HEATCRAFT™
Worldwide Refrigeration

Installation and Operations Manual

Bulletin H-IM-PSM **May 2008** **Part Number 25008001**

PRO³ Side Mount Packaged Refrigeration System

PRO³™
Side Mount

Table of Contents

Inspection

1. Each shipment should be carefully checked against the bill of lading.
2. The shipping receipt should not be signed until all items listed on the bill of lading have been accounted for.
3. Check packaging for signs of damage.
4. Any shortage or damages should be immediately reported to the delivering carrier.
5. Damaged material becomes the delivering carrier's responsibility, and should not be returned to the manufacturer unless prior approval is given to do so.
6. All units are shipped on heavy skids and enclosed in open crating. Generally, it is advisable to bring the unit as close to its final location as possible before removing crating.
7. When unpacking the system, care should be taken to prevent damage.
8. Avoid removing the shipping base until the unit has been moved to the final destination.

Installation Requirements

Recommended Unit Placement

1. Ensure that the structural integrity of the box can withstand the weight of the side-mounted equipment.
2. The air pattern must cover the entire room
3. Location of aisles, racks, etc. must be known
4. For space requirements, *see FIGURES 1 and 2*

FIGURE 1: System Space Requirements | Back View

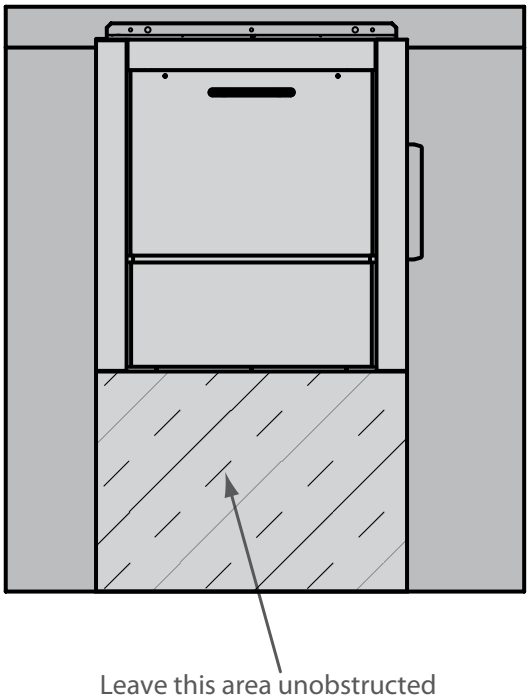
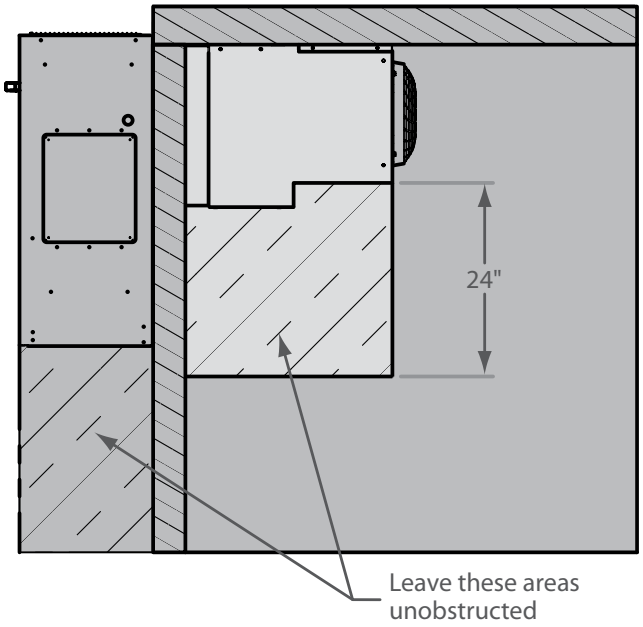


FIGURE 2: System Space Requirements | Side View

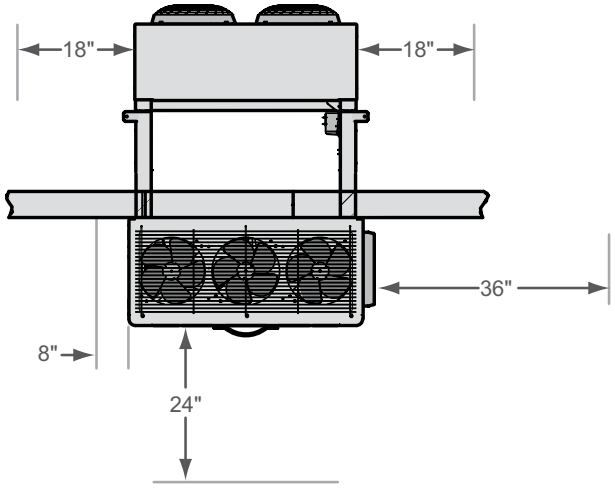


Access Requirements

Condensing Unit Section (Exterior of box)

Provide adequate access space (minimum 36") on the right side of the unit for electric box clearance. The front of the unit should have a minimum of 24" clearance for compressor and fan motor service. The left side of the unit should be a minimum of 8" clearance.

FIGURE 3: Access Requirements | Top View



Evaporator Section (Interior of box)

The front of the evaporator should have no obstructions since this is the leaving airside of the evaporator. There should also be no obstructions under the evaporator. A minimum of 8" clearance should be held on each side of the evaporator for drain pan removal.

Installation Procedures

NOTE: *Installation and maintenance to be performed only by qualified personnel who are familiar with local codes and regulations and are experienced with this type of equipment.*

CAUTION: Make sure all power sources are disconnected before any service work is done on units.

A.) Inspect packaging/unit for shipping damage

B.) Review the space and location requirements provided for your method of installation.

C.) Follow installation instructions listed in method #1 or #2

Installation Method #1

Top Installation (See FIGURES 4, 5 and 6)

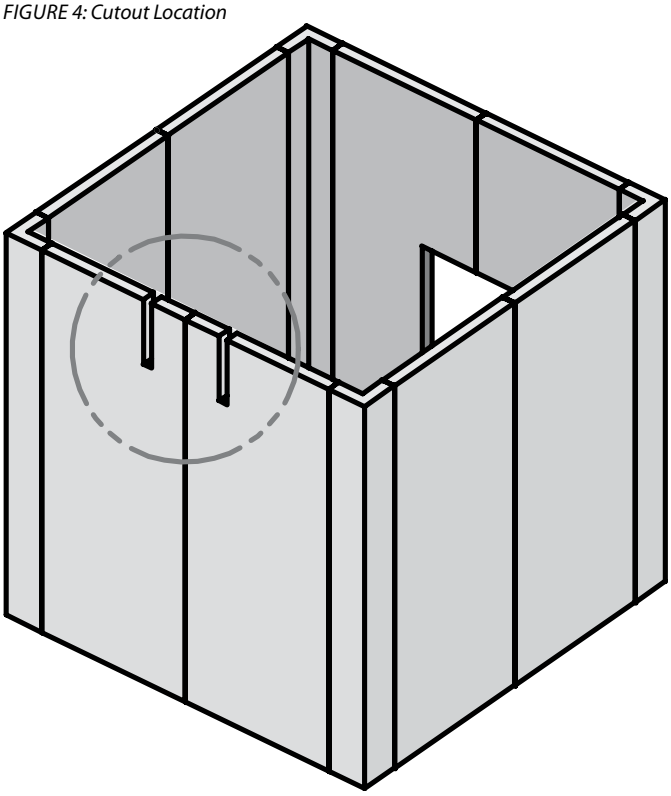
This installation method is the recommended installation method in applications where it is feasible.

In order to install a unit using this method, you will need to provide cutout slots for the "arms." The unit should be placed on the wall prior to setting and securing the roof of the box.

Please use the following guidelines when completing the installation in this manner.

1. You will need to provide finished slots with the appropriate dimensions in the box wall. *See FIGURES 5 and 6.*
2. The slots can straddle a seam but they should not be on a seam. *See FIGURE 4.*
3. The cut-out sections should not be placed in a location where they would interfere with any cam locks.
4. It is preferred that a cam lock be placed in between the cutouts to give additional support
5. The unit will need to be lifted to the appropriate height and inserted into the open slots. The bottom of the unit should be temporarily supported during the remainder of the installation process (no portion of the unit should be supported by the bottom of the evaporator section as this WILL cause damage to the drain pan).
6. Set and secure the roof of the box and firmly attach the unit to the box and carefully seal all seams and penetration points.

FIGURE 4: Cutout Location



CAUTION: Do not support any portion of the unit by the drain pan.

FIGURE 5: Cutout Dimensions | Small Cabinet

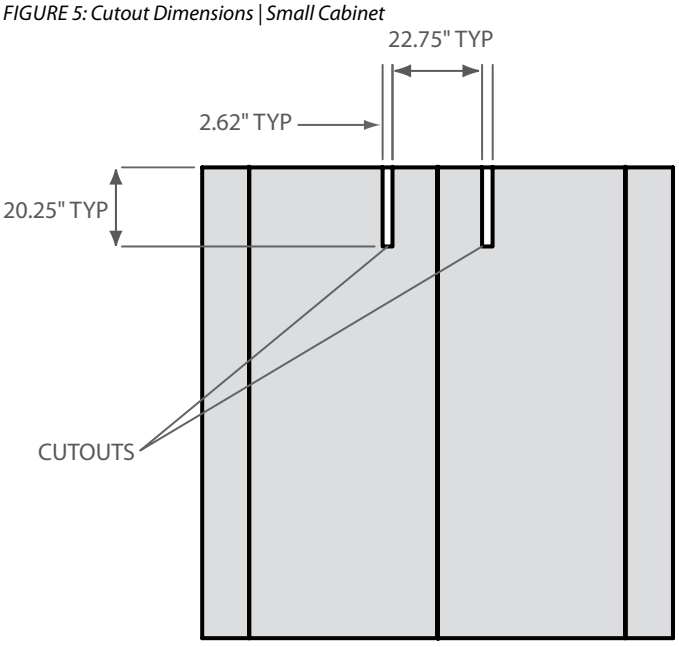
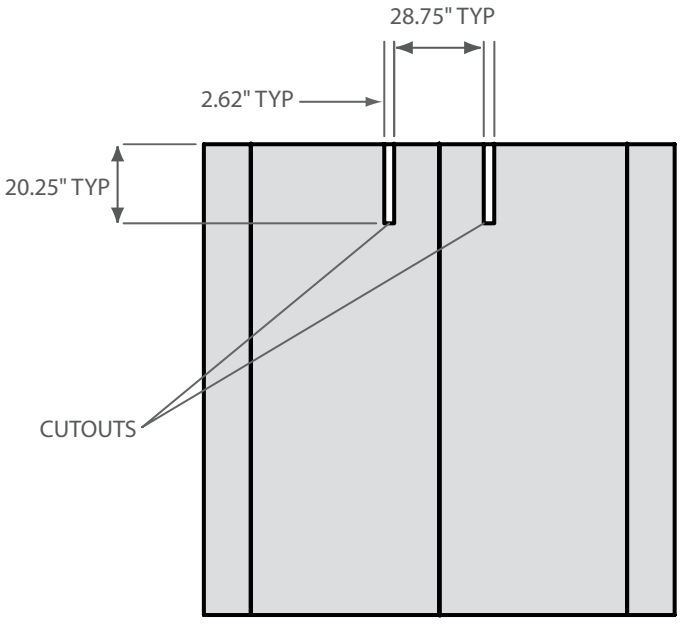


FIGURE 6: Cutout Dimensions | Large Cabinet



Installation Method #2

Side Installation (See FIGURES 7, 8, and 9)

This installation method is intended for applications that have height restrictions that do not allow the unit to be installed from above (see method #1) and installations into pre-existing boxes where it is impractical to remove the roof.

In order to install a unit using this method, you must provide an additional "plug" section of the box to fill in the open space between evaporator arms after installation. This section should contain cam locks to anchor it in place.

Please use the following guidelines when completing the installation in this manner.

1. Provide a finished opening with the appropriate dimensions from FIGURE 8 or 9.
2. The cut-out section should not be placed in a location where it would degrade the structural integrity of the box *(should not interfere with cam locks)*
3. The unit will need to be lifted to the appropriate height and inserted into the open slot. The bottom of the unit should be temporarily supported during the remainder of the installation process (no portion of the unit should be supported by the bottom of the evaporator section as this WILL cause damage to the drain pan).
4. You should use cam locks to re-connect the "plug" section after installing the unit, firmly attach the unit to the box and carefully seal all seams.

FIGURE 7: Plug Detail

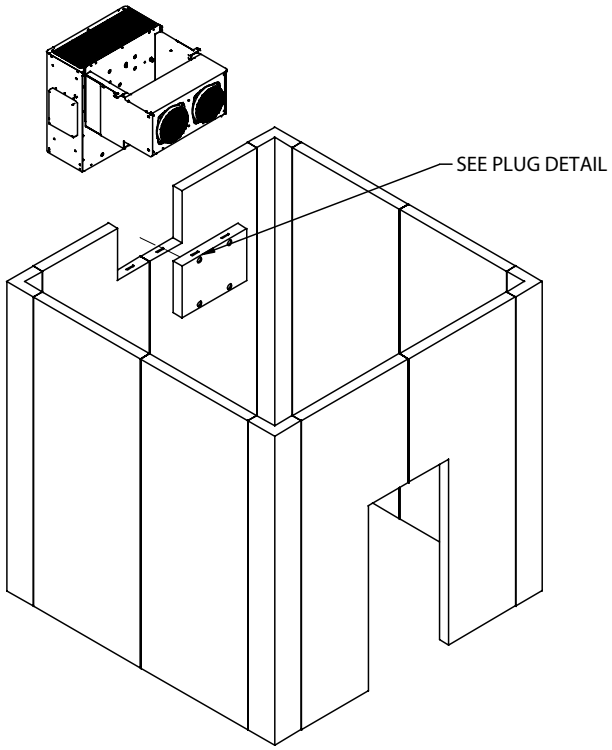


FIGURE 8: Plug Detail | Small Cabinet

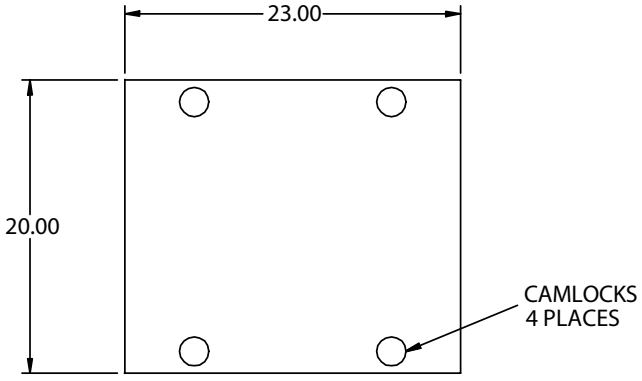
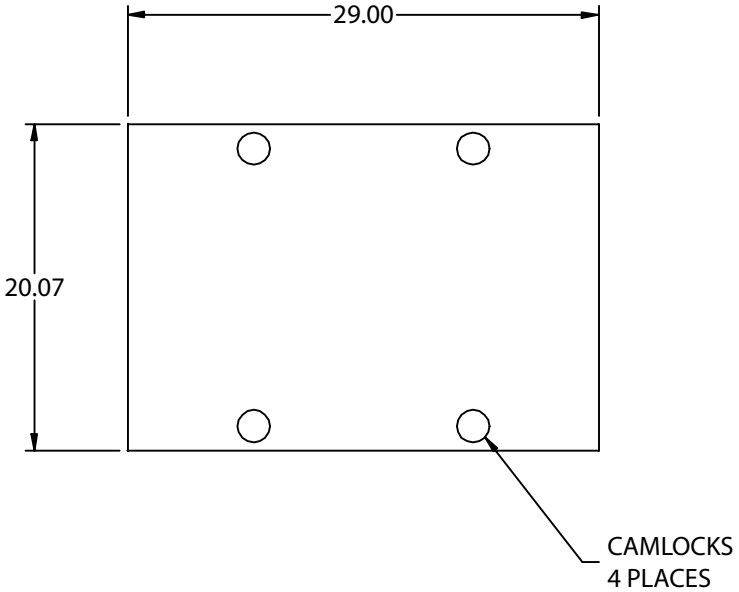


FIGURE 9: Plug Detail | Large Cabinet



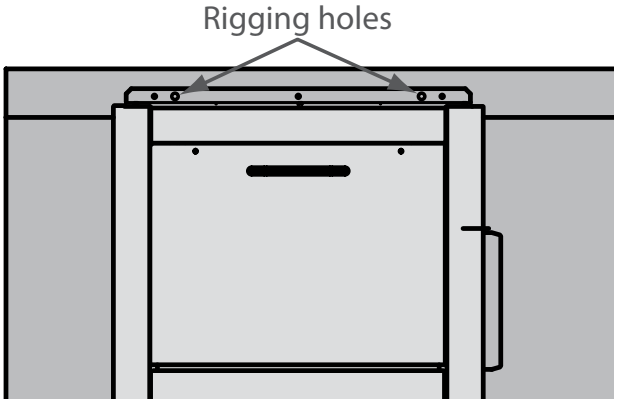
Rigging

CAUTION: Avoid contact with sharp edges and coil surfaces. They are a potential injury hazard. Wear gloves during moving and rigging.

Caution should be exercised when moving these units. To prevent damage to the unit housing during rigging, cables or chains used must be held apart by spacer bars. Rigging holes are provided on all models. See FIGURES 10 and 11.

FIGURE 10: Rigging Holes

FIGURE 11: Rigging Holes | Front View



Mounting

The system requires two through-bolts to be used to connect to the roof panel. A minimum of four through-bolts should be used to connect to the side panel of the box. The opposite side of the box should be reinforced with wood or metal to prevent the bolts from pulling through the panel. *See FIGURES 12, 13 and 14 for locations.*

Through bolts should be insulated or non-conductive to prevent sweating. All penetrations to the box should be caulked to prevent moisture from entering the box.

1. Install two through bolts to secure the unit to the wall. The inside of the box should be reinforced with wood or metal for proper when mounting of the unit to the box with through bolts.
2. Install and secure the roof of the box. Inside the box, provisions have been made to secure the evaporator section to the roof panel with through bolts.
3. The area between the evaporator section and the roof panel should be caulked to meet NSF codes. In addition, the openings where the unit was lowered into the box panel should be caulked to prevent any infiltration from the outside area into the box.
4. Ensure that the condensing unit airflow is not obstructed after removing the temporary support.
5. Do not obstruct the evaporator airflow with shelving. The area below the evaporator should be left completely open.
6. Connect unit to power supply through knock-out provided above electrical box using all local wiring codes.
7. Apply power to unit. All controls are preset to factory default settings. *See Table 1 (next page).*
8. Check the unit for proper operation.

FIGURE 12: Mounting Holes | Side View

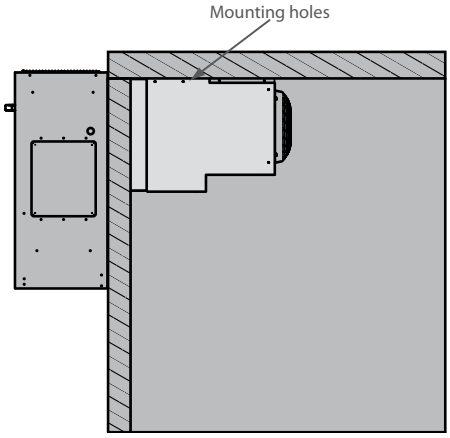


FIGURE 13: Mounting Holes | Front View

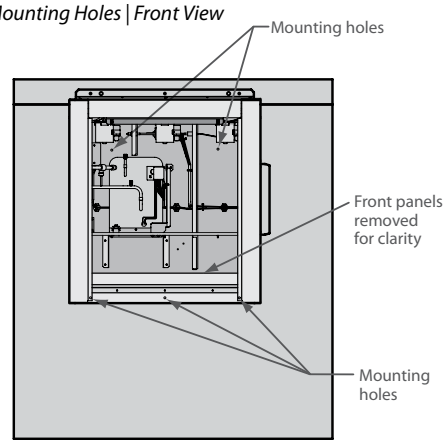
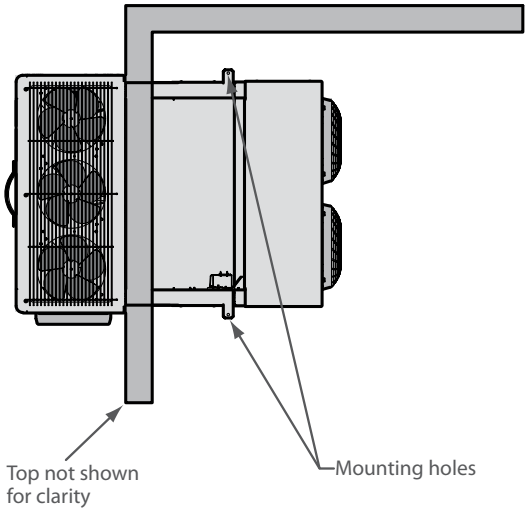


FIGURE 14: Mounting Holes | Top View



Electrical Connection

1. Refer to all local codes for proper connection.
2. A knock-out is provided for 1" conduit on the side of the condensing unit section above the electrical box. *See FIGURE 12.*
3. Wire will be brought into the electrical box through the bottom of the electrical box and connected to the top of the contactor.

Refrigeration Sequence of Operation

1. Power is provided to the temperature control, compressor contactor and cooler evaporator fans.
2. The temperature controller closes and energizes the compressor contactor, starting the compressor, evaporator and condenser fan(s).
3. When the system reaches the desired box temperature, the temperature control will de-energize the compressor contactor. Evaporator fans will continue to operate at this point.
4. When the fixture temperature rises above the set point and minimum off-time has elapsed, the temperature control will close and re-energize the compressor contactor.

Coolers: Air-defrost Operation

Air defrost units are pre-programmed for 4 defrost per day. These periods are reprogrammable. When the coil temperature reaches 38°F, the control will terminate the defrost cycle.

For programming information see pages 7-16.

Cooler with Electric Defrost and Freezer Temperature/Defrost Control

PRO³ packaged refrigeration system cooler with electric defrost and freezer units come factory equipped with an electronic temperature/defrost control.

For programming information see pages 7-16.

Cooler with Electric Defrost and Freezer Sequence of Operation

Power is provided to the temperature control and compressor contactor. The drain line heater as well as the crankcase heaters will also have continuous power supplied to them.

The temperature controller energizes the compressor contactor, starting the compressor and condenser fan(s). The evaporator fans will be energized by the electronic controller.

When the system reaches the desired box temperature, the temperature control will de-energize the compressor contactor and the evaporator fans.

When the temperature rises above the set point and minimum off-time (4 minutes) has elapsed, the temperature control will close and re-energize the compressor contactor.

1. During normal operation, at the preset times of day, the temperature/defrost control will de-energize the compressor contactor and evaporator fans and energize the defrost heaters. These functions are controlled through relays on the controller.
2. When the coil has defrosted fully and has reached the preset coil temperature (as sensed by the coil temperature sensor) the defrost heater de-energizes and the fan delay and drip sequences begin.
3. The temperature/defrost control energizes the compressor contactor, starting the compressor and condenser fan(s).
4. Freezer evaporator fans will be energized by the temperature/defrost control when the coil temperature reaches 35°F or fan delay time has elapsed.

TABLE 1 Model PST | Default Temperature Control Settings

Application: Temperature set points	Defrost start times	Defrost Duration	Drip Time	Fan Delay	Defrost Termination Set Point
		Minutes			
Cooler: 35˚ F	Every 3 hours of compressor run time	60	–	–	38˚ F
Cooler w/ Electric Defrost: 34˚ F		40	2	2	65˚ F
Freezer: -10˚ F	4 times / day	40	2	2	65˚ F

Programming XR-40CX or XR-60CX Dixell Electronic Controller

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The Dixell XR-40CX (High Temperature) and XR-60CX (Medium and Low Temperature) are fully configurable electronic refrigeration controllers. These controls are used on PRO^3 Side Mount units. All parameter values are reprogrammable and are stored in the non-volatile memory.

The controller uses two levels of programming that can be accessed through the keypad. The first level is the user level. It gives access to six settings — temperature differential, defrost cycle intervals, defrost termination temperature, draining time, defrost fan delay and fan stop temperature.

The second level is the service level. It allows access to all other parameters. It is recommended that changes in this level be made only by a qualified technician.

Front Panel Commands

BUTTON	COMMAND
SET	To display target set point; in programming mode it selects a parameter or confirm an operation
❄	(DEF) To start a manual defrost
∧	(UP): To see the max. stored temperature; in programming mode it browses the parameter codes or increases the displayed value
∨	(DOWN) To see the min stored temperature; in programming mode it browses the parameter codes or decreases the displayed value
⏻	To switch the instrument off, if onF = oFF
☼	Not enabled
KEY COMBINATIONS	
∧ + ∨	To lock & unlock the keyboard
SET + ∨	To enter in programming mode
SET + ∧	To return to the room temperature display

Use of LEDs

LED	LED MODE	FUNCTION
❄	ON	Compressor enabled
❄	Flashing	Anti-short cycle delay enabled
❄	ON	Defrost enabled
❄	Flashing	Drip time in progress
✣	ON	Fans enabled (XR60CX only)
✣	Flashing	Fans delay after defrost in progress (XR60CX only)
((!))	ON	An alarm is occurring
❄	ON	Continuous cycle is running
☀	ON	Energy saving enabled
°C/°F	ON	Measurement unit
°C/°F	Flashing	Programming phase

Max. & Min. Temperature Memorization

HOW TO SEE THE MIN. TEMPERATURE

1. Press and release the DOWN key.
2. The "Lo" message will be displayed followed by the minimum temperature recorded.
3. By pressing the DOWN key again or by waiting 5 seconds the normal display will be restored.

HOW TO SEE THE MAX. TEMPERATURE

1. Press and release the UP key.
2. The "Hi" message will be displayed followed by the maximum temperature recorded.
3. By pressing the UP key again or by waiting 5 seconds the normal display will be restored.

HOW TO RESET THE MAX AND MIN TEMPERATURE RECORDED

1. Hold press the SET key for more than 3 seconds, while the max. or min temperature is displayed. (rSt message will be displayed)
2. To confirm the operation the "rSt" message starts blinking and the normal temperature will be displayed

Main Functions

HOW TO SEE THE SET-POINT

1. Push and immediately release SET key: the display will show the set point value
2. Push and immediately release the SET key or wait 5 seconds to display the probe value again

HOW TO CHANGE THE SET-POINT

1. Push SET for more than 2 seconds to change the set-point value
2. The value of the set-point will be displayed and the °C or °F LED starts blinking
3. To change the set value push UP or DOWN arrows within 10 seconds
4. To memorize the new set point value push SET key again or wait 10 seconds

HOW TO START A MANUAL DEFROST

Push DEF key for more than 2 seconds and a manual defrost will start.

HOW TO CHANGE A PARAMETER VALUE

To change a parameter value:

1. Enter the Programming mode by pressing the SET + DOWN keys for 3 seconds (the °C or °F LED starts blinking)
2. Select the required parameter. Press SET to display its value.
3. Use UP or DOWN to change its value
4. Press SET to store the new value and move to the following parameter

To exit: Press SET + UP or wait 15 seconds without pressing a key

NOTE: *The set value is stored even when the procedure is exited by waiting the time-out to expire.*

The Hidden Menu

The hidden menu Includes all the parameters of the instrument.

HOW TO ENTER THE HIDDEN PARAMETERS

1. Enter the Programming mode by pressing the Set + DOWN keys for 3 seconds (the °C or °F LED starts blinking).
2. Release the keys, then push again the Set+DOWN keys for more than 7 seconds. The Pr2 label will be displayed immediately followed from the HY parameter.
   NOW YOU ARE IN THE HIDDEN MENU
3. Select the required parameter.
4. Press the SET key to display its value
5. Use UP or DOWN to change its value.
6. Press SET to store the new value and move to the following parameter.

To exit: Press SET + UP or wait 15 seconds without pressing a key.

NOTE 1: *If no parameter is present in Pr1, after 3 seconds the "noP" message is displayed. Keep the keys pushed until the Pr2 message is displayed.*

NOTE 2: *The set value is stored even when the procedure is exited by waiting the time-out to expire.*

HOW TO MOVE A PARAMETER FROM THE HIDDEN MENU TO THE FIRST LEVEL AND VICE VERSA

Each parameter present in the HIDDEN MENU can be removed or put into "THE FIRST LEVEL" (user level) by pressing SET + Down.

In HIDDEN MENU when a parameter is present in First Level the decimal point is on.

HOW TO LOCK THE KEYBOARD

1. Keep the UP + DOWN keys pressed for more than 3 seconds.
2. The "POF" message will be displayed and the keyboard will be locked. At this point it will be possible only to see the set point or the MAX o Min temperature stored
3. If a key is pressed more than 3 seconds the "POF" message will be displayed.

To unlock the keyboard

Keep the UP + DOWN keys pressed for more than 3 seconds, until the "Pon" message is displayed.

The continuous cycle

When defrost is not in progress, it can be activated by holding the UP key pressed for about 3 seconds. The compressor operates to maintain the ccS set point for the time set through the CCt parameter. The cycle can be terminated before the end of the set time using the same activation key UP for 3 seconds.

The on/off function

With "**onF = oFF**", pushing the **ON/OFF** key, the instrument is switched off. The **"OFF"** message is displayed. In this configuration,

To switch the instrument on, push again the ON/OFF key.

WARNING: Loads connected to the normally closed contacts of the relays are always supplied and under voltage, even if the instrument is in stand by mode.

Parameters

Label	Characteristic	Description	Menu/User Level	Possible Settings	DEFAULT SETTINGS		
					Low Temp.	Medium Temp.	High Temp.
REGULATION							
SEt	Set Point			LS ~ US	-10	34	38
Hy	Differential	(0,1 ÷ 25,5°C / 1÷255 °F) Intervention differential for set point. Compressor Cut IN is Set Point + differential (Hy). Compressor Cut OUT is when the temperature reaches the set point	Pr1	1~ 45	3	3	3
LS	Minimum set point	(- 50°C÷SET/-58°F÷SET): Sets the minimum value for the set point..	Pr2	-67 ~ SET	-23	25	33
US	Maximum set point	(SET÷110°C/ SET÷230°F). Set the maximum value for set point.	Pr2	SET ~ 302F	37	40	45
Ot	Thermostat probe calibration	(-12.0÷12.0°C; -120÷120°F) allows to adjust possible offset of the thermostat probe	Pr2	-21~21	0	0	0
OdS	Outputs activation delay at start up	(0÷255min) This function is enabled at the initial start up of the instrument and inhibits any output activation for the period of time set in the parameter	Pr2	0 ~ 255 minutes	0	0	0
AC	Anti-short cycle delay	(0÷50 min) minimum interval between the compressor stop and the following restart	Pr2	0 ~ 50 minutes	4	4	4
COF	Compressor OFF time with faulty probe	(0÷255 min) time during which the compressor is OFF in case of faulty thermostat probe. With COF=0 compressor is always active	Pr2	0 ~ 255 minutes	6	6	6
DISPLAY							
CF	Temperature measurement unit	°C=Celsius; °F=Fahrenheit. WARNING: When the measurement unit is changed the SET point and the values of the parameters Hy, LS, US, Ot, ALU and ALL have to be checked and modified if necessary	Pr2	°C = Celsius °F =Fahrenheit	°F	°F	°F
DEFROST							
tdF	Defrost type	EL = electrical heater; in = hot gas	Pr2	EL = electric defrost / in = hot gas defrost	EL	EL	EL
dtE	Defrost termination temperature	(-50÷50 °C/ -58÷122°F) (Enabled only when EdF=Pb) sets the temperature measured by the evaporator probe, which causes the end of defrost	Pr1	-58~122	65	65	38
IdF	Interval between defrost cycles	(0÷120h) Determines the time interval between the beginning of two defrost cycles	Pr1	0 ~ 120 hours	6	6	6
MdF	(Maximum) length for defrost	(0÷255min) When P2P = n, (not evaporator probe: timed defrost) it sets the defrost duration, when P2P = y (defrost end based on temperature) it sets the maximum length for defrost	Pr2	0 ~ 255 minutes	40	40	60
Fdt	Drip time	(0÷120 min) time interval between reaching defrost termination temperature and the restoring of the control's normal operation. This time allows the evaporator to eliminate water drops that might have formed due to defrost	Pr1	0 ~ 255 minutes	2	2	0

Label	Characteristic	Description	Menu/User Level	Possible Settings	DEFAULT SETTINGS		
					Low Temp.	Medium Temp.	High Temp.
FANS (XR60CX ONLY)							
Fnd	Fans delay after defrost	(0÷255min) Interval between end of defrost and evaporator fans start	Pr1	0 ~ 255 minutes	2	2	Not Applicable
Fct	Temperature differential avoiding short cycles of fans	(0÷59°C; Fct=0 function disabled). If the difference of temperature between the evaporator and the room probes is more than the value of the Fct parameter, the fans are switched on	Pr2	0~90	10	10	Not Applicable
FSt	Fans stop temperature	(-50÷50°C/122°F) setting of temperature, detected by evaporator probe, above which fans are always OFF	Pr1	-58~122	35	35	Not Applicable
ALARMS							
ALC	Temperature alarms configuration	(Ab; rE) Ab= absolute temperature: alarm temperature is given by the ALL or ALU values. rE = temperature alarms are referred to the set point. Temperature alarm is enabled when the temperature exceeds the "SET+ALU" or "SET-ALL" values	Pr2	rE = relative to set point Ab = absolute	Ab	Ab	Ab
ALU	MAXIMUM temperature alarm	(SET÷110°C; SET÷230°F) when this temperature is reached the alarm is enabled, after the "ALd" delay time	Pr2	ALL~ 302	38	50	50
ALL	Minimum temperature alarm	-50.0 ÷ SET°C; -58÷230°F when this temperature is reached the alarm is enabled, after the "ALd" delay time	Pr2	-58~ ALu	-25	15	30

How to Use the Hot Key

HOW TO PROGRAM A HOT KEY FROM THE INSTRUMENT (UPLOAD)

1. Program one controller with the front keypad.
2. When the controller is ON, insert the "Hot key" and push UP; the "uPL" message appears followed a by flashing "End"
1. Push "SET" key and the End will stop flashing.
2. Turn OFF the instrument remove the "Hot Key", then turn it ON again.

NOTE: *The "Err" message is displayed for failed programming. In this case push again o key if you want to restart the upload again or remove the "Hot key" to abort the operation.*

HOW TO PROGRAM A HOT KEY FROM THE INSTRUMENT (DOWNLOAD)

1. Turn OFF the instrument.
2. Insert a programmed "Hot Key" into the 5 PIN receptacle and then turn the Controller ON.
3. Automatically the parameter list of the "Hot Key" is downloaded into the Controller memory, the "doL" message is blinking followed a by flashing "End".
4. After 10 seconds the instrument will restart working with the new parameters.
5. Remove the "Hot Key".

NOTE: *The message "Err" is displayed for failed programming. In this case turn the unit off and then on if you want to restart the download again or remove the "Hot key" to abort the operation.*

Alarm Signals

MESSAGE	CAUSE	OUTPUTS
P1	Room probe failure	Compressor output according to parameters "Con" and "COF"
P2	Evaporator probe failure	Defrost end is timed
P3	Third probe failure	Outputs unchanged
P4	Fourth probe failure	Outputs unchanged
HA	Maximum temperature alarm	Outputs unchanged
LA	Minimum temperature alarm	Outputs unchanged
HA2	Condenser high temperature	It depends on the Ac2 parameter
LA2	Condenser low temperature	It depends on the bLL parameter
dA	Door open	Compressor and fans restarts
EA	External alarm	Output unchanged

Alarm Recovery

Probe alarms P1, P2, P3 and P4 start some seconds after the fault in the related probe; they automatically stop some seconds after the probe restarts normal operation. Check connections before replacing the probe.

Temperature alarms HA, LA, HA2 and LA2 automatically stop as soon as the temperature returns to normal values.

Other Messages

MESSAGE	MEANING
Pon	Keyboard unlocked
PoF	Keyboard locked
noP	In programming mode: none parameter is present in Pr1 On the display the selected probe is not enabled
noA	None alarm is recorded

Technical Data

CHARACTERISTIC	DESCRIPTION
Housing	self extinguishing ABS
Case	XR40CX/XR60CX frontal 32x74 mm; depth 60mm
Mounting	XR40CX/XR60CX panel mounting in a 71x29mm panel cut-out
Protection	IP20
Frontal protection	XR40CX/XR60CX IP65
Connections	Screw terminal block ≤ 2,5 mm^2 wiring
Power supply	according to the model: 12Vac/dc, ±10%; 24Vac/dc, ±10%; 230Vac ±10%, 50/60Hz, 110Vac ±10%, 50/60Hz
Power absorption	3VA max
Display	3 digits, red LED, 14,2 mm high;
Inputs	Up to 4 NTC or PTC probes
Digital input	free voltage contact
Relay outputs	compressor: SPST 8(3) A, 250Vac; SPST 16(6)A 250Vac or 20(8)A 250Vac defrost: SPDT 8(3) A, 250Vac fan (XR60CX only): SPST 8(3) A, 250Vac or SPST 5(2) A
Data storing	on the non-volatile memory (EEPROM)
Kind of action	1B
Pollution grade	2
Software class	A
Rated impulsive voltage	2500V
Overvoltage Category	II
Operating temperature	0÷60 °C
Storage temperature	-30÷85 °C
Relative humidity	20÷85% (no condensing)
Measuring and regulation range	NTC probe: -40÷110°C (-40÷230°F) PTC probe: -50÷150°C (-58÷302°F)
Resolution	0,1 °C or 1°C or 1 °F (selectable)
Accuracy (ambient temp. 25°C)	±0,7 °C ±1 digit

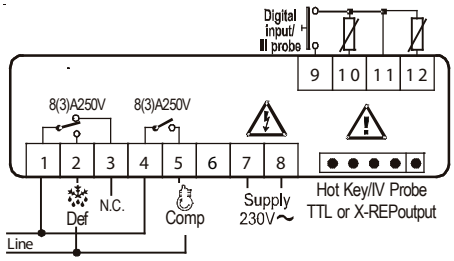
Connections

XR40CX

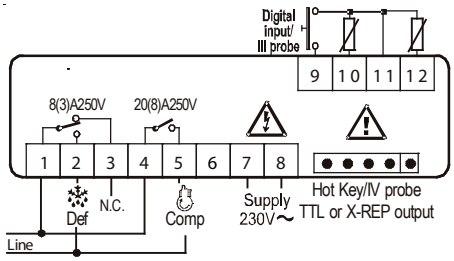
The X-REP output excludes the TTL output. It's present in the following codes: XR40CX- xx2xx, XR40CX –xx3xx; XR40CX –xx6xx; XR40CX –xx7xx;

The digital input configurable as third probe is present in the following codes: XR40CX- xx4xx, XR40CX –xx5xx; XR40CX –xx6xx; XR40CX –xx7xx;

8A compressor



20A compressor

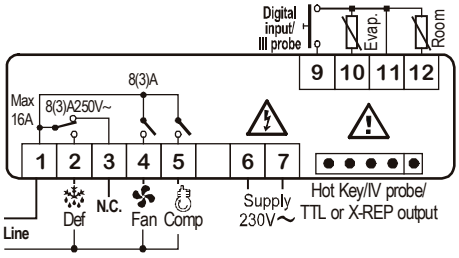


XR60CX

The X-REP output excludes the TTL output. It's present in the following codes: XR60CX- xx2xx, XR60CX –xx3xx; XR60CX –xx6xx; XR60CX –xx7xx;

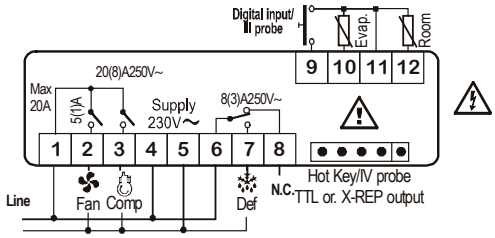
The digital input configurable as third probe is present in the following codes: XR60CX- xx4xx, XR60CX –xx5xx; XR60CX –xx6xx; XR60CX –xx7xx;

8A or 16A comp. relay - 230 VAC



NOTE: The compressor relay is 8(3)A or 16(6)A according to the model.

20A comp. relay - 230 VAC



Service Information

All PRO³ packaged refrigeration system units are designed for maximum durability, reliability and simplicity. The PRO³ packaged refrigeration system comes to you ready for operation, fully charged and with all controls preset at the factory. The following information is provided as an aid in the event that service is required.

Maintenance

The evaporator section of a PRO³ packaged refrigeration system should be checked at least once for proper defrosting because the amount and pattern of frosting can vary greatly.

The frost build-up is dependent on the temperature of the room, the type of product being stored, how often new product is brought into the room and percentage of time the door to the room is open. It may be necessary to periodically change the number of defrost cycles or adjust the duration of defrost.

System Standard Maintenance Guidelines

After first year of operation and under normal usage, maintenance should cover the following items at least once every six months:

1. Check and tighten ALL electrical connections.
2. Check all wiring and insulators.
3. Check contactors for proper operation and for worn contact points.
4. Check all fan motors. Tighten motor mount bolts/ nuts and tighten fan set screws.
5. Clean the condenser coil surface.
6. Check the operation of the control system. Make certain all safety controls are operating properly.
7. Check all defrost controls for proper function.
8. Clean the evaporator coil surface.
9. Clean the drain pan and check the drain pan and drain line for proper drainage.

CAUTION: Unit is critically charged, care must be taken not to reduce the system refrigerant charge while taking pressure readings. Technician must compensate for any refrigerant that might escape the unit into the gauge tubing.

Drain Pan Removal

1. Remove screws from evaporator side panels
2. Remove evaporator side panels
3. Remove screws connecting drain pan to evaporator supports (2)
4. Remove screws attaching the drain pan bracket to evaporator supports (2)
5. Remove the screws attaching the drain pan bracket to the coil endplates (4)
6. Lower the drain pan/heater/bracket assembly
7. Remove nuts and retainers attaching heater.

Reverse process to replace drain pan

FIGURE 15: Drain Pan Removal | View A

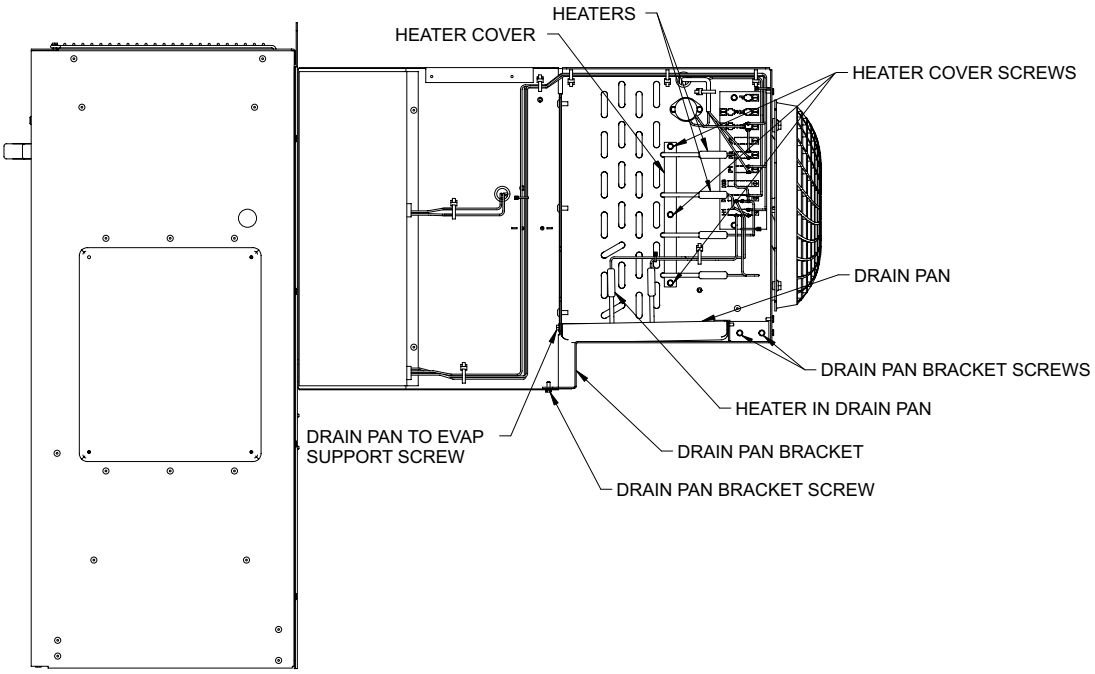
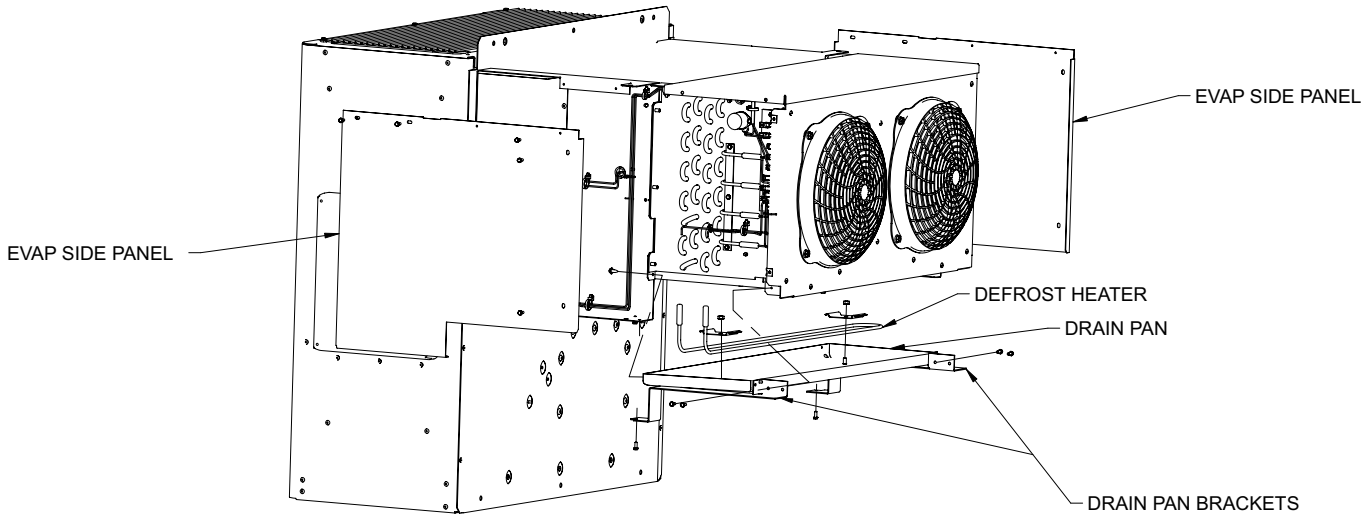


FIGURE 16: Drain Pan Removal | View B



Wiring Diagrams

DIAGRAM 1 Wiring Diagram | High Temperature Cooler | Air Defrost | Large Cabinet

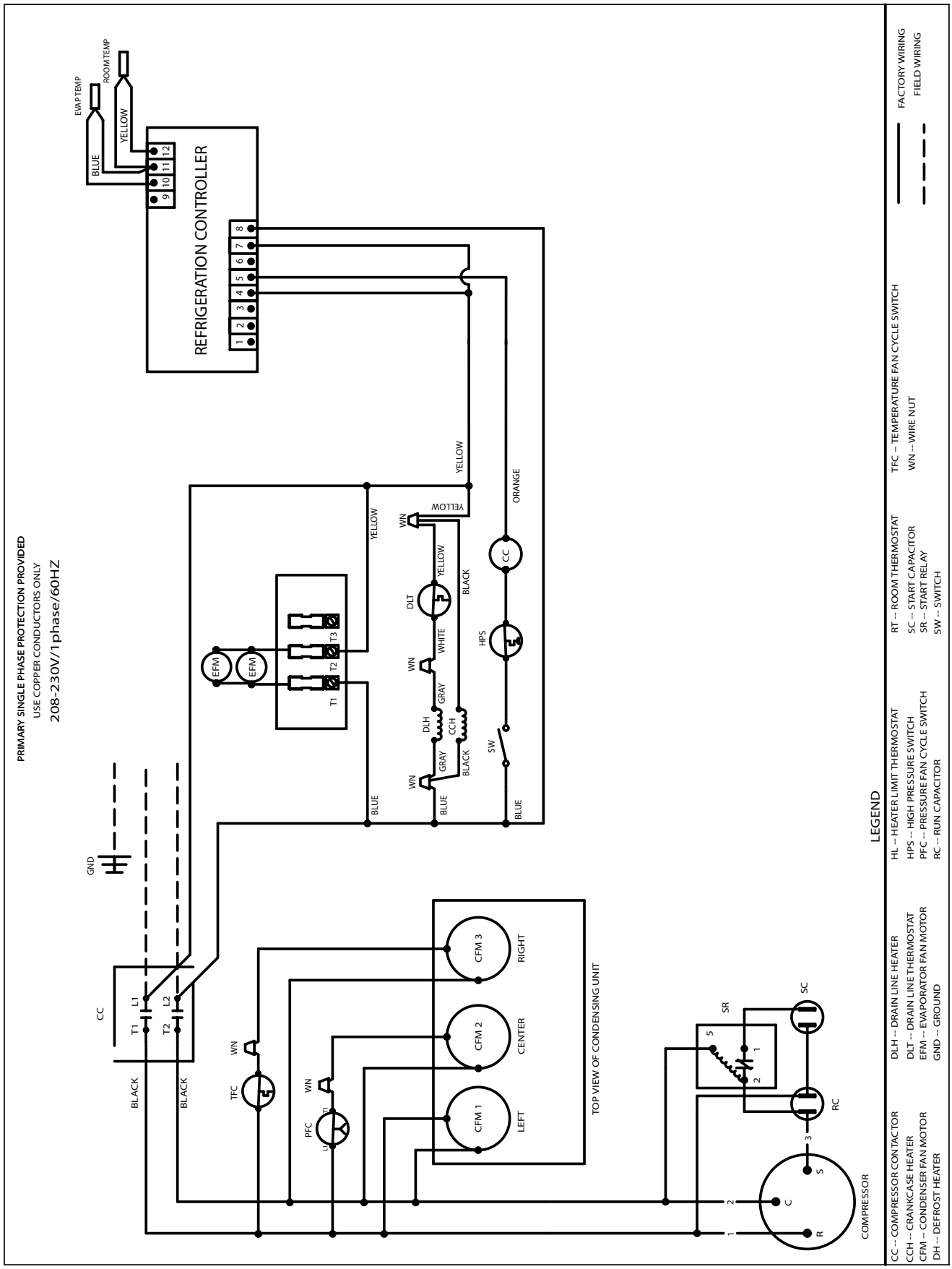


DIAGRAM 2 Wiring Diagram | High Temperature Cooler | Air Defrost | Small Cabinet

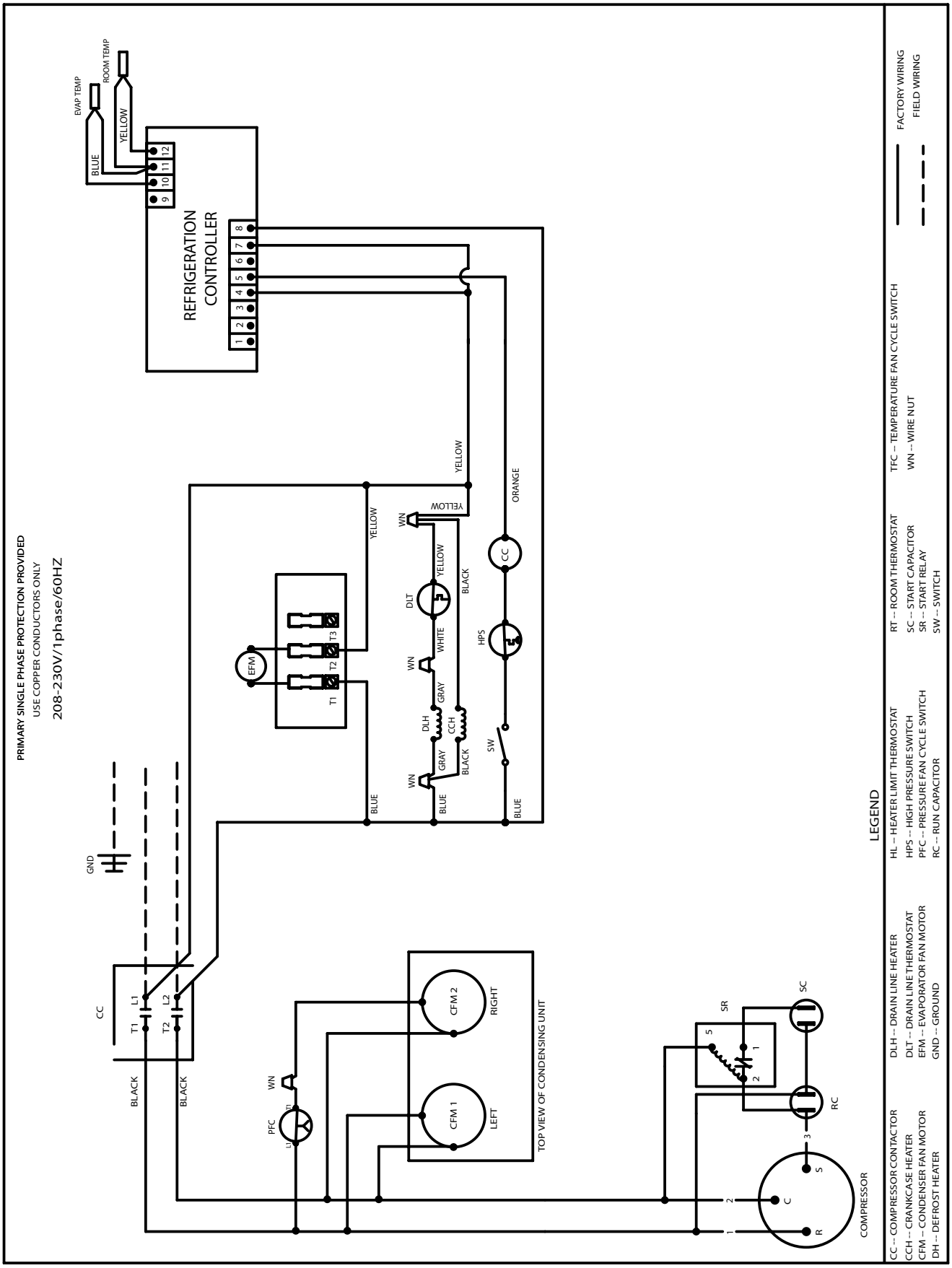


DIAGRAM 3 Wiring Diagram | Freezer and Medium Temperature Cooler | Electric Defrost | Small Cabinet

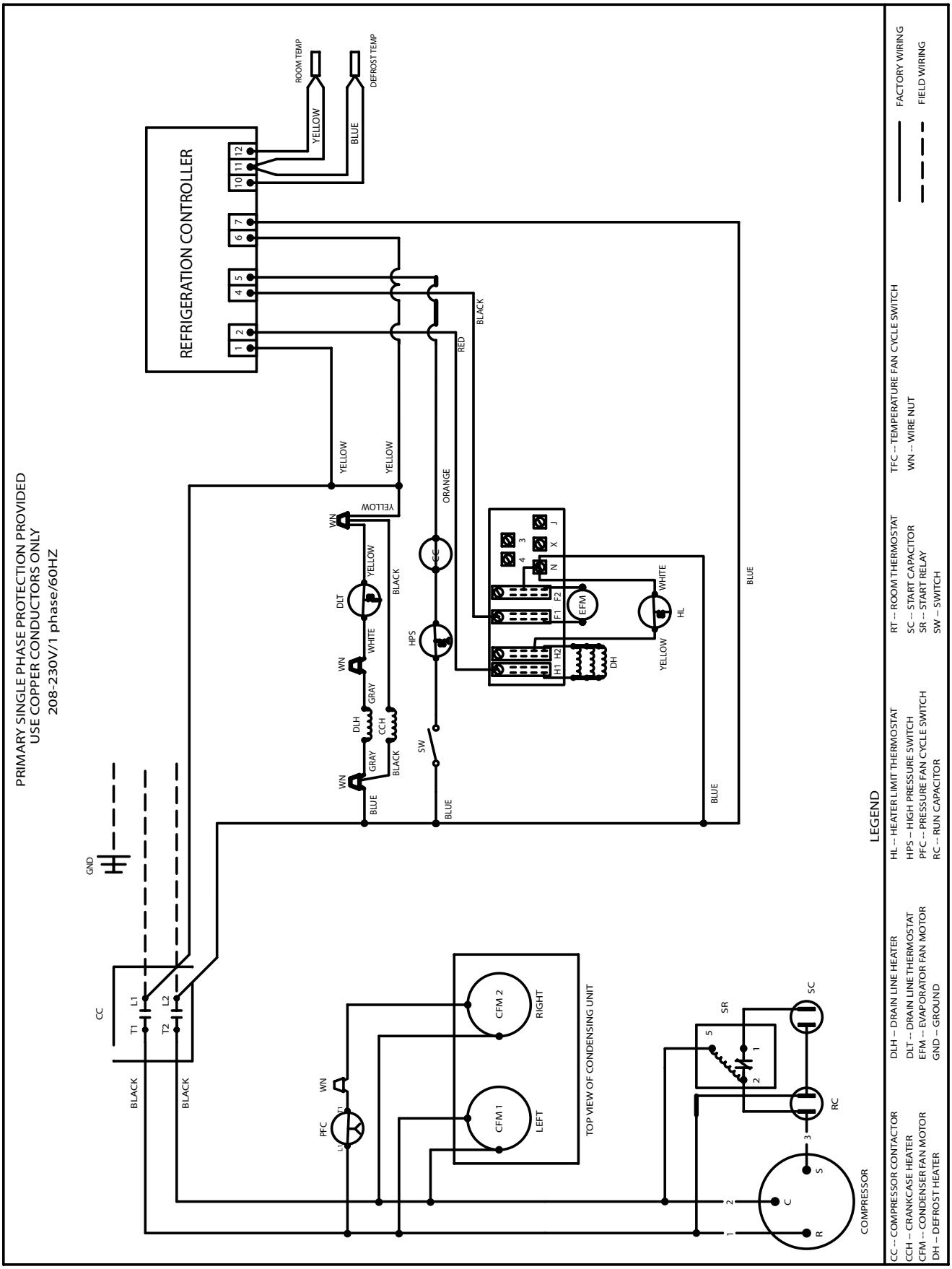
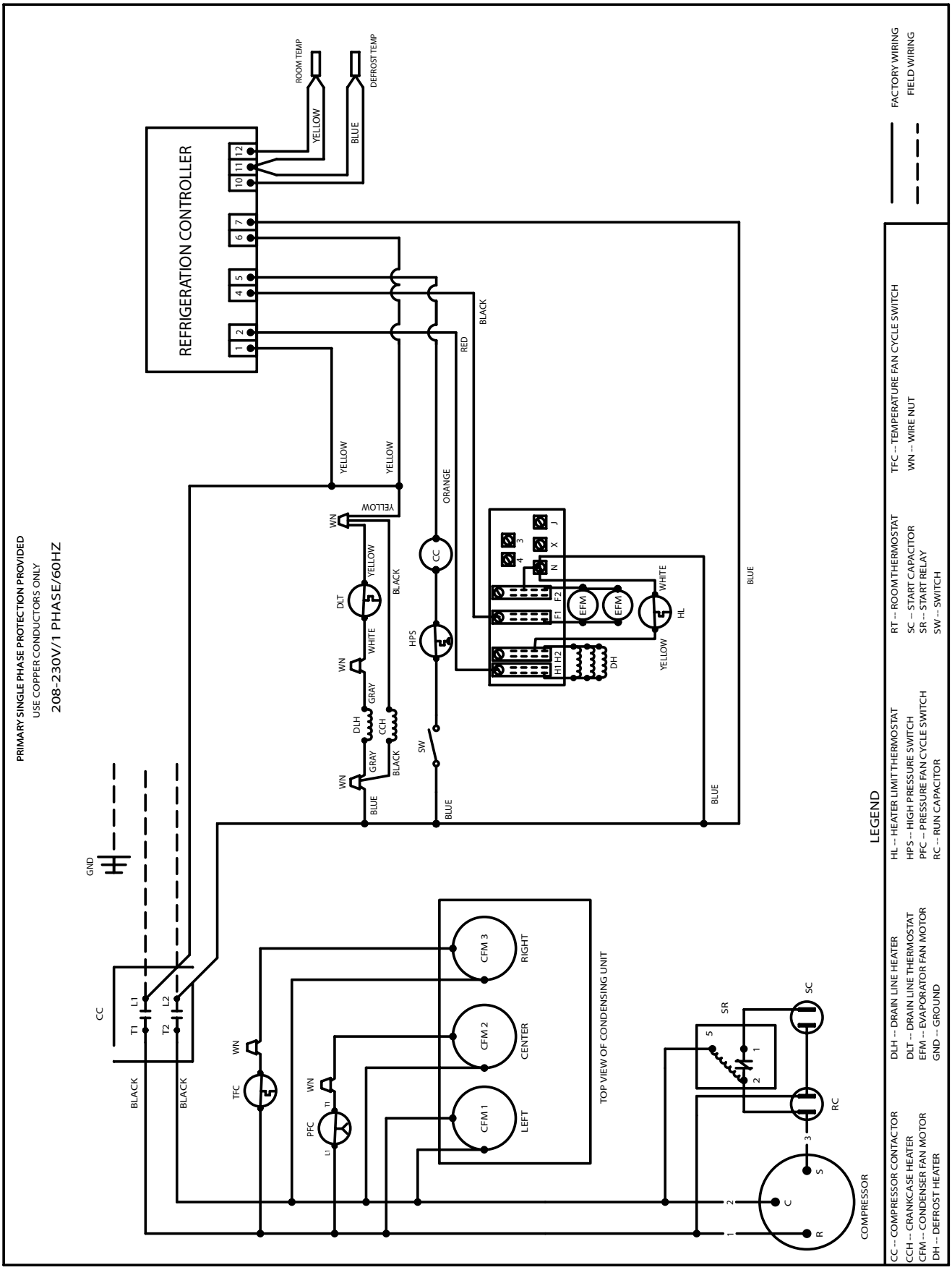


DIAGRAM 4 Wiring Diagram | Freezer and Medium Temperature Cooler | Electric Defrost | Large Cabinet



Performance, Capacities and Specifications

TABLE 2 Model PST | Cooler Application | Air Defrost | BTUH at 95°F Ambient Temperature

Model	Box Temperature		Voltage	MCA	MOPD	Evaporator CFM	Dimensions Figure
	35°F	38°F					
PST070H6B*	6,641	6,968	208-230/1/60	15	20	625	A
PST090H6B*	8,643	9,064	208-230/1/60	15	20	625	A
PST131H6B*	12,448	13,107	208-230/1/60	15	20	1,350	B
PST147H6B*	14,081	14,758	208-230/1/60	15	20	1,350	B

TABLE 3 Model PST | Cooler Application | Electric Defrost | BTUH at 95°F ambient temperature

Model	35°F Box Temperature	Voltage	MCA	MOPD	Evaporator CFM	Dimensions Figure
PST066M6B*	6,641	208-230/1/60	15	20	625	A
PST086M6B*	8,643	208-230/1/60	15	20	625	A
PST124M6B*	12,448	208-230/1/60	15	20	1,350	B
PST141M6B*	14,081	208-230/1/60	15	20	1,350	B

TABLE 4 Model PST | Freezer Application | Electric Defrost | BTUH at 95°F ambient temperature

Model	Box Temperature			Voltage	MCA	MOPD	Evaporator CFM	Dimensions Figure
	0°F	-10°F	-20°F					
PST034L6B*	4,746	3,444	2,260	208-230/1/60	15.0	20	625	A
PST051L6B*	6,530	5,121	3,720	208-230/1/60	15.0	20	625	A
PST057L6B*	7,541	5,735	3,918	208-230/1/60	15.0	20	1,350	B
PST077L6B*	10,002	7,716	5,689	208-230/1/60	20.7	35	1,350	B

TABLE 5 Model PST | Specifications

Model	Refrigerant	Refrigerant Charge (oz.)	Approximate Net Weight	
			lbs.	kg
Coolers				
PST070H6B*	R-404A	36	260	118
PST090H6B*	R-404A	36	265	120
PST131H6B*	R-404A	40	320	145
PST147H6B*	R-404A	40	325	148
Coolers with electric defrost				
PST066M6B*	R-404A	36	260	118
PST086M6B*	R-404A	36	265	120
PST124M6B*	R-404A	40	320	145
PST141M6B*	R-404A	40	325	148
Freezers				
PST034L6B*	R-404A	36	260	118
PST051L6B*	R-404A	36	265	120
PST057L6B*	R-404A	40	320	145
PST077L6B*	R-404A	40	325	148

** H for PSC, E for EC motor on evaporator section only.*

WARNING: This equipment may contain a substance that harms public health and the environment by destroying ozone in the upper atmosphere. Venting of certain refrigerants to the atmosphere may be illegal in your location. Refrigerant recovery devices should be used when installing or servicing this product. Consult your local codes for requirements in your location.

WARNING: Refrigerant can be harmful if it is inhaled. Refrigerant must be used and recovered responsibly. Failure to follow this warning may result in personal injury or death.

Dimensions

DIAGRAM 5 Dimensions | Small Cabinet: 1-fan | Top View

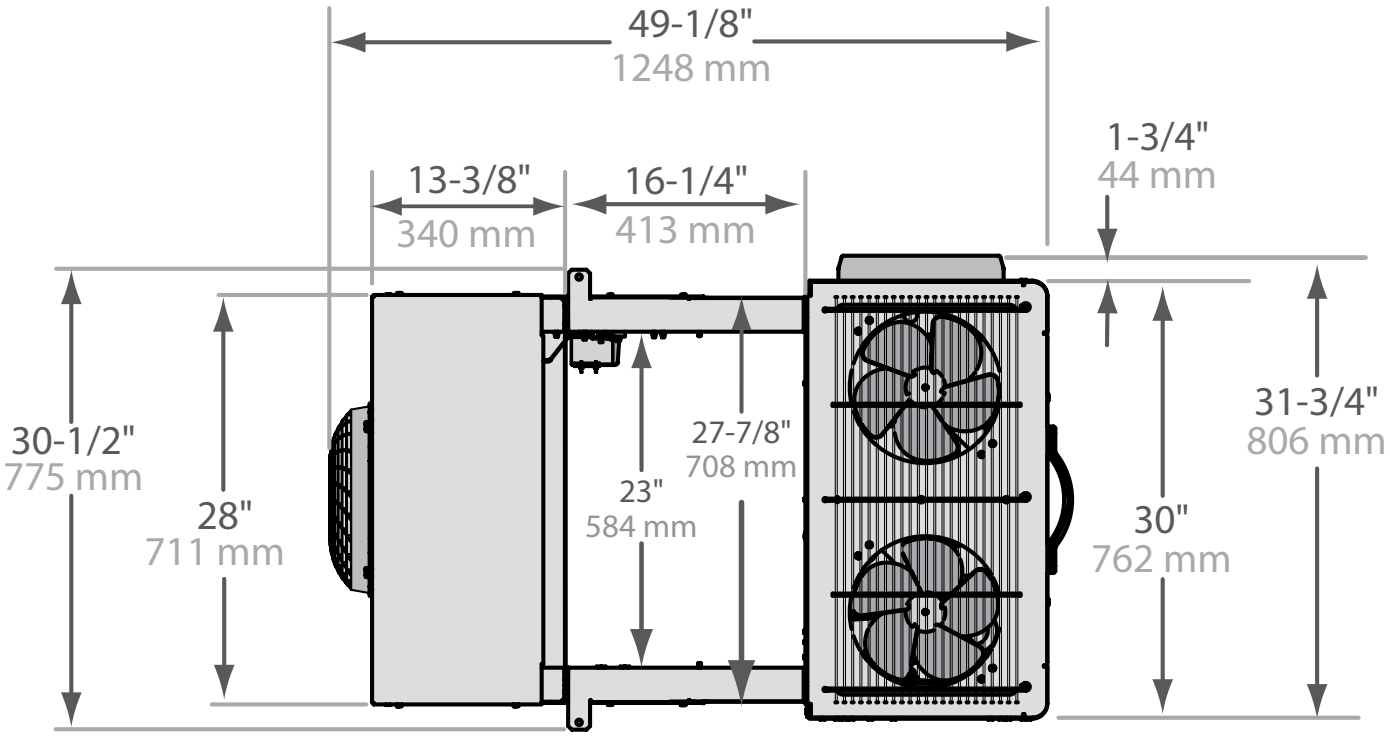


DIAGRAM 6 Dimensions | Small Cabinet: 1-fan | Side View

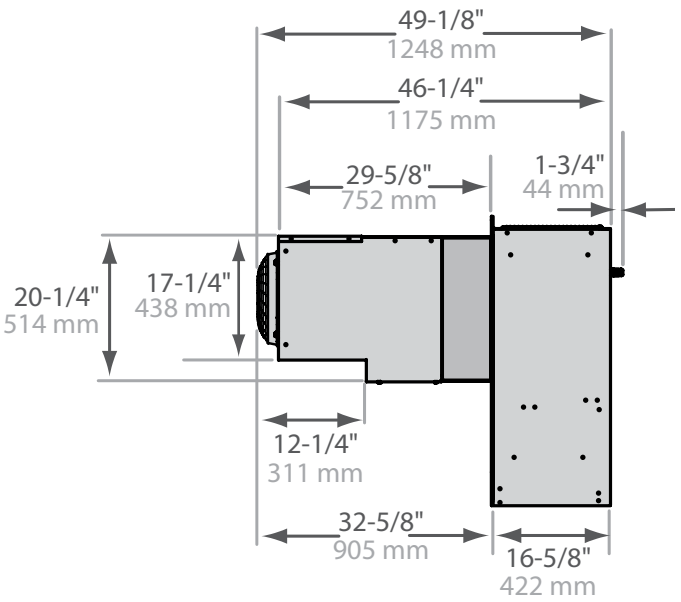


DIAGRAM 7 Dimensions | Small Cabinet: 1-fan | Back View

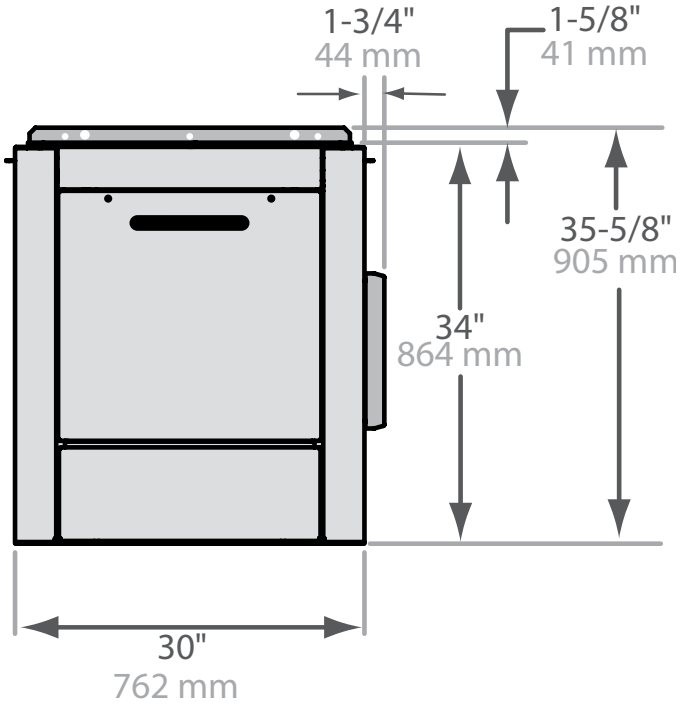


DIAGRAM 8 Dimensions | Large Cabinet: 2-fan | Top View

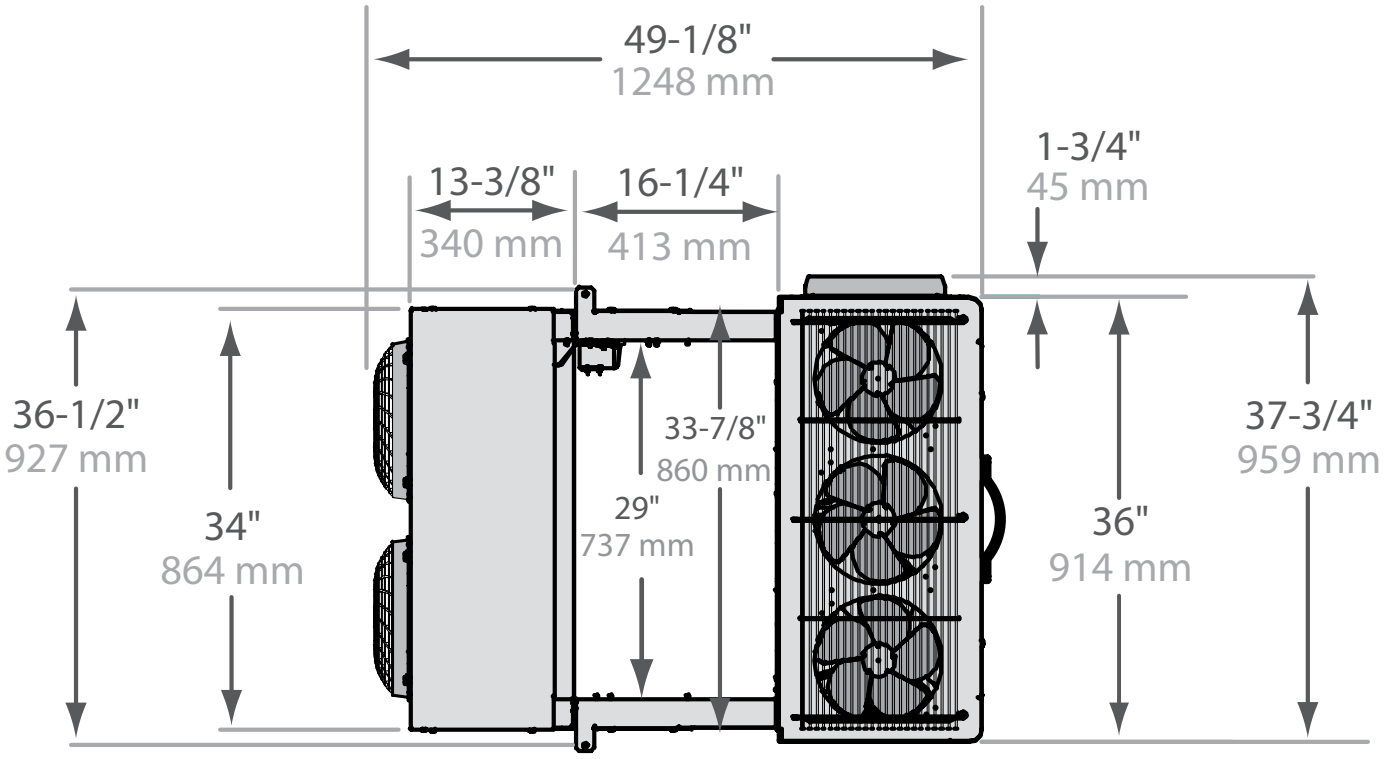


DIAGRAM 9 Dimensions | Large Cabinet: 1-fan | Side View

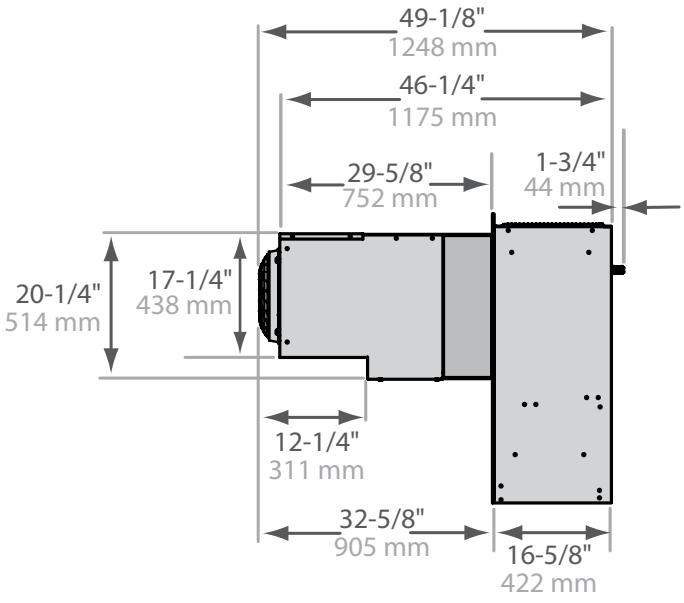
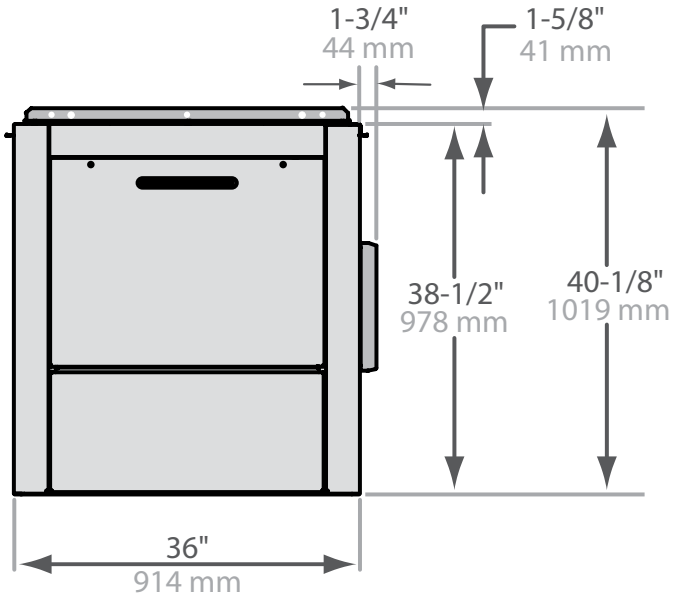


DIAGRAM 10 Dimensions | Large Cabinet: 1-fan | Back View



Replacement Parts by InterLINK Commercial Refrigeration Parts

When contacting the factory for service or replacement parts, refer to the model number and serial number of the unit as stamped on the serial plate attached to the unit. If replacement parts are required, mention the date of installation of unit and date of failure, along with an explanation of the malfunctions and a description of the replacement parts required.

TABLE 6 Model PST | Replacement Parts List

Part Description	Part Number	Coolers				Coolers with electric defrost				Freezers			
		PST070H6B*	PST090H6B*	PST131H6B*	PST147H6B*	PST066M6B*	PST086M6B*	PST124M6B*	PST141M6B*	PST034L6B*	PST051L6B*	PST057L6B*	PST077L6B*
Fan Blades													
Evaporator	5140C	1	1	2	2	1	1	2	2	1	1	2	2
Condenser	22901901	2	2	3	3	2	2	3	3	2	2	3	3
Fan Motors													
Evaporator, PSC - 208/230 volt	25308601	1	1	2	2	1	1	2	2	1	1	2	2
Evaporator, EC - 208/230 volt	25317701	1	1	2	2	1	1	2	2	1	1	2	2
Condenser - 208/230	25308301	2	2	3	3	2	2	3	3	2	2	3	3
Evaporator fan motor bracket	23103301	1	1	2	2	1	1	2	2	1	1	2	2
Condenser fan motor bracket	4000104	2	2	3	3	2	2	3	3	2	2	3	3
Contactors													
20A, 230-volt	34915200	1	1	1	1	1	1	1	1	1		1	1
Temperature Control													
Freezer control kit -208/230 volt	21300701	1	1	1	1	1	1	1	1	1	1	1	1
Cooler with electric defrost-208/230 volt	21300801	1	1	1	1	1	1	1	1	1	1	1	1
Cooler control kit - 208/240 volt	21300901	1	1	1	1	1	1	1	1	1	1	1	1
Heater limit thermostat	5708L					1	1	1	1	1	1	1	1
Defrost Heaters													
Defrost heaters - 230 volt	4312F					3	3			3	3		
Defrost heaters - 230 volt	4342L							3	3			3	3
Outdoor Parts													
Fan pressure control	28917301	1	1	1	1	1	1	1	1	1	1	1	1
Fan temperature control	5521R	1	1	1	1	1	1	1	1	1	1	1	1
Drain line heater	24753401	1	1	1	1	1	1	1	1	1	1	1	1
Drain line heater thermostat	28917401	1	1	1	1	1	1	1	1	1	1	1	1

** H for PSC, E for EC motor on evaporator section only.*

Right source. Right parts. Right now.

InterLink™ is your link to a complete line of dependable and certified commercial refrigeration parts, accessories and innovative electronic controls for all Heatcraft Refrigeration Products (HRP) equipment. At InterLink, we provide our wholesalers with a comprehensive selection of product solutions and innovative technologies for the installed customer base. And every product is built to ensure the same high performance standards with which all HRP brands are built — backed by a dedicated team to serve every customer need, delivering at the best lead times in the industry.

Dependable. Versatile. Courteous.

Finally, one simple source for all your replacement needs from a name you can trust.

For parts, please contact:

InterLINK Commercial Refrigeration Parts

www.interlinkparts.com or
(800) 686-7278

Warranty Statement

Heatcraft Refrigeration Products LLC warrants to its direct purchasers that the PRO³ product, except Service Parts, manufactured by Heatcraft Refrigeration Products LLC shall be of a merchantable quality, free of defects in material or workmanship, under normal use and service for a period of two (2) years from date of original installation, or thirty (30) months from date of shipment by Heatcraft Refrigeration Products LLC, whichever first occurs. Service Parts, for product out of original warranty, should be so warranted for a period of twelve (12) months from date of shipment. Any product covered by this order found to Heatcraft Refrigeration Products LLC's satisfaction to be defective upon examination at Heatcraft Refrigeration Products LLC's factory will, at Heatcraft Refrigeration Products LLC's option, be repaired or replaced and returned to Buyer via lowest common carrier, or Heatcraft Refrigeration Products LLC may at its option grant Buyer a credit for the purchase price of the defective article. Upon return of a defective product to Heatcraft Refrigeration Products LLC's plant, freight prepaid, by Buyer, correction of such defect by repair or replacement, and return freight via lowest common carrier, shall constitute full performance by Heatcraft Refrigeration Products LLC of its obligations hereunder.

Hermetic compressors furnished by Heatcraft Refrigeration Products LLC are subject to the standard warranty terms set forth above, except that motor compressor replacements or exchanges shall be made through the nearest authorized wholesaler of the motor compressor manufacturer (not at Heatcraft Refrigeration Products LLC's factory) and no freight shall be allowed for transportation of the motor compressor to and from the wholesaler. The replacement motor compressor shall be identical to the model of the motor compressor being replaced. Additional charges which may be incurred throughout the substitution of other than identical replacements are not covered by this warranty.

The foregoing is in lieu of all other warranties, express or implied, notwithstanding the provisions of the uniform commercial code, the Magnuson-Moss Warranty-Federal Trade Commission Improvement Act, or any other statutory or common law, federal or state.

Heatcraft Refrigeration Products LLC makes no warranty expressed or implied, of fitness for any particular purpose, or of any other nature whatsoever, with respect to products manufactured or sold by Heatcraft Refrigeration Products LLC hereunder, except as specifically set forth above and on the face hereof. It is expressly understood and agreed that Heatcraft Refrigeration Products LLC shall not be liable to buyer, or any customer of Buyer, for direct or indirect, special, incidental, consequential or penal damages, or for any expenses incurred by reason of the use or misuse by Buyer or third parties of said products. To the extent said products may be considered "Consumer Products," as defined in Section 101 of the Magnuson-Moss warranty-Federal Trade Commission Improvement Act, Heatcraft Refrigeration Products LLC makes no warranty of any kind, express or implied, to "Consumers," except as specifically set forth above and on the face hereof.

This equipment is designed to operate properly and produce the rated capacity when installed in accordance with good refrigeration industry practices.

The following conditions should be adhered to when installing this unit to maintain the manufacturers warranty:

(a) The power supply to the unit must meet the following conditions:

A. Three phase voltages must be +/- 10% of nameplate ratings. Single phase must be within +10% or -5% of nameplate ratings.

B. Phase imbalance cannot exceed 2%.

(b) All control and safety switch circuits must be properly connected according to the wiring diagram.

(c) The factory installed wiring must not be changed without written factory approval.

Optional Three-Year Extended Compressor Warranty

The Equipment Dealer may purchase for the Owner at the time of the original invoice of the equipment a Three-Year Limited Replacement Compressor Warranty. This entitles the owner to be reimbursed for the cost of a replacement compressor, during the third through fifth year of the life of the compressor.

The warranty program functions similarly to the standard warranty offered. When a compressor failure occurs and the unit is exchanged "over the counter" at the authorized wholesaler outlet a salvage credit is issued along with the invoice for the new compressor. Return copies of both the credit and invoice to the Equipment Dealer along with the model and serial number of the condensing unit. The Equipment Dealer will process this claim with the Manufacturer and subsequently reimburse the Owner for the cost of the new compressor.

This warranty covers the actual compressor only and does not extend to any labor, trip charges, crane rental, taxes or additional parts, refrigerant or processing/handling charges required to make the unit operational.

Heatcraft Refrigeration Products LLC
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