



## Thermo Scientific MR05 Series Undercounter Laboratory Refrigerators

# Installation and Operation

324019H01    Rev. F    September 2016

**IMPORTANT** Read this instruction manual. Failure to follow the instructions in this manual can result in damage to the unit, injury to operating personnel, and poor equipment performance.

**CAUTION** All internal adjustments and maintenance must be performed by qualified service personnel.

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# 1 Safety Precautions

In this manual and on labels attached to this product, the words WARNING and CAUTION mean the following:

SYMBOL	SIGNAL	MEANING
	WARNING	Indicates an imminently hazardous situation, which, if not avoided, could result in death or serious injury.
	CAUTION	Indicates an imminently hazardous situation, which, if not avoided, may result in minor or moderate injury.
	WARNING	Indicates hazards associated with the use of electrical energy wherein, if precautions are not taken, can cause injury or death.

Before installing, using or maintaining this product, please be sure to read this manual and product warning labels carefully. Failure to follow these instructions may cause this product to malfunction, which could result in injury or damage.

The following important safety precautions apply to this product:

- Use this product only in the way described in the product literature and in this manual. Before using it, verify that this product is suitable for its intended use.
- Do not modify system components, especially the controller. Use OEM exact replacement equipment or parts. Before use, confirm that the product has not been altered in any way.



**WARNING:** For personal safety and trouble-free operation, this unit must be properly grounded before it is used. Failure to ground the equipment may cause personal injury or damage to the equipment. Always conform to the National Electrical Code and local codes. Do not connect unit to already overloaded power lines. Disconnect the unit from all power sources before cleaning, troubleshooting, or performing other maintenance on the product or its controls.



**WARNING:** The devices are not intended to store flammable inventory, nor for use in a patient environment, or in a hazardous environment. Not intended for use in class I, class II or class III applications as defined by the US 21 CFR. Not intended for use as a medical device as classified by the Medical Device Directive 2007/47/EC.



**CAUTION:** Connect the equipment to the correct power source. Incorrect voltage can result in severe damage to the equipment.



**Note** *This unit is designed to operate in areas that are heated to 60°F (15.6°C) and above. Installation in unheated areas may require a low temperature compressor protection kit for satisfactory operation.*

**Safety Disclaimer:** If the equipment is used in a manner not specified by the manufacturer, protection afforded by the equipment may be impaired.

## 2 Specifications

### 2.1 General Specifications

Model Series	MR05
Model Style	Undercounter
Capacity	5.4 cu ft (153 Liters)
Exterior Dimensions:	
Height (inches)	34 5/8"
Width (inches)	24"
Depth (inches)	24 1/8" Cabinet Depth

### 2.2 Performance Specifications\*

Operating Temperature Range	+1°C to +10°C
Preset Temperature Setpoint	+4°C
Optional Operating Temperature Range	+2°C to +10°C
Optional Preset Temperature Setpoint (must order part #7508TA)	+5°C

### 2.3 Electrical Specifications

Power Supply	115V, 60Hz, 1 Phase
Full load amperes	8.2 A
Minimum circuit Breaker Capacity	15 A

### 2.4 Refrigeration Specifications

Refrigerant	R134a
Charge quantity	5.5 oz

## 2.5 Environmental Operating Conditions

Pollution Degree	2
Installation Category	II
Maximum Altitude	2000m Mean Sea Level
Humidity	80% maximum, non condensing
Temperature	15°C to 32°C
Product Usage	Indoor use only

\*The MR05 series refrigerator has been optimized for performance in a 20°C operating environment.

### 3 Introduction

This manual provides installation, operation and maintenance instructions for MR05 general purpose laboratory refrigerator models.

The control system, standard on all models, includes:

- Preset temperature setpoint (+4°C), unless optional +5°C setpoint is ordered.
- Digital temperature display with 1°C resolution.

Other standard features include:

- Keyed door locks
- CFC-free refrigerant
- CFC-free foamed in-place urethane insulation
- Quiet, hermetically sealed refrigeration compressors

#### **Intended Use of the MR05 Series Undercounter Laboratory Refrigerator:**

The MR05 Series under counter laboratory refrigerators described in this manual is not intended for use a medical device and is not intended for in vitro diagnostic cases.



**Note** *This unit is intended to store non-flammable general laboratory products.*

## 4 Inspection for Damage

At delivery, examine the exterior for physical damage while the carrier's representative is present.

If there is no exterior damage, unpack and inspect the equipment within five days of delivery. If you find any damage, keep the packing materials and immediately report the damage to the carrier. **Do not return goods without written authorization.** When submitting a claim for shipping damage, request that the carrier inspect the shipping container and equipment.

## 5 Installation Instructions

This product is a complete packaged unit ready to operate when plugged into an electrical source. Read all the instructions before proceeding with installation.

1. The cabinet will pass through a standard 30" door opening.
2. Move the cabinet into the desired location. Make sure the bottom of the cabinet is evenly supported. Thin shims under the points of rest can be used to equalize the distribution of weight. If the cabinet sets on an uneven floor, a slight rocking or vibration might result when the condensing unit is set in operation.
3. Make certain the cabinet is located so the front grill is unobstructed.
4. The unit is shipped in ready to operate condition. Adjustment of operating temperatures or setpoint is not necessary and may adversely effect unit performance.
5. Use of electrical supply, other than that specified on the serial plate will cause permanent damage to the product.
6. Operate the unit for several hours to allow the cabinet to reach normal operating temperatures before storing product.
7. Do not install temperature sensing cables using the front door gasket. Instead, use the rear access ports.

## **6 Operating Instructions**

### **6.1 Temperature Control**

The temperature control system is preset by the factory to maintain a cabinet temperature of 4°C. Adjustment of operating values are possible, but may change unit performance. Consult a qualified service technician if you have questions about settings. An optional 5°C factory setpoint can be ordered using part number 7508TA at time of purchase.

### **6.2 Automatic Defrost**

The defrosting process on all models is primarily accomplished by air circulated during off-cycle periods.

Under normal conditions, the temperature warm-up during defrost is virtually unnoticeable. However, an occasional 2°C warm-up is possible if usage is heavy and ambient conditions are extreme.

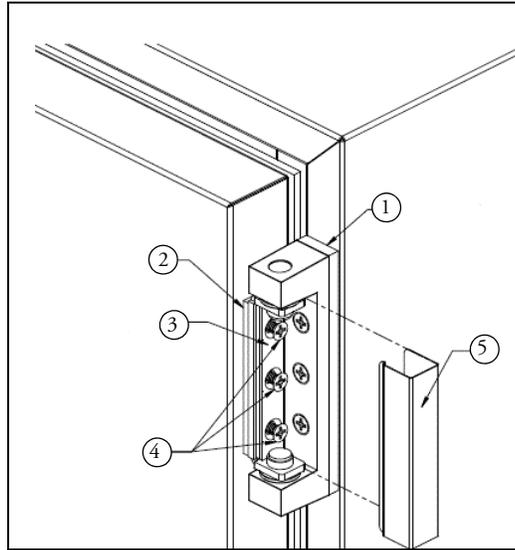
## 7 Maintenance Instructions

1. The cabinet interior should be cleaned frequently. Any spilled liquid should be wiped off immediately. A mild detergent and lukewarm water or a solution of bicarbonate of soda (1 tablespoon per gallon of water) is recommended for cleaning the interior and exterior of the cabinet. All surfaces should be rinsed and thoroughly dried.
2. Shelves and/or drawers should be removed from the cabinet and thoroughly scrubbed. Clean door gasket periodically with water.
3. The unit cooler fan operates continuously when the door is closed and requires no lubrication. These models require no manual defrosting. The cooling coil automatically defrosts when the condensing unit is on the off cycle.
4. The condensing unit needs no oil or other lubrication. The finned condenser can become clogged with lint or dust. The openings between the fins should be kept clean. A vacuum cleaner or small test tube brush works well for this purpose. This should be accomplished on an annual basis. Failure to keep the condenser fins free of dirt and lint will hamper operation and may damage the refrigeration system.
5. Annual inspection of the mechanical refrigeration equipment by a qualified service provider or factory direct technician is recommended.
6. The refrigeration system is charged with refrigerant. If the system is opened for any reason, extreme care should be taken to prevent the entry of moisture-bearing air. A new drier should be installed in the lines when the system is closed.
7. The condensate evaporator pan is located behind the compressor fan, which is behind the base grill. This pan should be cleaned at least once a year.

## 8 Service

### 8.1 Hinge Adjustment

Hinge adjustment may be necessary if the door does not align with the door gasket.



Callout number	Callout Description
1	Cabinet Shim
2	Door Shim
3	Adjusting Plate "C"
4	Screws "B"
5	Cover Plate "A"

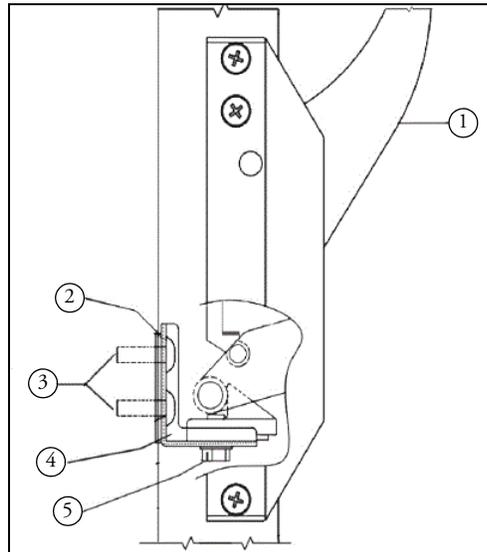
1. Open the refrigerator door. Place a screw driver under the interior portion of the cover and gently pry the cover outward. Pull out the hinge cover straight. Close the refrigerator door.
2. Loosen the three (3) screws "B" which hold adjusting plate "C" in position.
3. To tighten gasket seal, place hand against exterior of door near hinges; gently press in on door so gasket sits firmly against cabinet face. Tighten screws "B".
4. After adjustment is complete, if hinges are adjusted so gasket seal is too tight, door will tend to spring open. Door must be readjusted. To test gasket seal, insert a dollar bill (or piece of paper of similar size) between the gasket and the cabinet opening. Close door; a slight resistance to removal of the dollar bill (test strip) should be felt. Check the perimeter of the door. If the latch is loose, see latch-adjusting information.
5. Replace cover plate "A."



**Note** To accomplish different offsets, shims are utilized. If replacing hinges, make sure to reuse any shims furnished on the cabinet.

## 8.2 Latch and Strike Adjustment

Latch adjustment may be necessary if the door latch does not seat properly when the door is closed.



Callout number	Callout Description
1	Latch "A"
2	Strike Plate "C"
3	Mounting Screws "B"
4	Strike "D"
5	Screw "E"

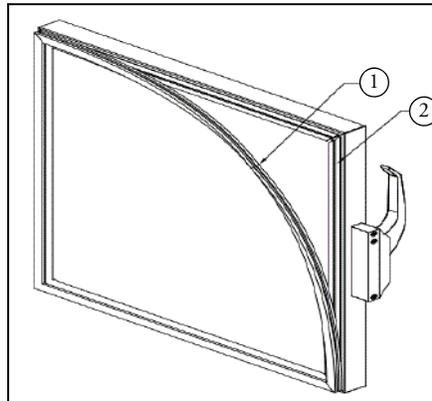
1. Latch "A" is fastened to door.
2. For up or down adjustment (proper latch engagement) loosen mounting screws "B".
3. Strike plate "C" remains in position.
4. Move strike "D" up or down as required and tighten screws "B" when adjustment is satisfactory. No play will be present in the latch handle with the door closed.
5. For in and out adjustment (proper gasket seal) loosen screw "E". Adjust in or out as required and tighten screw when adjustment is satisfactory.
6. The stainless steel hex head cap screw is 10/32" X 5/16" long. Use box wrench, open-end wrench, or ratchet to tighten. Do not use a nut driver or pliers.



**Note** *If replacing latch and strike assembly, make sure to reuse any shims furnished on the cabinet.*

### 8.3 Door gasket replacement

Old or damaged door gaskets will allow warm air to enter the unit, harming performance. Door gaskets should be replaced if in bad condition.



Callout number	Callout Description
1	Gasket Dart
2	Mounting Track

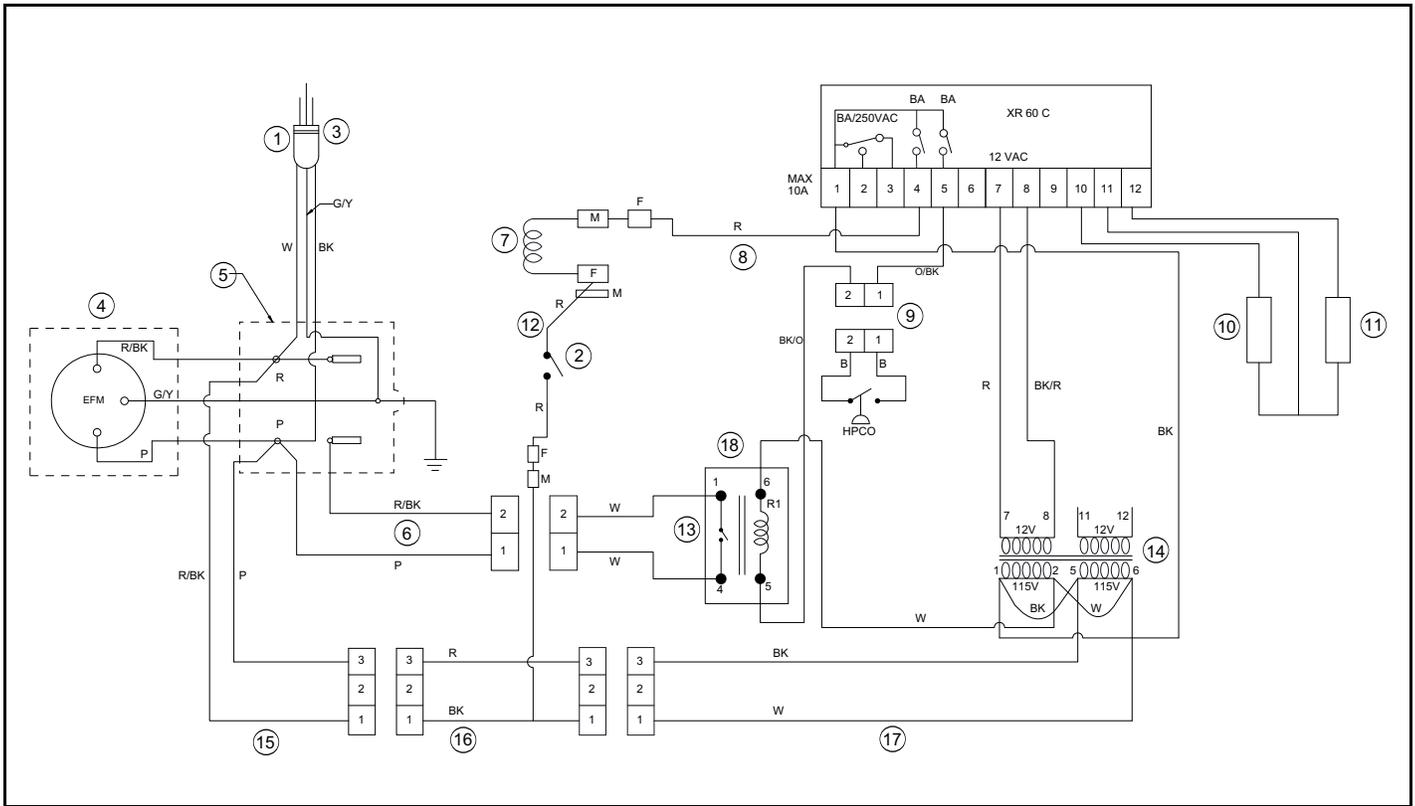
1. Remove existing gasket from mounting track on the door by gently pulling out from one corner of the door.
2. Clean the mounting track and verify that the mounting track is free of any remaining gasket material.



**Note** *Do not clean the track with any solvent cleaners as these may damage the materail.*

3. Place the new gasket on the door and align the dart on the gasket with the mounting track and press firmly.
4. Open and close door, check for proper gasket seal with a gasket seal test, insert a dollar bill (or piece of paper of similar size) between the gasket and the cabinet opening. Close door; a slight resistance to removal of the dollar bill (test strip) should be felt. Check the perimeter of the door.
5. Adjust latch and or striker as necessary for proper door closure.

### 8.4 Wiring Diagram



Callout Number	Callout Description
1	Hospital Grade plug-Nema 5-15P-3C
2	Door Switch
3	Power
4	Cooler Unit
5	Junction Box looking from the top side
6	Relay Harness
7	Cabinet Frame Heater
8	Heater Control Harness
9	HPCO Harness

Callout Number	Callout Description
10	EVAP probe
11	Air temp probe
12	Door switch harness
13	Snubber harness
14	Transformer
15	Control harness
16	Heater harness
17	Transformer harness
18	Relay

**FOR SERVICE BY A QUALIFIED TECHNICIAN ONLY****8.5 Controller Operations**

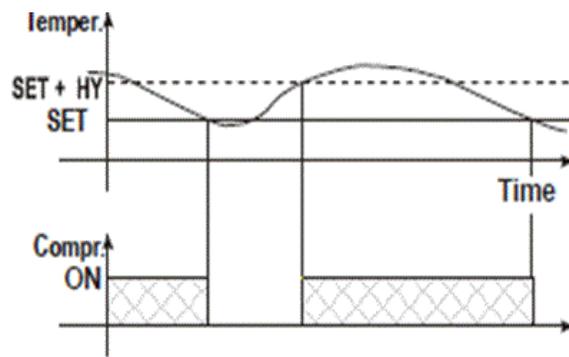
The MR05 Series refrigerator uses a Dixell XR60CX controller to maintain unit temperature. The controller is located inside the unit and is designed to be accessed only by qualified refrigeration technicians. This unit comes pre-programmed with factory set values which have been found to suit most users. Adjusting settings may have detrimental effects on operation.

**8.6 Dixell Operating Manual****8.6.1 General Description**

Model XR60CX, is microprocessor based controller, suitable for applications on medium or low temperature ventilated refrigerating units. It has three relay outputs to control compressor, fan, and defrost, which can be either electrical or reverse cycle (hot gas).

**8.6.2 Controlling Loads****Compressor**

The regulation is performed according to the temperature measured by the thermostat probe with a positive differential from the set point: if the temperature increases and reaches set point plus differential the compressor is started and then turned off when the temperature reaches the set point value again.



In case of a fault in the thermostat probe, the start and stop of the compressor are timed through parameters “Con ” and “CoF”.

**Defrost**

Two defrost modes are available through the “tdF” parameter: defrost through electrical heater (tdF = EL) and hot gas defrost (tdF = in). Other parameters are used to control the interval between defrost cycles (IdF), its maximum length (MdF) and two defrost modes: timed or controlled by the evaporator’s probe (P2P).

At the end of defrost dripping time is started, its length is set in the FSt parameter. With FSt =0 the dripping time is disabled.

**Control of Cabinet Heater**

The Cabinet heater control mode is selected by means of the “FnC” parameter:

**FnC = C\_n** Heater will switch ON and OFF with the compressor and not run during defrost.

**FnC = o\_n** Heater will run even if the compressor is off, and not run during defrost.

After defrost, there is a timed heater delay allowing for drip time, set by means of the “Fnd” parameter.

**FnC = C\_Y** Heater will switch ON and OFF with the compressor and run during defrost.

**FnC = o\_Y** Heater will run continuously also during defrost.

An additional parameter “FSt” provides the setting of temperature, detected by the evaporator probe, above which the heater is always OFF. This is used to make sure circulation of air only if his temperature is lower than set in “FSt”.

**8.6.3 Front Panel Commands**



Key	Function
<b>SET</b>	To display the target setpoint; in programming mode, it selects a parameter or confirms 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.

Key	Function
	(DOWN) To see the MIN stored temperature; in programming mode, it browses the parameter codes or decreases the displayed value.
	Switches the controller OFF, if onF = oFF.
	Not enabled
<b>Key Combinations</b>	
	To lock and unlock the keyboard.
	To enter programming mode.
	To return to the room temperature display.

**Use of LEDs** Each LED function is described in the following table.

LED	Mode	Function
	ON	Compressor enabled
	Flashing	Anti-short cycle delay enabled
	ON	Defrost enabled
	Flashing	Drip time in progress
	ON	Fans enabled
	Flashing	Fans delay after defrost in progress.
	ON	An alarm is occurring
	ON	Continuous cycle is running
	ON	Energy saving enabled

LED	Mode	Function
°C/°F	ON	Measurement unit
°C/°F	Flashing	Programming phase

### 8.6.4 Max and Min Temperature Memorization

#### How to See the Min Temperature

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

#### How to See the Max Temperature

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

#### How to Reset Max and Min Temperature Recorded

1. Press and hold the SET key for more than 3 seconds while the maximum or minimum 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.

### 8.6.5 Main Functions

#### How to See the Setpoint



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

### How to Change the Set Point

1. Push the SET key for more than 2 seconds to change the setpoint value.
2. The value of the setpoint will be displayed and the “°C” or “°F” LED starts blinking.
3. To change the setpoint value, push the ▼ or ▲ arrow within 10 seconds.
4. To memorize the new setpoint value, push the SET key again or wait 10 seconds.

### How to Start a Manual Defrost



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

### How to Change a Parameter Value

To change the parameter's value operate as follows:

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

**To exit:** press SET + ▲ keys or wait 15 seconds without pressing a key.

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

### Hidden Menu

The Hidden Menu includes all the parameters of the instrument.

### How to Enter The Hidden Menu

1. Enter the Programming mode by pressing the SET+ ▼ keys for 3 seconds (“°C” or “°F” LED starts blinking).
2. Immediately release the keys, then push the SET + ▼ keys again for more than 7 seconds. The **Pr2** label will be displayed immediately followed by 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 the ▲ or ▼ to change its value.
6. Press “**SET**” to store the new value and move to the following parameter.

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



If none parameter is present in Pr1, after 3s the “noP” message is displayed. Keep the keys pushed till the Pr2 message is displayed.



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** + ▼”.

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

#### **How to Lock the Keyboard**

1. Keep the ▲ and the ▼ 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 to see the setpoint or the Max or Min temperature stored.
3. If a key is pressed more than 3 seconds, the “**POF**” message will be displayed.

#### **To Unlock the Keyboard**

Press the ▲ and the ▼ keys for more than 3 seconds until the “**Pon**” message displays.

#### **The Continuous Cycle**

When defrost is not in progress, it can be activated by holding the “▲” key for about 3 seconds. The compressor operates to maintain the “**CCs**” setpoint for the time set through the “**CCt**” parameter. The cycle can be terminated before the end of the set time by pressing the same activation key (“▲” key) for 3 seconds.

## 8.6.6 Parameters

Code	Parameter	Function
<b>REGULATION</b>		
<b>Hy</b>	<b>Differential</b>	(0.1÷25,5°C / 1 ÷ 255°F) Intervention differential for setpoint. Compressor Cut IN is Setpoint+ differential ( <b>Hy</b> ). Compressor Cut OUT is when the temperature reaches the setpoint.
<b>LS</b>	<b>Minimum setpoint</b>	(- 50°C÷SET/-58°F÷SET): Sets the minimum value for the set point.
<b>US</b>	<b>Maximum setpoint</b>	(SET÷110°C/ SET÷230°F). Set the maximum value for set point.
<b>Ot</b>	<b>Thermostat probe calibration</b>	(-12.0÷12.0°C; -120÷120°F) allows to adjust possible offset of the thermostat probe.
<b>P2P</b>	<b>Evaporator probe presence</b>	n= not present: the defrost stops by time; y= present: the defrost stops by temperature.
<b>OE</b>	<b>Evaporator probe calibration</b>	(-12.0÷12.0°C; -120÷120°F). allows to adjust possible offset of the evaporator probe.
<b>P3P</b>	<b>Third probe presence (P3)</b>	n= not present:, the terminal operates as digital input.; y= present:, the terminal operates as third probe.
<b>O3</b>	<b>Third probe calibration (P3)</b>	(-12.0÷12.0°C; -120÷120°F). allows to adjust possible offset of the third probe.
<b>P4P</b>	<b>Fourth probe presence</b>	(n = Not present; y = present).
<b>O4</b>	<b>Fourth probe calibration</b>	(-12.0÷12.0°C) allows to adjust possible offset of the fourth probe.
<b>Ods</b>	<b>Outputs activation delay at start up</b>	(0÷255 min) 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.
<b>AC</b>	<b>Anti-short cycle delay</b>	(0÷50 min) minimum interval between the compressor stop and the following restart.
<b>rtr</b>	<b>Percentage of the second and first probe for regulation (0÷100; 100 = P1, 0 = P2)</b>	It allows to set the regulation according to the percentage of the first and second probe, as for the following formula (rtr(P1-P2)/100 + P2).
<b>CCt</b>	<b>Compressor ON time during continuous cycle</b>	(0.0÷24.0 h; res. 10 min) Allows to set the length of the continuous cycle: compressor stays on without interruption for the CCt time. Can be used, for instance, when the room is filled with new products.
<b>CCS</b>	<b>Setpoint for continuous cycle</b>	(-50÷150°C) it sets the set point used during the continuous cycle.
<b>CO<sub>n</sub></b>	<b>Compressor ON time with faulty probe</b>	(0÷255 min) time during which the compressor is active in case of faulty thermostat probe. With CO <sub>n</sub> =0 compressor is always OFF.
<b>CO<sub>F</sub></b>	<b>Compressor OFF time with faulty probe</b>	(0÷255 min) time during which the compressor is OFF in case of faulty thermostat probe. With CO <sub>F</sub> =0 compressor is always active.

Code	Parameter	Function
<b>DISPLAY</b>		
<b>CF</b>	<b>Temperature measurement unit</b>	°C = Celsius; °F = Fahrenheit WARNING! When the measurement unit is changed, the setpoint and the values of the parameters Hy, LS, US, OT, ALU, and ALL have to be checked and modified if necessary.
<b>rES</b>	<b>Resolution (for °C)</b>	(in = 1 °C; dE = 0.1 °C) Allows decimal point display.
<b>Lod</b>	<b>Controller display</b>	(P1, P2, P3, P4, SET, dtr) it selects which probe is displayed by the instrument: P1 = Thermostat probe; P2 = Evaporator probe; P3 = Third probe (only for model with this option enabled); P4 = Fourth probe, SET = set point; dtr = percentage of visualization.
<b>rEd</b>	<b>X- REP display (optional)</b>	(P1, P2, P3, P4, SET, dtr) it selects which probe is displayed by X- REP: P1 = Thermostat probe; P2 = Evaporator probe; P3 = Third probe (only for model with this option enabled); P4 = Fourth probe, SET = set point; dtr = percentage of visualization.
<b>dLy</b>	<b>Display delay</b>	(0 ÷ 20.0m; risul. 10s) when the temperature increases, the display is updated of 1 °C/1°F after this time.
<b>dtr</b>	<b>Percentage of the second and first probe for visualization when Lod = dtr (0 to 100; 100 = P1, 0 = P2)</b>	if Lod = dtr it allows to set the visualization according to the percentage of the first and second probe, as for the following formula $(dtr(P1-P2)/100 + P2)$
<b>DEFROST</b>		
<b>dFP</b>	<b>Probe selection for defrost termination</b>	<b>nP</b> = no probe <b>P1</b> = thermostat probe <b>P2</b> = evaporator probe <b>P3</b> = configurable probe <b>P4</b> = probe on Hot Key plug
<b>tdF</b>	<b>Defrost type</b>	EL = electrical heater; in = hot gas
<b>dtE</b>	<b>Defrost termination temperature</b>	(-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.
<b>IdF</b>	<b>Interval between defrost cycles</b>	(0 ÷ 120h) Determines the time interval between the beginning of two defrost cycles.
<b>MdF</b>	<b>(Maximum) length for defrost</b>	(0 ÷ 255 min) 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.
<b>dSd</b>	<b>Start defrost delay</b>	(0 ÷ 99 min) This is useful when different defrost start times are necessary to avoid overloading the plant.
<b>dFd</b>	<b>Temperature displayed during defrost</b>	(rt = real temperature; it = temperature at defrost start; SEt = set point; dEF = "dEF" label)

<b>Code</b>	<b>Parameter</b>	<b>Function</b>
<b>dAd</b>	<b>Max display delay after defrost</b>	(0÷255 min). Sets the maximum time between the end of defrost and the restarting of the real room temperature display.
<b>Fdt</b>	<b>Drip time</b>	(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.
<b>dPo</b>	<b>First defrost after start-up</b>	(y = immediately; n = after the IdF time)
<b>dAF</b>	<b>Defrost delay after continuous cycle</b>	(0÷23.5h) time interval between the end of the fast freezing cycle and the following defrost related to it.
<b>Cab Heater</b>		
<b>FnC</b>	<b>Cab Heater operating mode</b>	<b>C-n</b> = runs with the compressor, OFF during defrost; o-n = continuous mode, OFF during defrost; <b>C-Y</b> = runs with the compressor, ON during defrost; o-Y = continuous mode, ON during defrost;
<b>Fnd</b>	<b>Cab Heater delay after defrost</b>	(0÷255 min) Interval between end of defrost and evaporator Cab Heater start.
<b>Fct</b>	<b>Temperature differential avoiding short cycles of Cab Heater</b>	(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 cab heaters are switched ON.
<b>FSt</b>	<b>Cab Heater stop temperature</b>	(-50÷50°C/122°F) setting of temperature, detected by evaporator probe, above which fans are always OFF.
<b>Fon</b>	<b>Cab Heater ON time</b>	(0÷15 min) with Fnc = C_n or C_y, (fan activated in parallel with compressor). it sets the evaporator fan ON cycling time when the compressor is off. With Fon = 0 and FoF≠0 the fan are always off, with Fon=0 and FoF=0 the fan are always off.
<b>FoF</b>	<b>Cab Heater OFF time</b>	(0÷15 min) with Fnc = C_n or C_y, (fan activated in parallel with compressor). it sets the evaporator fan off cycling time when the compressor is off. With Fon =0 and FoF≠0 the fan are always off, with Fon=0 and FoF=0 the fan are always off.
<b>FAP</b>	<b>Probe selection for fan management</b>	nP = no probe; P1=thermostat probe; P2 = evaporator probe; P3 =configurable probe; P4 = Probe on Hot Key plug.
<b>ALARMS</b>		
<b>ALC</b>	<b>Temperature alarms configuration</b>	(Ab; rE) Ab = Absolute temperature: alarm temperature is given by the ALL or ALU values; rE = Temperature alarms are referred to the setpoint. Temperature alarm is enabled when the temperature exceeds the SET + ALU or SET- ALL values.
<b>ALU</b>	<b>MAXIMUM temperature alarm</b>	(SET÷110°C; SET÷230°F) when this temperature is reached the alarm is enabled, after the "ALd" delay time.
<b>ALL</b>	<b>Minimum temperature alarm</b>	(-50.0 ÷ SET°C; -58÷230°F) when this temperature is reached the alarm is enabled, after the "ALd" delay time.

Code	Parameter	Function
AFH	Differential for temperature alarm recovery	(0,1÷25,5°C; 1÷45°F) Intervention differential for recovery of temperature alarm. It's also used for the restart of the fan when the FSt temperature is reached.
ALd	Temperature alarm delay	(0÷255 min) time interval between the detection of an alarm condition and alarm signalling.
dAo	Exclusion of temperature alarm at startup	(from 0.0 min to 23.5 hr) time interval between the detection of the temperature alarm condition after instrument power on and alarm signalling.

## 8.7 Alarm Signals

Message	Cause	Outputs
“P1”	Room probe failure	Compressor output acc. to par. “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
“CA”	Serious external alarm (i1F = bAL)	All outputs OFF
“CA”	Pressure switch alarm (i1F = PAL)	All outputs OFF

## 8.8 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.

Alarms “EA” and “CA” (with i1F=bAL) recover as soon as the digital input is disabled.

Alarm “CA” (with i1F=PAL) recovers only by **switching off and on** the instrument.

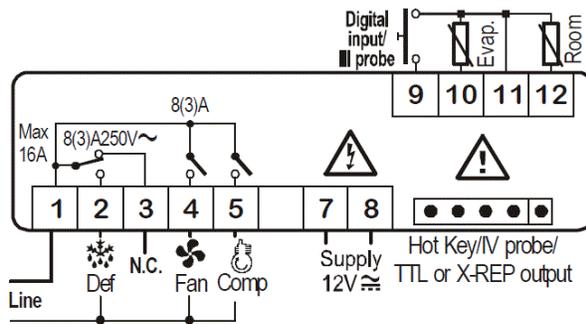
**Other Messages**

Message	Output
<b>Pon</b>	Keyboard unlocked
<b>PoF</b>	Keyboard locked
<b>noP</b>	In programming mode: none parameter is present in Pr1 On the display or in dP2, dP3, dP4: the selected probe is not enabled
<b>noA</b>	None alarm is recorded.

**8.8.1 Connections**

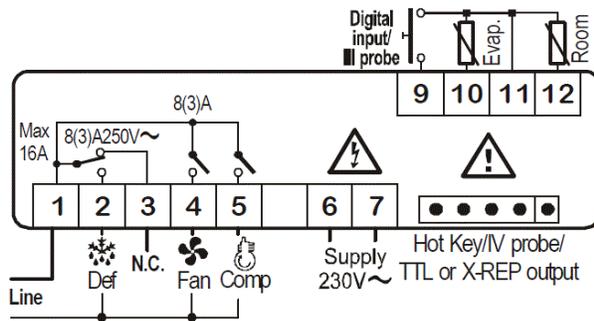
The X-REP output excludes the TTL output. It's present in the following codes: XR60CX-xx2xx; XR60CX - xx3xx.

**XR60CX – 8 A OR 16 A  
COMP. RELAY - 12 VAC/DV  
OR 24 VAC/DV**



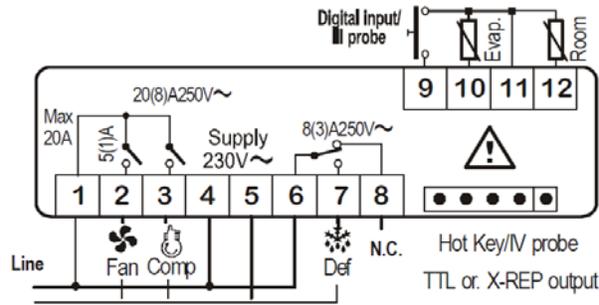
**Note** The compressor relay is 8(3)A or 16(6)A according to the model. 24 VAC/DC supply: connect to the terminals 7 and 8.

**XR60CX – 8A OR 16A COMP.  
RELAY - 120 VAC OR  
230 VAC**



**Note** The compressor relay is 8(3)A or 16(6)A according to the model. 120 VAC supply: connect to the terminals 6 and 7.

**XR60C – 20A COMP. RELAY -  
120 VAC OR 230 VAC**



**120 VAC supply:**  
connect to the  
terminals 5 and 6.



**8.8.2 Default Setting Values**

Label	Name	Range	Preset Value +4°C	Optional Value +5°C	Level
SEt	Setpoint	LS÷US	3.5°C	5°C	---
Hy	Differential	0.1÷25.5°C/ 1÷255°F	3°C	3°C	Pr1
LS	Minimum setpoint	50°C÷SET/-58°F÷SET	-50.0°C	-50.0°C	Pr2
US	Maximum setpoint	SET÷110°C/ SET÷230°F	110°C	110°C	Pr2
ot	Thermostat probe calibration	-12÷12°C /-120÷120°F	0.0°C	0.0°C	Pr1
P2P	Evaporator probe presence	n = not present; Y = present	Y	Y	Pr1
oE	Evaporator probe calibration	-12÷12°C /-120÷120°F	0.0°C	0.0°C	Pr2
P3P	Third probe presence	n=not present; Y=pres.	n	n	Pr2
o3	Third probe calibration	-12÷12°C /-120÷120°F	0.0°C	0.0°C	Pr2
P4P	Fourth probe presence	n=not present; Y=pres.	n	n	Pr2
o4	Fourth probe calibration	-12÷12°C /-120÷120°F	0°C	0°C	Pr2
Ods	Outputs delay at start up	0÷255 min	0 min	0 min	Pr2
Ac	Anti-short cycle delay	0÷50 min	1 min	1 min	Pr1
rtr	P1-P2 percentage for regulation	0÷100 (100=P1,0=P2)	100	100	Pr2
CCt	Continuous cycle duration	0.0÷24.0h	0.0	0.0	Pr2
CCS	Setpoint for continuous cycle	(-55.0÷150,0°C)(-67÷302°F)	-5.0°C	-5.0°C	Pr2
Con	Compressor ON time with faulty probe	0÷255 min	5 min	5 min	Pr2
CoF	Compressor OFF time with faulty probe	0÷255 min	5 min	5 min	Pr2
CF	Temperature measurement unit	°C÷°F	°C	°C	Pr2

Label	Name	Range	Preset Value +4°C	Optional Value +5°C	Level
<b>rES</b>	Resolution	in=integer; dE= dec. point	dE	dE	Pr1
<b>Lod</b>	Probe displayed	P1;P2	P1	P1	Pr2
<b>Red<sup>2</sup></b>	X-REP display	P1 - P2 - P3 - P4 - SEt - dtr	P1	P1	Pr2
<b>dLy</b>	Display temperature delay	0 ÷ 20.0 min (10 sec.)	0.0	0.0	Pr2
<b>dtr</b>	P1-P2 percentage for display	1 ÷ 99	50	50	Pr2
<b>tdF</b>	Defrost type	EL=el. heater; in= hot gas	EL	EL	Pr2
<b>dFP</b>	Probe selection for defrost termination	nP; P1; P2; P3; P4	P2	P2	Pr2
<b>dtE</b>	Defrost termination temperature	-50÷50°C	3.5°C	5°C	Pr1
<b>IdF</b>	Interval between defrost cycles	1÷120 ore	1	1	Pr1
<b>MdF</b>	(Maximum) length for defrost	0÷255 min	15	15	Pr1
<b>dSd</b>	Start defrost delay	0÷99min	0	0	Pr2
<b>dFd</b>	Displaying during defrost	rt, it, SEt, DEF	DEF	DEF	Pr2
<b>dAd</b>	Max display delay after defrost	0÷255 min	0	0	Pr2
<b>Fdt</b>	Draining time	0÷120 min	0	0	Pr2
<b>dPo</b>	First defrost after start-up	n=after IdF; y=immed.	n	n	Pr2
<b>dAF</b>	Defrost delay after fast freezing	0 ÷ 23h e 50'	0.0	0.0	Pr2
<b>Fnc</b>	Frame Heater operating mode	C-n, o-n, C-y, o-Y	C-n	C-n	Pr1
<b>Fnd</b>	Frame Heater delay after defrost	0÷255min	10	10	Pr1
<b>Fct</b>	Differential of temperature for forced activation of fans	0÷50°C	0°C	0°C	Pr2
<b>FSt</b>	Frame Heater stop temperature	-50÷50°C/ -58÷122°F	2.0	2.0	Pr1
<b>Fon</b>	Fan on time with compressor off	0÷15 (min.)	0.0	0.0	Pr2
<b>FoF</b>	Fan off time with compressor off	0÷15 (min.)	0.0	0.0	Pr2
<b>FAP</b>	Probe selection for fan management	nP; P1; P2; P3; P4	nP	nP	Pr2
<b>ALc</b>	Temperat. alarms configuration	rE= related to set; Ab = absolute	Ab	Ab	Pr2
<b>ALU</b>	Maximum temperature alarm	Set÷110.0°C; Set÷230°F	110°C	110°C	Pr1
<b>ALL</b>	Minimum temperature alarm	-50.0°C÷Set/-58°F÷Set	-50.0°C	-50.0°C	Pr1
<b>AFH</b>	Differential for temperature alarm recovery	(0,1°C÷25,5°C) (1°F÷45°F)	1.0°C	1.0°C	Pr2

Label	Name	Range	Preset Value +4°C	Optional Value +5°C	Level
<b>ALd</b>	Temperature alarm delay	0÷255 min	15	15	Pr2
<b>dAO</b>	Delay of temperature alarm at start up	0÷23h e 50'	4.5	4.5	Pr2
<b>AP2</b>	Probe for temperature alarm of condenser	nP; P1; P2; P3; P4	P4	P4	Pr2
<b>AL2</b>	Condenser for low temperat. alarm	(-55 ÷ 150°C) (-67 ÷ 302°F)	-40.0°C	-40.0°C	Pr2
<b>AU2</b>	Condenser for high temperat. alarm	(-55 ÷ 150°C) (-67 ÷ 302°F)	110°C	110°C	Pr2
<b>AH2</b>	Differ. for condenser temp. alar. recovery	[0,1°C ÷ 25,5°C] [1°F ÷ 45°F]	5.0°C	5.0°C	Pr2
<b>Ad2</b>	Condenser temperature alarm delay	0 ÷ 254 (min.), 255=nU	15	15	Pr2
<b>dA2</b>	Delay of cond. temper. alarm at start up	0.0 ÷ 23h 50'	1.3	1.3	Pr2
<b>bLL</b>	Compr. off for condenser low temperature alarm	n(0) - Y(1)	n	n	Pr2
<b>AC2</b>	Compr. off for condenser high temperature alarm	n(0) - Y(1)	n	n	Pr2
<b>iIP</b>	Digital input polarity	oP=opening; CL=closing	CL	CL	Pr1
<b>iIF</b>	Digital input configuration	EAL, bAL, PAL, dor; dEF; Htr, AUS	AUS	AUS	Pr1
<b>did</b>	Digital input alarm delay	0÷255min	15	15	Pr1
<b>Nps</b>	Number of activation of pressure switch	0÷15	15	15	Pr2
<b>odc</b>	Compress and fan status with open door	no; Fan; CPr; F_C	F_C	F_C	Pr2
<b>rrd</b>	Regulation restart with door open alarm	n – Y	Y	Y	Pr2
<b>HES</b>	Differential for Energy Saving	(-30°C ÷ 30°C) (-54°F ÷ 54°F)	0	0	Pr2
<b>PbC</b>	Kind of probe	Ptc; ntc	ntc	ntc	Pr2
<b>Adr</b>	Serial address	1 ÷ 247	1	1	Pr2
<b>onF</b>	on/off key enabling	nu, oFF; ES	nu	nu	Pr1
<b>dP1</b>	Room probe display	--	--	--	Pr2
<b>dP2</b>	Evaporator probe display	--	--	--	Pr1
<b>dP3</b>	Third probe display	--	nop	nop	Pr1

<b>Label</b>	<b>Name</b>	<b>Range</b>	<b>Preset Value +4°C</b>	<b>Optional Value +5°C</b>	<b>Level</b>
<b>dP4</b>	Fourth probe display	--	nop	nop	Pr1
<b>rSE</b>	Valore set operativo	actual set	--	--	Pr2
<b>rEL</b>	Software release	--	1.0	1.0	Pr2
<b>Ptb</b>	Map code	--	3	3	Pr2

<sup>2</sup>Only for models XR60CX-xx2xx, XR60CX-xx3xx;

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**8.9 Troubleshooting** It is recommended that a qualified refrigeration technician conduct evaluation and troubleshooting.

**TROUBLESHOOTING SERVICE CHART**

	<b>SYMPTOM</b>	<b>POSSIBLE CAUSE</b>	<b>POSSIBLE CORRECTIVE STEP</b>
A	Compressor will not start, no hum.	1. Line disconnect switch open.	1. Close disconnect switch
		2. Fuse blown or breaker tripped.	2. Check electrical circuits and motor windings for shorts or grounds. Investigate for possible overloading. Replace fuse or reset breaker after fault is corrected.
		3. Thermal overload tripped.	3. Overloads are automatically reset. Check unit closely when compressor comes back on line.
		4. No cooling required	4. None. Wait until control calls for cooling.
		5. Control contacts stuck in open position.	5. Replace control.
		6. Loose wiring.	6. Check all wiring junctions, tighten all terminal screws.
		7. Improper wiring	7. Check wiring against diagram.
		8. Liquid line solenoid valve will not open.	8. Repair or replace solenoid coil
		9. Motor electrical trouble.	9. Check motor for open windings, Short circuit or burn out.
		10. Liquid line solenoid will not open.	10. Repair or replace coil.

### TROUBLESHOOTING SERVICE CHART

	SYMPTOM	POSSIBLE CAUSE	POSSIBLE CORRECTIVE STEP
B	Compressor will not start, hums but trips on thermal overload.	1. Low voltage to unit.	1. Determine reason and correct.
		2. Start capacitor failure or wrong.	2. Replace start capacitor.
		3. Run capacitor failure or wrong.	3. Replace run capacitor.
		4. Start relay failure or wrong.	4. Replace start relay.
		5. Motor electrical trouble.	5. Check motor for open windings, Short circuit or burn out.
		6. Internal mechanical trouble in compressor.	6. Replace compressor.
		7. Improper wiring.	7. Check wiring against diagram.
		8. Excessively high discharge pressure.	8. See high discharge pressure symptom.
C	Compressor starts, but does not switch off of start winding.	1. Low voltage to unit.	1. Determine reason and correct.
		2. Run capacitor failure or wrong.	2. Replace run capacitor.
		3. Start capacitor failure or wrong.	3. Replace start capacitor.
		4. Start relay failure or wrong.	4. Replace start relay.
		5. Motor electrical trouble.	5. Check motor for open windings, Short circuit or burn out.
		6. Internal mechanical trouble in compressor.	6. Replace compressor.
		7. Improper wiring.	7. Check wiring against diagram.
		8. Excessively high discharge pressure.	8. See high discharge pressure symptom.

### TROUBLESHOOTING SERVICE CHART

	SYMPTOM	POSSIBLE CAUSE	POSSIBLE CORRECTIVE STEP
D	Compressor starts and runs, but short cycles on overload protector.	1. Excessively high discharge pressure.	1. See high discharge pressure symptom.
		2. Low voltage to unit.	2. Determine reason and correct.
		3. High voltage to unit.	3. Determine reason and correct.
		4. Thermal overload protector defective.	4. Check current, Replace protector.
		5. Run capacitor failure or wrong.	5. Replace run capacitor.
		6. Motor electrical trouble.	6. Check motor for open windings, Short circuit or burn out.
		7. Improper wiring causing additional current to pass through overload protector.	7. Check wiring diagram. Check for added fan motors, heaters, etc., connected to wrong side of protector.
E	Compressor starts and runs, but short cycles on temperature or pressure controls.	1. Differential set too close.	1. Widen differential.
		2. High discharge pressure.	2. See high discharge pressure symptom.
		3. Low discharge pressure.	3. See low discharge pressure symptom.
F	Compressor runs long or continuously.	1. Shortage of refrigerant.	1. Leak check and repair.
		2. Control contacts stuck or frozen.	2. Clean contacts or replace control.
		3. Refrigerated air space has an excessive load.	3. Determine reason and correct.
		4. Dirty Condenser	4. Clean condenser.
		5. Evaporator coil iced.	5. Defrost and check defrost circuit.
		6. Restriction in refrigeration system.	6. Determine location and remove.
		7. Evaporator fan motors not running.	7. Determine reason and correct. Check door switch.

**TROUBLESHOOTING SERVICE CHART**

	<b>SYMPTOM</b>	<b>POSSIBLE CAUSE</b>	<b>POSSIBLE CORRECTIVE STEP</b>
G	Compressor noisy or vibrating.	1. Flooding of refrigerant into crankcase.	1. Check expansion device and refrigerant charge.
		2. Improper piping support.	2. Relocate tubing or add hangers.
		3. Worn compressor.	3. Replace compressor.
		4. Loose parts or mounting.	4. Find and tighten.
		5. Condenser fan blade loose or impeded.	5. Check and repair.
H	High Discharge pressure.	1. Non-condensables in system.	1. Remove the non-condensables.
		2. System overcharged with refrigerant.	2. Correct the charge.
		3. Discharge shutoff valve partially	3. Open valve.
		4. Condenser fans not running.	4. Check electrical circuit.
		5. Dirty condenser.	5. Clean.
I	Low discharge pressure.	1. Suction shutoff valve partially closed.	1. open valve.
		2. Insufficient refrigerant in system.	2. Check for leaks. Repair and add charge.
		3. Low suction pressure.	3. See low suction pressure symptom.
J	High suction pressure.	1. Excessive load.	1. Reduce load or add additional equipment.
		2. Expansion valve overfeeding.	2. Check remote bulb. Adjust superheat.
K	Low suction pressure.	1. Insufficient refrigerant in system.	1. Check for leaks. Repair and add charge.
		2. Restriction in refrigeration system. Most notably the liquid line filter drier or capillary.	2. Determine location and remove.
		3. Expansion valve malfunctioning.	3. Check and reset for proper superheat.

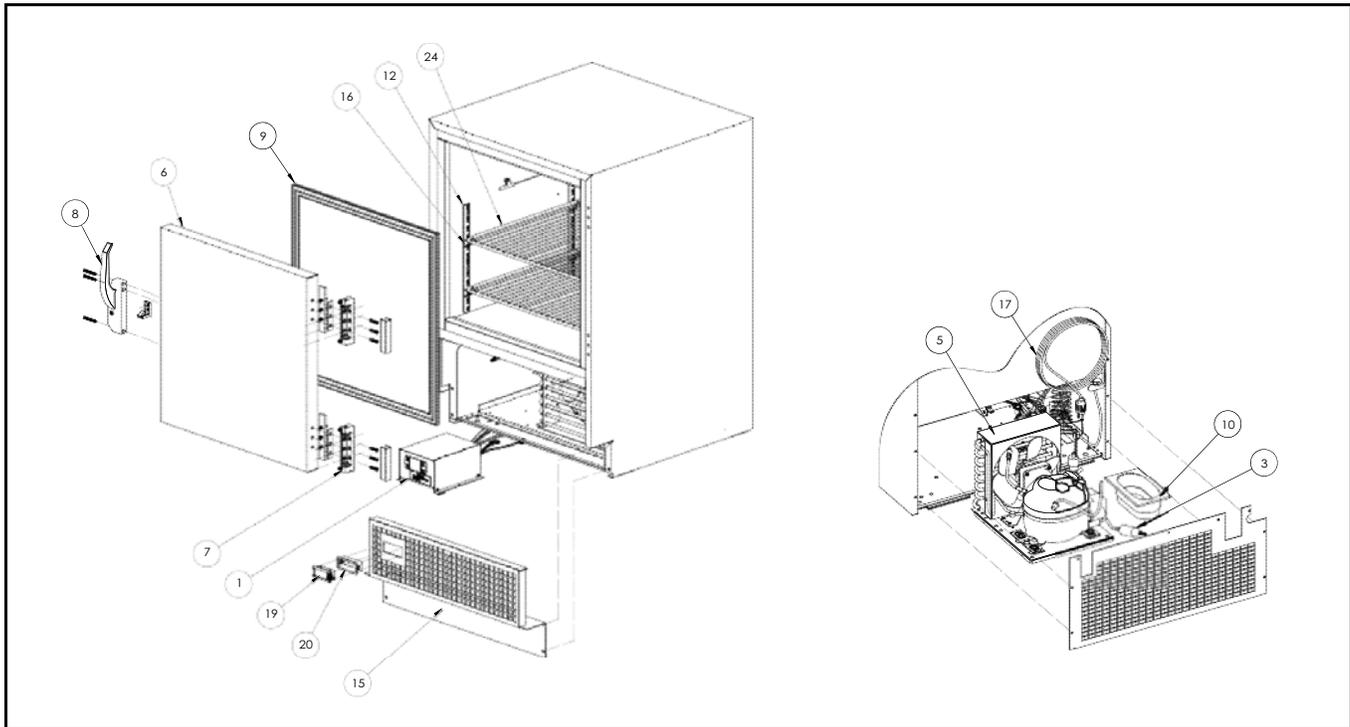
### TROUBLESHOOTING SERVICE CHART

	SYMPTOM	POSSIBLE CAUSE	POSSIBLE CORRECTIVE STEP
L	Suction line frosted or sweating.	1. Expansion valve passing excess refrigerant or is oversized.	1. Readjust valve or replace with smaller valve.
		2. Expansion valve stuck open.	2. Clean valve of foreign particles, and replace if necessary.
		3. Evaporator fan motors not running.	3. Determine reason and correct. Check door switch.
		4. System overcharged with refrigerant.	4. Correct the charge.
M	Liquid line frosted or sweating.	1. Restriction in liquid line filter drier.	1. Determine location and remove.
		2. Liquid line shutoff valve partially	2. Open valve.
N	Ice accumulating on ceiling around evaporator and/or on fan guards or blades.	1. Defrost duration too long.	1. Adjust defrost termination.
		2. Fan delay not delaying fans after defrost period.	2. Defective fan delay thermostat. Replace.
		3. Defective timer.	3. Replace.
		4. Too many defrost cycles per day.	4. Adjust timer for less defrost cycles.
O	Evaporator coil not clearing of frost during defrost cycle.	1. Coil temperature not getting above freezing point during defrost.	1. Check heater operation, or hot gas solenoid valve.
		2. Not enough defrost cycles per day.	2. Adjust timer for more defrost cycles.
		3. Defrost cycle too short.	3. Adjust timer for longer defrost cycle.
		4. Poor door seal.	4. Adjust door latch, install new gasket.
		5. Defective timer or defrost thermostat.	5. Replace defective component.

### TROUBLESHOOTING SERVICE CHART

	SYMPTOM	POSSIBLE CAUSE	POSSIBLE CORRECTIVE STEP
P	Ice accumulating in drain pan.	1. Defective heater.	1. Replace heater.
		2. Unit not pitched properly.	2. Check and adjust if necessary.
		3. Drain line plugged.	3. Clean drain line.
		4. Defective drain line heater.	4. Replace heater.
		5. Poor contact between drain pan and heater element.	5. Repair.
		6. Defective timer or defrost thermostat.	6. Replace defective component.

### 8.10 Replacement parts



<b>ITEM NO</b>	<b>PART NO</b>	<b>DESCRIPTION</b>
1	327620G02 S	CONTROL BOX ASSEMBLY
2 (NOT SHOWN)	306543G01 S	SERVICE EVAPORATOR ASSY (ITEM 3 & 4)
3	306539H01	CAP./DRIER/STRAINER ASSY
4 (NOT SHOWN)	306052H01	COOLER,UNIT
5	314803H01	115V, 60HZ, 1/5HP CONDENSING UNIT
6	322288G01 S	SERVICE DOOR (INCLUDES ITEM 7, 8 & 9)
7	306062H01	HINGE (EACH -2 REQUIRED)
8	306061H01	LATCH & STRIKE
9	306096H01	GASKET,MAGNETIC
10	306060H01	CONTAINER
11 (NOT SHOWN)	324019H01	MANUAL
12	306121H01	PILASTER
13 (NOT SHOWN)	47093H04	COPPER TUBE.375 OD
14 (NOT SHOWN)	311672H01	HARNESS, XT11S POWER
15	322290H01	KICK PLATE & GRILL
16	306078H01	CLIP,SHELF
17	322285H01	POWER CORD, JUNCTION BOX
18 (NOT SHOWN)	307797H01	TRANSFORMER, 110/220V PRI 12/24V SEC, 25VAUL
19	314596H01	CONTROLLER, DIXELL
20	310870H01	MOUNTING ADPTR FOR XT11S 31 X 64
21 (NOT SHOWN)	305041G02	RELAY AND SNUBBER ASSEMBLY
22 (NOT SHOWN)	47015H01	RETAINER,SUCTION LINE TUNNEL
23 (NOT SHOWN)	47014H01	TUNNEL SUCTION LINE A/R
24	316277H01	SHELVES, FULL
25 (NOT SHOWN)	326434H01	HARNESS, HEATER
26 (NOT SHOWN)	327686H02	TRANSFORMER HARNESS
27 (NOT SHOWN)	327687H01	MR05 50HZ HEATER-CONTROLLER HARNESS
28 (NOT SHOWN)	306532H01	HARNESS, EVAP, FAN SWITCH
29 (NOT SHOWN)	306083H01	SWITCH, DOOR

## 9 Warranty Statement

MR Family of Products • Domestic and International Warranty • 24 Months Full Warranty Parts and Labor.

During the first twenty four (24) months from shipment, Company, through its authorized Dealer or service organizations, will at its option and expense repair or replace any part found to be non-conforming in material or workmanship. Company reserves the right to use replacement parts, which are used or reconditioned. Replacement or repaired parts will be warranted for only the unexpired portion of the original warranty.

This warranty does not apply to damage caused by (i) accident, misuse, fire, flood or acts of God; (ii) failure to properly install, operate or maintain the products in accordance with the printed instructions provided, (iii) causes external to the products such as, but not limited to, power failure or electrical power surges, (iv) improper storage and handling of the products, (v) use of the products in combination with equipment or software not supplied by the Company; or (vi) installation, maintenance, repair, service, relocation or alteration of the products by any person other than Company or its authorized representative. To obtain proper warranty service, you must contact the nearest authorized service center or Dealer. Company's own shipping records showing date of shipment shall be conclusive in establishing the warranty period. At Company's option, all non-conforming parts must be returned to Company postage paid and replacement parts are shipped FOB Company's location.

### Limitation of Liability

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER WRITTEN, ORAL, OR IMPLIED. NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY. COMPANY DOES NOT WARRANT THAT THE PRODUCTS ARE ERROR-FREE OR WILL ACCOMPLISH ANY PARTICULAR RESULT.

COMPANY SHALL NOT BE LIABLE FOR ANY INDIRECT OR CONSEQUENTIAL DAMAGES INCLUDING, WITHOUT LIMITATION, DAMAGES TO LOST PROFITS OR LOSS OF PRODUCTS.

## WEEE Compliance

**WEEE Compliance.** This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2012/19/EU. It is marked with the following symbol. Thermo Fisher Scientific has contracted with one or more recycling/disposal companies in each EU Member State, and this product should be disposed of or recycled through them. Further information on our compliance with these Directives, the recyclers in your country, and information on Thermo Fisher Scientific products which may assist the detection of substances subject to the RoHS Directive are available at [www.thermo.com/](http://www.thermo.com/)

**Great Britain**



**WEEE Konformität.** Dieses Produkt muss die EU Waste Electrical & Electronic Equipment (WEEE) Richtlinie 2012/19/EU erfüllen. Das Produkt ist durch folgendes Symbol gekennzeichnet. Thermo Fisher Scientific hat Vereinbarungen getroffen mit Verwertungs-/Entsorgungsanlagen in allen EUMitgliederstaaten und dieses Produkt muss durch diese Firmen verwertet oder entsorgt werden. Mehr Informationen über die Einhaltung dieser Anweisungen durch Thermo Fisher Scientific, die Verwerter und Hinweise die Ihnen nützlich sein können, die Thermo Fisher Scientific Produkte zu identifizieren, die unter diese RoHS-Anweisung fallen, finden Sie unter [www.thermo.com/](http://www.thermo.com/)

**Deutschland**



**Conformità WEEE.** Questo prodotto deve rispondere alla direttiva dell'Unione Europea 2012/19/EU in merito ai Rifiuti degli Apparecchi Elettrici ed Elettronici (WEEE). È marcato col seguente simbolo. Thermo Fisher Scientific ha stipulato contratti con una o diverse società di riciclaggio/smaltimento in ognuno degli Stati Membri Europei. Questo prodotto verrà smaltito o riciclato tramite queste medesime. Ulteriori informazioni sulla conformità di Thermo Fisher Scientific con queste Direttive, l'elenco delle ditte di riciclaggio nel Vostro paese e informazioni sui prodotti Thermo Fisher Scientific che possono essere utili alla rilevazione di sostanze soggette alla Direttiva RoHS sono disponibili sul sito [www.thermo.com/](http://www.thermo.com/)

**Italia**



**Conformité WEEE.** Ce produit doit être conforme à la directive européenne (2012/19/EU) des Déchets d'Équipements Électriques et Électroniques (DEEE). Il est marqué par le symbole suivant. Thermo Fisher Scientific s'est associé avec une ou plusieurs compagnies de recyclage dans chaque état membre de l'union européenne et ce produit devrait être collecté ou recyclé par celles-ci. Davantage d'informations sur la conformité de Thermo Fisher Scientific à ces directives, les recycleurs dans votre pays et les informations sur les produits Thermo Fisher Scientific qui peuvent aider la détection des substances sujettes à la directive RoHS sont disponibles sur [www.thermo.com/](http://www.thermo.com/)

**France**



## Important

For your future reference and when contacting the factory, please have the following information readily available:

Model Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Date Purchased: \_\_\_\_\_

The above information can be found on the dataplate attached to the equipment. If available, please provide the date purchased, the source of purchase (manufacturer or specific agent/rep organization), and purchase order number.

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### IF YOU NEED ASSISTANCE:

Thermo Scientific products are backed by a global technical support team ready to support your applications. We also offer cold storage accessories, including remote alarms, temperature recorders and validation services. Visit [www.thermo scientific.com](http://www.thermo scientific.com) or call:

#### USA/Canada

Sales: +1 866 984 3766

#### India toll free

Sales: 1800 22 8374

#### India

Sales: +91 22 6716 2200

#### China

Sales: +800 810 5118 (or)  
+400 650 5118

#### Japan

Sales: +81-120-753-670

#### Australia

Sales: +61 39757 4300

#### Austria

Sales: +43 1 801 40 0

#### Belgium

Sales: +32 53 73 42 41

#### France

Sales: +33 2 2803 2180

#### New Zealand

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#### Germany international

Sales: +49 6184 90 6000

#### Germany national toll free

Sales: 0800 1 536 376

#### Italy

Sales: +32 02 95059 552

#### Netherlands

Sales: +31 76 579 55 55

#### Nordic/Baltic/CIS countries

Sales: +358 9 329 10200

#### Russia

Sales: +7 812 703 42 15

#### Spain/Portugal

Sales: +34 93 223 09 18

#### Switzerland

Sales: +41 44 454 12 22

#### UK/Ireland

Sales: +44 870 609 9203

#### Other Asian countries

Sales: +852 2885 4613

#### Countries not listed

Sales: +49 6184 90 6000

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**324019H01 Rev F**