Retrofit Instructions

Part No. 30HX70000801

CONTENTS

SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform basic maintenance functions of cleaning coils and filters and replacing filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves. It is important to recognize safety information. This is the safety-alert symbol ⚠. When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

⚠ WARNING

This product can expose you to chemicals including lead and lead components, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

⚠ WARNING

Electrical shock can cause personal injury and death. Shut off all power to this equipment during installation and service. There may be more than one disconnect switch. Tag all disconnect locations to alert others not to restore power until work is completed.

⚠ CAUTION

UNIT DAMAGE HAZARD

This unit uses a microprocessor-based electronic control system. Do not use jumpers or other tools to short out components or to bypass or otherwise depart from recommended procedures. Any short-to-ground of the control board or accompanying wiring may destroy the electronic modules or electrical components.

INTRODUCTION

This document is to be used in conjunction with the 30HX Installation Instructions as a supplement. It provides specific information and instruction for the retrofitting of Series 7 *Comfort*Link controls to Carrier controls.

REQUIRED ITEMS

You will need the following items:

- Safety glasses
- Gloves
- Power tool with drill
- #8 (0.236 in.) drill bit
- 11/64 in. (0.164 in.) drill bit
- 7/64 (0.109 in.) drill bit
- 30HX Carrier Controller Retrofit Kit P/N 30HX70000801. See Table 1 for kit contents and part numbers.
- Ferrule connector crimping tool

Table 1 — 30HX Carrier Controller Retrofit Kit 30HX70000801

PART NO.	DESCRIPTION	QTY
HY33ZZ001	Ferrule Connector	70
AT13GS008	Hex Nut for Remote Connectivity Assembly	2
2007165936	CIOB Mounting Bracket Assembly	1
2007166039	Remote Connectivity Assembly	1
2007166047	Remote Connectivity Drill Template	1
2007523090	Carrier Controller PIC6.1 Panel Assembly	1
2007247491	PIC6.1 Low Voltage Control Schematic - CPM	1
2007246958	PIC6.1 Low Voltage Control Schematic - CIOB	1
2008009124	PIC6.1 Low Voltage Control Schematic - AUX	1
2007165325	Drill Template	1
2008612171	Drill Template	1
2004275068	Wire Harness	1
2005092737	Wire Harness	1
2008611812	Wire Harness	1
AL56AU166	#8-18 x 1/2 in. Mounting Screws	8
KA09ZZ143	Stud for Remote Connectivity Assembly Mounting	2
AU54BS008	Washer for Remote Connectivity Assembly	2
HY89SB030	Crimp Connector	4
HK72zz010	Modem	1

RETROFIT INSTRUCTIONS

Step 1 — Remove Power

Shut off all power to unit.

⚠ WARNING

Electrical shock can cause personal injury and death. Shut off all power to this equipment during installation and service. There may be more than one disconnect switch. Tag all disconnect locations to alert others not to restore power until work is completed.

Step 2 — Remove Boards

1. Remove the Main Base Board (MBB) from the unit shown in Fig. 1. Leave wiring harness in control panel for future use in Step 6.
2. Remove the electronic expansion valve (EXV) board from the unit shown in Fig. 1. Leave wiring harness in control panel for future use in Step 6.
3. Remove the Energy Management (EMM) board from the unit shown in Fig. 1.
4. Remove UPC board from the unit as shown in Fig. 1.

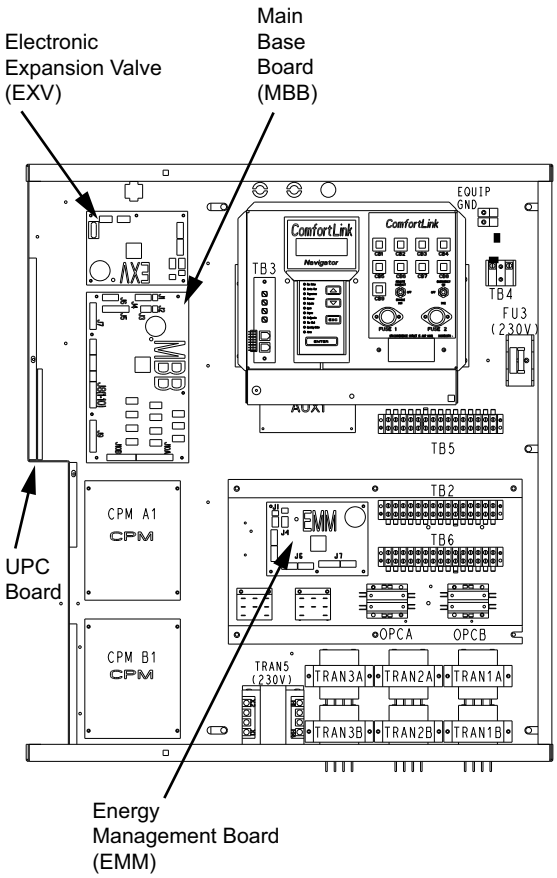


Fig. 1 — MBB and EXV Board Positions

Step 3 — Drill New Holes

1. Attach the drill hole template (P/N 2007165325) in the open location where the MBB and EXV boards used to be, shown in Fig. 2. Drill hole template (P/N 2007165325) has an adhesive backing that will permanently adhere to the panel wall.
2. Using a power tool, drill out the hole pattern shown in Fig. 3. For hole numbers 1-4, use a 7/64 in. (0.109 in.) bit. For hole number 5, use an 11/64 in. (0.164 in.) bit.

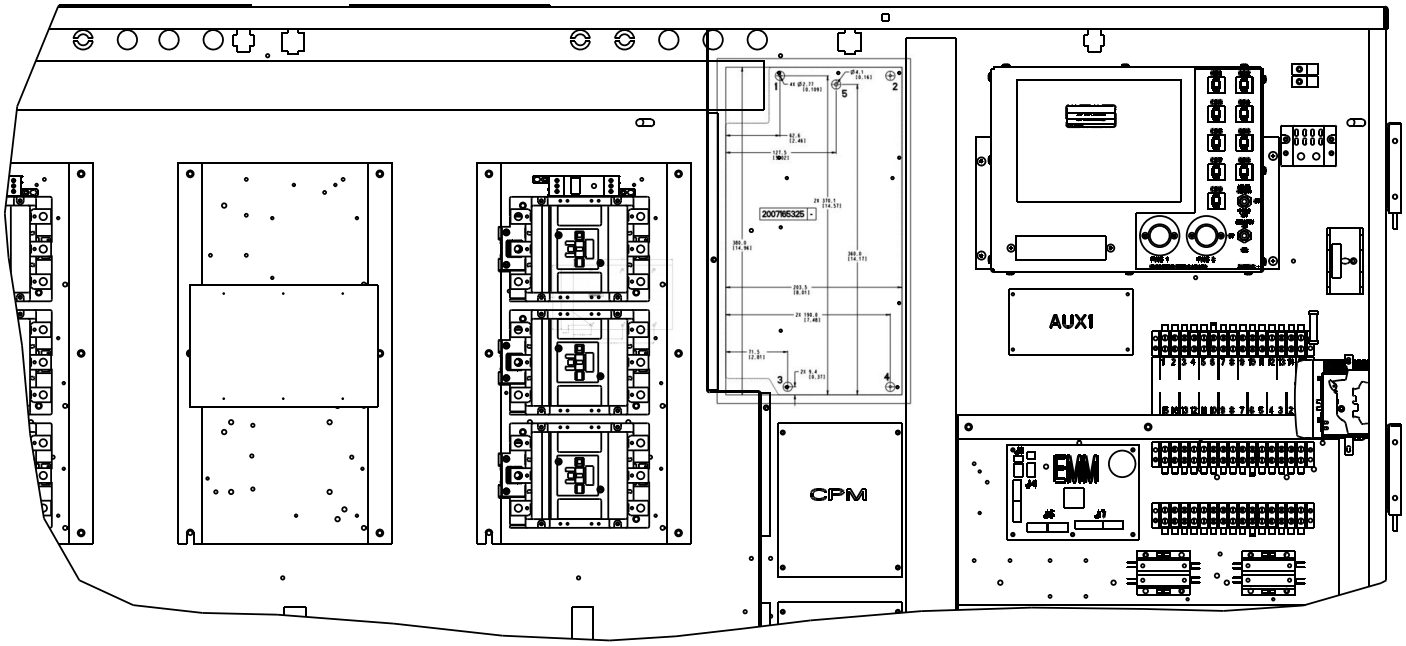
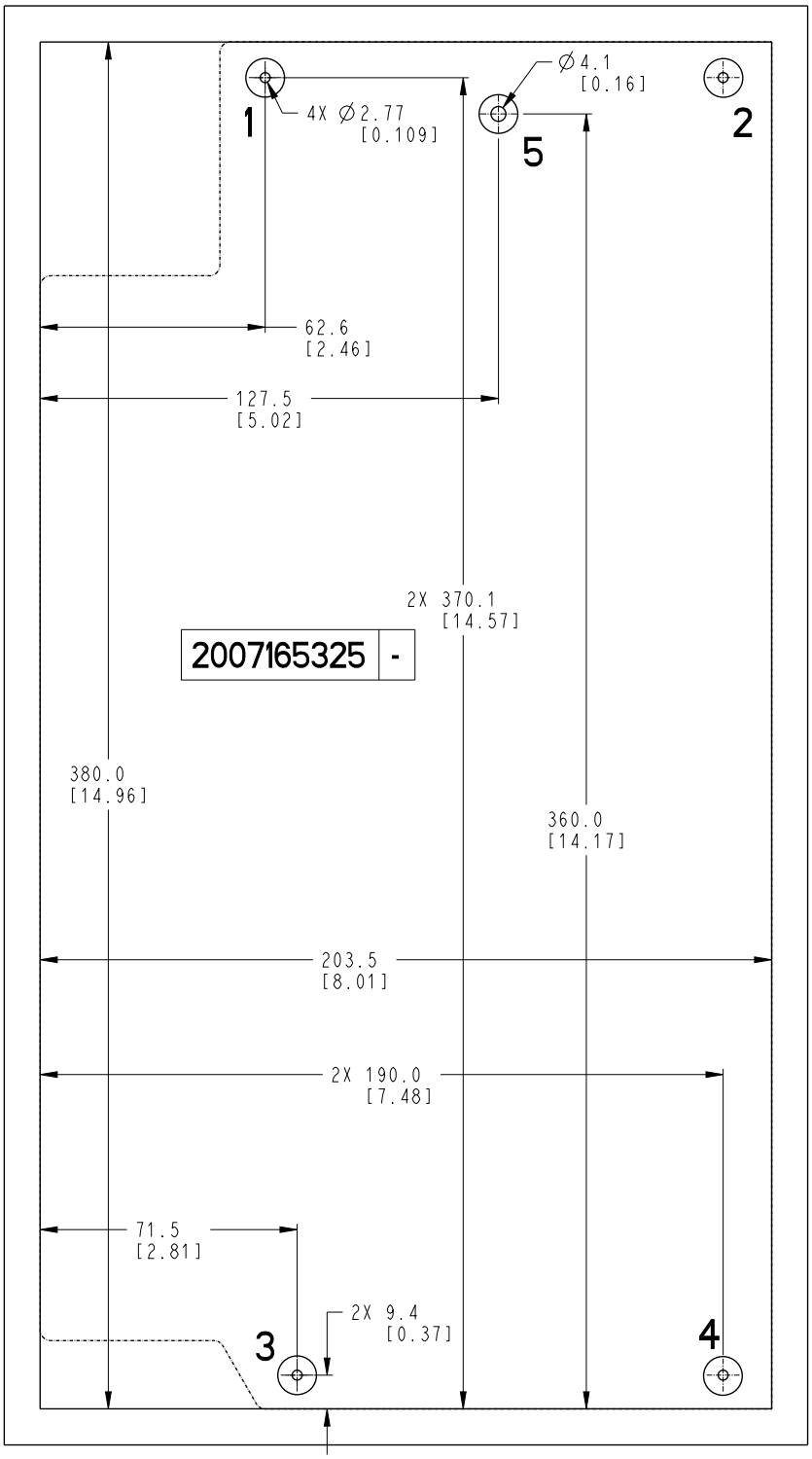


Fig. 2 — CIOB Bracket Drill Hole Placement



NOTE: Dimensions are in millimeters [inches].

Fig. 3 — Drill Hole Template (P/N 2007165325)

Step 4 — Connect Harness

1. Open the Panduit cover and route the CPM Load relays, TB2, TB5, TB6 (if applicable), Communication and other loose harness under the Panduit.
2. Connect the harness (P/N 2005092737); this harness connects the AUX board J6 to TB5 and is labeled as such.
3. Disconnect existing CPM load relay harness plugs (PL1, PL2, PL3) and replace them with new harness (P/N 2004275068) plugs (CPM-A1, CPM-A2, CPM-B1). Connect the other end of the harness to the CPM board according to the labels. This Harness (P/N 2004275068) can support up to three CPM board connections, depending on the tonnage of the unit.
4. Disconnect the existing Circuit B Oil level switch harness (2 pink wire coming from MBB J7 - 3 and 4) from the top left of the panel. Replace it with the new harness (P/N 2008611812) and crimp bare end of the harness to the oil level switch wires using provided Crip Connector (P/N HY89SB030), as shown in Fig. 4. Connect the other end of the harness to the TB10 terminal block according to the harness labels.

For additional information please refer to the Carrier Controller control schematic shown in Fig. 14-17.

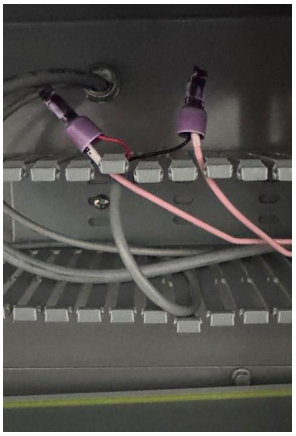


Fig. 4 — Crimp Connectors

Step 5 — Mount Boards

1. While mounting the CIOB bracket assembly (P/N 2007165936), shown in Fig. 5, in the recently drilled hole. Route the free end of the harnesses from the assembly to its designated endpoint.
2. Once all the harnesses are fully routed, ensure they are properly seated within the Panduit.
3. Close the Panduit cover securely to protect the harnesses.
4. Align the pre-installed stud on the I/O bracket assembly into hole 5 to hold the assembly in place and ensure it matches the newly drilled mounting holes.
5. Use the 4 provided #8-18 x 1/2 in. mounting screws (P/N AL56AU166) to firmly mount the assembly into place using the 4 mounting holes circled in Fig. 6.

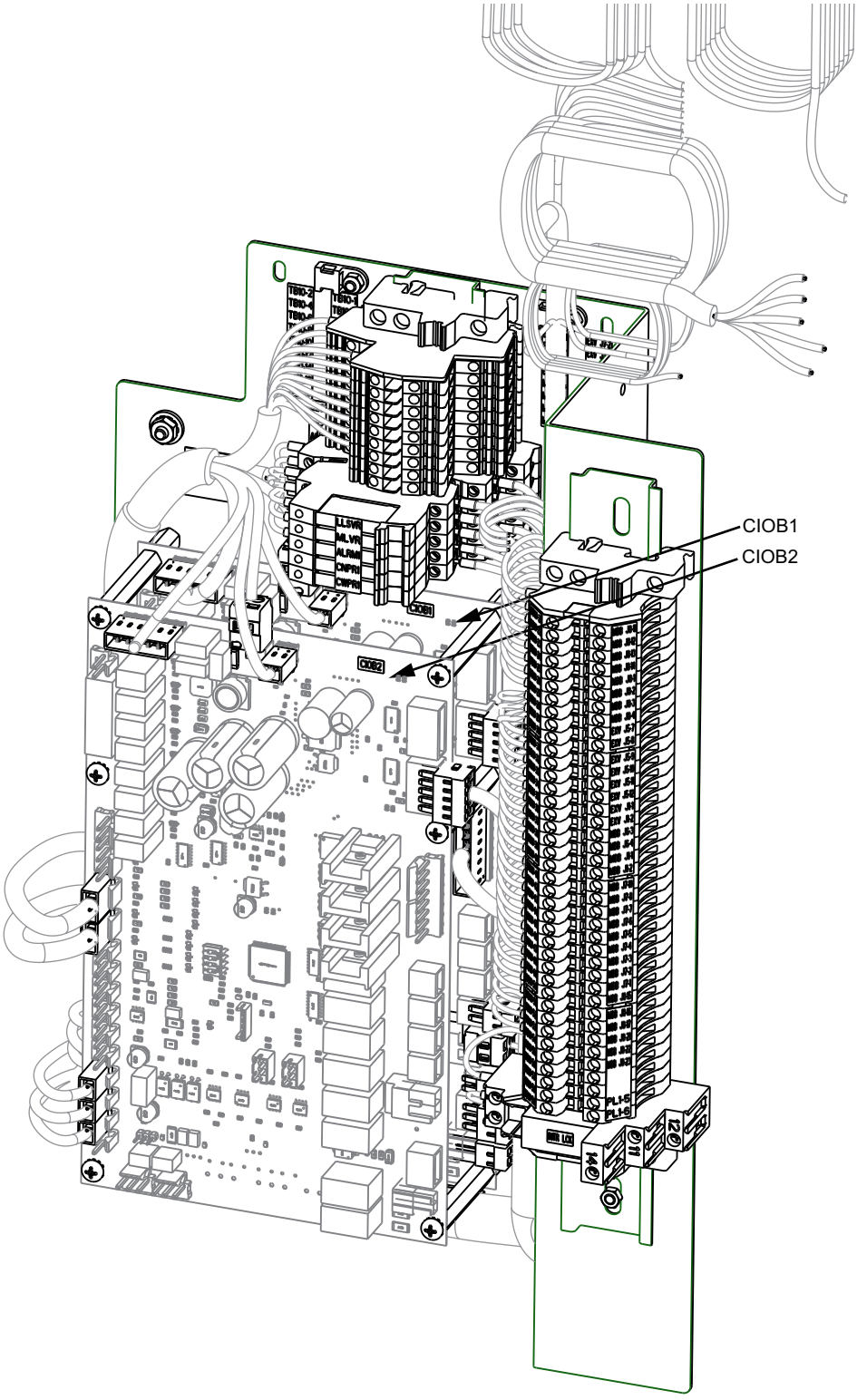


Fig. 5 — I/O Board Bracket Assembly (P/N 2007165936)

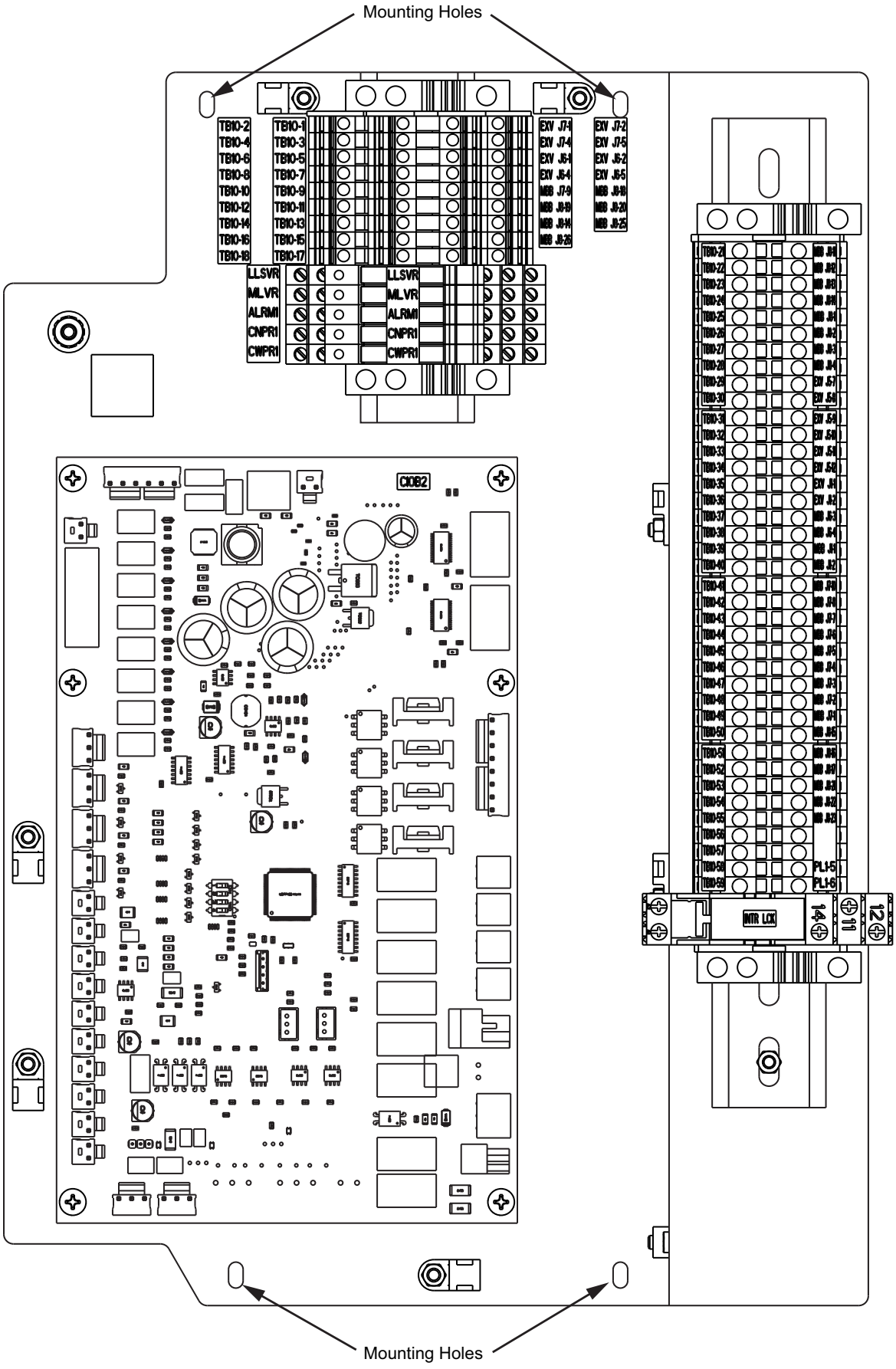


Fig. 6 — I/O Board Bracket Assembly Mounting Holes

Step 6 — Connect Harnesses and Wiring

1. Cut the Molex/Wago connector from the existing MBB/EXV harnesses and connect to the appropriate terminal block. Each terminal block is labeled with the corresponding MBB/EXV harness connector and pin numbers as shown in Fig. 7.

IMPORTANT: Use caution while connecting harnesses as they are similar and could be easily connected improperly.

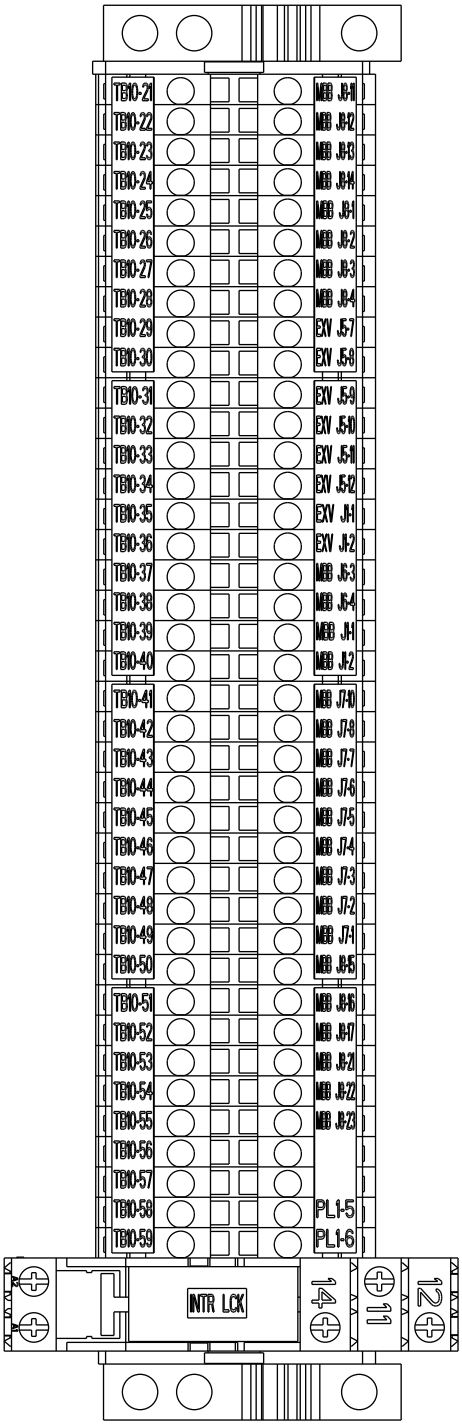


Fig. 7 — Harness Connections

2. From the pre-wired relays at the top of the panel, connect the black wiring to TB5 and TB2 as labeled on each wire. See callouts for TB5 and TB2 in Fig. 8.

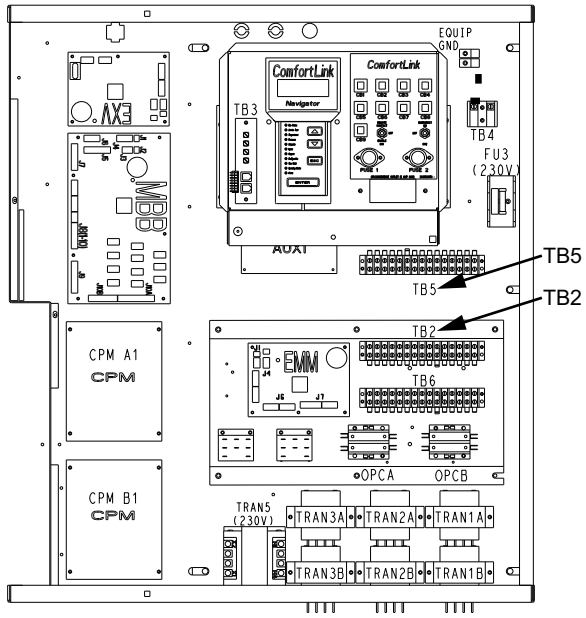


Fig. 8 — TB5 and TB2

Step 7 — Replace the Panel Assembly

1. Remove the *Comfort*Link subpanel assembly shown in Fig. 8 by disconnecting the Navigator device from TB3, CB1-9, FUSE 1-2, and SW1-2; keep the screws for installing the Carrier Controller panel assembly, and the TB3 board for further use.
2. Install Carrier Controller panel assembly (P/N 2007523090) into the place from where the ComfortLink assembly was removed (shown in Fig. 9), reusing the previous 4 screws.
3. Reinstall TB3 from Old sub-panel assembly to new panel assembly (P/N 2007523090) and connect all wiring for TB3, CB1-9, FUSE 1-2, SW1-2 and I/O Board. I/O Board Bracket Assembly (P/N 2007165936) connections include the Power Input, LEN, CB5, and CB6.

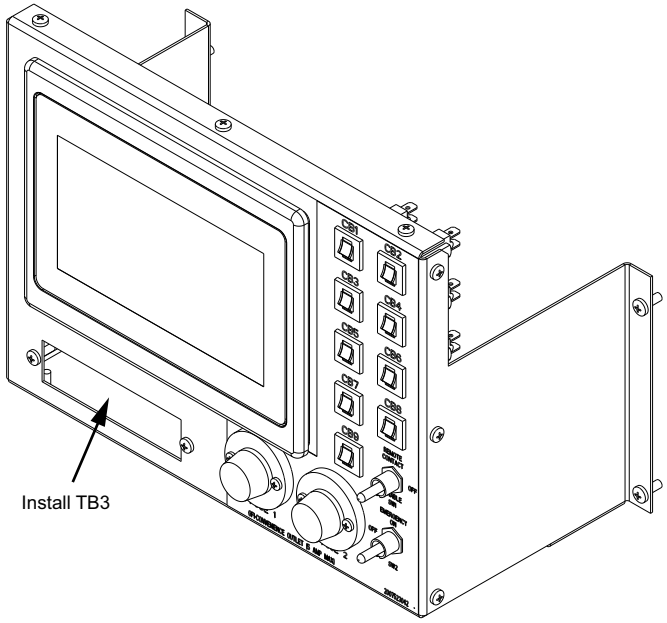


Fig. 9 — Carrier Controller Panel Assembly Replacing *Comfort*Link Assembly (P/N 2007523090)

Step 8 — Install Remote Connectivity Assembly

1. Attach the drill hole template (P/N 2007166047) to the outer right-hand side of the control panel wall sash.
2. Using a power tool, drill two hole pattern as shown in Fig. 10. Use a #8 (0.236 in) drill bit to drill a holes.

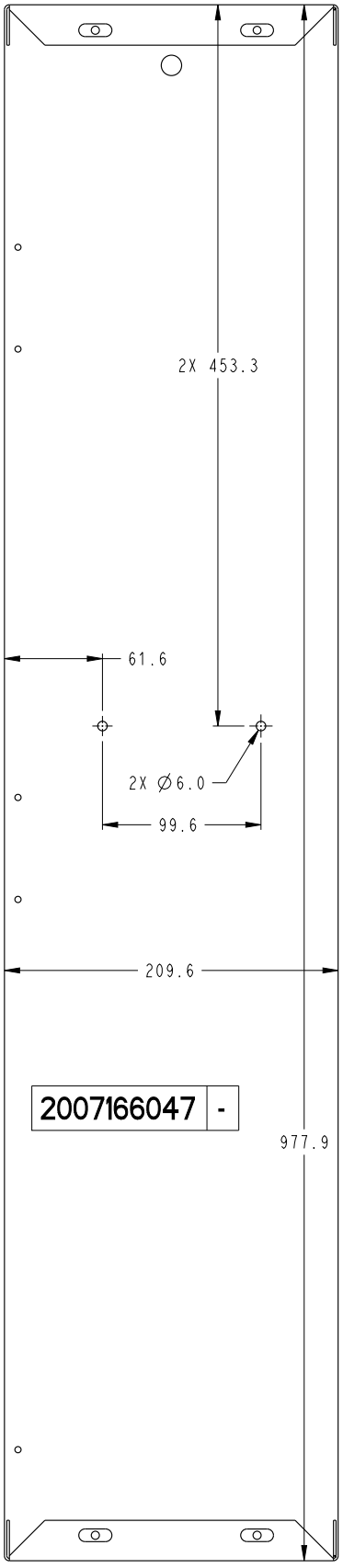


Fig. 10 — P/N 2007166047 Drill Template

3. Attach the remote connectivity power supply assembly (P/N 2007166039) to the right-hand side of the panel wall as shown in Fig. 11 using nuts and bolts which are provided with kit.

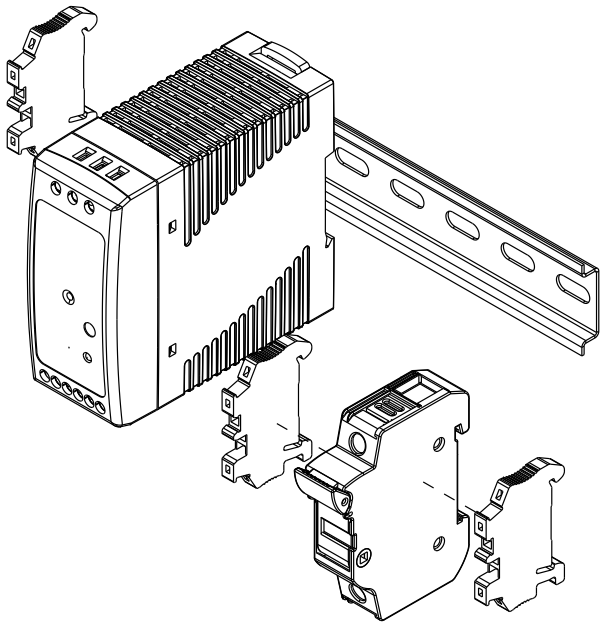


Fig. 11 — Remote Connectivity Assembly (P/N 2007166039)

4. Connect the harness (P/N 2008055282) to TB4 (120-v power; this is already connected to the Remote Connectivity Assembly).
5. Attach Modem the drill hole template (P/N 2008612171) at the place of EMM board.
6. Use a #7/64 (0.164 in) drill bit to drill a hole pattern as shown in Fig. 12.

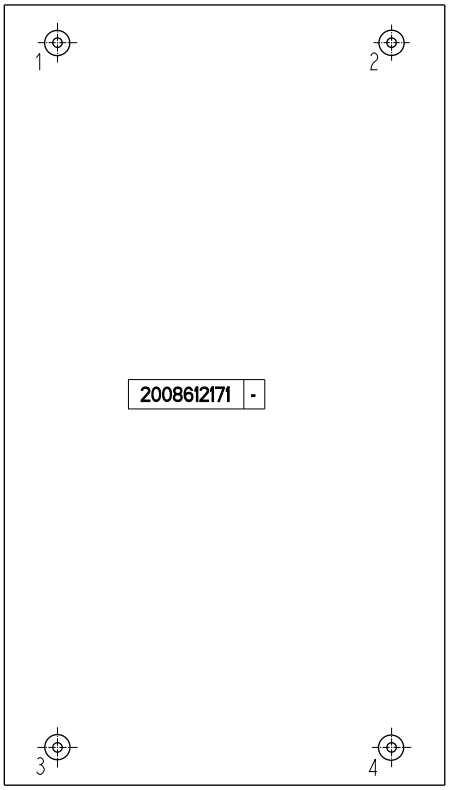


Fig. 12 — P/N 2008612171 Drill Template

7. Align the modem (P/N HK72ZZ010) with the newly drilled hole pattern.
8. Mount the Modem firmly using 4 provided #8-18 mounting screws (P/N AL56AU166) as shown in Fig. 13.
9. Connect the 24VDC power supply harness (P/N 2008614461) from the power supply to the modem. Insert the USB side of the RS485 harness (P/N 2008510666) into any USB port on the modem and connect the other end to the TB3 CCN terminals.

For additional information please refer to the Carrier Controller control schematics shown in Fig. 14-17.

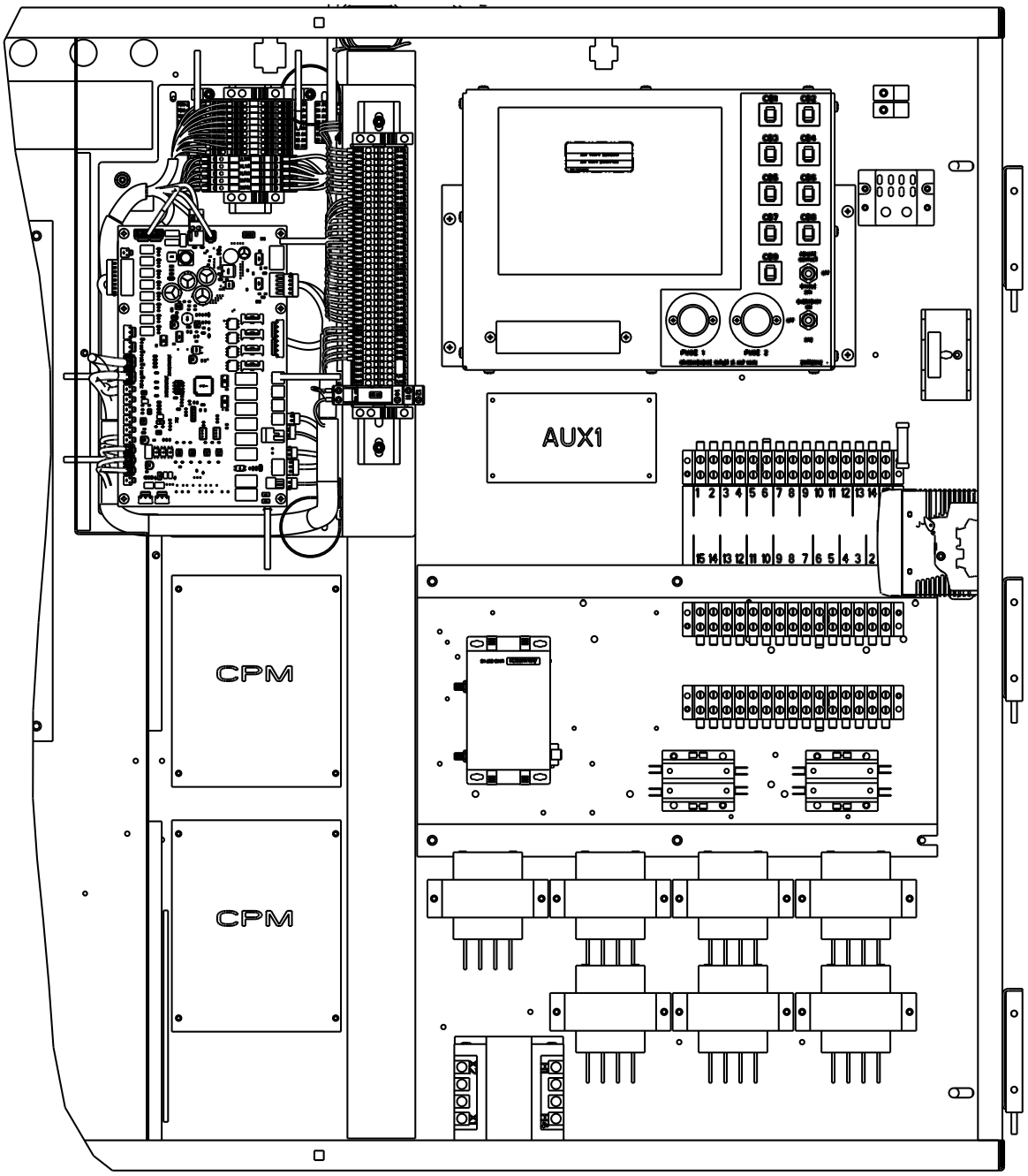
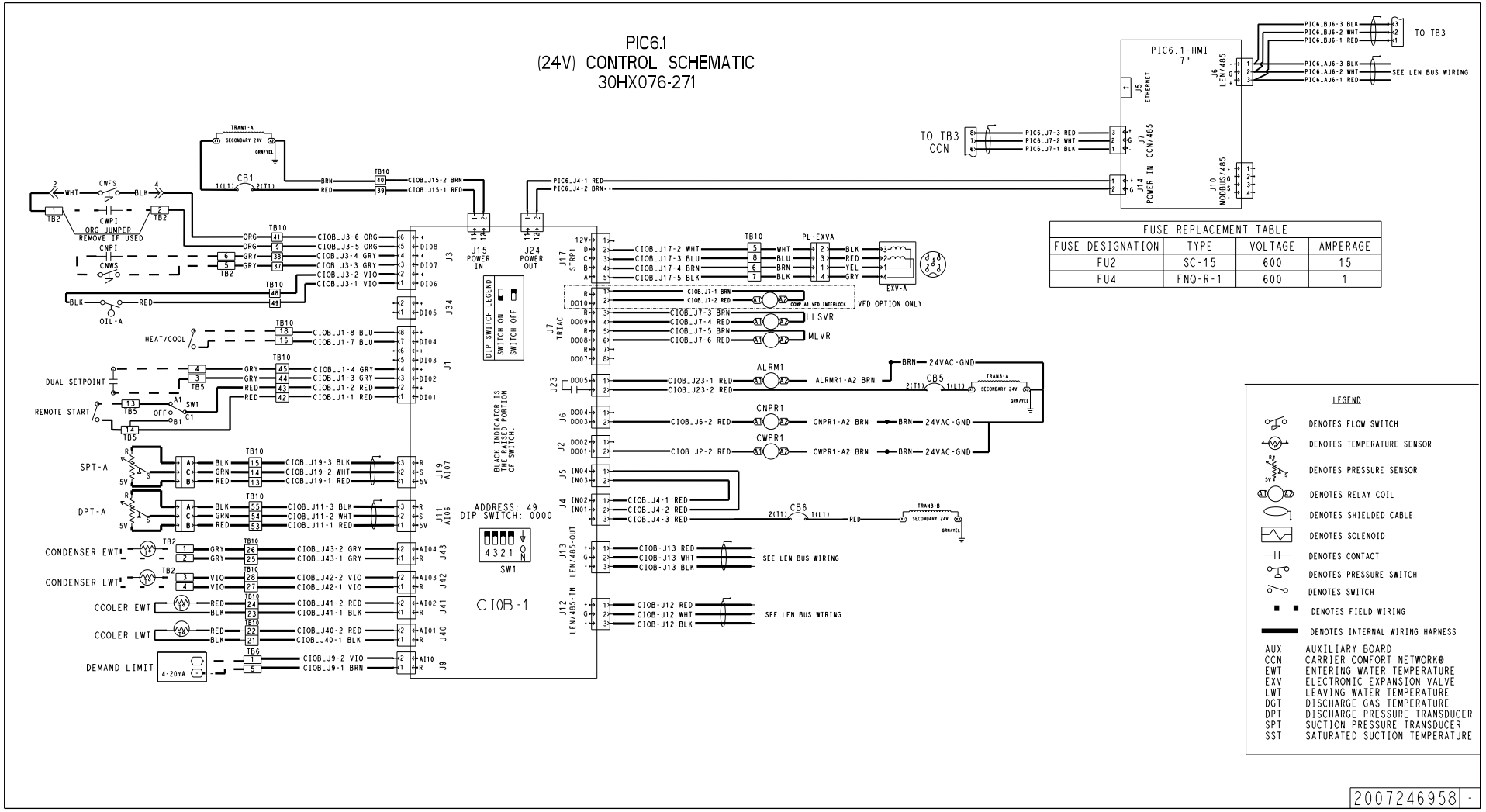


Fig. 13 — Complete Kit Installation in Control Panel



FUSE REPLACEMENT TABLE			
FUSE DESIGNATION	TYPE	VOLTAGE	AMPERAGE
FU2	SC-15	600	15
FU4	FNQ-R-1	600	1

Fig. 14 — Carrier Controller PIC6.1 (24V) Control Schematic 30HX076-271, CIOB-1

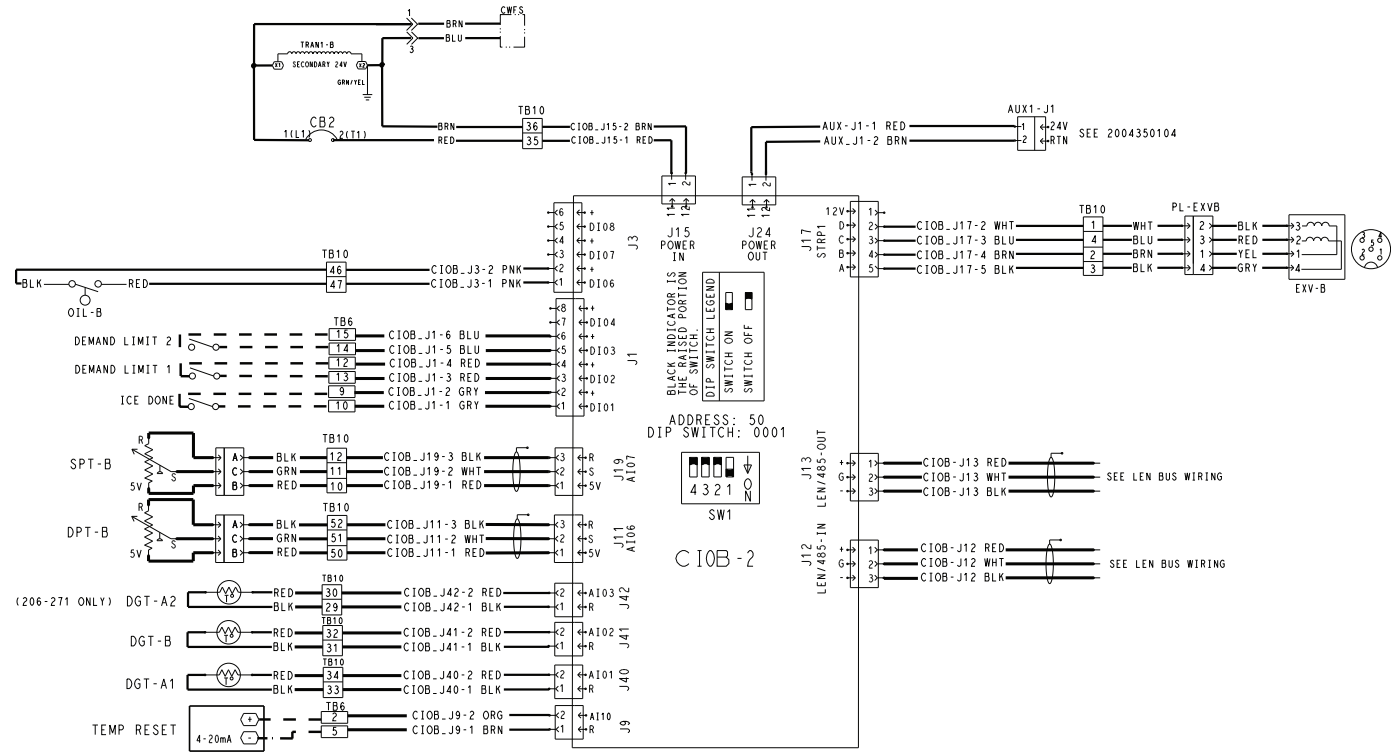


Fig. 15 — Carrier Controller PIC6.1 (24V) Control Schematic 30HX076-271, ClOB-2

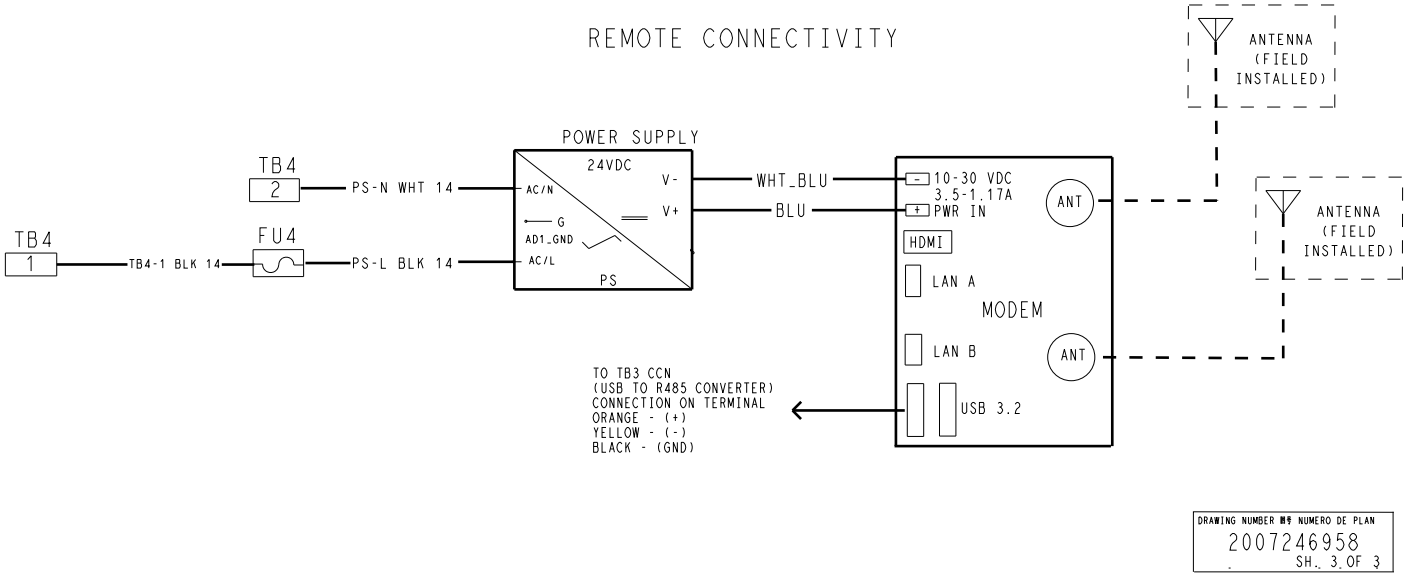
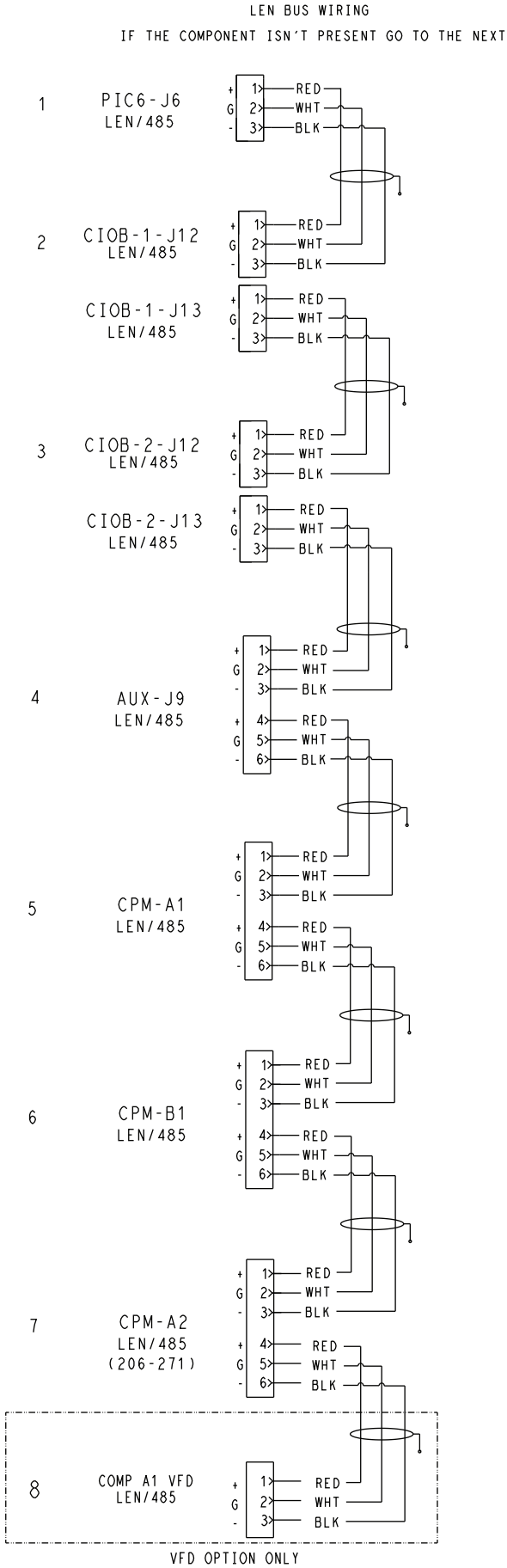
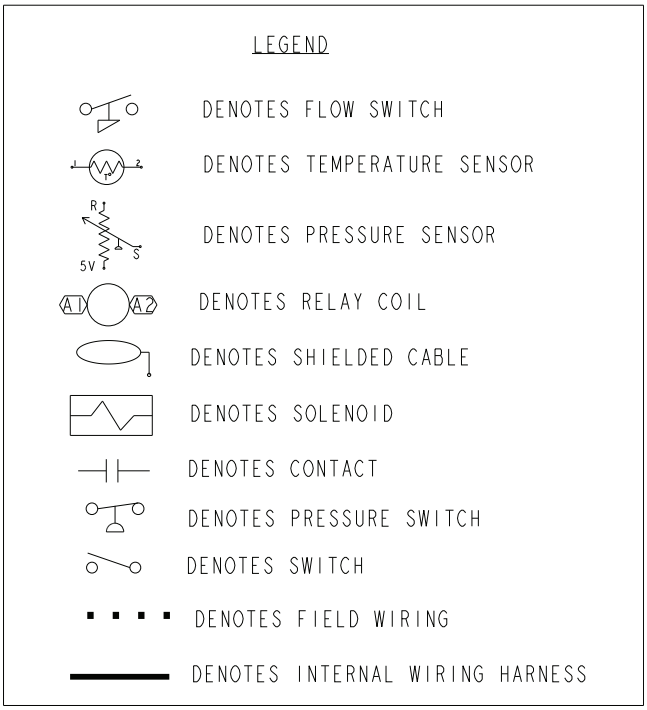


Fig. 16 — Carrier Controller PIC6.1 (24V) Control Schematic 30HX076-271, Remote Connectivity





Fuse Replacement Table

FUSE DESIGNATION	TYPE	VOLTAGE	AMPERAGE
FU2	SC-15	600	15
FU4	FNQ-R-1	600	1

NOTES:

1. Field-supplied control conductors to be at least 18 AWG (American Wire Gauge) or larger. The control cabinet should only be used for low voltage field wiring (50-v maximum).
2. Each digital output loop shall be limited to a maximum of 1A AC RMS steady-state at 24 VAC. Light load relay is recommended and the coil voltage of relay is 24 VAC. Power supply shall be provided by customer-fused transformer.
3. Each discrete input loop is powered by internal 24 VAC power supply. Field-optional contacts or switch must have 24 VAC rating. Maximum current is 60 mA. Nominal current is 10 mA. Switches with gold-plated bifurcated contacts are recommended.
4. The analog inputs support 5k/10k NTC thermistors, 0/4-20 mA sensors, and 5 vdc sensors. For details, refer to the Controls, Operations, and Troubleshooting Manual and match with software.
5. Each analog output loop supports 0/4-20 mA or 0/2-10 vdc voltage output. The analog output loop is powered by IOB board. Do not supply external power. For details, refer to the Controls, Operations, and Troubleshooting Manual and match with software.
6. Dry type contact, rated switching load 230 VAC/5A or 24 vdc/5A.
7. Ground shields at signal generating devices.
8. All field interlock contacts must have a minimal rating or 2A at 24 VAC sealed.
9. If chilled water pump interlock is used, remove jumper across associated terminal blocks.
10. Factory-installed wiring must meet requirements of UL 60335 / UL 1995; any field-installed wiring must also follow the appliance codes. All wiring must be rated 75°C.

Fig. 17 — Carrier Controller PIC6.1 (24V) Control Schematic 30HX076-271, LEN Bus Wiring

APPENDIX A — CARRIER CONTROLLER SYSTEM MENU STRUCTURE

SETTING UP THE USER INTERFACE

The Carrier Controller control is a 7-inch color touch screen that can quickly display alarms, unit operating status and other information. It supports network connections and language customization (users can choose the display language for controlling parameters). If the display is not used for a long time, it will be black and enter the screen saver state, but the controller is still running, and the operating mode remains unchanged. If the user touches the screen, the screen will be light again and the welcome page will be displayed.

BUTTONS

See Tables A and B for button details.

Table A — Buttons above the Main Interface

ICON	INTERFACE	ALTERNATE ICON	INTERFACE
	Home	—	—
	Back	—	—
	Main menus	—	—
	System menus	—	—
	Not logged in		Logged in
	Unit is off		Unit is running or in standby
	No alarm	 	Alert Alarm
	Wrench[a]		Question Mark[a]

NOTE(S):

a. This icon appears when the menus are viewed through an internet connection.

Table B — Common Buttons

ICON	INTERFACE	ICON	INTERFACE
Login Interface			
	Login: Advanced Access		Exit: Reset user access
Parameter Interface			
	Save changes		Cancel changes
Navigation Button			
	Previous page (when menu exceeds one page)		Next page (when menu exceeds one page)

SETTINGS

General Features

The Carrier Controller includes a standard 7-inch touch screen for system control. Its controls can be operated via a touch screen or a web interface. See “Web Interface” on page 19.

The navigation menus for the two connection methods (Carrier Controller user interface and web browser) are the same. Only two web pages can be authorized to be used at the same time.

NOTE: Some features are not available when using the web browser interface.

The Carrier Controller provides access to the following interfaces:

- Main interface
- System menu interface
- User login interface
- Start/Stop interface
- Alarm interface
- Main menu interface
- Configuration menu interface
- Maintenance menu interface
- Trend visualization interface

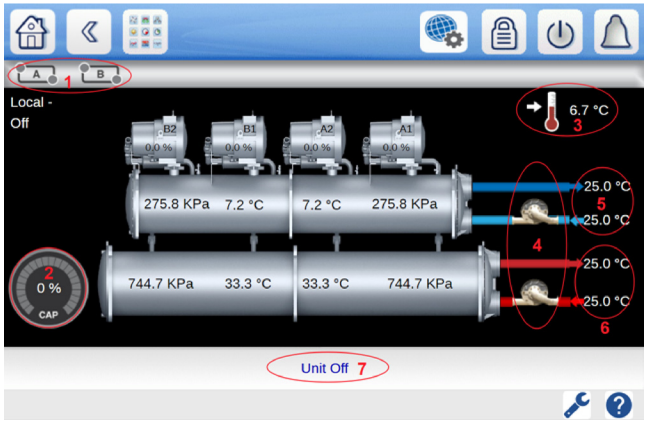
Main Interface

The main interface provides an overview of system control, monitoring the evaporator and condenser circuits (Fig. A). It provides the current operating status of the unit, including unit load, condenser and evaporator pump status, and pre-defined set point parameters. The default unit of the parameter is metric. Use the following buttons:

Return to the main menu 

Go to the Home Screen and access all unit functions 

Return to the previous display menu 



LEGEND

1 — Circuit operation status
2 — Unit load percentage
3 — Setpoint (click to enter the setpoint page after logging in)
4 — Pump running status, click to enter the pump status interface
5 — Evaporator inlet and outlet temperatures
6 — Condenser inlet and outlet temperatures
7 — Unit status information

Fig. A — Main Interface Screen

These screens can display an information message in the band at the bottom:

Message	Status
COMMUNICATION FAILURE!	Equipment controller did not respond while reading the table content.
ACCESS DENIED!	Equipment controller does not allow accessing one of the table data blocks.
LIMIT EXCEEDED!	The value entered exceeds table limits.
Save changes?	Modifications have been made. The web interface waits to confirm exit by pressing Save or Cancel.
HIGHER FORCE IN EFFECT!	Force or Auto command was rejected by the equipment controller because the interface force level is lower than the equipment controller's level.

System Configuration Menu Interface

Press the button at the top right of the main interface to enter the system configuration menu interface (Fig. B). Through this interface, the user can access software and hardware system information and configuration interface such as CPU load, network configuration, date and time configuration, language and unit system configuration, and brightness configuration.

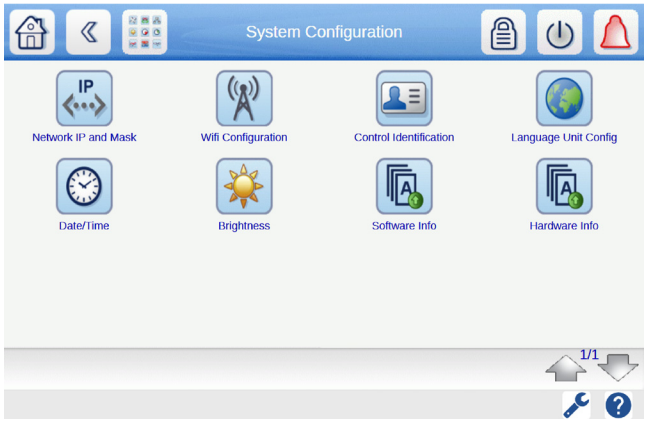


Fig. B — System Configuration Screen

DATE AND TIME INTERFACE

The date and time interface allows the user to change the system time, date, summer time, time zone, and other configurations. Click the Date/Time button to display the Date/Time interface, as shown in Fig. C.

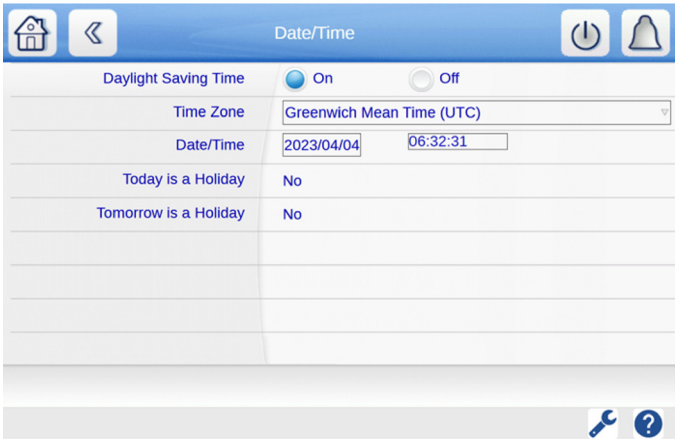


Fig. C — Date/Time Interface Screen

LANGUAGE AND UNIT SYSTEM INTERFACE

The language and unit system interface allows the user to select the controller language and change the system metric (imperial or metric) (Fig. D). Access the interface from the System Configuration screen by clicking the Language Units Config button.

The selection under this page does not need to be saved. The settings will take effect after exiting the current page.

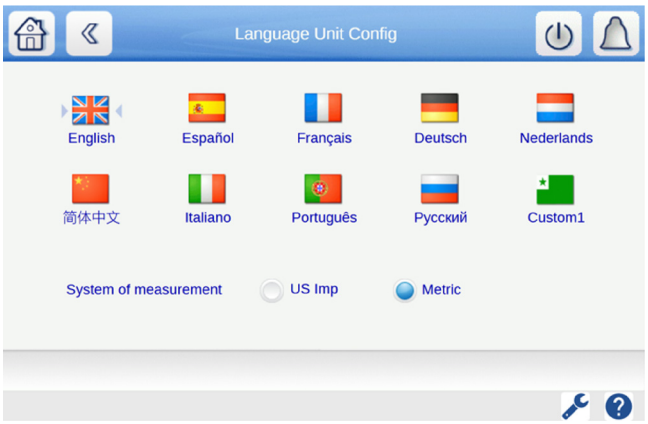


Fig. D — Language and Unit System Interface

NETWORK PORT CONFIGURATION INTERFACE

The 7-inch controller is equipped with J5 as the Ethernet port eth0 (Fig. E). Users can enter the network interface by clicking the button in the system menu to modify the IP setting. The default IP address of the eth0 network port is 169.254.1.1.

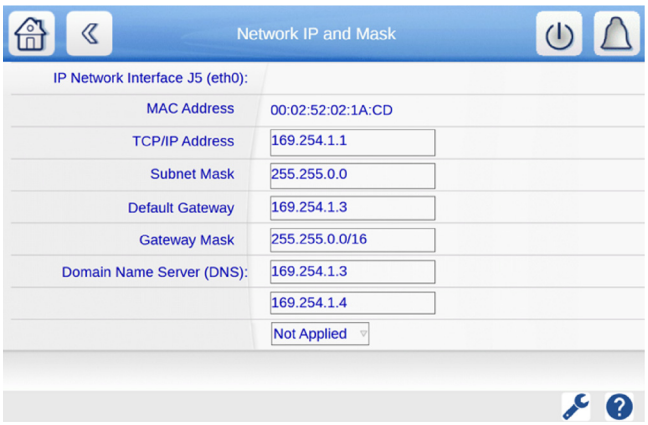


Fig. E — Network Port Configuration Interface

Click the up and down buttons to switch the screen. When the modification is complete, click to confirm or to cancel the change.

USER LOGIN INTERFACE

Access the login menu interface by clicking the Login button in the upper right corner of the screen (Fig. F).

NOTE: The setpoint interface, configuration menu, and reset alarm interface in the main menu require the user to log in before they are visible on the touch screen.

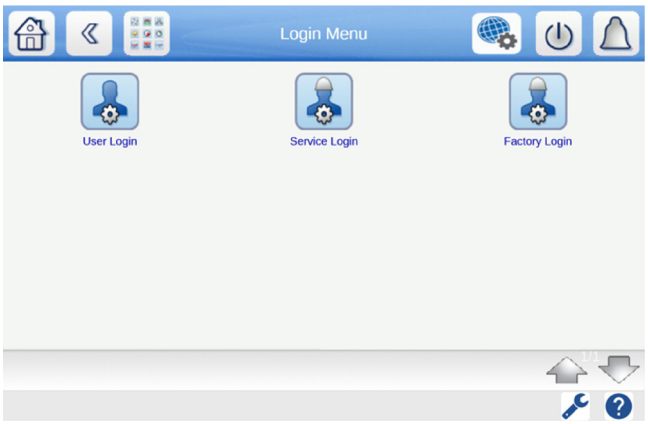


Fig. F — User Login Interface Screen

Click the user login button to enter the user login interface (Fig. G). Enter password to get more control option permissions (default password = 11). After the password is entered, click on the button in the bottom right corner to complete the current access. Click on the button in the bottom right corner to cancel the current access.

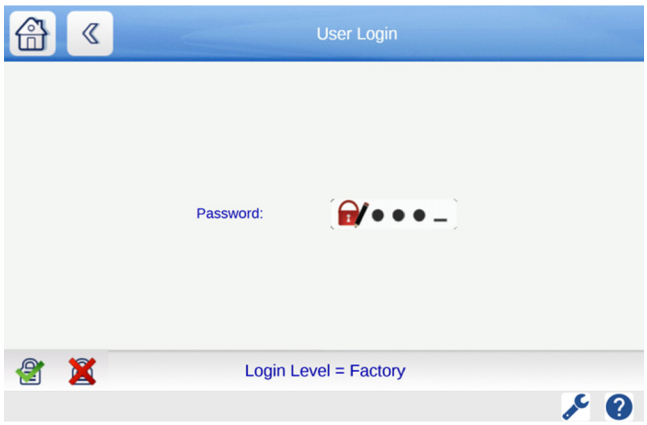


Fig. G — User Login Screen for Factory Level

For Service Login and Factory Login, scan the QR code and enter the password. See Fig. H and I.

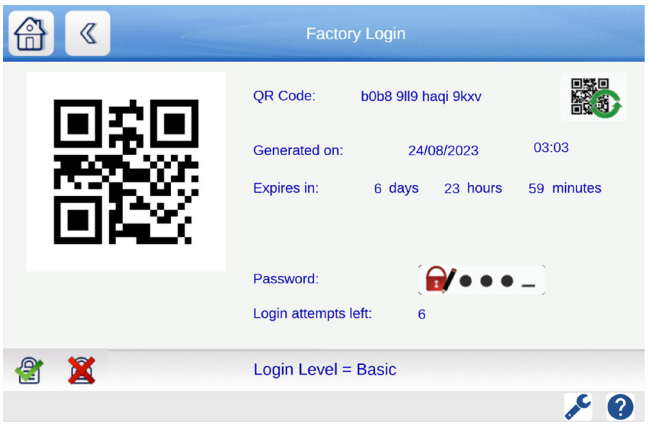


Fig. H — Factory Login Screen with QR code

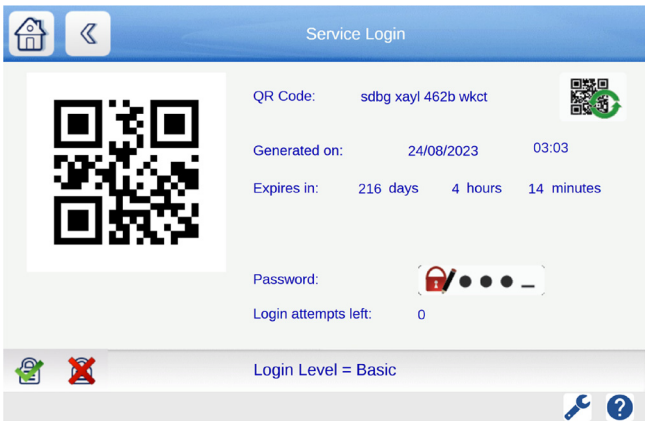


Fig. I — Service Login Screen with QR code

On/Off Screen

UNIT START-UP

With the unit in Local Off mode, press to display the list of operating modes (Fig. J). Select the required mode.

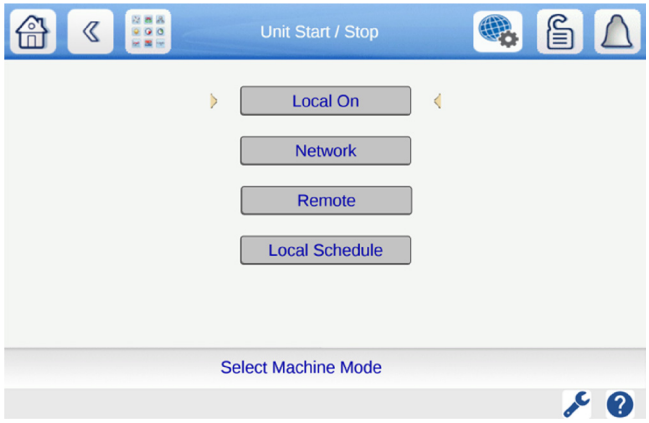


Fig. J — Unit Start-up Screen

NOTE: After entering the menu, the current selection mode is the last operating mode.

Local On	Unit is in local control mode and allowed to start.
Local Schedule	Unit is in local control mode. It is allowed to start if it is within the occupation period.
Network	Unit is controlled by network commands. It is allowed to start if it is within the occupation period.
Remote	Unit is controlled by external commands. It is allowed to start if it is within the occupation period.

UNIT STOP

To stop the unit, press the button. The Confirm Stop button will display, as shown in Fig. K.

Fig. K — Confirm Stop Button

Click the Confirm Stop button to confirm that the unit is down or click the Back button to return to the previous display.

Once the unit is shut down, return to the main interface. (See "Main Interface" on page 14.).

Main Menu Interface

The main control parameters are accessible through the main menu interface, including general parameters, input and output status (Fig. L). Access the main menu by clicking the main menu button in the upper left corner of the main interface. (See "Main Interface" on page 14.).

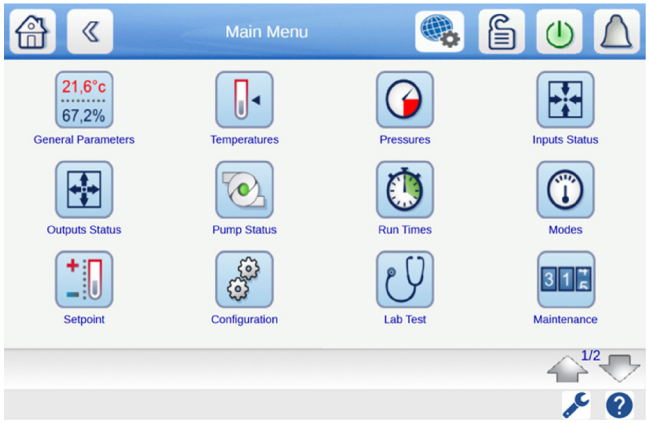


Fig. L — Main Menu Interface

GENERAL PARAMETERS

General parameters can be accessed through the general parameter interface (Fig. M). Go to the main menu and click the General Parameters button to access the General Parameters screen. Click the up and down buttons to switch the screen.

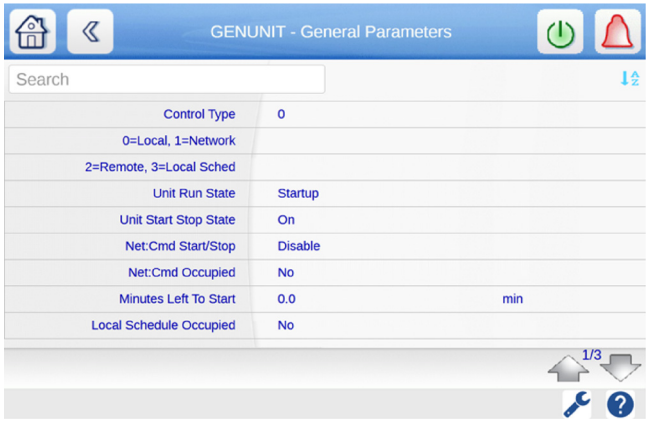


Fig. M — General Parameters Screen

TREND GRAPH INTERFACE

The trend interface makes it easy to monitor user-selected parameters (Fig. N). On the main menu, click the trend button to access the trend interface. Select the desired parameter and press Save . After the parameter setting is completed, click the lower right button to enter the trend graph interface (Fig. O).

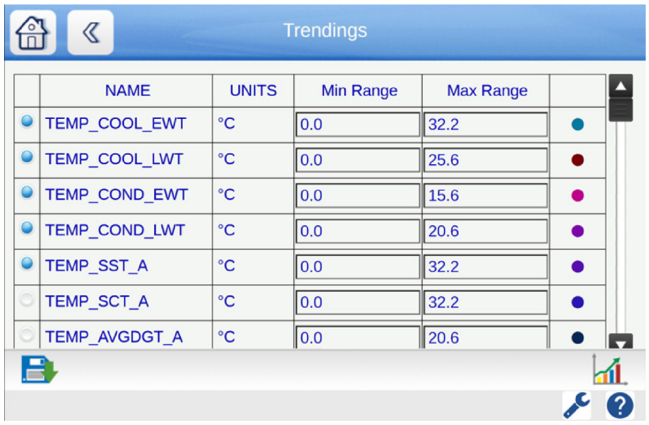


Fig. N — Trend Interface

Fig. O — Trend Graph Interface

Click the Settings button to adjust the set time and date of the trend display.

Click to move the timeline, or click to move to the beginning or end of the selected period.

Click the Zoom In button or the Zoom Out button to zoom in or out on the view.

Click the Refresh button to reload the data.

SETPOINT INTERFACE

The setpoint interface provides the function to modify the target setpoint (Fig. P).

NOTE: The setpoint interface requires the user to log in before entering the login, which can be accessed through the main menu, or directly by clicking the setpoint button on the main interface to enter the page.

Fig. P — Setpoint Interface

Click the up and down buttons to switch the screen. When the modification is complete, click to confirm or to cancel the change.

Configuration Menu Interface

The configuration menu provides access to a range of user-modifiable parameters, such as pump configuration, schedule menus, and more (Fig. Q). The configuration menu is password protected and is not visible until the user is logged in. (See “User login interface” on page 16.)

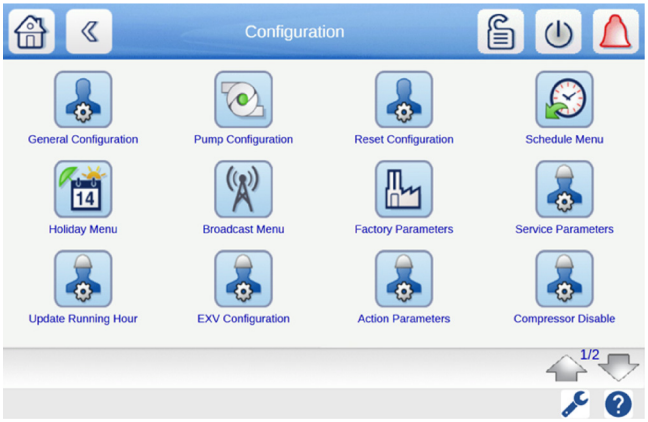


Fig. Q — Configuration Menu

GENERAL CONFIGURATION INTERFACE

Take the General configuration interface as an example (Fig. R). Click the General Configuration button in the general configuration menu to access the general configuration interface.

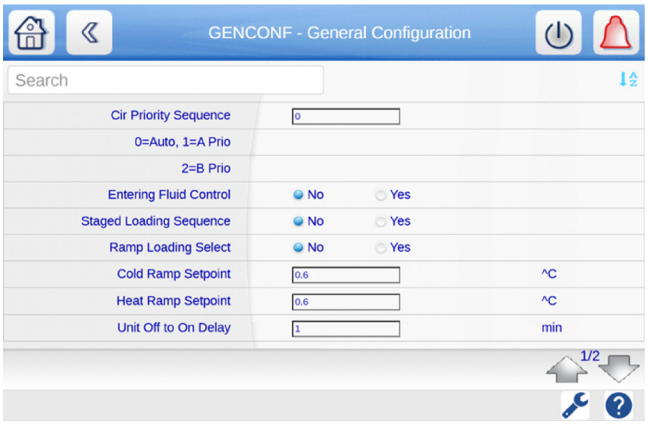


Fig. R — General Configuration Interface

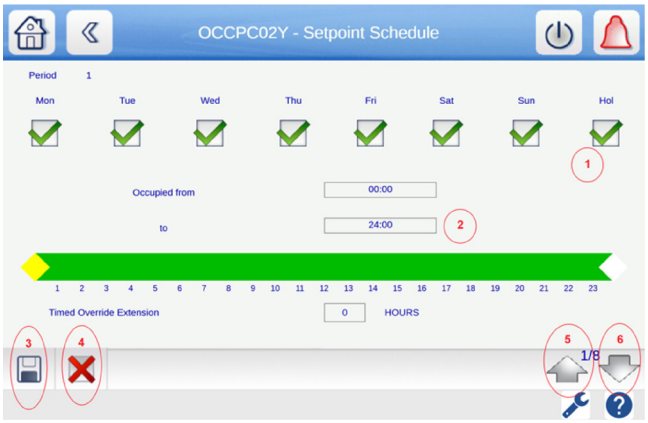
Click the up and down buttons to switch the screen. When the modification is complete, click to confirm or to cancel the change.

TIME SCHEDULE INTERFACE

The time schedule interface is located in the configuration menu. The interface control consists of two schedules. The first (OCCPC02S) is used to control the unit's power on/off (Fig. S), and the second (OCCPC02S) is used to control the dual setpoint.

Go to the Configuration menu and click the Schedule menu button to access the Schedule screen.

Set the schedule; the selected period is displayed by the green band on the timeline. Click to confirm or to cancel the change.



1. Selection of the applicable days for the time schedule
2. Modification of the period start and end schedules
3. Save
4. Cancel
5. Previous period
6. Next period

Fig. S — Setpoint Schedule Screen

Web Interface

Users can connect to the controller using a web browser. Access the Carrier Controller interface by entering the unit IP address in the address bar of web browser. The default IP address of the unit is 169.254.1.1, and the address of the web browser address bar is https://169.254.1.1. This IP address can be modified in the web interface and the address of the web browser address bar should be changed accordingly.

NOTE: Only authorize two network interfaces at the same time.

NOTE: For safety reasons, the start/stop of the unit cannot be controlled via the network interface. All other operations, including monitoring unit operating parameters or unit configuration, can be achieved through the web interface.

For security reasons, the web server is disabled by default. Before using HTTP to activate HTTP connections, make sure your network is protected from malicious attacks and any other security threats. Without comprehensive network security, open access is not available.

IMPORTANT: Carrier does not assume any responsibility or legal liability arising from security breaches.

NOTE: When two users are connected at the same time, neither has priority, and the last modified content is saved in the system.

Modbus TCP Configuration

For Modbus TCP, set the connection configuration as follows (Fig. T):

1. Set BMS RS485 Port Option to “0”.
2. Set Modbus TCP Enable to “Enable”.

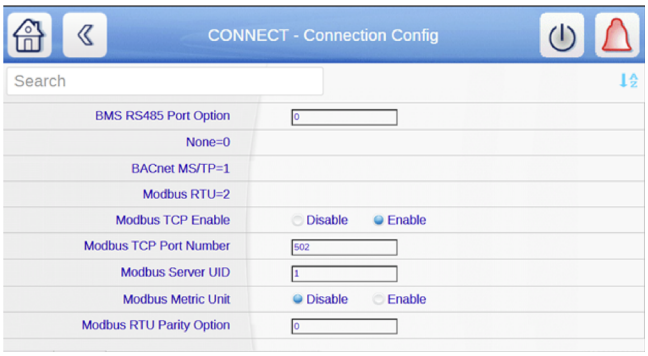


Fig. T — Modbus TCP Configuration

Modbus RTU Configuration

For Modbus RTU, set the connection configuration as follows (Fig. U):

1. Set BMS RS485 Port Option to “2”.
2. Set Modbus TCP Enable to “Disable”.
3. Set Modbus Server UID to the Modbus Master address.
4. Set Modbus RTU Parity Option to “0”.
5. Set Modbus RTU Stop Bit to “2”.
6. Set Modbus RTU Baudrate to “0”.

Fig. U — Modbus RTU Configuration

BACnet IP Configuration

For BACnet IP, set the connection configuration as follows (Fig. V):

1. Set BMS Port RS485 Option to “0”.
2. Set BACnet/IP Enable to “Enable”.
3. Set BACnet IP port name to the used port.
4. Set the BACnet Network and Identifier.
5. The IP subnet mask of BACnet client (usually a computer) shall be the same as the subnet mask of chiller controller. When controller initializes BACnet module, the subnet mask of controller IP will be used. For example:

   PC IP=172.24.237.249 subnet mask =255.255.254.0

   Controller IP=172.24.237.175 subnet mask =255.255.254.0
6. Set ALC Auto ID Scheme to “Disable”.

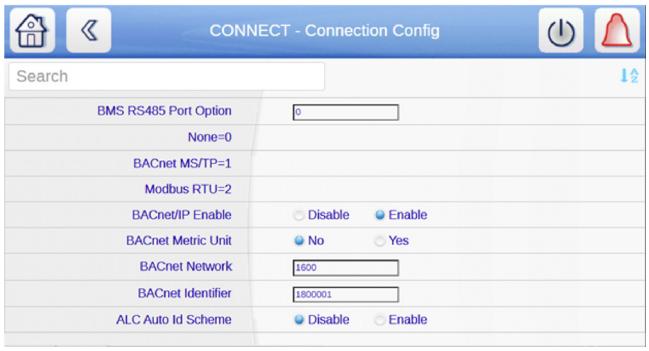


Fig. V — BACnet IP Configuration

BACnet MS/TP Configuration

For BACnet MS/TP, set the connection configuration as follows (Fig. W):

1. Set Port RS485 Option to “1”.
2. Set BACnet/IP Enable to “Disable”.

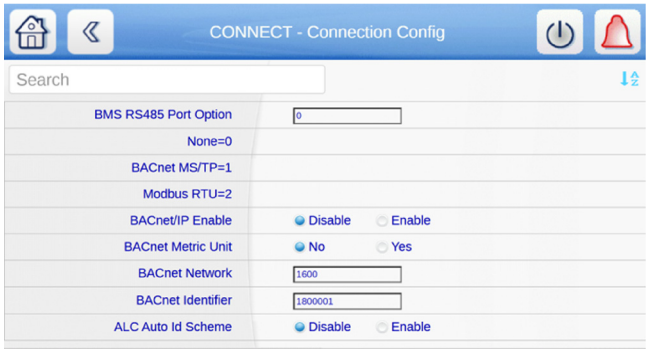


Fig. W — BACnet MS/TP Configuration

Detailed Menu Structure

The menu structure is shown in Fig. X.

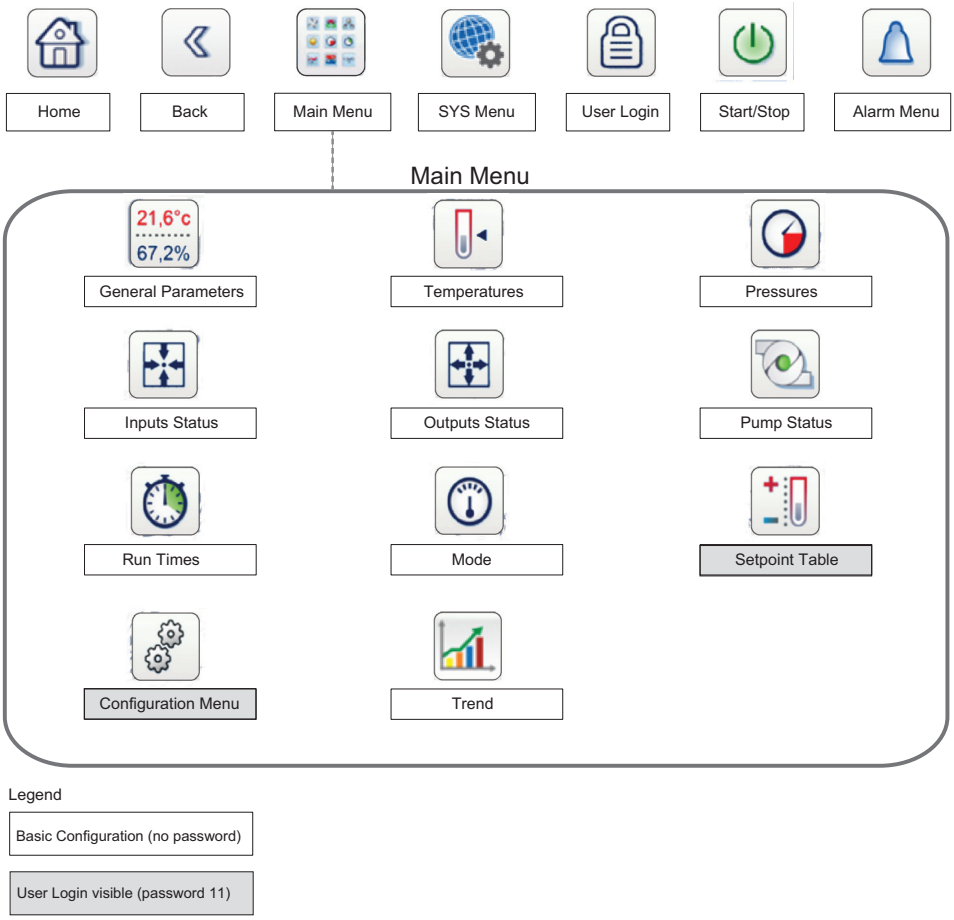


Fig. X — Menu Structure

APPENDIX A — CARRIER CONTROLLER SYSTEM MENU STRUCTURE (cont)

MAINMENU Menu

NOTE: Because specific sets may not contain certain features, some parameters may appear in the table that cannot be configured.

ICON	DISPLAYED TEXT[a]	DESCRIPTION	ASSOCIATED TABLE
	General Parameters	General Parameters	GENUNIT
	Temperatures	Temperatures	TEMP
	Pressures	Pressures	PRESSURE
	Inputs Status	Inputs Status	INPUTS
	Outputs Status	Outputs Status	OUTPUTS
	Pump Status	Pump Status	PUMPSTAT
	Run Times	Run Times	RUNTIME
	Mode	Modes	MODES
	Setpoint Table	Setpoint Table	SETPOINT
	Configuration Menu	Configuration Menu	CONFIG
	Trend[b]	Trendings	Trendings

NOTE(S):

a. Depends on the selected language (English by default).
b. The trend menu is displayed as a single image.

APPENDIX A — CARRIER CONTROLLER SYSTEM MENU STRUCTURE (cont)

		GENUNIT — General Parameters			
	NAME	STATUS	DEFAULT	UNIT	DISPLAYED TEXT[a]
1	CTRL_TYP	0 to 3 0=Local, 1=Network 2=Remote, 3=Local Sched	0	—	Control Type
2	unitstat	1=off 2=qcktest 3=recycle 4=tripout 5=delay 6=startup 7=running 8=override 9=demand 10=shutdown	1	—	Unit Run State
3	strtstop	OFF_ON	OFF	—	Unit Start Stop State
4	CHIL_S_S	DSABLE_ENABLE	DSABLE	—	Net:Cmd Start/Stop
5	CHIL_OCC	NO_YES	NO	—	Net:Cmd Occupied
6	min_left	—	0	min	Minutes Left To Start
7	loc_occ	NO_YES	NO	—	Local Schedule Occupied
8	HEATCOOL	COOLING / HEATING	0	—	Cooling/Heating Status
9	HC_SEL	0 to 4 0=Cooling, 1=Heating 2=Cool Heat Reclaim 3=Heat Heat Reclaim 4=Heat Reclaim Only	0	—	Cooling/Heating Select
10	SP_SEL	0 to 2 0=Auto, 1=Spt1, 2=Spt2	1	—	Setpoint Select
11	SP_OCC	NO_YES	YES	—	Setpoint Occupied?
12	CAP_T	—	0	%	Percent Total Capacity
13	CAP_A	—	0	%	Percent Capacity Cir A
14	CAP_B	—	0	%	Percent Capacity Cir B
15	SP	—	–17.78 0	°C °F	Current Setpoint
16	CTRL_PNT	–40.00 to 93.33 –40 to 200	–17.78 0	°C °F	Control Point
17	cpnt_min	–40.00 to 93.33 –40 to 200	–20.00 –4	°C °F	Control Point Min Limit
18	cpnt_max	–20.00 to 93.33 –4 to 200	67.22 153	°C °F	Control Point Max Limit
19	TOT_CURR	—	0	A	Actual Chiller Current
20	CURR_A	—	0	A	Actual Current Cir A
21	CURR_B	—	0	A	Actual Current Cir B
22	CURR_LIM	0 to 4500	0	A	Chiller Current Limit
23	NEMSTOP	0 to 3 0=Local, 1=Network 2=Remote, 3=Local Sched	0	—	Control Type
24	DEM_LIM	0~100	—	—	Active Demand Limit
25	ms_stsp	ON/OFF	—	—	Master Slave Start Stop

NOTE(S):

a. Depends on the selected language (English by default).

APPENDIX A — CARRIER CONTROLLER SYSTEM MENU STRUCTURE (cont)

		TEMP — Temperatures	
	NAME	**UNIT**	DISPLAYED TEXT[a]
1	COOL_EWT	°C / °F	Cooler Entering Fluid
2	COOL_LWT	°C / °F	Cooler Leaving Fluid
3	COND_EWT	°C / °F	Condenser Entering Fluid
4	COND_LWT	°C / °F	Condenser Leaving Fluid
5	SCT_A	°C / °F	Saturate Cond Temp Cir A
6	SST_A	°C / °F	Saturate Evap Temp Cir A
7	SET_A1	°C / °F	Saturate Eco Temp Cir A1
8	SET_A2	°C / °F	Saturate Eco Temp Cir A2
9	DGT_A1	°C / °F	Disch Gas Temp Cir A1
10	DGT_A2	°C / °F	Disch Gas Temp Cir A2
11	AVGDGT_A	°C / °F	Average Disch Gas Temp A
12	CPTMP_A1	°C / °F	Motor Temp Cir A1
13	CPTMP_A2	°C / °F	Motor Temp Cir A2
14	SCT_B	°C / °F	Saturate Cond Temp Cir B
15	SST_B	°C / °F	Saturate Evap Temp Cir B
16	SET_B1	°C / °F	Saturate Eco Temp Cir B1
17	SET_B2	°C / °F	Saturate Eco Temp Cir B2
18	DGT_B1	°C / °F	Disch Gas Temp Cir B1
19	DGT_B2	°C / °F	Disch Gas Temp Cir B2
20	AVGDGT_B	°C / °F	Average Disch Gas Temp B
21	CPTMP_B1	°C / °F	Motor Temp Cir B1
22	CPTMP_B2	°C / °F	Motor Temp Cir B2
23	SPACETMP	°C / °F	Optional Space Temp
24	CHWSTEMP	°C / °F	Sys Chilled Water Supply
25	CHWSHEAT	°C / °F	Sys Heated Water Supply

NOTE(S):

a. Depends on the selected language (English by default).

		PRESSURE — Pressures	
	NAME	**UNIT**	**DISPLAYED TEXT[a]**
1	DP_A	kPa / PSI	Discharge Pressure A
2	SP_A	kPa / PSI	Suction Pressure A
3	OP_A1	kPa / PSI	Oil Pressure A1
4	OP_A2	kPa / PSI	Oil Pressure A2
5	DOP_A1	kPa / PSI	Oil Pressure Diff A1
6	DOP_A2	kPa / PSI	Oil Pressure Diff A2
7	ECOP_A1	kPa / PSI	Eco Pressure A1
8	ECOP_A2	kPa / PSI	Eco Pressure A2
9	DP_B	kPa / PSI	Discharge Pressure B
10	SP_B	kPa / PSI	Suction Pressure B
11	OP_B1	kPa / PSI	Oil Pressure B1
12	OP_B2	kPa / PSI	Oil Pressure B2
13	DOP_B1	kPa / PSI	Oil Pressure Diff B1
14	DOP_B2	kPa / PSI	Oil Pressure Diff B2
15	ECOP_B1	kPa / PSI	Eco Pressure B1
16	ECOP_B2	kPa / PSI	Eco Pressure B2

NOTE(S):

a. Depends on the selected language (English by default).

APPENDIX A — CARRIER CONTROLLER SYSTEM MENU STRUCTURE (cont)

		INPUTS — Inputs Status			
	NAME	STATUS	DEFAULT	UNIT	DISPLAYED TEXT[a]
1	ONOFF_SW	OFF_ON	OFF	—	Remote On/Off Switch
2	HC_SW	COOL_HEAT	COOL	—	Remote Heat/Cool Switch
3	SETP_SW	OPEN_CLOSE	OPEN	—	Remote Setpoint Switch
4	LIM_SW1	OPEN_CLOSE	OPEN	—	Limit Switch 1
5	LIM_SW2	OPEN_CLOSE	OPEN	—	Limit Switch 2
6	OIL_L_A	OPEN_CLOSE	OPEN	—	Oil Level Input A
7	OIL_L_B	OPEN_CLOSE	OPEN	—	Oil Level Input B
8	PWR_A	OPEN_CLOSE	OPEN	—	Power Feedback Input A
9	PWR_B	OPEN_CLOSE	OPEN	—	Power Feedback Input B
10	SP_RESET	—	0	mA	Reset SP 4-20mA Sgnl
11	LIM_ANAL	—	0	mA	Limit 4-20mA Signal
12	REM_LOCK	OPEN_CLOSE	OPEN	—	Remote Interlock
13	ICE_SW	OPEN_CLOSE	OPEN	—	Ice Done Storage Switch
14	OCC_OVSW	OPEN_CLOSE	OPEN	—	Occupied Override Switch
15	HP_SW_A1	OPEN_CLOSE	OPEN	—	High Pressure Switch A1
16	HP_SW_A2	OPEN_CLOSE	OPEN	—	High Pressure Switch A2
17	HP_SW_B1	OPEN_CLOSE	OPEN	—	High Pressure Switch B1
18	HP_SW_B2	OPEN_CLOSE	OPEN	—	High Pressure Switch B2
19	CURRE_A1	—	0	A	Compressor A1 Current
20	CURRE_A2	—	0	A	Compressor A2 Current
21	CURRE_B1	—	0	A	Compressor B1 Current
22	CURRE_B2	—	0	A	Compressor B2 Current
23	EMSTOP	OPEN_CLOSE	CLOSE	—	Unit Emergency Switch
24	TQ_TMP_A	—	0	—	TQ FB Temperature Cir A
25	TQ_RES_A	—	0	—	TQ FB Resistance Cir A
26	TQ_POS_A	0 to 100	0	%	TQ Position Cir A
27	TQ_TMP_B	—	0	—	TQ FB Temperature Cir B
28	TQ_RES_B	—	0	—	TQ FB Resistance Cir B
29	TQ_POS_B	0 to 100	0	%	TQ Position Cir B

NOTE(S):

a. Depends on the selected language (English by default).

		OUTPUTS — Outputs Status			
	NAME	STATUS	DEFAULT	UNIT	DISPLAYED TEXT[a]
1	CP_A1	OFF_ON	OFF	—	Comp Start Relay A1
2	OILSL_A1	OFF_ON	OFF	—	Oil Solenoid Output A1
3	LDR_1_A1	OFF_ON	OFF	—	Loader 1 Output A1
4	LDR_2_A1	OFF_ON	OFF	—	Loader 2 Output A1
5	MC_1_A1	OFF_ON	OFF	—	Motor Cool 1 Output A1
6	MC_2_A1	OFF_ON	OFF	—	Motor Cool 2 Output A1
7	CP_A2	OFF_ON	OFF	—	Comp Start Relay A2
8	OILSL_A2	OFF_ON	OFF	—	Oil Solenoid Output A2
9	LDR_1_A2	OFF_ON	OFF	—	Loader 1 Output A2
10	LDR_2_A2	OFF_ON	OFF	—	Loader 2 Output A2
11	MC_1_A2	OFF_ON	OFF	—	Motor Cool 1 Output A2
12	MC_2_A2	OFF_ON	OFF	—	Motor Cool 2 Output A2
13	OILPMP_A	OFF_ON	OFF	—	Oil Pump Output Cir A
14	ALARM_A	NORMAL_ALARM	NORMAL	—	Alarm Relay State Cir A
15	WTVAL_A	0 to 100	0	%	Water Valve Pos Cir A
16	SHUNT_A	OFF_ON	OFF	—	Shunt Trip Output A
17	TQ_CMD_A	0 to 100	0	%	TQ PWM Cmd Cir A
18	CP_B1	OFF_ON	OFF	—	Compressor Start Relay B
19	OILSL_B1	OFF_ON	OFF	—	Oil Solenoid Output B1
20	LDR_1_B1	OFF_ON	OFF	—	Loader 1 Output B1
21	LDR_2_B1	OFF_ON	OFF	—	Loader 2 Output B1
22	MC_1_B1	OFF_ON	OFF	—	Motor Cool 1 Output B1
23	MC_2_B1	OFF_ON	OFF	—	Motor Cool 2 Output B1
24	CP_B2	OFF_ON	OFF	—	Comp Start Relay B2
25	OILSL_B2	OFF_ON	OFF	—	Oil Solenoid Output B2
26	LDR_1_B2	OFF_ON	OFF	—	Loader 1 Output B2
27	LDR_2_B2	OFF_ON	OFF	—	Loader 2 Output B2
28	MC_1_B2	OFF_ON	OFF	—	Motor Cool 1 Output B2
29	MC_2_B2	OFF_ON	OFF	—	Motor Cool 2 Output B2
30	OILPMP_B	OFF_ON	OFF	—	Oil Pump Output Cir B
31	ALARM_B	NORMAL_ALARM	NORMAL	—	Alarm Relay State Cir B
32	WTVAL_B	0 to 100	0	%	Water Valve Pos Cir B
33	SHUNT_B	OFF_ON	OFF	—	Shunt Trip Output B
34	TQ_CMD_B	0 to 100	0	%	TQ PWM Cmd Cir B
35	CAPT_010	—	0	V	Chiller Capacity
36	RUN	OFF_ON	OFF	—	Run Relay State
37	ALARM	OFF_ON	OFF	—	Alarm Relay State
38	ALERT	OFF_ON	OFF	—	Alert Relay State
39	SHUTDOWN	OFF_ON	OFF	—	Shutdown Relay State
40	ELECBFAN	OFF_ON	OFF	—	Electrical Box Fan

NOTE(S):

a. Depends on the selected language (English by default).

		PUMPSTAT — Pump Status			
	NAME	STATUS	DEFAULT	UNIT	DISPLAYED TEXT[a]
1	SET_FLOW	NO_YES	NO	—	Cooler Flow SP Out
2	CPUMP_1	OFF_ON	OFF	—	Cooler Pump #1 Cmd
3	CPUMP_2	OFF_ON	OFF	—	Cooler Pump #2 Cmd
4	ROTCPUMP	NO_YES	NO	—	Rotate Cooler Pumps ?
5	COOLFLOW	OPEN_CLOSE	OPEN	—	Cooler Flow SW Status
6	HPUMP_1	OFF_ON	OFF	—	Condenser Pump #1 Cmd
7	HPUMP_2	OFF_ON	OFF	—	Condenser Pump #2 Cmd
8	ROTHPUMP	NO_YES	NO	—	Rotate Condenser Pumps?
9	CONDFLOW	OPEN_CLOSE	CLOSE	—	Condenser Flow Switch
10	flow_ok	NO_YES	NO	—	Flow Switch Has Set OK?

NOTE(S):

a. Depends on the selected language (English by default).

APPENDIX A — CARRIER CONTROLLER SYSTEM MENU STRUCTURE (cont)

		RUNTIME — Run Times			
	NAME	STATUS	DEFAULT	UNIT	DISPLAYED TEXT[a]
1	HR_MACH	—	0	hours	Machine Operation Time
2	st_mach	—	0	—	Machine Starts Number
3	hr_cp_a1	—	0	hours	Compressor A1 Hours
4	st_cp_a1	—	0	—	Compressor A1 Starts
5	hr_cp_a2	—	0	hours	Compressor A2 Hours
6	st_cp_a2	—	0	—	Compressor A2 Starts
7	hr_cp_b1	—	0	hours	Compressor B1 Hours
8	st_cp_b1	—	0	—	Compressor B1 Starts
9	hr_cp_b2	—	0	hours	Compressor B2 Hours
10	st_cp_b2	—	0	—	Compressor B2 Starts
11	hr_cpum1	—	0	hours	Cooler Pump #1 Hours
12	hr_cpum2	—	0	hours	Cooler Pump #2 Hours
13	hr_hpum1	—	0	hours	Cond Pump #1 Hours
14	hr_hpum2	—	0	hours	Cond Pump #2 Hours
15	lst_cpa1	—	0	min	Comp A1 Last Start Time
16	lst_cpa2	—	0	min	Comp A2 Last Start Time
17	lst_cpb1	—	0	min	Comp B1 Last Start Time
18	lst_cpb2	—	0	min	Comp B2 Last Start Time
19	lsp_cpa1	—	0	min	Comp A1 Last Stop Time
20	lsp_cpa2	—	0	min	Comp A2 Last Stop Time
21	lsp_cpb1	—	0	min	Comp B1 Last Stop Time
22	lsp_cpb2	—	0	min	Comp B2 Last Stop Time
23	lr_cp_a1	—	0	min	Comp A1 Last Run Time
24	lr_cp_a2	—	0	min	Comp A2 Last Run Time
25	lr_cp_b1	—	0	min	Comp B1 Last Run Time
26	lr_cp_b2	—	0	min	Comp B2 Last Run Time
27	s_cp_a1	—	0	sec	Comp A1 On Seconds
28	s_cp_a2	—	0	sec	Comp A2 On Seconds
29	s_cp_b1	—	0	sec	Comp B1 On Seconds
30	s_cp_b2	—	0	sec	Comp B2 On Seconds
31	s_cir_a	—	0	sec	Cir A On Seconds
32	s_cir_b	—	0	sec	Cir B On Seconds

NOTE(S):

a. Depends on the selected language (English by default).

APPENDIX A — CARRIER CONTROLLER SYSTEM MENU STRUCTURE (cont)

		MODES — Modes			
	NAME	STATUS	DEFAULT	UNIT	DISPLAYED TEXT[a]
1	m_state	0 to 3	0	—	Machine State
2	shut_nor	NO_YES	NO	—	Normal Shutdown
3	shut_rcy	NO_YES	NO	—	Recycle Shutdown
4	shut_alm	NO_YES	NO	—	Alarm Shutdown
5	str_rdy	NO_YES	NO	—	Startup Ready
6	str_rcy	NO_YES	NO	—	Recycle Startup
7	rcysh_cm	NO_YES	NO	—	Recycle Shutdown Done
8	nrysh_cm	NO_YES	NO	—	NonRecycle Shutdown Done
9	fst_act	NO_YES	NO	—	Fast Loading Active
10	spt2_act	NO_YES	NO	—	Second Setpoint In Use
11	rst_act	NO_YES	NO	—	Setpoint Reset In Effect
12	dem_act	NO_YES	NO	—	Demand Limit Active
13	ramp_act	NO_YES	NO	—	Ramp Loading
14	alm_act	NO_YES	NO	—	Unit Alarm Active
15	over_act	NO_YES	NO	—	Override Active
16	fail_a1	0 to 2	0	—	Compressor A1 Fail
17	fail_a2	0 to 2	0	—	Compressor A2 Fail
18	fail_b1	0 to 2	0	—	Compressor B1 Fail
19	fail_b2	0 to 2	0	—	Compressor B2 Fail
20	fail_a	0 to 2	0	—	Circuit A Fail
21	fail_b	0 to 2	0	—	Circuit B Fail
22	cpmprot	NO_YES	NO	—	Cooler Pump Rotation
23	cpmpprs	NO_YES	NO	—	Cooler Pump Period Start
24	hpmprot	NO_YES	NO	—	Cond Pump Rotation
25	hpmpprs	NO_YES	NO	—	Cond Pump Period Start
26	dly_min	0 to 15	1	min	Actual Off to On Delay
27	slv_act	NO_YES	NO	—	Master Slave Active
28	ice_act	NO_YES	NO	—	Ice Building
29	ice_term	0 to 1	0	—	Ice Build Terminated
30	ice_rcy	NO_YES	NO	—	Ice Build Recy Startup
31	sp_used	0 to 2	0	—	Current SetPoint Used
32	cprun_a1	NO_YES	NO	—	Comp A1 is running
33	cprun_a2	NO_YES	NO	—	Comp A2 is running
34	cprun_b1	NO_YES	NO	—	Comp B1 is running
35	cprun_b2	NO_YES	NO	—	Comp B2 is running
36	cirrun_a	NO_YES	NO	—	Circuit A is running
37	cirrun_b	NO_YES	NO	—	Circuit B is running
38	currp_a1	0 to 100	0	%	Comp A1 Current Per
39	currp_a2	0 to 100	0	%	Comp A2 Current Per
40	currp_b1	0 to 100	0	%	Comp B1 Current Per
41	currp_b2	0 to 100	0	%	Comp B2 Current Per
42	pref_a1	0 to 2	0	—	Prelub Pump Fail A1
43	pref_a2	0 to 2	0	—	Prelub Pump Fail A2
44	pref_b1	0 to 2	0	—	Prelub Pump Fail B1
45	pref_b2	0 to 2	0	—	Prelub Pump Fail B2

NOTE(S):

a. Depends on the selected language (English by default).

APPENDIX A — CARRIER CONTROLLER SYSTEM MENU STRUCTURE (cont)

		SETPOINT — Setpoint Table			
	NAME	STATUS	DEFAULT	UNIT	DISPLAYED TEXT[a]
1	csp1	–28.89 to 26.00 –20 to 78.8	6.67 44	°C °F	Cooling Setpoint 1
2	csp2	–28.89 to 26.00 –20 to 78.8	6.67 44	°C °F	Cooling Setpoint 2
3	ice_sp	–28.89 to 26.00 –20 to 78.8	6.67 44	°C °F	Cooling Ice Setpoint
4	cramp_sp	0.11 to 11.11 0.2 to 20	0.56 1	°C °F	Cooling Ramp Loading
5	hsp1	26.67 to 76.67 80 to 170	37.78 100	°C °F	Heating Setpoint 1
6	hsp2	26.67 to 76.67 80 to 170	37.78 100	°C °F	Heating Setpoint 2
7	hramp_sp	0.11 to 11.11 0.2 to 20	0.56 1	^C ^F	Heating Ramp Loading
8	mc_sp	37.78 to 121.11 100 to 250	75.00 167	°C °F	Motor Temp Setpoint
9	w_sct_sp	26.67 to 60.00 80 to 140	40.00 104	°C °F	Water Val Condensing Stp
10	lim_sp1	0 to 100	100	%	Switch Limit Setpoint 1
11	lim_sp2	0 to 100	100	%	Switch Limit Setpoint 2
12	lim_sp3	0 to 100	100	%	Switch Limit Setpoint 3
13	hr_sp	30.00 to 63.00 86 to 145.4	50.00 122	°C °F	Heat Recovery Setpoint
14	hr_db	1.00 to 10.00 1.8 to 18	5.00 9	°C °F	HR Setpoint Deadband

NOTE(S):

a. Depends on the selected language (English by default).

CONFIG Menu

ICON	DISPLAYED TEXT[a]	DESCRIPTION	ASSOCIATED TABLE
	General Configuration	General Configuration	GEN_CONF
	Pump Configuration	Pump Configuration	PUMPCONF
	Reset Configuration	Reset Configuration	RESETCFG
	Schedule Menu	Schedule Menu	SCHEDULE
	Holiday Menu	Holiday Menu	HOLIDAY
	Broadcast Menu	Broadcast Menu	BROADCAST

NOTE(S):

a. Depends on the selected language (English by default).

		GENCONF — General Configuration			
	NAME	STATUS	DEFAULT	UNIT	DISPLAYED TEXT[a]
1	prio_cir	0 to 2 0=Auto, 1=A Prio 2=B Prio	0	—	Cir Priority Sequence
2	ewt_opt	NO_YES	NO	—	Entering Fluid Control
3	seq_typ	NO_YES	NO	—	Staged Loading Sequence
4	ramp_sel	NO_YES	NO	—	Ramp Loading Select
5	cramp_sp	0.11 to 1.11 0.2 to 2	0.56 1	^C ^F	Cold Ramp Setpoint
6	hramp_sp	0.11 to 1.11 0.2 to 2	0.56 1	^C ^F	Heat Ramp Setpoint
7	off_on_d	1 to 15	1	min	Unit Off to On Delay
8	lim_sel	0 to 2 0 = None 1 = Switch Control 2 = 4-20mA Control	0	—	Demand Limit Type Select
9	ice_buil	NO_YES	NO	—	Ice Mode Enable
10	shortcyc	NO_YES	NO	—	short cycle management
11	curr_ful	—	100	—	Full Current Limit Value
12	curr_sel	DSABLE_ENABLE	DSABLE	—	Current Limit Select

NOTE(S):

a. Depends on the selected language (English by default).

APPENDIX A — CARRIER CONTROLLER SYSTEM MENU STRUCTURE (cont)

		PUMPCONF — Pump Configuration			
	NAME	STATUS	DEFAULT	UNIT	DISPLAYED TEXT[a]
1	hpumpseq	0 to 4 0 = No Pump 1 = One Pump Only 2 = Two Pumps Auto 3 = Pump#1 Manual 4 = Pump#2 Manual	0	—	Condenser Pumps Sequence
2	cpumpseq	0 to 4 0 = No Pump 1 = One Pump Only 2 = Two Pumps Auto 3 = Pump#1 Manual 4 = Pump#2 Manual	0	—	Cooler Pumps Sequence
3	pump_del	24 to 3000	48	hours	Pump Auto Rotation Delay
4	pump_per	DSABLE_ENABLE	DSABLE	—	Pump Sticking Protection
5	pump_loc	DSABLE_ENABLE	ENABLE	—	Flow Checked If Pump Off
6	stopheat	DSABLE_ENABLE	DSABLE	—	Cooler Pump Off In Heat
7	stopcool	DSABLE_ENABLE	DSABLE	—	Cond Pump Off In Cool

NOTE(S):

a. Depends on the selected language (English by default).

		RESETCFG — Reset Configuration			
	NAME	STATUS	DEFAULT	UNIT	DISPLAYED TEXT[a]
1	cr_sel	0 to 4 0=None, 1=Delta 2=4-20mA Control 3=Space Temp Cooling	0	—	Cooling Reset Select
2	hr_sel	0 to 4 0=None, 1=Delta 2=4-20mA Control 3=Space Temp Cooling	0	—	Heating Reset Select
3	dt_cr_no	0.00 to 13.89 0 to 25	0.00 0	^C ^F	Delta T No Reset Value
4	dt_cr_fu	0.00 to 13.89 0 to 25	0.00 0	^C ^F	Delta T Full Reset Value
5	v_cr_no	0 to 20	0	mA	Current No Reset Value
6	v_cr_fu	0 to 20	0	mA	Current Full Reset Value
7	spacr_no	–10.00 to 51.67 14 to 125	–10.00 14	°C °F	Space T No Reset Value
8	spacr_fu	–10.00 to 51.67 14 to 125	–10.00 14	°C °F	Space T Full Reset Value
9	cr_deg	–16.67 to 16.67 –30 to 30	0.00 0	^C ^F	Cooling Reset Deg. Value
10	dt_hr_no	0.00 to 13.89 0 to 25	0.00 0	^C ^F	Delta T No Reset Value
11	dt_hr_fu	0.00 to 13.89 0 to 25	0.00 0	^C ^F	Delta T Full Reset Value
12	v_hr_no	0 to 20	0	mA	Current No Reset Value
13	v_hr_fu	0 to 20	0	mA	Current Full Reset Value
14	spahr_no	–10.00 to 51.67 14 to 125	–10.00 14	°C °F	Space T No Reset Value
15	spahr_fu	–10.00 to 51.67 14 to 125	–10.00 14	°C °F	Space T Full Reset Value
16	hr_deg	–16.67 to 16.67 –30 to 30	0.00 0	°C °F	Heating Reset Deg. Value

NOTE(S):

a. Depends on the selected language (English by default).

APPENDIX A — CARRIER CONTROLLER SYSTEM MENU STRUCTURE (cont)

	SCHEDULE — Schedule Menu	
ICON	**NAME**	**DISPLAYED TEXT[a]**
	Time schedule 1（OCCPC01S）	Unit start/stop schedule
	Time schedule 2（OCCPC02S）	Unit setpoint schedule

NOTE(S):

a. Depends on the selected language (English by default).

	HOLIDAY — Holiday Menu	
ICON	**NAME**	**DISPLAYED TEXT[a]**
	HOLDY_01	Holiday 1
	HOLDY_02	Holiday 2
	HOLDY_03	Holiday 3
	HOLDY_04	Holiday 4
	HOLDY_05	Holiday 5
	HOLDY_06	Holiday 6
	HOLDY_07	Holiday 7
	HOLDY_08	Holiday 8
	HOLDY_09	Holiday 9
	HOLDY_10	Holiday 10
	HOLDY_11	Holiday 11
	HOLDY_12	Holiday 12
	HOLDY_13	Holiday 13
	HOLDY_14	Holiday 14
	HOLDY_15	Holiday 15
	HOLDY_16	Holiday 16

NOTE(S):

a. Depends on the selected language (English by default).

	BROADCAST — Broadcast Configuration		
STATUS	**DEFAULT**	**DISPLAYED TEXT[a]**	**DESCRIPTION**
0 to 2	2	Activate	Broadcast: 0 = Broadcast disabled 1 = Holidays, OAT and time/date broadcast 2 = Stand-alone OAT broadcast (daylight saving time and holiday determined without broadcasting through the bus)
OAT Broadcast			
0 to 239	0	Bus	Bus number of the unit with outdoor temperature sensor
0 to 239	0	Element	Element number of the unit with outdoor temperature sensor
disable/enable	disable	Daylight Savings Select	Summer/winter time activation (daylight saving selection)
Daylight Savings Select – Summer time (entering)			
1 to 12	3	Month	Month
1 to 7	7	Day of Week (1=Monday)	Day of the week (1 = Monday)
1 to 5	5	Week Number of Month	Week of the month
Daylight Savings Select – Winter time (leaving)			
1 to 12	10	Month	Month
1 to 7	7	Day of Week (1=Monday)	Day of the week (1 = Monday)
1 to 5	5	Week Number of Month	Week of the month

NOTE(S):

a. Depends on the selected language (English by default).

ALARMS Menu

ICON	DISPLAYED TEXT[a]	DESCRIPTION	ASSOCIATED TABLE
	Reset Alarms	Reset Alarms	ALARMRST
	Current Alarms	Current Alarms	CUR_ALM
	Alarm Historic	Alarm Historic	ALMHIST1
	Major Alarm Historic	Major Alarm Historic	ALMHIST2

NOTE(S):
a. Depends on the selected language (English by default).

		ALARMRST — Reset Alarms			
	NAME	STATUS	DEFAULT	UNIT	DISPLAYED TEXT[a]
1	RST_ALM	0 to 1	0	—	Alarm Reset
2	ALM	0 to 0	0	—	Alarm State
3	alarm_1c	0 to 0	0	—	Current Alarm 1
4	alarm_2c	0 to 0	0	—	Current Alarm 2
5	alarm_3c	0 to 0	0	—	Current Alarm 3
6	alarm_4c	0 to 0	0	—	Current Alarm 4
7	alarm_5c	0 to 0	0	—	Current Alarm 5
8	alarm_1	0 to 0	0	—	Jbus Current Alarm 1
9	alarm_2	0 to 0	0	—	Jbus Current Alarm 2
10	alarm_3	0 to 0	0	—	Jbus Current Alarm 3
11	alarm_4	0 to 0	0	—	Jbus Current Alarm 4
12	alarm_5	0 to 0	0	—	Jbus Current Alarm 5

NOTE(S):
a. Depends on the selected language (English by default).

CONTROL OPERATION

This section identifies important control functions such as unit start and stop, cooling control, and more. It also describes how to perform key operations of the control system.

Start/Stop Control

Table C summarizes the unit control type and stop or go status with regard to the following parameters.

- Operating type: this is selected using the start/stop button on the front of the user interface.
  - LOFF Local off
  - L-C Local on
  - L-SC Local schedule
  - REM Remote
  - CCN CCN Network
- Remote start/stop contacts: these contacts are used when the unit is in remote operating type (Remote).
- CHIL_S_S: this network command relates to the unit start/stop when the unit is in network mode.
- Start/Stop schedule: occupied or unoccupied status of the unit as determined by the unit start/stop program (Schedule 1).
- Network emergency shutdown: if this CCN or BACnet/IP (option) command is activated, it shuts the unit down whatever the active operating type.
- CCN emergency shutdown: if this CCN command is activated, it shuts the unit down whatever the active operating type.
- General alarm: the unit is totally stopped due to failure.

Unit Stop Function

This function controls the unit compressor capacity reduction. If there is an alarm or a demand to stop it forces the compressors to the minimum capacity before stopping them.

This stop sequence is not followed if there is a unit protection alarm such as “water heat exchanger frost protection” or “low saturated suction temperature”.

Evaporator Water Pump Control

The unit can control the evaporator water pump. The pump is turned on when this option is configured (see PUMPCONF configuration sub-menu) and when the unit is in one of the on modes described above or in delay mode. Since the minimum value for the delay at start-up is 1 minute (configurable between 1 and 15 minutes), the pump will run for at least one minute before the first compressor starts.

The pump is kept running for 20 seconds after the unit goes to stop mode. It is turned off if the unit is shut down due to an alarm, unless the fault is a frost protection fault.

The control provides a means to automatically start the pump each day at 14.00 for 2 seconds when the unit is off. Starting the pump periodically for a few seconds increases the lifetime of the pump bearings and the tightness of the pump seal.

Table C — Unit Control Type and Status

ACTIVE OPERATING TYPE					PARAMETER STATUS							CONTROL TYPE	UNIT MODE
LOFF	L-C	L-SC	REM	CCN	MAST	CHIL_S_S	REMOTE START/ STOP CONTACT	MASTER CONTROL TYPE	START-STOP TIME SCHEDULE	CCN EMERGENCY SHUTDOWN	GENERAL ALARM		
—	—	—	—	—	—	—	—	—	—	Active	—	—	Off
—	—	—	—	—	—	—	—	—	—	—	Yes	—	Off
—	—	—	—	Active	—	Off	—	—	—	—	—	CCN	Off
—	—	—	—	Active	—	—	—	—	Unoccupied	—	—	CCN	Off
—	—	—	—	—	Active	Off	—	CCN	—	—	—	CCN	Off
—	—	—	—	—	Active	—	—	CCN	Unoccupied	—	—	CCN	Off
—	—	—	—	Active	—	On	—	—	Occupied	Disabled	No	CCN	On
—	—	—	—	—	Active	On	—	CCN	Occupied	Disabled	No	CCN	On
Active	—	—	—	—	—	—	—	—	—	—	—	Local	Off
—	—	Active	—	—	—	—	—	—	Unoccupied	—	—	Local	Off
—	—	—	—	—	Active	—	—	Local	Unoccupied	—	—	Local	Off
—	Active	—	—	—	—	—	—	—	—	Disabled	No	Local	On
—	—	Active	—	—	—	—	—	—	Occupied	Disabled	No	Local	On
—	—	—	—	—	Active	—	—	Local	Occupied	Disabled	No	Local	On
—	—	—	Active	—	—	—	Open	—	—	—	—	Remote	Off
—	—	—	Active	—	—	—	—	—	Unoccupied	—	—	Remote	Off
—	—	—	—	—	Active	—	Open	Remote	—	—	—	Remote	Off
—	—	—	—	—	Active	—	—	Remote	Unoccupied	—	—	Remote	Off
—	—	—	Active	—	—	—	Closed	—	Occupied	Disabled	No	Remote	On
—	—	—	—	—	Active	—	Closed	Remote	Occupied	Disabled	No	Remote	On

Condenser Water Pump Control

Control of the condenser water pump is the same as for the evaporator water pump. See “Evaporator Water Pump Control” on page 33. There is only one condenser pump.

Control Point

The control point represents the water temperature that the unit must satisfy.

In cooling mode the evaporator outlet water is controlled by default, but the evaporator inlet water can also be controlled (requires a Service configuration modification).

In heating mode the condenser outlet water is controlled by default, but the condenser inlet water can also be controlled (requires a Service configuration modification).

Control point = active setpoint + reset.

ACTIVE SETPOINT

Two setpoints can be selected. Usually, the second cooling setpoint is used for unoccupied periods. Depending on the current operation type, the active setpoint can be selected by choosing the item in the table ***Status → Genunit***, with the volt-free user contacts, with network commands or with the setpoint timer program (schedule 2).

Table D summarizes the possible selections depending on the control types (local, remote or network) and the following parameters:

- Setpoint select in local control: item “Setpoint select” in the table ***Status → Genunit*** permits selection of the active setpoint, if the unit is in local operating type.
- Control contacts 2: status of control contact 2.
- Schedule 2 status: schedule for setpoint selection.

Table D — Active Setpoint

LOCAL OPERATING MODE

PARAMETER STATUS					ACTIVE SETPOINT
HEATING/COOLING OPERATING MODE	LOCAL SETPOINT SELECTION	ICE STORAGE CONFIGURATION[a]	ICE STORAGE CONTACT STATUS[a]	SCHEDULE 2 STATUS	
Cooling	csp 1	—	—	—	Cooling setpoint 1
Cooling	csp 2	—	—	—	Cooling setpoint 2
Cooling	auto	Activated	Open	Unoccupied	Ice storage setpoint
Cooling	auto	Activated	Closed	Unoccupied	Cooling setpoint 2
Cooling	auto	—		Occupied	Cooling setpoint 1
Cooling	auto	Deactivated	—	Unoccupied	Heating setpoint 2
Heating	hsp 1	—	—	—	Heating setpoint 1
Heating	hsp 2	—	—	—	Heating setpoint 2
Heating	auto	—	—	Occupied	Heating setpoint 1
Heating	auto	—	—	Unoccupied	Heating setpoint 2

REMOTE OPERATING MODE

PARAMETER STATUS					ACTIVE SETPOINT
HEATING/COOLING OPERATING MODE	LOCAL SETPOINT SELECTION	ICE STORAGE CONFIGURATION[a]	ICE STORAGE CONTACT STATUS[a]	CONTROL CONTACT 2	
Cooling	csp control	—	—	—	Control setpoint
Cooling	—	—	—	csp 1 (open)	Cooling setpoint 1
Cooling	—	—	—	csp 2 (closed)	Cooling setpoint 2
Cooling	—	Activated	—	Open	Cooling setpoint 1
Cooling	—	Activated	Open	Closed	Ice storage setpoint
Cooling	—	Activated	Closed	Closed	Cooling setpoint 2
Heating	—	—	—	Open	Heating setpoint 1
Heating	—	—	—	Closed	Heating setpoint 2

NETWORK OPERATING MODE

PARAMETER STATUS					ACTIVE SETPOINT
HEATING/COOLING OPERATING MODE	LOCAL SETPOINT SELECTION	ICE STORAGE CONFIGURATION[a]	ICE STORAGE CONTACT STATUS[a]	CONTROL CONTACT 2	
Cooling	—	—	—	Occupied	Cooling setpoint 1
Cooling	—	—	—	Unoccupied	Cooling setpoint 2
Cooling	—	Activated	Open	Unoccupied	Ice storage setpoint
Cooling	—	Activated	Closed	Unoccupied	Cooling setpoint 2
Heating	—	—	—	Occupied -	Heating setpoint 1
Heating	—	—	—	Unoccupied	Heating setpoint 2

NOTE(S):

a. Only with energy management option.

RESET

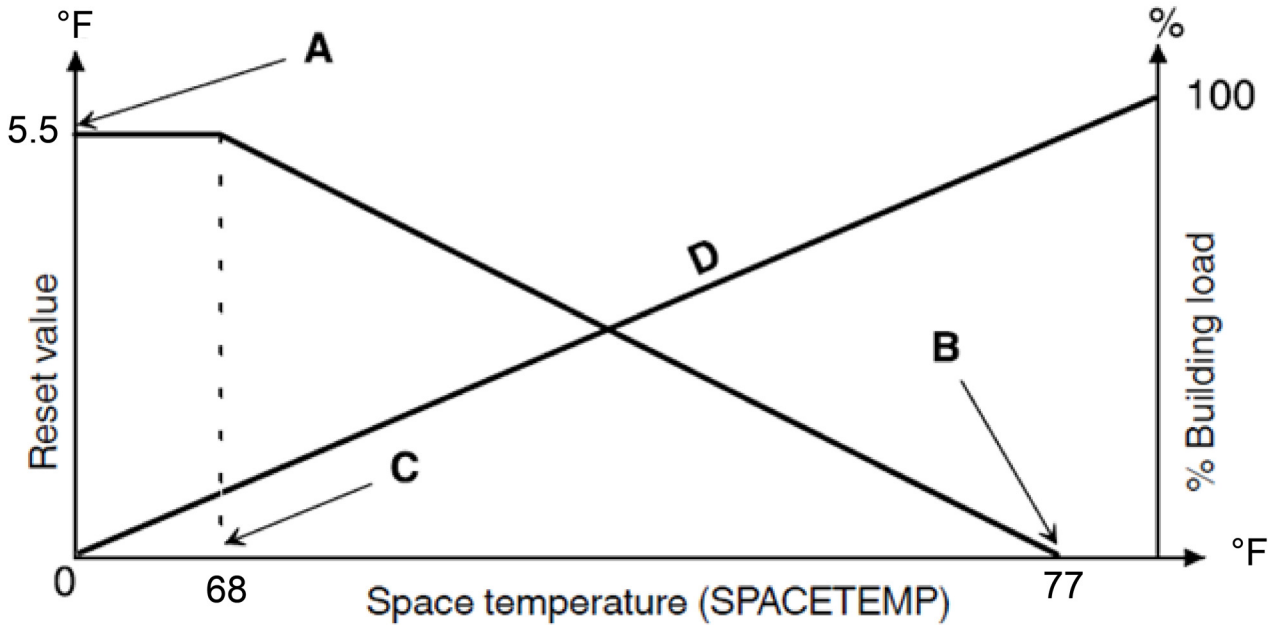
Reset means the active setpoint is modified so that less machine capacity is required (in cooling mode the setpoint is increased, in heating mode it is decreased). This modification is in general a reaction to a drop in the load. For the Carrier Controller control system, the reset source can be configured in the menu ***Status*** → ***RESETCFG***: it can be based on the outdoor temperature (gives a measure of the load trends for the building) or used with the energy management option at the reset setpoint. In response to a drop in the space temperature or to a drop in ΔT, the cooling setpoint is normally reset upwards to optimize unit performance.

In the three cases the reset parameters, i.e. slope, source and maximum value, are configurable in the Setpoint menu.

Reset is a linear function based on three parameters:

- A reference at which reset is zero (space temperature or ΔT - no reset value).
- A reference at which reset is maximum (space temperature or ΔT - full reset value).
- The maximum reset value.

See Fig. Y.



LEGEND

A — Maximum reset value
B — Space temperature for zero reset
C — Space temperature for maximum reset
D — Building load

Fig. Y — Reset Example in Cooling Mode for the Space Temperature

Demand Limit

Generally, demand limit is used by an energy management system in order to restrict the unit electricity consumption.

The PIC6.1 control system for 30HX provides two methods of demand limit:

- By reference to a limiting signal from a user-controlled volt-free contact: the capacity of the unit cannot exceed the demand limit setpoint (which can be modified in the Setpoints menu) when the limit contact is closed.
- By reference to an external 0-10 vdc signal: the capacity of the unit cannot exceed the demand limit imposed by this external signal. It is a linear function and its parameters are configurable in the User1 menu (voltages at 0% limitation and 100% of limitation). This function is not available if Reset by reference to an external 0-10 vdc signal has already been selected.

Whatever the method used, demand limit is active in all operating types: Local, Remote or CCN. However, in Local operating type, demand limit can be disabled and in CCN operating type, demand limit can be controlled directly with the aid of CCN commands.

NOTE: A limitation value of 100% means that the unit may call upon the full array of its capacity stages.

Figure Z is an example of demand limit by an external 0-10 vdc signal. This example assumes that the limitation parameters are such that at 0 volt the authorized capacity shall be maximum capacity, and at 10 volts the authorized capacity shall be zero (this is the default configuration).

Capacity Control

This function adjusts the compressor capacity to keep the heat exchanger water temperature at its setpoint. The control system continuously takes account of the temperature error with respect to the setpoint, as well as the rate of change in this error and the difference between entering and leaving water temperatures, in order to determine the optimum moment at which to add or withdraw capacity.

In addition, the high pressure or low pressure unloading functions can also affect the temperature control accuracy.

Compressors are started in a sequence designed to equalize the number of start-ups (value weighted by their operating time).

Saturated Condensing Temperature Control

Saturated condensing temperature control is assured if the three-way valve option is selected. The saturated condensing temperature is controlled based on a fixed setpoint that can be configured by via the SETPOINT table. The three-way valve control can be configured by the service department via the SERVICE table.

Determining the Lead Circuit

This function commands the start/stop sequence of the two refrigerant circuits called A and B. The circuit authorized to start first is the lead circuit. Three methods can be configured by the user in the Configuration menu:

- Auto mode: the control system determines the lead circuit so as to equalize the number of starts on each circuit (value weighted by the operating times of each circuit). Thus, the circuit with the least number of starts is always given precedence to start. The lead circuit is stopped last.
- Circuit A as leader: Circuit A is always the lead circuit. It is the first to start and the last to stop.
- Circuit B as leader: Circuit B is always the lead circuit. It is the first to start and the last to stop.

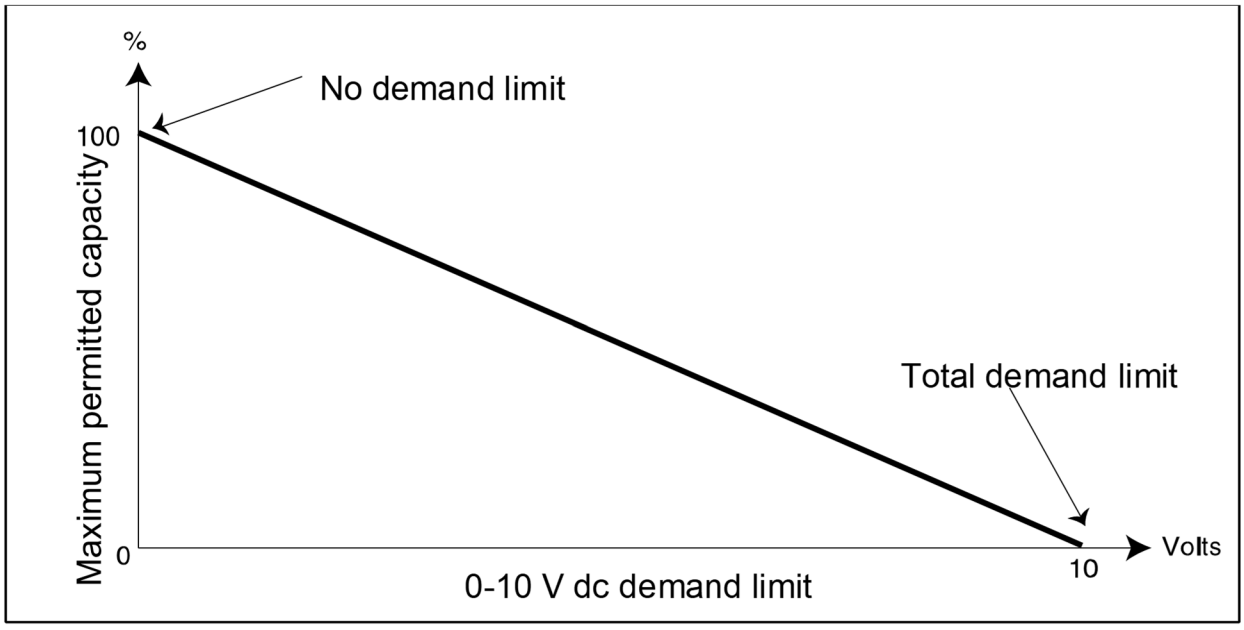


Fig. Z — Demand Limit by 0-10 vdc Signal

Circuit Loading Sequence

Two circuit loading sequences are available. The choice of sequence can be configured by the user in the Configuration menu

- Balanced circuit loading: If this sequence is selected, the control system tries to keep the capacity of circuits A and B equal as the total load on the unit increases or decreases.
- Loading with priority given to one circuit: If this sequence is selected, the control system loads the lead circuit completely before the second circuit starts up. When there is a demand limit, the second circuit is unloaded first.

IMPORTANT: 30HX units use 06N twin screw compressors. The screw compressor efficiency is better at full load than at part load. By default, the 'close control'* configuration is not validated, and the control will always try to optimize unit efficiency.

* Temperature precision has priority over compressor capacity. This parameter is only accessible to Carrier Service.

Compressor Start-Up Sequence in One Circuit

The first compressor to start is the one with the least number of start-ups and operating hours. If both compressors are operating and the load decreases, the compressor that started first shuts down. This avoids cycling of the same compressor.

EXV Control

The electronic expansion valves (EXVs) control charging and the refrigerant flow in the evaporator, maintaining the optimum evaporator throttle and a correct discharge superheat. Opening the valve permits reduction of the throttle, and thus improves the heat exchange in the evaporator. This opening can be limited to maintain the condenser subcooling and correct superheat, avoiding liquid slugging at the compressors and ensuring operating stability.

Motor Cooling Valve Control

The temperature of the motor windings is controlled to a setpoint of 82°C/180°F. This is achieved by cycling of the motor cooling valves to allow the liquid refrigerant to flow across the motor windings, if necessary. On units equipped with economizers with plate heat exchangers, a thermostatic valve controls the necessary refrigerant flow entering this heat exchanger and continuously flowing over the motor windings. All refrigerant used for motor cooling returns to the rotors through an orifice situated mid-way along the compression cycle and is compressed to the discharge pressure.

Head Pressure Control on Water-Cooled Units

The saturated condensing temperature is controlled by reference to a user-definable fixed setpoint.

This temperature is maintained by using the valve to control the flow of water in each condenser circuit.

High Pressure Load Shedding Function

This function does not require an additional board. It prevents high pressure breaks on a circuit by the following means:

- Preventing any capacity increase on the circuit once the high-pressure value has reached an initial threshold.
- Shedding one or more capacity stages once a second protection threshold has been reached.

In the event of capacity stages being shed, no capacity increase will be authorized on the circuit for a period of 5 minutes.

NOTE: The last capacity stage cannot be shed by this protection function. An alarm is activated if the high pressure is still too high.

High Current Load Shedding Function

This function does not require an additional board. It prevents high current breaks on each compressor by the following means:

- Preventing any capacity increase on the compressor once the high current value has reached an initial threshold
- Shedding one or more capacity stages once a second protection threshold has been reached.

In the event of capacity stages being shed, no capacity increase will be authorized on the circuit for a period of 5 minutes.

Start-up Procedure — Prelubrication

This procedure describes the necessary procedures to ensure the lubrication of the compressor before start-up.

The control follows the sequence below:

For the lead compressor (the first compressor in the circuit to start):

1. Start the oil pump and measure the initial oil pressure.
2. Wait approximately 30 seconds.
3. Verify the oil solenoid valve tightness.
   - If oil pressure increases and the solenoid valve is not open, the oil solenoid valve failure alarm is activated and prelubrication is stopped. The procedure is aborted.
   - If not, the oil solenoid valve is activated.
4. Wait approximately 15 seconds.
5. If oil pressure increases, prelubrication is assured and the compressor can start.
6. If not, a further prelubrication cycle is started. Return to point 1.

NOTE: After three cycles, the low oil pressure alarm at pre-start-up is activated, and prelubrication is also stopped.

For the lag compressor (one compressor in the circuit is already in operation).

1. Activate the oil solenoid valve.
2. Wait approximately 15 seconds.
3. If oil pressure increases, prelubrication is assured and the compressor can now start.
4. If not, the low oil pressure at start-up alarm is activated and the prelubrication is also stopped.

Time Schedule Function

The control includes two-time schedules.

The first schedule (schedule 1 OCCPC01S) allows automatic changeover of the unit from occupied to unoccupied mode: the unit is started during occupied periods.

The second schedule (schedule 2 OCCPC02S) allows automatic change of the active setpoint (if auto mode is selected) from the occupied setpoint to the unoccupied setpoint.

Cooling or heating setpoint 1 is active during occupied periods. Cooling or heating setpoint 2 is active during unoccupied periods.

Each time schedule consists of eight user configurable periods. Each of these periods can be validated as active or not active for each day of the week as well as for holiday periods. The day begins at 00:00 and ends at 23:59.

The schedule is in unoccupied mode unless a time period is active. If two periods coincide or are active on the same day, priority is given to the unoccupied period. Each of the eight periods can be displayed and modified using a sub-menu.The following table shows how to configure a period. The method is the same for time schedule 1 and 2.

SCHEDULE MENU

This function is used to define the start/stop time schedule and the setpoint selection time schedule.

Name	Description
SCHEDULE1	Unit start/stop time schedule
SCHEDULE2	Unit setpoint selection time schedule

HOLIDAYS MENU

This function is used to define 16 holiday periods. Each period is defined by three parameters: month, start day and holiday period duration. During the holiday periods the controller is in occupied or unoccupied mode, depending on the periods validated as holidays. Each of these holiday periods can be displayed or modified using a sub-menu.

IMPORTANT: The Broadcast function must be active for the holiday function to operate, even if the unit is in autonomous mode (not connected to the CCN network).

Name	Description
HOLDY_01	Holiday period 1
HOLDY_02	Holiday period 2
HOLDY_03	Holiday period 3
HOLDY_04	Holiday period 4
HOLDY_05	Holiday period 5
HOLDY_06	Holiday period 6
HOLDY_07	Holiday period 7
HOLDY_08	Holiday period 8
HOLDY_09	Holiday period 9
HOLDY_10	Holiday period 10
HOLDY_11	Holiday period 11
HOLDY_12	Holiday period 12
HOLDY_13	Holiday period 13
HOLDY_14	Holiday period 14
HOLDY_15	Holiday period 15
HOLDY_16	Holiday period 16

Energy Management Option

This option requires the installation of an additional SIOB-BASE EMM type board. This board permits access to the following functions:

- Reset via 4-20 mA control.
- Ice storage contact: if ice storage control has been configured (***Configuration Menu → General Configuration***), this contact permits activation of the ice storage setpoint.
- User safety loop input: this contact is used for the customer safety loops that require a unit shut-down if it is closed.
- Occupancy control time schedule override contact: if this contact is closed, the unit enters the occupied mode for a configurable override time of 1 to 4 hours.
- Condenser water flow input.
- Demand limit setpoint contact and output.

This option also permits display of the following data:

- Current unit capacity via 0-10 vdc output
- Operating status, compressors A and B
- Unit completely stopped
- Unit in operation

Black Box Function

The Carrier Controller registers the values of around 20 predefined variables every 5 seconds. If an operation alarm appears, the control saves a data set of 180 registrations (168 preceding the alarm and 12 following it), for a duration of 15 minutes of unit operation.

Each registration is associated with a time schedule defined in hours, minutes and seconds. The control can store a maximum of 20 data sets in the memory. If the threshold of 20 data sets is reached, a rotary registration mechanism is triggered (a new data set deletes the oldest data set). The data sets can be recovered by a Carrier service technician, using the Carrier Pro-View tool that permits downloading them to a PC or can be uploaded to the USB drive.

DIAGNOSTICS - TROUBLESHOOTING

The Carrier Controller has many fault tracing aid functions. The local interface and its various menus give access to all unit operating conditions. If an operating fault is detected, an alarm is activated and an alarm code is stored in the Alarms menu, sub-menus “Reset alarms” and “Current alarm”.

Email Notification

The control system can define one or two recipients and notify the recipient by email whenever a new alarm occurs or resets all currently existing alarms.

NOTE: Email notifications can only be set by a Carrier service technician.

Alarm Display

The control system quickly displays the status of the unit (Fig. AA). Once the alarm is activated, the icon clock on the touch screen lights up and shakes.

- The LED flashes and shakes to indicate that the loop is running, but there is a warning.
- The indicator light is steady red and shakes to indicate that the circuit has stopped due to a malfunction.

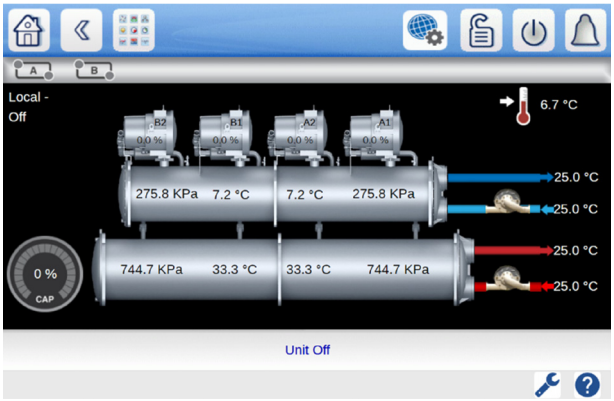


Fig. AA — Alarm Display

Click the button at the top right of the interface to enter the alarm information and alarm reset interface (Fig. AB).

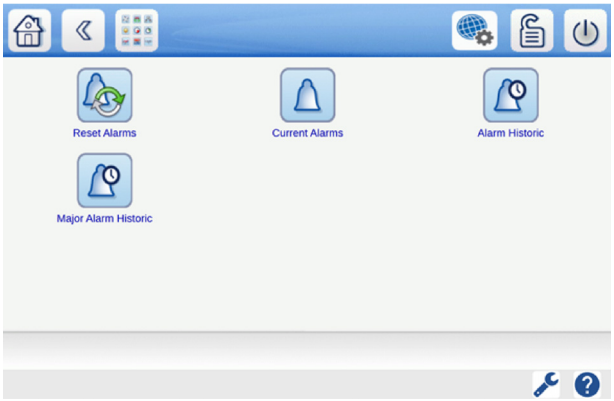


Fig. AB — Alarm Information/Alarm Reset Interface

Current Alarm

The current alarm interface lists the currently active alarms, including the date and time the alarm occurred (Fig. AC). The controller displays up to 10 current alarms.

Access the currently active alarm list by tapping alarm button and selecting current alarm in the upper right corner of the screen. The current alarm screen displays.

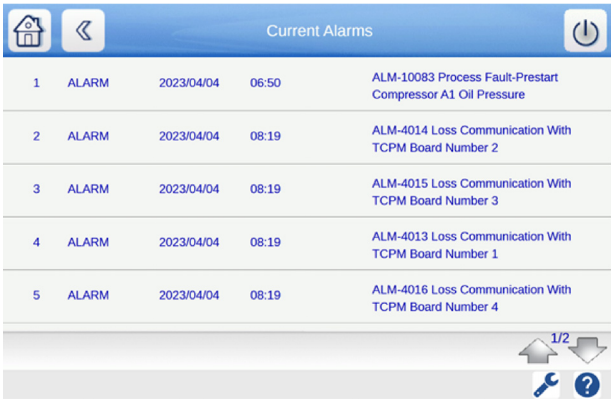


Fig. AC — Current Alarm Screen

Resetting Alarms

When the cause of the alarm has been corrected, the alarm can be reset either automatically on return to normal, or manually when action has been taken on the unit, depending on the type. Alarms can be reset even if the unit is running, service login is required.

This means that an alarm can be reset without stopping the machine. In the event of a power supply interrupt, the unit restarts automatically without the need for an external command. However, any faults active when the supply is interrupted are saved and may in certain cases prevent a circuit or a unit from restarting.

A manual reset must be run from the Carrier Controller interface or the web via the "Reset alarms" menu, item RST_ALM. Alarm reset can be protected by a basic user level password.

NOTE: The reset alarm menu can only display up to the current 5 active unit alarm codes. The alarm can only be reset after the user has logged in.

Access the reset alarm menu (Fig. AD) by clicking the alarm button and selecting Reset Alarm .

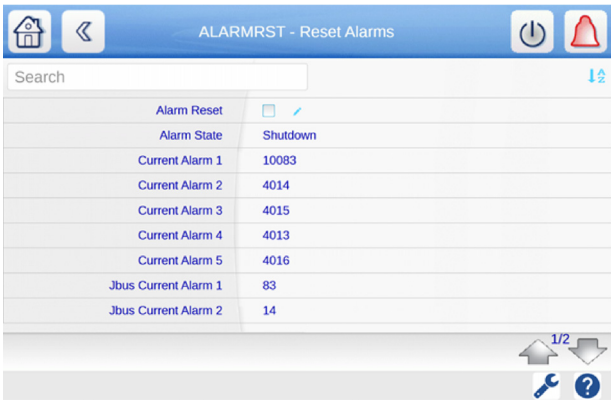


Fig. AD — Reset Alarm Menu

Alarm History

The alarm history menu is divided into the last 50 alarms and the alarm information that has been resolved by the last 50 main alarm stores (Fig. AE).

- Normal alarms are used to indicate pump failure, sensor failure, network connection problems, etc.
- Primary alarms are used to indicate process failure.

To access the alarm history menu, click alarm button and then select either Alarm History or Primary Alarm History .

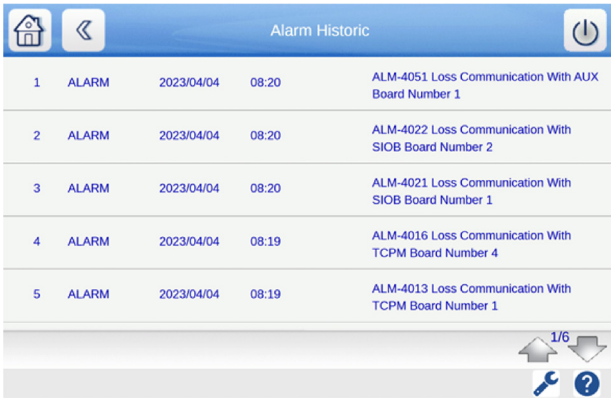


Fig. AE — Alarm History

Alarm Codes

Table E lists the general alarm codes.

APPENDIX A — CARRIER CONTROLLER SYSTEM MENU STRUCTURE (cont)

Table E — Alarm Codes

ALARM NUMBER	ALARM CODE	DESCRIPTION OF THE ALARM TEXT	RESET TYPE
1	15010	Sensor Fault-Cooler Entering Fluid Thermistor	Automatic if the temperature measured by the sensor returns to normal.
2	15020	Sensor Fault-Cooler Leaving Fluid Thermistor	As above
3	15030	Sensor Fault-Condenser Entering Fluid Thermistor	As above
4	15040	Sensor Fault-Condenser Leaving Fluid Thermistor	As above
5	15050	Sensor Fault-Out Door Temperature Thermistor	As above
6	15061	Sensor Fault-Master/Slave Cooled Fluid Thermistor	As above
7	15062	Sensor Fault-Master/Slave Heated Fluid Thermistor	As above
8	15073	Sensor Fault-Compressor A1 Discharge Gas Thermistor	As above
9	15074	Sensor Fault-Compressor A2 Discharge Gas Thermistor	As above
10	15075	Sensor Fault-Compressor B1 Discharge Gas Thermistor	As above
11	15076	Sensor Fault-Compressor B2 Discharge Gas Thermistor	As above
12	15081	Sensor Fault-Circuit A Motor Cooling TQ Feedback	As above
13	15082	Sensor Fault-Circuit B Motor Cooling TQ Feedback	As above
14	12011	Sensor Fault-Circuit A Discharge Transducer	Automatic, if the sensor measurement value returns to normal.
15	12012	Sensor Fault-Circuit B Discharge Transducer	As above
16	12021	Sensor Fault-Circuit A Suction Transducer	As above
17	12022	Sensor Fault-Circuit B Suction Transducer	As above
18	12033	Sensor Fault-Compressor A1 Oil Pressure Transducer	As above
19	12034	Sensor Fault-Compressor A2 Oil Pressure Transducer	As above
20	12035	Sensor Fault-Compressor B1 Oil Pressure Transducer	As above
21	12036	Sensor Fault-Compressor B2 Oil Pressure Transducer	As above
22	12043	Sensor Fault-Compressor A1 Eco Pressure Transducer	As above
23	12044	Sensor Fault-Compressor A2 Eco Pressure Transducer	As above
24	12045	Sensor Fault-Compressor B1 Eco Pressure Transducer	As above
25	12046	Sensor Fault-Compressor B2 Eco Pressure Transducer	As above
26	12051	Sensor Fault-Cir A Reclaim Pumpdown Press Transducer	As above
27	12052	Sensor Fault-Cir B Reclaim Pumpdown Press Transducer	As above
28	4013	Loss Communication With TCPM Board Number 1	Automatic, if communication is restored
29	4014	Loss Communication With TCPM Board Number 2	As above
30	4015	Loss Communication With TCPM Board Number 3	As above
31	4016	Loss Communication With TCPM Board Number 4	As above
32	4021	Loss Communication With SIOB Board Number 1	As above
33	4022	Loss Communication With SIOB Board Number 2	As above
34	4023	Loss Communication With SIOB EMM Board	As above
35	4051	Loss Communication With AUX Board Number 1	As above
36	4052	Loss Communication With AUX Board Number 2	As above
37	10020	Process Fault-Customer Interlock Failure	Automatic, if triggered during a shutdown
38	10030	Process Fault-Unit is in CCN Emergency Stop	As above
39	10040	No Factory Configuration	As above
40	10050	Factory Configuration Error	As above
41	10061	Process Fault-Circuit A High Discharge Pressure	As above
42	10062	Process Fault-Circuit B High Discharge Pressure	As above
43	10073	Process Fault-Compressor A1 Oil Solenoid	Automatic, if the same alarm has not tripped during the last 24 hours
44	10074	Process Fault-Compressor A2 Oil Solenoid	As above
45	10074	Process Fault-Compressor B1 Oil Solenoid	As above
46	10076	Process Fault-Compressor B2 Oil Solenoid	As above
47	10083	Process Fault-Prestart Compressor A1 Oil Pressure	As above
48	10084	Process Fault-Prestart Compressor A2 Oil Pressure	As above
49	10085	Process Fault-Prestart Compressor B1 Oil Pressure	As above
50	10086	Process Fault-Prestart Compressor B2 Oil Pressure	As above
51	10091	Process Fault-Circuit A Low Oil level	Manual
52	10092	Process Fault-Circuit B Low Oil level	Manual
53	10101	Process Fault-Circuit A Low SST	Manual
54	10102	Process Fault-Circuit B Low SST	Manual
55	10111	Process Fault-Circuit A High SST	Manual
56	10112	Process Fault-Circuit B High SST	Manual
57	10121	Process Fault-Circuit A Low DSH Temperature	Automatic, if the same alarm has not tripped during the last 24 hours
58	10122	Process Fault-Circuit B Low DSH Temperature	As above
59	10133	Process Fault-Comp A1 High Discharge Temperature	Manual
60	10134	Process Fault-Comp A2 High Discharge Temperature	Manual
61	10135	Process Fault-Comp B1 High Discharge Temperature	Manual
62	10136	Process Fault-Comp B2 High Discharge Temperature	Manual
63	10143	Process Fault-Comp A1 Max Oil Filter Diff Pressure	Manual
64	10144	Process Fault-Comp A2 Max Oil Filter Diff Pressure	Manual
65	10145	Process Fault-Comp B1 Max Oil Filter Diff Pressure	Manual
66	10146	Process Fault-Comp B2 Max Oil Filter Diff Pressure	Manual

APPENDIX A — CARRIER CONTROLLER SYSTEM MENU STRUCTURE (cont)

Table E — Alarm Codes (cont)

ALARM NUMBER	ALARM CODE	DESCRIPTION OF THE ALARM TEXT	RESET TYPE
67	10163	Process Fault-Compressor A1 Low Oil Pressure	Automatic, if the same alarm has not tripped during the last 24 hours
68	10164	Process Fault-Compressor A2 Low Oil Pressure	As above
69	10165	Process Fault-Compressor B1 Low Oil Pressure	As above
70	10166	Process Fault-Compressor B2 Low Oil Pressure	As above
71	10170	Process Fault-Cooler Freeze Protection	As above
72	10181	Process Fault-Circuit A Condenser Freeze Protection	Manual reset when saturated exhaust temperature is greater than 40°F; automatic reset in general
73	10182	Process Fault-Circuit B Condenser Freeze Protection	As above
74	10090	Process Fault-Master/Slave Communication Failure	Automatic
75	10211	Process Fault-Cooler Pump #1 Fault	Manual
76	10212	Process Fault-Cooler Pump #2 Fault	Manual
77	10190	Process Fault-Cooler Flow Switch Failure	Manual
78	10221	Process Fault-Condenser Pump #1 Fault	Manual
79	10222	Process Fault-Condenser Pump #2 Fault	Manual
80	10200	Process Fault-Condenser Flow Switch Failure	Manual
81	10263	Process Fault-Compressor A1 High Current	Automatic
82	10264	Process Fault-Compressor A2 High Current	Automatic
83	10265	Process Fault-Compressor B1 High Current	Automatic
84	10266	Process Fault-Compressor B2 High Current	Automatic
85	10160	Process Fault-System Pump Failure	Automatic
86	10271	Process Fault-Circuit A Stop Fault	Manual
87	10272	Process Fault-Circuit B Stop Fault	Manual
88	10280	Process Fault-Water Exchanger Temp Sensors Swapped	Manual
89	11031	Process Fault-Compressor A High Press SW protection	Manual
90	11032	Process Fault-Compressor B High Press SW protection	Manual
91	11040	Process Fault-Heat Reclaim Flow Switch Failure	Manual
92	11050	Process Fault-Unit Is In Emergency Stop	Manual

APPENDIX B — 30HXC UNIT CONFIGURATION

Table F — Menu Options

MENU	MENU ITEM	Options	TONNAGE													
			76	86	96	106	116	126	136	146	171	186	206	246	261	271
General Configuration	Cir Priority Sequence	0=Auto 1=A Prio 2=B Prio	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Entering Fluid Control	No/Yes	No													
	Staged Loading Sequence	No/Yes	No													
	Ramp Loading Select	No/Yes	No													
	Cold Ramp Setpoint	Default=1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Heat Ramp Setpoint	Default=1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Unit Off to On Delay	Default=1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Demand Limit Type Select	0=None 1=Switch Control 2=4-20mA Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ice Mode Enable	No/Yes	No													
	Short Cycle Management	No/Yes	No													
	Full Current Limit Value	Default=100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Current Limit Select	Disable/Enable	Disable													

APPENDIX B — 30HXC UNIT CONFIGURATION (cont)

Table F — Menu Options (cont)

MENU	MENU ITEM	Options	TONNAGE													
			76	86	96	106	116	126	136	146	171	186	206	246	261	271
Factory Parameters	Unit Type	0=Cool Only 1=Heat Mach 2=Air Cooled	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1
	Factory Select	0=YLC 1=MTL 2=CLT	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Unit Size	Various	76	86	96	106	116	126	136	146	171	186	206	246	261	271
	Comp A1 Must Trip Amps[a]	Various	unit specific													
	Comp A2 Must Trip Amps[a]	Various	0	0	0	0	0	0	0	0	0	0	unit specific			
	Comp B1 Must Trip Amps[a]	Various	unit specific													
	Comp B2 Must Trip Amps[a]	Various	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VFD Mount Location	0=None 1=A1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Circuit A EXV Type	0=Mueller Unipolar 1=Mueller Bipolar 2=ETS	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1
	Circuit B EXV Type	0=Mueller Unipolar 1=Mueller Bipolar 2=ETS	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1
	Refrigerant Type	0=R134A 1=R515B 2=R513A	0 or 2	0 or 2	0 or 2	0 or 2	0 or 2	0 or 2	0 or 2	0 or 2	0 or 2	0 or 2	0 or 2	0 or 2	0 or 2	0 or 2
	Mini Load Valve Select	Disable/Enable	Disable													
	Cooler Pass Number	1 or 2	unit specific													
	Economizer Select	0= No Economizer 1=TQ Ctrl w/o Kit[b] 2=TQ Ctrl w/ Kit 3=TXV Control	unit specific													
	TQ with Feebback	No/Yes	No													
	Cooler LWT On Circuit A	No/Yes	No													
	Max Compressor Frequency	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
	Minimum Compressor Frequency	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5
	VS Start Frequency	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	Power Supply Voltage	Various	unit specific													
	Soft Starter Select	No/Yes	No													
	Wye Delta Start Select	No/Yes[a]	unit specific													
	Cond Water Valve Opt	0=None 1=4-20 mA 2=0-10 V 3=20-4 mA 4=10-0 V 5=2-10 V 6=0-20 mA 7=20-0 mA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cond Temp Sensor Option	Disable/Enable	Disable													
	Energy Management Module	Disable/Enable	Disable													
	Master Slave Option	Disable/Enable	Disable													
	Heat Reclaim Option	Disable/Enable	Disable													

APPENDIX B — 30HXC UNIT CONFIGURATION (cont)

Table F — Menu Options (cont)

MENU	MENU ITEM	Options	TONNAGE													
			76	86	96	106	116	126	136	146	171	186	206	246	261	271
Service Parameters	Cooler Fluid Type	0=WATER 1=BRINE 2=Low 3=Super Low	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Condenser Fluid Type	0=WATER 1=BRINE 2=Low 3=Super Low	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Flow Switch Setpoint	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Brine Freeze Setpoint	Default=34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
	Brine Minimum Fluid Temp	Default=38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	Maximum Condensing Temp	Default=122	122	122	122	122	122	122	122	122	122	122	122	122	122	122
	Max Condensing Temp Diff	Default=5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Capa Close Control Opt	Disable/Enable	Disable													
	Comp Sequence Sel	0=Auto 1=Comp 1 Lead 2=Comp 2 Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Z Multipier For SMZ	Default=1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum Current Setpoint	Default=80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
	Maximum Current Diff	Default=10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	Head Pressure Diff Timer	Default=90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
	Head Pressure Diff	Default=9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	EXV Offset Circuit A	Default=0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	EXV Offset Circuit B	Default=0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Atmospheric Pressure	Default=14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69
	Swift Restart Selection	Disable/Enable	Disable													
	EWT Probe On Cir A Side	No/Yes	Yes													
	Country Code	Default=86	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	VFD Auto Config Enable	Disable/Enable	Enable													
	CIOB Debug Log Level	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Brine Max Pos Offset	Default=15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	Pmp 1 Service Time Cfg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pmp 2 Service Time Cfg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HeatPmp Service Time Cfg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Wfliter Service Time Cfg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ofil Service Time Cfg A1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ofil Service Time Cfg A2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ofil Service Time Cfg B1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ofil Service Time Cfg B2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NOTE(S):

a. Please refer to Table G on page 45 and Table H on page 46 for specific configuration details.
b. The TQ valve is not available in North America.

APPENDIX B — 30HXC UNIT CONFIGURATION (cont)

Table G — Wye Delta Start Select = No (XL Starter)

UNIT SIZE	POWER SUPPLY VOLTAGE	COMP A1 MUST TRIP AMPS	COMP A2 MUST TRIP AMPS	COMP B1 MUST TRIP AMPS
76	575	54	0	54
	380	82		82
	460	68		68
	380/415	86		86
86	575	66	0	54
	380	100		82
	460	82		68
	380/415	104		86
96	575	80	0	54
	380	122		82
	460	102		68
	380/415	126		86
106	575	98	0	54
	380	148		82
	460	122		68
	380/415	152		86
116	575	98	0	66
	380	148		100
	460	122		82
	380/415	152		104
126	575	98	0	80
	380	148		122
	460	122		102
	380/415	152		126
136	575	118	0	80
	380	178		122
	460	146		102
	380/415	184		126
146	575	118	0	98
	380	178		148
	460	146		122
	380/415	184		152
161	575	128	0	88
	380	194		134
	460	160		110
	380/415	200		136
171	575	106	0	128
	380	162		194
	460	134		160
	380/415	164		200
186	575	128	0	128
	380	194		194
	460	160		160
	380/415	200		200
206	575	106	60	128
	380	162	90	194
	460	134	74	160
	380/415	164	92	200
246	575	128	88	128
	380	194	134	194
	460	160	110	160
	380/415	200	136	200
261	575	128	106	128
	380	194	162	194
	460	160	134	160
	380/415	200	164	200
271	575	128	128	128
	380	194	194	194
	460	160	160	160
	380/415	200	200	200

APPENDIX B — 30HXC UNIT CONFIGURATION (cont)

Table H — Wye Delta Start Select = Yes (Wye-Delta Starter)

UNIT SIZE	POWER SUPPLY VOLTAGE	COMP A1 MUST TRIP AMPS	COMP A2 MUST TRIP AMPS	COMP B1 MUST TRIP AMPS
76	575	54	0	54
	380	82		82
	230	136		136
	208/230	152		152
	460	68		68
	230	142		142
	380/415	86		86
86	575	66	0	54
	380	100		82
	230	166		136
	208/230	184		152
	460	82		68
	230	174		142
	380/415	104		86
96	575	80	0	54
	380	122		82
	230	202		136
	208/230	224		152
	460	102		68
	230	210		142
	380/415	126		86
106	575	98	0	54
	380	148		82
	230	246		136
	208/230	272		152
	460	122		68
	230	252		142
	380/415	152		86
116	575	98	0	66
	380	148		100
	230	246		166
	208/230	272		184
	460	122		82
	230	252		174
	380/415	152		104
126	575	98	0	80
	380	148		122
	230	246		202
	208/230	272		224
	460	122		102
	230	252		210
	380/415	152		126
136	575	118	0	80
	380	178		122
	230	294		202
	208/230	326		224
	460	146		102
	230	306		210
	380/415	184		126
146	575	118	0	98
	380	178		148
	230	294		244
	208/230	326		272
	460	146		122
	230	306		252
	380/415	184		152

APPENDIX B — 30HXC UNIT CONFIGURATION (cont)

Table H — Wye Delta Start Select = Yes (Wye-Delta Starter) (cont)

UNIT SIZE	POWER SUPPLY VOLTAGE	COMP A1 MUST TRIP AMPS	COMP A2 MUST TRIP AMPS	COMP B1 MUST TRIP AMPS
	575	128		88
	380	194		134
	230	318		220
161	208/230	354	0	244
	460	160		110
	230	330		226
	380/415	200		136
	575	106		128
	380	162		194
	230	266		318
171	208/230	296	0	354
	460	134		160
	230	272		330
	380/415	164		200
	575	128		128
	380	194		194
	230	318		318
186	208/230	354	0	354
	460	160		160
	230	330		330
	380/415	200		200
	575	106	60	128
	380	162	90	194
	230	266	150	318
206	208/230	296	166	354
	460	134	74	160
	230	272	154	330
	380/415	164	92	200
	575	128	88	128
	380	194	134	194
	230	318	220	318
246	208/230	354	244	354
	460	160	110	160
	230	330	226	330
	380/415	200	136	200
	575	128	106	128
	380	194	162	194
	230	318	266	318
261	208/230	354	296	354
	460	160	134	160
	230	330	272	330
	380/415	200	164	200
	575	128	128	128
	380	194	194	194
	230	318	318	318
271	208/230	354	354	354
	460	160	160	160
	230	330	330	330
	380/415	200	200	200