail
Low Press Control Open - Ckt 1
Low Press Control Open - Ckt 2

Ice Build Terminate Setpoint Fail
CGM ICS Temperature Sensor Fail

Evap Leaving Soln Temp Sensor Fail

1. Press the NEXT key to display Generic BAS Binary Output 2 Definition screen.

GBAS (0-5VDC) Binary Output 2 Definition
OUTPUT IS NOT ASSIGNED

Used on Units: With GBAS 0-5VDC Module
Factory Preset: Output Definitions
#2 = Indicate Selected Diag Alarms
#3 = Indicate Unit at Max Capacity
#4 = Indicate Selected Diag Alarms
#5 = Indicate Selected Diag Alarms
Possible Values: Output is Not Assigned
Indicate Selected Diag Alarms
Indicate Unit at Max Capacity
Indicate any comp is running

2. Press the + or - key until the proper value is displayed.
3. Press the ENTER key to confirm this choice.
4. Press the NEXT key to display Generic BAS Binary Output 3 screen.
5. Press the + or - key until the proper value is displayed.
6. Press the ENTER key to confirm each choice.
7. Repeat steps 1 - 4 to display Generic BAS Analog Input screens 3, 4 & 5.
8. Press the NEXT key to advance to the following screen.

End of Submenu (NEXT) to Re-enter STATUS

1. Pressing the NEXT key will display the beginning of the Submenu.
2. Press the NEXT key again to advance to the following screen.

This screen is displayed when GBAS 0-10 VDC Module is installed

GBAS 0-10VDC Module I/O Assignments
Press ENTER to Review or Adjust

1.To view the factory preset or to modified the factory presets to meet specific application requirements, press the ENTER key. If no adjustments are required, press the NEXT key to advance to the "CGM Alarm Output Diagnostic Assignments"

GBAS (0-10VDC) Analog Input 1 Assignment
NOT ASSIGNED

Used on Units: With GBAS 0-10VDC Module
Factory Defaults: Not Assigned
Possible Values: Not Assigned
Leaving Solution Setpoint
Ice Build Terminate Setpoint
Hot Start Load Limit Setpoint
Capacity Limit Setpoint

2. Press the + or - key until the proper value is displayed.
3. Press the ENTER key to confirm this choice.
4. Press the NEXT key to display Generic BAS Analog Input 2 screen.
5. Press the + or - key until the proper value is displayed.
6. Press the ENTER key to confirm each choice.
7. Repeat steps 1 - 4 to display Generic BAS Analog Input screens 2, 3 & 4.
8. Press the NEXT key to advance to the following screen.

GBAS (0-10VDC) Binary Output Definition
OUTPUT IS NOT ASSIGNED

Used on Units: With GBAS 0-10VDC Module
Factory Defaults: Indicate Selected Diag Alarms
Possible Values: Output is Not Assigned
Indicate Selected Diag Alarms
Indicate Unit at Max Capacity
Indicate any comp is running

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.

The following screen will display if "Indicate selected diag alarms" is assigned.

GBAS (0-10VDC) Output 1 Alarm Assignments
Press ENTER to Review or Adjust

1.To view the factory preset or to modified the factory presets to meet specific application requirements, press the

Assign Diag To GBAS (0-10V) Output ?
Any Active Diagnostic (No)

Used on Units: With GBAS 0-10VDC Module
Factory Defaults: Yes
Possible Values: Yes, No

2. Press the + or - key until the proper value is displayed. If "YES" is assigned to "Any Active Diagnostic", pressing the NEXT key will advance to the "End of Submenu" screen.
   Assigning "NO" to the "Any Active Diagnostic" will advance to the selectable diagnostic screens. See 0-5 active diagnostics list.
3. Press the ENTER key to confirm each choice.
4. Press the NEXT key to scroll through each Active Diagnostic.

GBAS (0-10VDC) Analog Output 1 Assignment
NOT ASSIGNED

Used on Units: With GBAS 0-10VDC Module
Factory Defaults: Leaving Solution Temperature
Possible Values: Not Assigned
Leaving Solution Temperature
Entering Solution Temperature
Ckt 1 Saturated
Ckt 2 Condenser Temp
Ckt 1 Suction Temperature
Ckt 2 Suction Temperature
Ckt 1 Liquid Line Pressure
Ckt 2 Liquid Line Pressure
Ckt 1 Sat Liquid Temp
Ckt 2 Sat Liquid Temp
ICS Defined Temperature
Outside Air Temperature
Ckt 1 Suction Pressure
Ckt 2 Suction Pressure
Active Cooling Capacity

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.

GBAS (0-10VDC) Analog Output 2 Assignment
NOT ASSIGNED

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.
4. Press the NEXT key to display Generic BAS Analog Output 3 screen.
5. Press the + or - key until the proper value is displayed.
6. Press the ENTER key to confirm each choice.
7. Repeat steps 1 - 4 to display Generic BAS Analog Input screens 3 & 4.
8. Press the NEXT key to advance to the following screen.

End of Submenu (NEXT) to Re-enter STATUS

1. Pressing the NEXT key will display the beginning of the Submenu.
2. Press the NEXT key again to advance to the following screen.

CGM Alarm Output Diagnostic Assignments
Press ENTER to Review or Adjust

1.To view the factory preset or to modified the factory presets to meet specific application requirements, press the ENTER key to advance to the following screens. If no adjustments are required, press the NEXT key to advance to the "Device Characteristic Setup Definitions" screen.

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

Used on Units: All Units
Possible Values: Yes, No

2. Press the + or - key until the proper value is displayed. If "YES" is assigned to "Any Active Diagnostic", pressing the NEXT key will advance to the "End of Submenu" screen.
   Assigning "NO" to the "Any Active Diagnostic" will advance to the selectable diagnostic screens. See 0-5 active diagnostics list.
3. Press the ENTER key to confirm this choice.
4. Press the NEXT key until the following screen is displayed.

End of Submenu (NEXT) to Re-enter STATUS

1. Pressing the NEXT key will display the beginning of the Submenu.
2. Press the NEXT key again to advance to the following screen.

Actuator Operating Parameters

Device Characteristic Setup Definitions
Press ENTER to Review or Adjust

1. To view the factory preset or to modified the factory presets to meet specific application requirements, press the ENTER key to advance to the following screens. If no adjustments are required, press the NEXT key to advance to the "Control Algorithm Tuning Parameters".

Actuator Setup	**Ckt1 Low Ambient Output**
Max Stroke Time	**60 Sec**

Used on Units: All Units
Possible Values: 1 to 255 Seconds

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

Actuator Setup	**Ckt1 Low Ambient Output**
Min Voltage	**0.2 VDC**

Used on Units: All Units
Possible Values: 0 - 10 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	**Ckt1 Low Ambient Output**
Max Voltage	**1.0 VDC**

Used on Units: All Units
Possible Values: 0 - 10 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	**Ckt 1 Low Ambient Output**
Direct/Reverse Act	**DIRECT ACTING**

Used on Units: All Units
Possible Values: Direct Acting/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.

Actuator Setup	**Ckt 2 Low Ambient Output**
Max Stroke Time	**60 Sec**

Used on Units: 40 - 60 Ton Units
Possible Values: 1 to 255 Seconds

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	**Ckt 2 Low Ambient Output**
Min Voltage	**0.2 VDC**

Used on Units: 40 - 60 Ton Units
Possible Values: 0 - 10 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	**Ckt 2 Low Ambient Output**
Max Voltage	**1.0 VDC**

Used on Units: 40 - 60 Ton Units
Possible Values: 0 - 10 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	**Ckt 2 Low Ambient Output**
Direct/Reverse Act	**DIRECT ACTING**

Used on Units: 40 - 60 Ton Units
Possible Values: Direct Acting/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.

Ckt 1 Suction Line Pressure Transducer
0 PSIG= 0.118 VDC 100 PSIG= 4.847 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 to advance the cursor to the "100 PSIG"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

Used on Units: With Superheat/Subcooling Option
Possible Values: 0 PSIG - 0.000 to 4.000 VDC
100 PSIG - 1.000 to 5.000 VDC

Ckt 1 Liquid Line Pressure Transducer
0 PSIG= 0.118 VDC 400 PSIG= 4.847 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 to advance the cursor to the "400 PSIG"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

Used on Units: With Superheat/Subcooling Option
Possible Values: 0 PSIG - 0.000 to 4.000 VDC
400 PSIG - 1.000 to 5.000 VDC

Ckt 2 Suction Line Pressure Transducer
0 PSIG= 0.118 VDC 100 PSIG= 4.847 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 to advance the cursor to the "100 PSIG"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

Used on Units: 40-60 Ton With Superheat/Subcooling
Possible Values: 0 PSIG - 0.000 to 4.000 VDC
100 PSIG - 1.000 to 5.000 VDC

Ckt 2 Liquid Line Pressure Transducer
0 PSIG= 0.118 VDC 400 PSIG= 4.847 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 to advance the cursor to the "400 PSIG"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

Used on Units: 40-60 Ton With Superheat/Subcooling
Possible Values: 0 PSIG - 0.000 to 4.000 VDC
400 PSIG - 1.000 to 5.000 VDC

End of Submenu (NEXT) to Re-enter STATUS

1. Pressing the NEXT key will display the beginning of the Submenu.
2. Press the NEXT key again to advance to the following screen.

Control Algorithm Tuning Parameters
Press ENTER to Review or Adjust

1. To view the factory preset or to modified the factory presets to meet specific application requirements, press the ENTER key to advance to the following screens. If no adjustments are required, press the NEXT key to advance to the beginning of the "Setup" menu.

Comfort Cooling
Design Delta Temperature Setpoint 10.0 F

Used on Units: All Units
Possible Values: 4.0 to 20.0 F

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

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

Comfort Cooling
Control Response Setpoint 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.

Used on Units: All Units
Possible Values: 1 to 128

Process Cooling Control Gains
Proportional 25 %/F Reset Time 90s

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 to the "Reset Time"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

Used on Units: All Units
Possible Values: Proportional 2.0 to 200.0
Reset Time 30 to 3600 Sec

Process Cooling Control Gains
Proport Bias 0% Max Cy Rate 15.0 cph

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 to the "Max Cy Rate".
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

Used on Units: All Units
Possible Values: Proport Bias 0 to 400%
Max Cy Rate - 1.5 to 20.0 cph

Low Ambient Fan Control Gain
Proportional 2.0 %/F Reset Time 90 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 to advance the cursor to the "Reset Time"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

Used on Units: All Units
Possible Values: Proportional 0.2 to 20.0
Reset Time 5 to 600 Sec

Low Ambient Fan Control Gain
Rate Time 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.

Used on Units: All Units
Possible Values: 0 to 50

End of Submenu (NEXT) to Re-enter STATUS

1. Pressing the NEXT key will display the beginning of the Submenu.
2. Press the AUTO or STOP key to return to the top level status information screen.

SETPOINT Menu

The SETPOINT menu is used to designate default 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.

Press the SETPOINT key to enter into the setpoint menu.

HI Leaving Solution Setpoint 44.0 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.

Used on Units: All Units
Possible Values: 51.0 F - 65.0 F Range
40.0 F - 50.0 F Range
30.0 F - 39.0 F Range
20.0 F - 29.0 F Range
Special Range

Stop Ice Making When Ent Soln Temp Below
Hi Ice Build Terminate Setpoint: 27.0 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.

Used on Units: Units with Ice Building Control Option
Possible Values: 20.0 to 31.0 F

Comp(s) OFF if Leaving Soln Temp Below
Low Leaving Solution Cutout Temp: 35.0 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.

Used on Units: All Units
Possible Values: -10.0 to 60.0 F

HI Hot Start Load Limit Setpoint 71.0 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.

Used on Units: All Units
Possible Values: 60.0 to 80.0 F

Request Pump ON When OA Temp Less Than
Low Ambient Pump Override Temp: 35 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 on Units: All Units
Possible Values: -20.0 to 50.0 F

Low Ambient Comp Lockout Temp: 40 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.

Used on Units: All Units
Possible Values: -20.0 to 60.0 F

Use Leaving Solution Setpoint
From: HUMAN INTERFACE STP MENU

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

Used on Units: All Units
Possible Values: Human Interface STP Menu
GBAS 0-5VDC Module
GBAS 0-10VDC Module
Ext Leaving Soln STP Input

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

Use Ice Building Terminate Setpoint
From: HUMAN INTERFACE STP 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.

Use Hot Start Load Limit Setpoint
From: HUMAN INTERFACE STP 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.

Use Capacity Limit Setpoint
From: NO SOURCE SELECTED

1. Press the + or - key until the proper value is displayed.
2. Press the ENTER key to confirm this choice.
3. Pressing the NEXT key will return to the 1st SETPOINT screen.
4. Press the AUTO or STOP key to return to the top level status information screen.

Used on Units: With Ice Building Control Option
Possible Values: Human Interface STP Menu
GBAS 0-5VDC Module
GBAS 0-10VDC Module

Used on Units: All Units
Possible Values: Human Interface STP Menu
GBAS 0-5VDC Module
GBAS 0-10VDC Module

Used on Units: With GBAS5V, GBAS10V or TCI
Possible Values: No Source Selected
GBAS 0-5VDC Module
GBAS 0-10VDC Module

CONFIGURATION Menu

The CGM 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 configuraton screes. Certain digits of this alpha/numeric model number provide information that must be entered at the Human Interface (HI) in order for the CGM network to operate properly.

Press the CONFIGURATION key to display the following screens. Check the unit model number and compare it to the data that is displayed in the following screens

Configuration - Model Num Digit 5,6,7
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.

Used on Units: All Units
Possible Values: 20, 25, 30, 40, 50, 60

Configuration - Model Num Digit 8
Line Voltage 460 VAC

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 on Units: All Units
Possible Values: 200 VAC, 230 VAC, 380 VAC, 415 VAC, 460 VAC, 575 VAC, Special Voltage

Configuration - Model Num Digit 11
Ice Building Control 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 on Units: All Units
Possible Values: Installed, Not Installed

Configuration - Model Num Digit 11
Leaving Solution STP Range 40 - 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 on Units: All Units
Possible Values: 51-65 F, 40-50 F, 30-39 F, 20-29 F, Special

Configuration - Model Num Digit 13+
Hot Gas Bypass Option 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 on Units: All Units
Possible Values: Installed, Not Installed

Configuration - Model Num Digit 13+
Voltage/Phase Monitor 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 on Units: All Units
Possible Values: Installed, Not Installed

Configuration - Model Num Digit 13+
GBAS 0-5VDC 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 on Units: All Units
Possible Values: Installed, Not Installed

Configuration - Model Num Digit 13+
GBAS 0-10VDC Module INSTALLED

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

Used on Units: All Units
Possible Values: Installed, Not Installed

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

Configuration - Model Num Digit	**13+**
Superheat/Subcool Module	**INSTALLED**

Used on Units: All Units
Possible Values: Installed, Not 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.

Configuration - Model Num Digit	**13+**
Current Sensing Module	**INSTALLED**

Used on Units: All Units
Possible Values: Installed, Not 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.

Configuration - Model Num Digit	**13+**
TCI4 Communications Module	**INSTALLED**

Used on Units: All Units
Possible Values: Installed, Not 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.

Configuration - Model Num Digit	**13+**
Remote Human Interface	**INSTALLED**

Used on Units: All Units
Possible Values: Installed, Not 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.

The following displays are not editable.

Software Revision Number Report:	
Cold Generator Module (CGM)	**1.00**

Used on Units: All Units
Possible Values: 1.0 or Greater

1. Press the NEXT key until one of the following screens is displayed.

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

Used on Units: 20 to 30 Ton Units
Possible Values: 1.0 or Greater

OR

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

Used on Units: 40 to 60 Ton Units
Possible Values: 1.0 or Greater

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

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

Used on Units: With GBAS 5VDC Module
Possible Values: 1.0 or Greater

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

Software Revision Number Report:	
GBAS 0-10VDC Module	**1.00**

Used on Units: With GBAS 10VDC Module
Possible Values: 1.0 or Greater

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

Software Revision Number Report:	
Superheat/Subcool Module (SSM)	**1.00**

Used on Units: With SSM Module
Possible Values: 1.0 or Greater

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

Software Revision Number Report:
Current Sensing Module (CSM) 1.00

Used on Units: With CSM Module
Possible Values: 1.0 or Greater

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

Software Revision Number Report:
Unit Human Interface (HI) 1.00

Used on Units: All Units
Possible Values: 1.0 or Greater

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

Software Revision Number Report:
Remote Human Interface (RHI) 1.00

Used on Units: With Remote Human Interface Module
Possible Values: 1.0 or Greater

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

Software Revision Number Report:
TCI4 Communications Module (TCI) 1.00

Used on Units: With TCI Module
Possible Values: 1.0 or Greater

1. Pressing the NEXT key will return to the 1st CONFIGURATION screen.
2. Press the AUTO or STOP key to return to the top level status information screen.

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, pump, 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.

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".

CGM Evap Solution Pump Relay: OFF

Used on Units: All Units
Possible Values: On, 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.

Liquid Line Solenoid Valve Ctrl Relays:
Ckt 1 ON Ckt 2 OFF

Used on Units: All Units
Possible Values: On, 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 to the "Ckt 2"

Circuit 2 is used for 40 through 60 Ton units only.

4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

Low Ambient LPC Bypass Relay(s)
Ckt 1 ON Ckt 2 OFF

Used on Units: All Units
Possible Values: On, 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 to the "Ckt 2"

Circuit 2 is used for 40 through 60 Ton units only.

4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

CGM Hot Gas Bypass Control Relay: OFF

Used on Units: With Hot Gas Bypass Option
Possible Values: On, 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.

Compressor Relays
K10 OFF K11 OFF

Used on Units: 20 to 30 Ton
Possible Values: On, 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 to the "K11"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

OR

The following screen will display on 40 to 60 Ton units.

Compressor Relays			
K11 OFF	**K12 OFF**	**K3 OFF**	**K4 OFF**

Used on Units: 40 to 60 Ton
Possible Values: On, 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 to the "K12"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key to advance the cursor to the "K3"
7. Press the + or - key until the proper value is displayed.
8. Press the ENTER key to confirm this choice.
9. Press the NEXT key to advance the cursor to the "K4"
10. Press the + or - key until the proper value is displayed.
11. Press the ENTER key to confirm this choice.
12. Press the NEXT key until the following screen is displayed.

Condenser Fan Outputs			
1A OFF	**1B OFF**		

Used on Units: 20 to 30 Ton
Possible Values: On, 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 to the "1B"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

OR

The following screen will display on 40 to 60 Ton units.

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

Used on Units: 40 to 60 Ton
Possible Values: On, 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 to the "1B"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key to advance the cursor to the "2A"
7. Press the + or - key until the proper value is displayed.
8. Press the ENTER key to confirm this choice.
9. Press the NEXT key to advance the cursor to the "2B"
10. Press the + or - key until the proper value is displayed.
11. Press the ENTER key to confirm this choice.
12. Press the NEXT key until the following screen is displayed.

Condenser Fan Speed			
Ckt 1	**0 %**	**Ckt 2**	**0%**

Used on Units: All Units
Possible Values: Auto, 0 to 100%

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

Circuit 2 is used for 40 through 60 Ton units only.

3. Press the NEXT key to advance the cursor to the "Ckt 2"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

CGM Alarm Output:	**OFF**

Used on Units: All Units
Possible Values: On, 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.

CGM Ice Build Relay Output OFF

Used on Units: With Ice Building Control Option
Possible Values: On, 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.

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

Used on Units: With GBAS 5VDC Module Option
Possible Values: On, 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 to the "#2 Output"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Repeat steps 1 - 4 for Outputs 3, 4 & 5.
7. Press the NEXT key until the following screen is displayed.

GBAS 0-10VDC Module Relay Output: OFF

Used on Units: With GBAS 10VDC Module Option
Possible Values: On, 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.

GBAS 0-10VDC Module Analog Outputs
Out #1 0.2 VDC Out #2 0.4 VDC

Used on Units: With GBAS 10VDC Module Option
Possible Values: 0.0 to 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 to advance the cursor to the "#2 Output"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

GBAS 0-10VDC Module Analog Outputs
Out #3 0.6 VDC Out #4 0.8 VDC

Used on Units: With GBAS 10VDC Module Option
Possible Values: 0.0 to 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 to advance the cursor to the "#4 Output"
4. Press the + or - key until the proper value is displayed.
5. Press the ENTER key to confirm this choice.
6. Press the NEXT key until the following screen is displayed.

CGM ICS Controlled Relay: OFF

Used on Units: With TCI Module Option
Possible Values: On, 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.

Start Test in 5 Sec
Press TEST START To Begin, STOP To Halt

Used on Units: All Units
Possible Values: 5 to 255 seconds

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

The following screen will be displayed after pressing the "TEST START" key if a SERVICE MODE screen has been displayed during the previous 60 minutes.

Test Start In 5 Sec
Press STOP To Halt

Used on Units: All Units
Factory Presets: Count down to 0
Possible Values: 120 to 0 Seconds

If a screen has not been displayed during the SERVICE MODE procedure for 60 minutes and the TEST START key is pressed, the following screen will be displayed.

Press SERVICE MODE
To View Selections

Used on Units: All Units

When the START TEST timer expires, this screen will be displayed at the unit mounted Human Interface and at the remote mounted Human Interface, if installed.

Service Test Is Active
Press STOP To Halt

Used on Units: All Units

Note: There is no time-out period when the unit is operating in the SERVICE TEST mode. Press the "STOP" or "AUTO" key to discontinue the Service Test. Only the STATUS, CUSTOM, SERVICE MODE, DIAGNOSTICS, and STOP keys are functional once the TEST START key has been pressed.

Press the STOP key to return to the top level status information.

DIAGNOSTICS Menu

The DIAGNOSTICS menu is used to view diagnostics that have resulted from system failures within the unit. There are two list 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 resetable diagnostics. This list 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 which 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 exists, except for the last diagnostic. Upon reaching the last diagnostic, the word “MORE” disappears. Pressing the NEXT key at this point causes the display to advance to the first diagnostic in the Diagnostic Event Log.

The Diagnostic Event Log screens are displayed after scrolling through the Active list or after pressing the DIAGNOSTICS key when no active diagnostics are present. It’s used to view the past 20 diagnostics. Diagnostics in this log are stacked in inverse chronological order, with the first diagnostic screen being the most recently reported diagnostic.

When a new diagnostic is displayed, the words “NOT VIEWED” are displayed with it. After viewing the last 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 distinquish 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.

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.

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

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 on Units: All Units
Factory Presets: N/A

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

Possible Values:

Emergency Stop
Low Pressure Control Open - Ckt 1
Low Pressure Control Open - Ckt 2
Compressor Trip - Ckt 1
Compressor Trip - Ckt 2
Comp Contactor Fail - Ckt 1
Comp Contactor Fail - Ckt 2
Evap Leaving Soln Temp Sensor Fail
Evap Entering Soln Temp Sensor Fail
Phase Loss Indication (Man)
Phase Reversal Indication (Man)
Low Leav Soln Cutout Temp (Man)
Evap Soln Flow Loss
Comp Prot - LPC Open (Ckt 1)
Comp Prot - LPC Open (Ckt 2)
Hot Start Load Lim (Man)

OR

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

Used on Units: 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:

CGM Zone Temp Sensor Failure,
CGM OA Temp Sensor Failure,
Cond Temp Sensor Failure - Ckt 1,
Cond Temp Sensor Failure - Ckt 2,
SCM Communications Failure,
MCM Communications Failure,
GBAS 0-5V Module Comm Failure,
TCI Module Comm Failure,
Tracer Communications Failure,
Unit HI Communications Failure,
Ext. Leav Soln STP Input Fail
Lo Ambient Evap Soln Pump Override
Overvoltage Indication (Auto)
Undervoltage Indication (Auto)
Evap Soln Flow Proving Fail
Evap Soln Cutout Temp (Auto)
Low Leaving Soln Cutout Temp (Auto)
Hot Start Load Limit STP Fail
Hot Start Load Limit (Auto)
GBAS 0-10V Module Comm Fail
LSS Adjusted to Maintain Min Diff
Leaving Soln Setpoint Fail
Ice Build Terminate Setpoint Fail
Current Sensing Module Comm Fail
IBTS Adjusted to Maintain Min Diff

OR

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

Active Diagnostic ---- Info
More

Used on Units: All Units
Factory Presets: N/A

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

Possible Values:

Hot Start Load Limit (Info)
CGM Module Data Storage Error
CGM ICS Temperature Sensor Fail
Pumpdown Terminated By Time Ckt 1
Pumpdown Terminated By Time Ckt 2
Phase Loss Indication (Info)
Phase Reversal Indication (Info)
Volt Phase Monitor Module Fail
Superheat/Subcool Module Fail
Suction Pressure Sensor Fail Ckt 1
Suction Pressure Sensor Fail Ckt 2
Liquid Pressure Sensor Fail Ckt 1
Liquid Pressure Sensor Fail Ckt 2
Sat Liquid Temp Sensor Fail Ckt 1
Sat Liquid Temp Sensor Fail Ckt 2
Suction Temp Sensor Fail Ckt 1
Suction Temp Sensor Fail Ckt 2

and then the following screen will be displayed

Log 1

Used on Units: 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.

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

Diagnostic Log Is Password Protected
Please Enter Password:

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

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

Used on Units: All Units
Factory Presets: N/A
Possible Values: Manual, Auto, or Info

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 !"

Used on Units: All Units
Factory Presets: N/A
Possible Values: Manual, Auto, or Info

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

Failure Modes

When any condition results in the unit's unability 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 temperature 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.

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

Index

Symbols

A

C

D

E

G

H

I

L

M

N

P

R

S

T

U

W