



# Energy Management Module (EMM) Accessory

50/60 Hz

## Installation Instructions

Part Number 30HX-900---032

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### SAFETY CONSIDERATIONS

Installation of this accessory can be hazardous due to system pressures, electrical components, and equipment location (such as a roof or elevated structure).

Only trained, qualified installers and service technicians should install, start up, and service this equipment (Fig. 1).

When installing this accessory, observe precautions in the literature, labels attached to the equipment, and any other safety precautions that apply.

- Follow all safety codes.
- Wear safety glasses and work gloves.
- Use care in handling and installing this accessory.

	<b>ELECTRIC SHOCK HAZARD.</b> To avoid the possibility of electrical shock, open and tag all disconnects before installing this equipment.
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### INTRODUCTION

The Energy Management Module Accessory (EMM) package is required for additional Temperature Reset, Demand Limit, and Ice Storage features of the *ComfortLink™* 30GXN,R and 30HX chillers. Chilled water temperature reset by return water, outside air or space temperature do NOT require the addition of this accessory. The following additional features are supported by this accessory:

- temperature reset by 4 to 20 mA field-supplied signal.
- demand limit control via field-supplied two-step switch input.
- demand limit control by 4 to 20 mA field-supplied signal.
- support of unoccupied operation for ice making through field-supplied contacts.
- cooling set point control by 4 to 20 mA field-supplied signal.

### Accessory Package Contents

ITEM	QUANTITY
Energy Management Module, 30HX502417	1
Terminal Block, HY84FE029	1
Screws, no. 6 3/4-in. long	5
Screws, no. 10 3/4-in. long	2
Harness Assembly, 30HX402372	1

### INSTALLATION

<b>⚠ WARNING</b>
Before beginning installation of this equipment, be sure all power to the unit is disconnected, and that tags are properly placed to alert others.

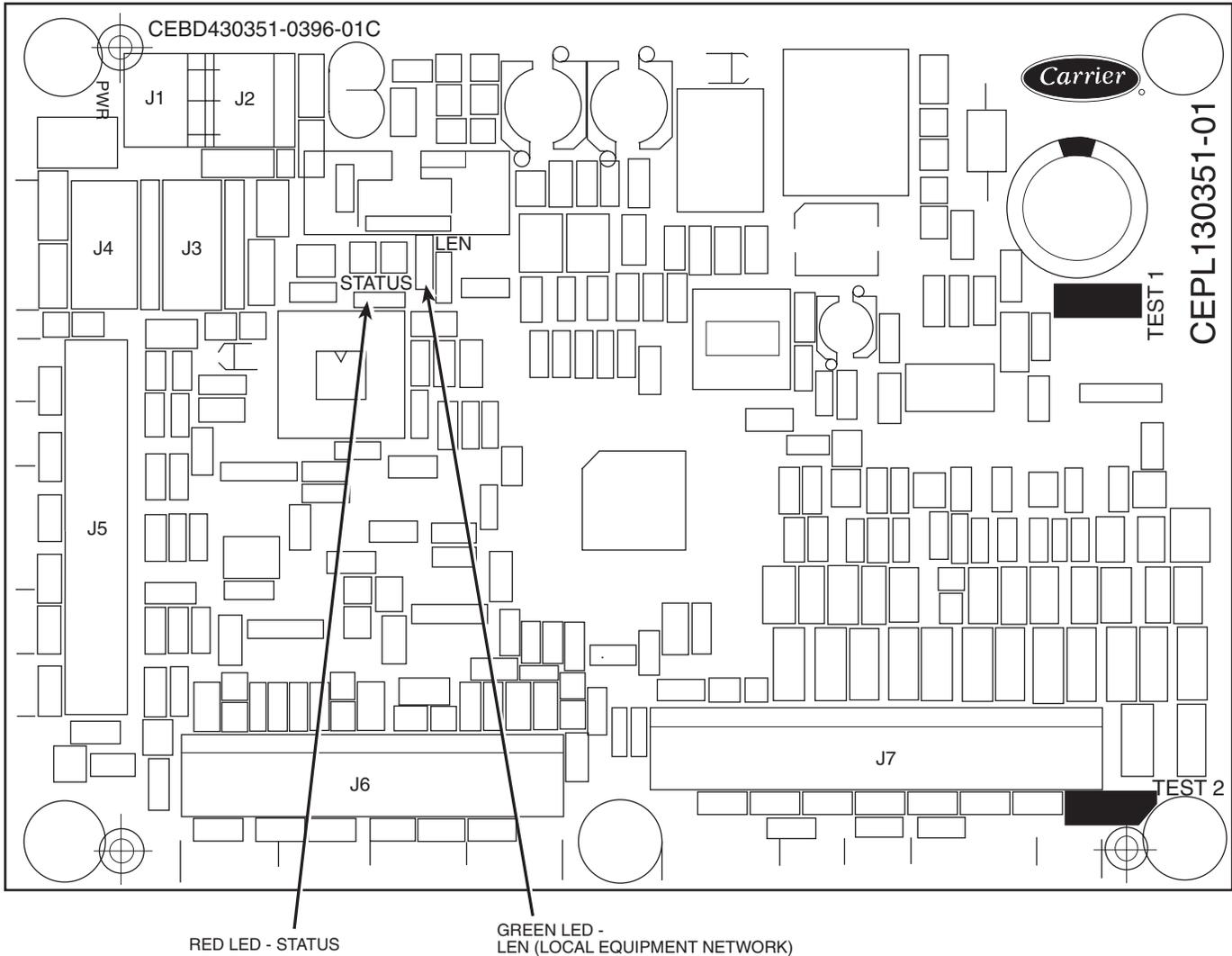
1. Inspect the package contents for missing or damaged parts. File a claim with shipping agency if parts are damaged. Notify your Carrier representative if any items are missing.
2. Open and tag all electrical disconnects.
3. Access control box:
  - a. Models 30GXN,R080-175 and associated modular units: Open left control box door.
  - b. Models 30GXN,R204-350 and associated modular units: Open the left side control box door to access the control wiring side of the box.
  - c. Models 30HXA,HXC076-271: Open the right control box door on the compressor side of the unit to access the control wiring side of the box.
4. Mount the EMM and the terminal block (TB6). Refer to Fig. 2-4 depending on unit size and type.
  - a. Mount the EMM in the predrilled holes in the control panel, using 5 no. 6 screws provided.
  - b. Mount the terminal block as shown in Fig. 2-4 using 2 no. 10 screws provided.
  - c. Remove metal jumper between TB6-13 and TB6-14.
5. The board addresses are set through 4-position DIP switches. All switches are set to ON for all boards. See Fig. 1.

**Install Harness and Make Wire Connections** — Locate harness supplied with accessory. Locate plugs marked EMM-J1,J4 in control box factory wire harness. Plugs are in the panduit for 30HX models.

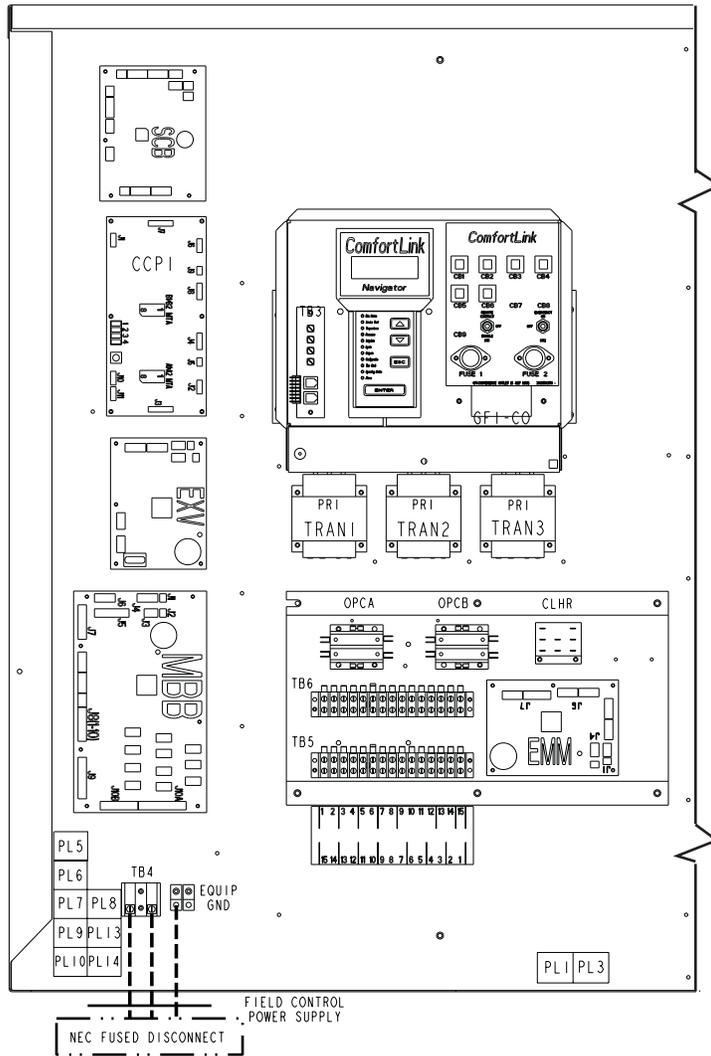
The accessory harness contains connections for EMM-J6, J7 and TB6.

Make four plug connections at the EMM using the connectors labeled EMM-J1, J4, J6, and J7. See Fig. 5.

NOTE: For 30HX076-186 models, remove the communication plug on the *ComfortLink™* Compressor Protection board (CCP) labeled “CCP1-J11”. Locate the plug labeled “CCP1-J11/CCP2-J11” in the panduit. Connect this plug to CCP1-J11. Reconnect power to the unit.



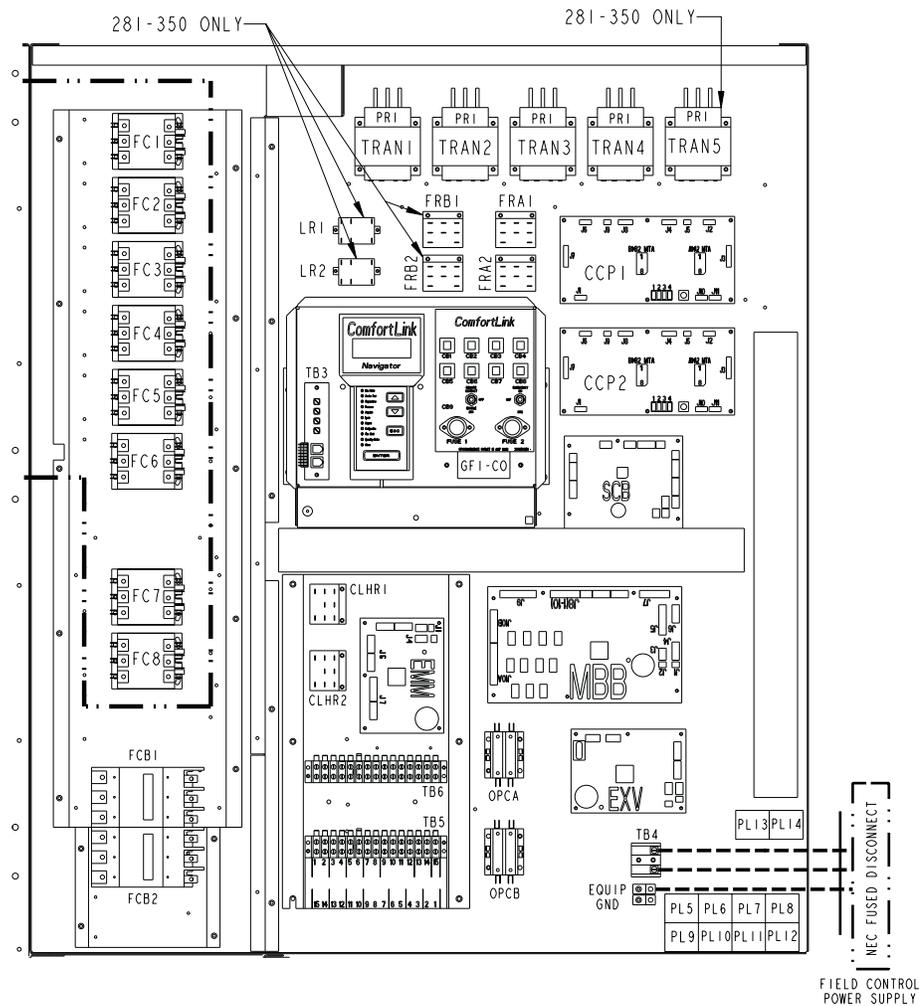
**Fig. 1 — EMM Board**



**LEGEND**

- CLHR** — Cooler Heater Relay
- CCP** — *ComfortLink*<sup>™</sup> Compressor Protection
- EMM** — Energy Management Module
- EQUIP** — Equipment
- EXV** — Expansion Valve Board
- GFI-CO** — Ground Fault Interrupter Convenience Outlet
- GND** — Ground
- MBB** — Main Base Board
- NEC** — National Electrical Code
- OLS** — Oil Level Switch
- OPC** — Oil Pump Contactor
- PL** — Plug Assembly
- PRI** — Primary
- SCB** — Screw Compressor Board
- Terminal Block Connection
- Field Power Wiring

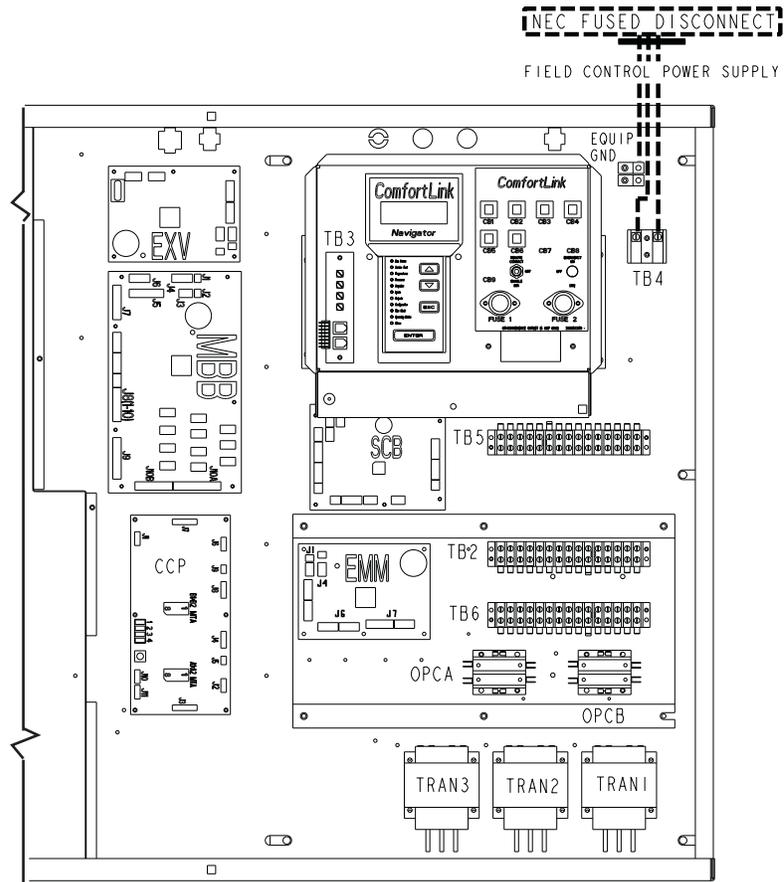
**Fig. 2 — Mounting EMM and Terminal Block, 30GXN,R080-175 and Associated Modular Units**



**LEGEND**

- CLHR** — Cooler Heater Relay
  - CCP** — *ComfortLink*™ Compressor Protection
  - EMM** — Energy Management Module
  - EQUIP** — Equipment
  - EXV** — Expansion Valve Board
  - FC** — Fan Contactor
  - FCB** — Fan Circuit Breaker
  - FR** — Fan Relay
  - GND** — Ground
  - GFI-CO** — Ground Fault Interrupter Convenience Outlet
  - LR** — Loader Relay
  - MBB** — Main Base Board
  - NEC** — National Electrical Code
  - OPC** — Oil Pump Contactor
  - PL** — Plug Assembly
  - PRI** — Primary
  - SCB** — Screw Compressor Board
  - TB** — Terminal Block
  - TRAN** — Transformer
- Terminal Block Connection  
 - - - - - Field Power Wiring

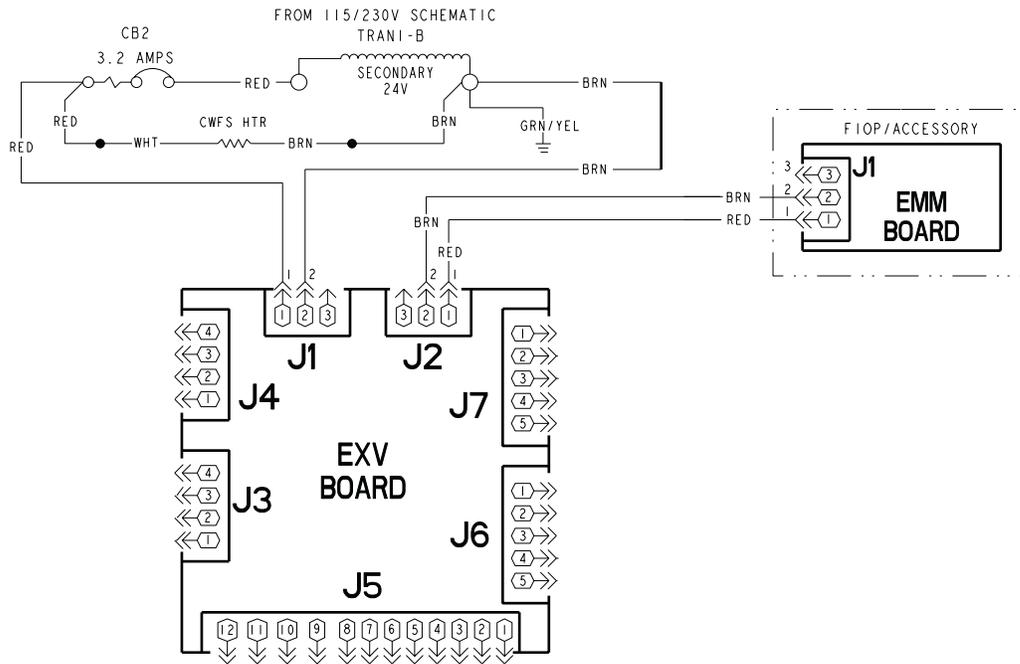
**Fig. 3 — Mounting EMM and Terminal Block, 30GXN,R204-450 and Associated Modular Units**



**LEGEND**

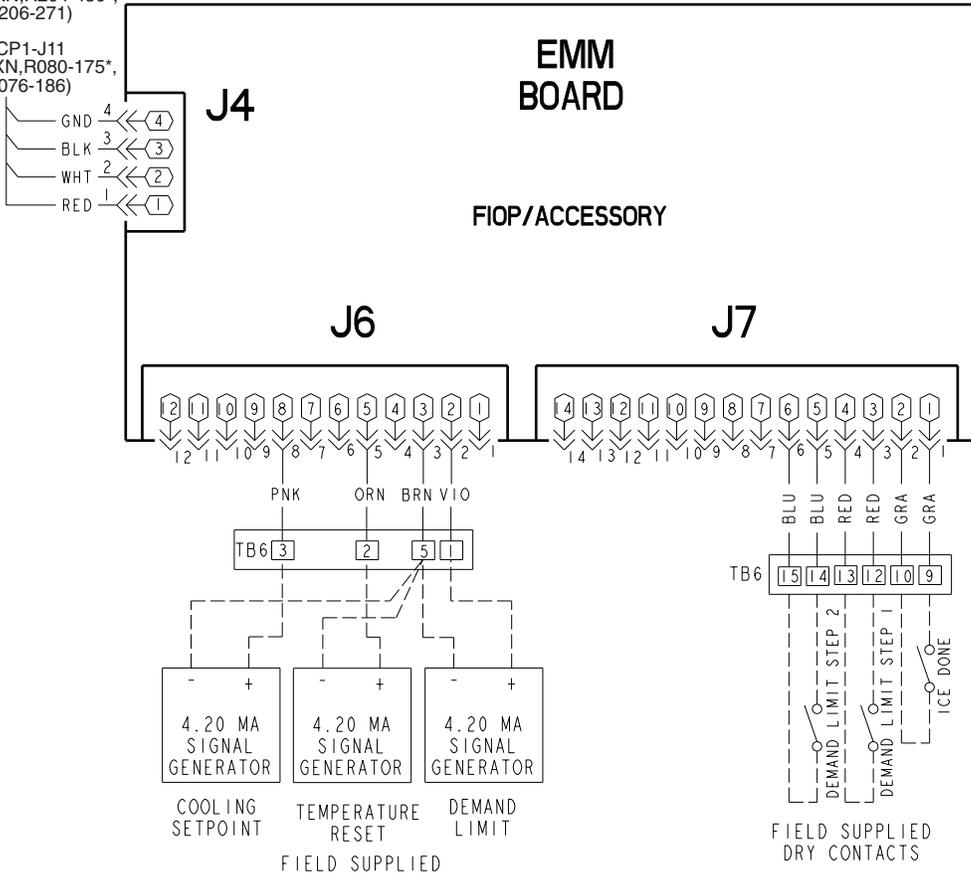
- CCP** — ComfortLink™ Compressor Protection
- EMM** — Energy Management Module
- EQUIP** — Equipment
- EXV** — Electronic Expansion Valve
- GND** — Ground
- MBB** — Main Base Board
- NEC** — National Electrical Code
- OPC** — Oil Pump Contactor
- OPCB** — Screw Compressor Board
- TB** — Terminal Block
- TRAN** — Transformer
-  Terminal Block Connection
-  Field Power Wiring

**Fig. 4 — Mounting EMM and Terminal Block; 30HXA,HXC076-271 Units (076-186 Shown)**



TO CCP2-J11  
(30GXN,R204-450\*,  
30HX206-271)

TO CCP1-J11  
(30GXN,R080-175\*,  
30HX076-186)



**LEGEND**

- |  |  |
|--|--|
| <b>CB</b> — Circuit Breaker                            | <b>FIOP</b> — Factory-Installed Option |
| <b>CCP</b> — <i>ComfortLink™</i> Compressor Protection | <b>HTR</b> — Heater                    |
| <b>CWFS</b> — Chilled Water Flow Switch                | <b>TB</b> — Terminal Block             |
| <b>EMM</b> — Energy Management Module                  | <b>TRAN</b> — Transformer              |
| <b>EXV</b> — Electronic Expansion Valve                |  |

\*And associated modular units.

NOTE: Remove factory jumps TBG-13,14 when using 2-step demand limit.

**Fig. 5 — Making Typical Wiring Connections for All Units**

## Configure Control (All Sizes)

- The control must be configured to recognize the EMM. When using the Service Tool for configuration, choose “Modify,” then “Controller” and make the changes as outlined in Tables 1-4 in Service Tool tables “OPTIONS1” and “RESETCON.” The factory-installed Navigator control may be used to do this. With the Navigator control, press  until the screen displays “select a menu item.” Use the arrow keys to select the Configuration mode LED. Follow the steps in Table 1 using the keys on the display.
- To change the value of EMM, press . Press the down arrow key until OPT1 is displayed. Press . Press the up arrow key to select EMM. Press  and “Enter Password” will be displayed. Press  four times to confirm the password. Use the arrow keys as needed if the password is other than 1111. The NO

value will now be flashing. Press the up arrow key  to change the value to YES and  to accept the change.

**Temperature Reset (4 to 20 mA)** — A field-supplied and generated, externally powered 4 to 20 mA signal can be used to provide leaving fluid temperature reset. The signal must be connected to TB6. Connect the signal to TB6-2,5 (positive, negative). This is a simple linear function which requires only two configuration changes. Follow the steps outlined in Table 2 to enable the function and configure the reset temperature at 10° F for the 20 mA signal.

The configuration is now complete. As an example, if the cooling set point (CSP.1) is set to 44 F, the control will linearly reset the control point (CTPT) based on the 4 to 20 mA signal. There will be no reset for a 4 mA signal. If the reset signal was 20 mA, the CTPT would be changed to 54 F. Similarly, a 12 mA reset signal would reset CTPT to 49 F. The actual 4 to 20 mA reset signal seen by the control can be viewed by accessing the item RSET, located under the Inputs mode, submode 4-20.

**Table 1 — Configuration Mode Menu**

MODE (RED LED)	KEYPAD ENTRY	SUBMODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENTS
CONFIGURATION		DISP					
		UNIT					
		OPT1		FLUD	X	COOLER FLUID	
				EMM	YES/NO	EMM MODULE INSTALLED	Default: No Change to Yes

**Table 2 — Menu Configuration of Temperature Reset Mode**

MODE (RED LED)	KEYPAD ENTRY	SUBMODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENTS
CONFIGURATION		DISP					
		UNIT					
		OPT1					
		OPT2					
		RSET		CRST	0	COOLING RESET TYPE	
					0		FLASHING '0'
					1		SELECT '1'
					1		CHANGE ACCEPTED
				CRT1	125		
				CRT2	0		
				DGRC	0	DEGREES COOL RESET	SET MAXIMUM RESET AMOUNT FOR 20 mA SIGNAL
					0		FLASHING '0'
					10		SELECT '10'
					10		CHANGE ACCEPTED

**Demand Limit (4 to 20 mA)** — A field-supplied and generated externally powered 4 to 20 mA signal can be used to provide leaving fluid temperature reset. The signal must be connected to TB6. Connect the signal to TB6-1,5 (positive, negative). This is a simple linear function which requires only two configuration changes. Follow the steps outlined in Table 3 to enable the function and configure a demand limit of 60% for the 20 mA signal.

The configuration is now complete. There will be no demand limit for a 4 mA signal. If the signal was 20 mA, the chiller capacity (CAP) would be limited to 60%. Similarly, a 12 mA demand limit signal would limit chiller capacity to 80%. The actual 4 to 20 mA demand limit signal seen by the control can be viewed by accessing the item DMND, located under the Inputs mode, submode 4-20.

**Table 3 — Menu Configuration of Demand Limit Mode**

MODE (RED LED)	KEYPAD ENTRY	SUBMODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENTS
CONFIGURATION	ENTER	DISP					
	▼	UNIT					
	▼	OPT1					
	▼	OPT2					
	▼	RSET	ENTER	CRST	0		
			▼	CRT1	125		
			▼	CRT2	0		
			▼	DGRC	0		
			▼	HRST	0		
			▼	HRT1	0		
			▼	HRT2	125		
			▼	DGRH	0		
			▼	DMDC	0	DEMAND LIMIT SELECT	
			ENTER		0		FLASHING '0'
			▲		2		SELECT '2'
			ENTER		2		CHANGE ACCEPTED
			▼	DM20	100	DEMAND LIMIT AT 20 MA	
			ENTER		100		FLASHING '100'
			▼		60		SELECT '60'
			ENTER		60		CHANGE ACCEPTED

**Demand Limit (Switch Controlled)** — A field-supplied pair of dry contacts can be used to provide one or two steps of demand limit. The dry contacts must be connected to TB6. Connect the contacts for Demand Limit step one to TB6-12, 13. Connect the contacts for Demand Limit step two to TB6-14, 15. This is a step function which will limit the overall chiller capacity to pre-configured percentages when the switch contacts close. Follow the steps outlined in Table 4 to enable the function and configure a demand limit of 70% for step one and 40% for step two.

NOTE: Remove factory jumper between TB6-13, and TB6-14.

The configuration is now complete. The overall chiller capacity (CAP, under the Run Status mode, submode VIEW) will now be reduced to 70% when Demand Limit switch 1 is closed. The capacity will be further reduced to 40% when Demand Limit switch 2 is closed. The actual demand limit switch inputs seen by the control can be viewed by accessing the items DLS1 and DLS2, located under the Inputs mode, submode GEN.I.

**Table 4 — Menu Configuration of Demand Limit Mode (Switch Controlled)**

MODE (RED LED)	KEYPAD ENTRY	SUBMODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENTS
CONFIGURATION	ENTER	DISP					
	▼	UNIT					
	▼	OPT1					
	▼	OPT2					
	▼	RSET	ENTER	CRST	0		
			▼	CRT1	125		
			▼	CRT2	0		
			▼	DGRC	0		
			▼	HRST	0		
			▼	HRT1	0		
			▼	HRT2	125		
			▼	DGRH	0		
			▼	DMDC	0	DEMAND LIMIT SELECT	
			ENTER		0		FLASHING '0'
			▲		1		SELECT '1'
			ENTER		1		CHANGE ACCEPTED
			▼	DM20	100		
			▼	SHNM	0		
			▼	SHDL	0		
			▼	SHTM	60		
			▼	DLS1	80	DEMAND LIMIT SWITCH 1	
			ENTER		80		FLASHING '80'
			▼		70		SELECT '70'
			ENTER		70		CHANGE ACCEPTED
			▼	DLS2	50	DEMAND LIMIT SWITCH 2	
			ENTER		50		FLASHING '50'
			▼		40		SELECT '40'
			ENTER		40		CHANGE ACCEPTED

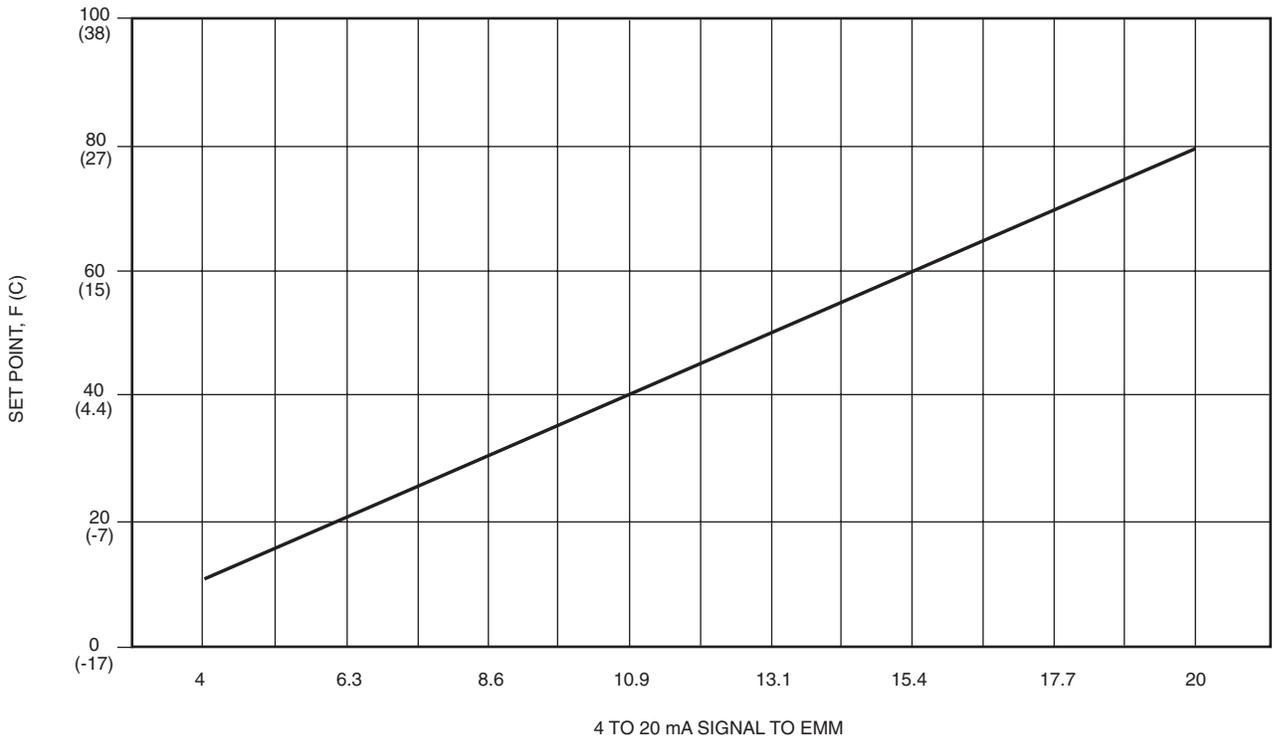
**Cooling Set Point (4 to 20 mA)** — A field-supplied and generated, externally powered 4 to 20 mA signal can be used to provide the leaving fluid temperature set point. Connect the signal to TB6-3,5 (positive, negative). This is a simple linear function one configuration change. See Table 5 for instructions to enable the function. Figure 6 shows how the 4 to

20 mA signal is linearly calculated on an overall 10 F to 80 F range for fluid types (Configuration mode, item FLUD under OPT1) 1 or 2.

NOTE: Figure 7 shows a similar signal calculation on an overall -20 F to 50 F range for fluid (FLUD) type 3.

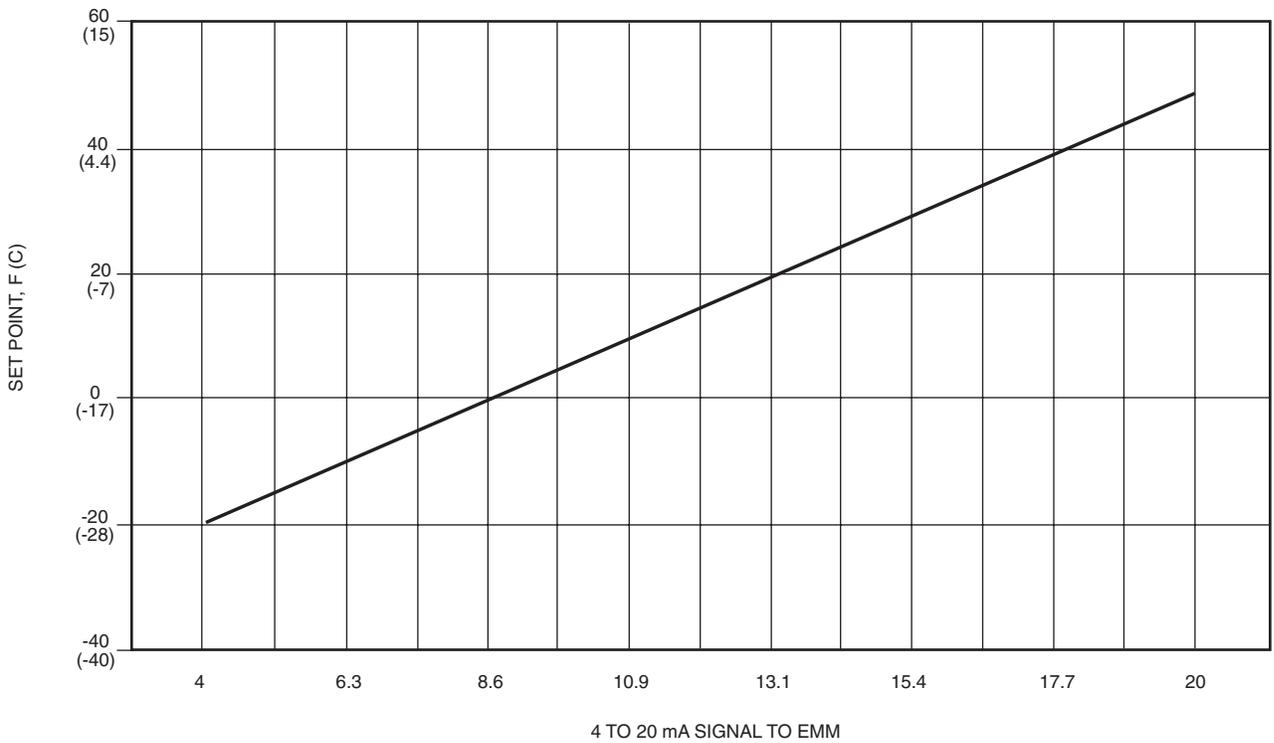
**Table 5 — Menu Configuration of 4 to 20 mA Cooling Set Point Control**

MODE (RED LED)	KEYPAD ENTRY	SUBMODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENTS
CONFIGURATION	ENTER	DISP					
	▼	UNIT					
	▼	OPT1					
	▼	OPT2					
	▼	RSET					
	▼	SLCT	ENTER	CLSP	0	COOLING SETPOINT SELECT	
			ENTER		0		FLASHING '0'
			▲		4		SELECT '4'
			ENTER		4		CHANGE ACCEPTED



\*Fluid Type 1: Water (70 F to 38 F)  
 Fluid Type 2: Medium Temperature Brine (>15 F)

**Fig. 6 — Cooling Set Point (4 to 20 mA) [FLUD = 1 or 2]\***



\*Fluid Type 3: Low Temperature Brine ( $\geq 20$  F)

**Fig. 7 — Cooling Set Point (4 to 20 mA) [FLUD = 3]\*  
 30HXC Units Only**

