



Isotemp® MR05 Undercounter Laboratory Refrigerators

Installation and Operation Manual



© 2015 Thermo Fisher Scientific. All rights reserved.

Table of Contents

1. Safety Precautions	1
2. Specifications	2
2.1. General specifications	2
2.2. Performance specifications	2
2.3. Electrical specifications	2
2.4. Refrigeration specifications	2
3. Introduction	3
4. Inspection for Damage	3
5. Installation Instruction	3
6. Operating Instructions	3
6.1. Temperature Control	3
6.2. Defrosting	3
7. Maintenance Instructions	3
8. Service	4
8.1. Hinge Adjustment	4
8.2. Latch and Strike Adjustment	4
8.3. Door gasket replacement	5
8.4. Wiring Diagram	5
8.5. Controller Operations	6
8.6. Troubleshooting	9
8.7. Replacement parts	12
9. Warranty Statement	13

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

These refrigerators are

- not for use as a medical device
- not approved for storage of blood or blood products
- not intended for the storage of flammable materials



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). 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 +8°C
Optional Preset Temperature Setpoint(must order part #7508TA)	+5°C

2.3 Electrical specifications

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

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 20C 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 +5C setpoint is ordered.
- Digital temperature display with 1°C resolution.

Other standard features include:

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

Intended Use of the MR05 Series Undercounter Laboratory Refrigerator:

The MR05 series undercounter laboratory refrigerator described in this manual is not intended for use as a medical device and is not intended for in vitro diagnostic cases. This unit is intended 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 Instruction

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 5C 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.

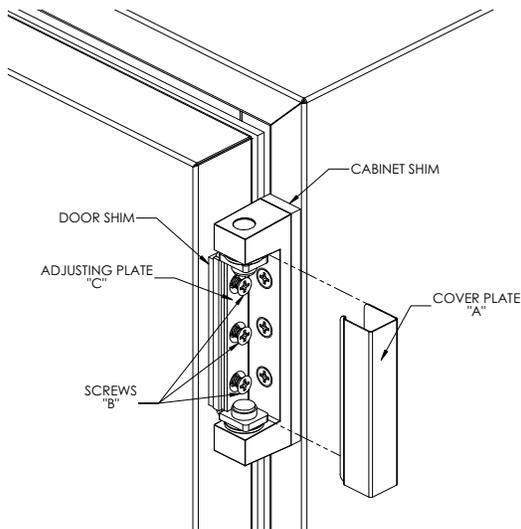
7 Maintenance Instructions

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.



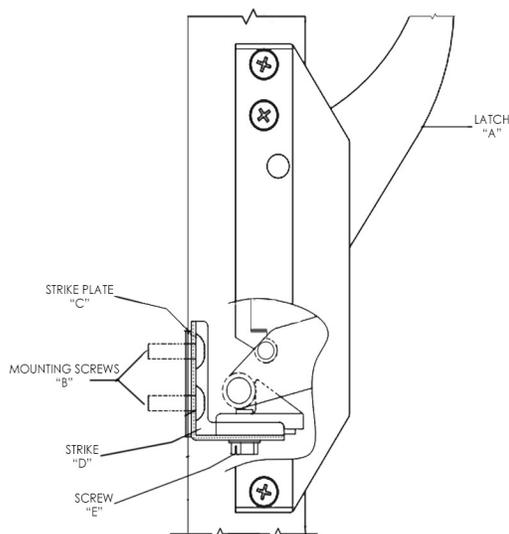
1. Open the refrigerator door. Place a screw driver under the interior portion of the cover and gently pry the cover outward. Pull out the hinge cover straight. Close the refrigerator door.
2. Loosen the three (3) screws "B" which hold adjusting plate "C" in position.
3. To tighten gasket seal, place 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.



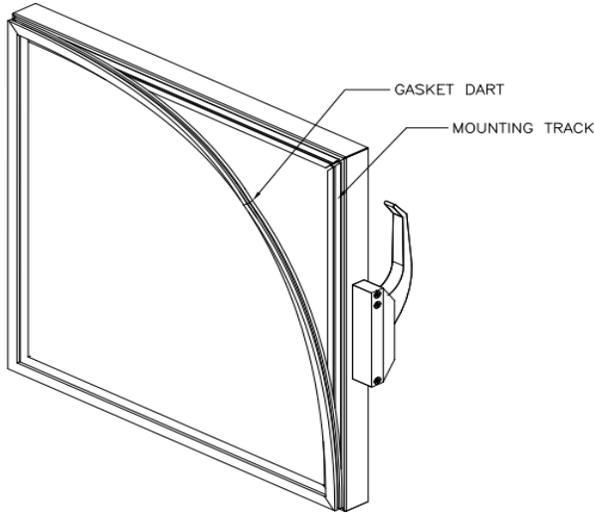
1. Latch "A" is fastened to door.
2. For up or down adjustment (proper latch engagement) loosen mounting screws "B".
3. Strike plate "C" remains in position.
4. Move strike "D" up or down as required and tighten screws "B" when adjustment is satisfactory. No play will be present in the latch handle with 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.



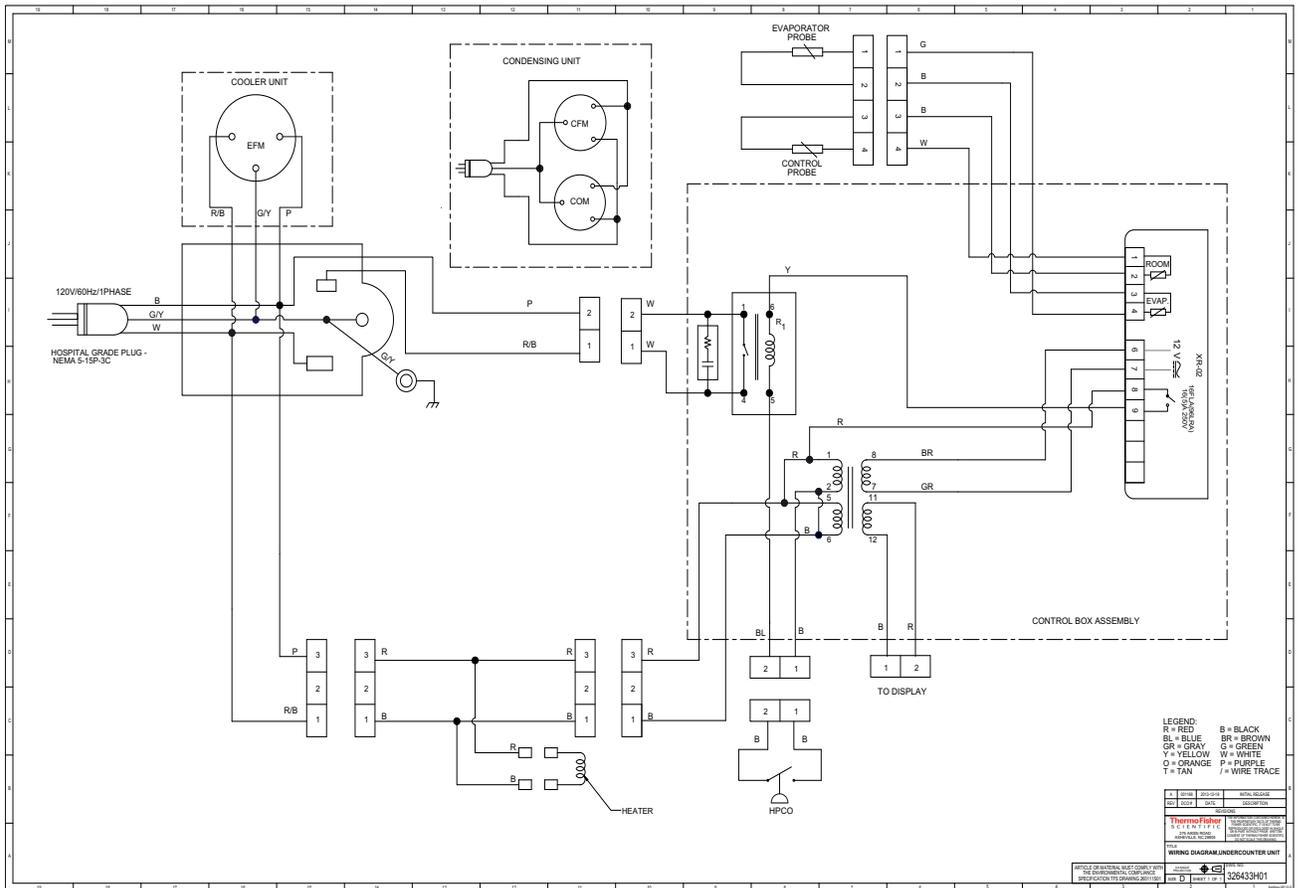
1. Remove existing gasket from mounting track on the door by gently pulling out from 1 corner of the door.
2. Clean the mounting track and verify that the mounting tracks is free of any remaining gasket material.



NOTE Do not clean track with chemical. May damage material.

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



FOR SERVICE BY A QUALIFIED TECHNICIAN ONLY

8.5 Controller Operations

The MR05 Series refrigerator uses a Dixell XR02CX 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.

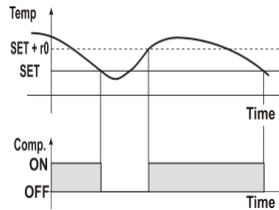
DIGITAL CONTROLLER XR02CX

General Description

Model **XR02CX** is a digital thermostat with off cycle defrost designed for refrigeration applications at normal temperature.

The Regulation Output

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 fault in the thermostat probe the start and stop of the compressor are timed through parameters “Cy” and “Cn”.

Defrost

Defrost is performed through a simple stop of the compressor. Parameter “id” controls the interval between defrost cycles, while its length is controlled by parameter “Md”.

Front Panel Commands



SET

To display target set point, in programming mode it selects a parameter or confirms an operation



To start a manual defrost



In programming mode it browses the parameter codes or increases the displayed



In programming mode it browses the parameter codes or decreases the displayed value

Keys combination

- + To lock or unlock the keyboard
- SET** + To enter in programming mode
- SET** + To return to room temperature display

LED	MODE	SIGNIFICANCE
	On	Compressor enabled
	Flashing	Anti short cycle delay enabled (AC parameter)
	On	Defrost in progress
	Flashing	Dripping in progress
°C	On	Measurement unit
	Flashing	Programming mode
°F	On	Measurement unit
	Flashing	Programming mode

How to see the set point

1. Push and immediately release the **SET** key, the set point will be showed;
2. Push and immediately release the **SET** key or wait about 5s to return to normal visualisation.

How to change the set point

1. Push the SET key 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 the o or n arrows within 10s.
4. To memorise the new set point value push the SET key again or wait 10s.

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 3s (“°C” or “°F” LED starts blinking).
2. Select the required parameter. Press the “**SET**” key to display its value
3. Use or to change its value.
4. Press “**SET**” to store the new value and move to the following parameter.

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



NOTE: 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 3s (“°C” or “°F” LED starts blinking).
2. Released the keys, then push again the **SET+**  keys for more than 7s. The L2 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  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 15s without pressing a key.



NOTE 1: if none parameter is present in L1, after 3s the “nP” message is displayed. Keep the keys pushed till the L2 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 viceversa.

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.

To lock the keyboard

1. Keep pressed for more than 3s the  and  keys.
2. The “**OF**” message will be displayed and the keyboard will be locked. If a key is pressed more than 3s the “**OF**” message will be displayed.

To unlock the keyboard

Keep pressed together for more than 3s the  and  keys till the “**on**” message will be displayed.

Parameters

Regulation

- Hy Differential:** (0,1°C ÷ 25°C) Intervention differential for set point. Compressor Cut IN is SET POINT + differential (Hy). Compressor Cut OUT is when the temperature reaches the set point.
- LS Minimum Set Point:** (-55°C÷SET/-58°F÷SET): Sets the minimum value for the set point.
- US Maximum Set Point:** (SET÷99°C/ SET÷99°F). Set the maximum value for set point.

ot First probe calibration: (-9.9÷9.9°C) allows to adjust possible offset of the first probe.

P2 Evaporator probe presence: n= not present; y= the defrost stops by temperature.

oE Second probe calibration: (-9.9÷9.9°C) allows to adjust possible offset of the second probe

od Outputs activation delay at start up: (0÷99min) 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.

AC Anti-short cycle delay: (0÷50 min) minimum interval between the compressor stop and the following restart.

Cy Compressor ON time with faulty probe: (0÷99 min) time during which the compressor is active in case of faulty thermostat probe. With Cy=0 compressor is always OFF.

Cn Compressor OFF time with faulty probe: (0÷99 min) time during which the compressor is OFF in case of faulty thermostat probe. With Cn=0 compressor is always active.

Display

CF Measurement unit: (°C÷°F) °C =Celsius; °F =Fahrenheit. WARNING: When the measurement unit is changed the SET point and the values of the parameters Hy, LS, US, oE, oI, AU, AL have to be checked and modified if necessary).

rE Resolution (only for °C):(dE ÷ in) dE= decimal between -9.9 and 9.9°C; in= integer;

Ld Default display: (P1 ÷ P2) P1= thermostat probe; P2= evaporator probe. SP=Set point

dy Display delay: (0÷15 min.) when the temperature increases, the display is updated of 1 °C/1°F after this time.

Defrost

dE Defrost termination temperature: (-50÷50°C) if ot=Y it sets the temperature measured by the evaporator probe, which causes the end of defrost.

id Interval between defrost cycles: (0÷99 ore) Determines the time interval between the beginning of two defrost cycles.

Md Maximum length for defrost: (0÷99 min. with 0 no defrost) when ot=n, (not evaporator probe: timed defrost) it sets the defrost duration, when ot = y (defrost end based on temperature) it sets the maximum length for defrost.

dF Display during defrost: (rt / it / St / dF) rt= real temperature; it= start defrost temperature; St= SET-POINT; dF= label dF.

Alarms

AU Maximum temperature alarm: (AL÷99°C) when this temperature is reached the alarm is enabled, after the “Ad” delay time.

AL Minimum temperature alarm: (-55÷AU°C) when this temperature is reached the alarm is enabled, after the “Ad” delay time.

Ad Temperature alarm delay: (0÷99 min) time interval between the detection of an alarm condition and alarm signalling.

dA Exclusion of temperature alarm at startup: (0÷99 min) time interval between the detection of the temperature alarm condition after instrument power on and alarm signalling.

Other

d2 Evaporator probe display (read only)

Pt Parameter code table

rL Software release

Alarm Signalling

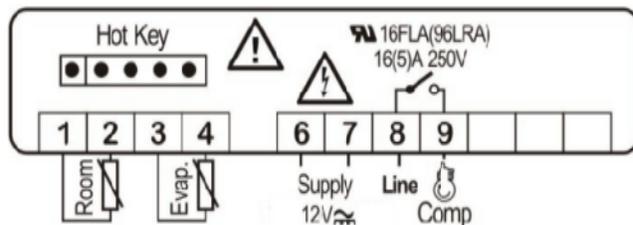
Mess.	Cause	Outputs
“P1”	Room probe failure	Compressor output according to “Cy” e “Cn”
“p2”	Evaporator probe failure	Defrost end is timed
“HA”	Maximum temperature alarm	Outputs unchanged
“LA”	Minimum temperature alarm	Outputs unchanged
“EA”	External alarm	Outputs unchanged
“CA”	Serius external alarm	All outputs OFF
“dA”	Door open	Compressor and fans restarts

Alarm recovery

Probe alarms “P1” and “P2” 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” and “LA” automatically stop as soon as the temperature returns to normal values.

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

Connections



NOTE: Fast-on maximum current 16A

Default Setting Values

LABEL	DESCRIPTION	RANGE	PRESET VALUE	LEVEL
REGULATION				
	Set Point		2 °C	
Hy	Differential	0.1 ÷ 25°C/ 1 ÷ 45°F	3 °C	L1
LS	Minimum Set Point	-55°C÷SET/ -67°F÷SET	-40 °C	L2
US	Maximum Set Point	SET÷99°C/ SET÷210°F	99 °C	L2
ot	First probe calibration	-9.9÷9.9°C/ -18÷18°F	-0.5	L2
P2	Second probe presence	n – Y	y	L2
oE	Second probe calibration	-9.9÷9.9°C/ -18 ÷18°F	0.0	L2
od	Outputs activation delay at start up	0 ÷ 99 min	0	L2
AC	Anti-short cycle delay	0 ÷ 50 min	1	L1
Cy	Compressor ON time faulty probe	0 ÷ 99 min	5	L2
Cn	Compressor OFF time faulty probe	0 ÷ 99 min	5	L2
DISPLAY				
CF	Measurement units	°C - °F	°C	L2
rE	Resolution (only for °C)	dE – in	dE	L1
Ld	Default Display	P1 - P2 - SP	P1	L2
dy	Display delay	0 ÷ 15 min	0	L2
DEFROST				
dE	Defrost termination temperature	-50÷50°C/ -58÷122°F	4°C	L1
id	Interval between defrost cycles	0 ÷ 99 hours	1	L1
Md	Maximum length for defrost	0 ÷ 99 min.	15	L1
dF	Display during defrost	rt – in – dE	dE	L2
ALARMS				
AU	Maximum temperature alarm	ALL÷99°C/ ALL÷210°F	99°C	L2
AL	Minimum temperature alarm	-55°C÷ALU/ -67°F÷ALU	-50°C	L2
Ad	Temperature alarm delay	0 ÷ 99 min	15	L2
dA	Exclusion of temperature alarm at startup	0 ÷ 99 min	99	L2
OTHER				
d2	Evaporator probe display	Read Only	---	L1
Pt	Parameter code table	Read Only	---	L2
rL	Firmware release	Read Only	---	L2

8.6 Troubleshooting

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

<h1>TROUBLESHOOTING SERVICE CHART</h1>			
	SYMPTOM	POSSIBLE CAUSE	POSSIBLE CORRECTIVE STEP
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.
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.

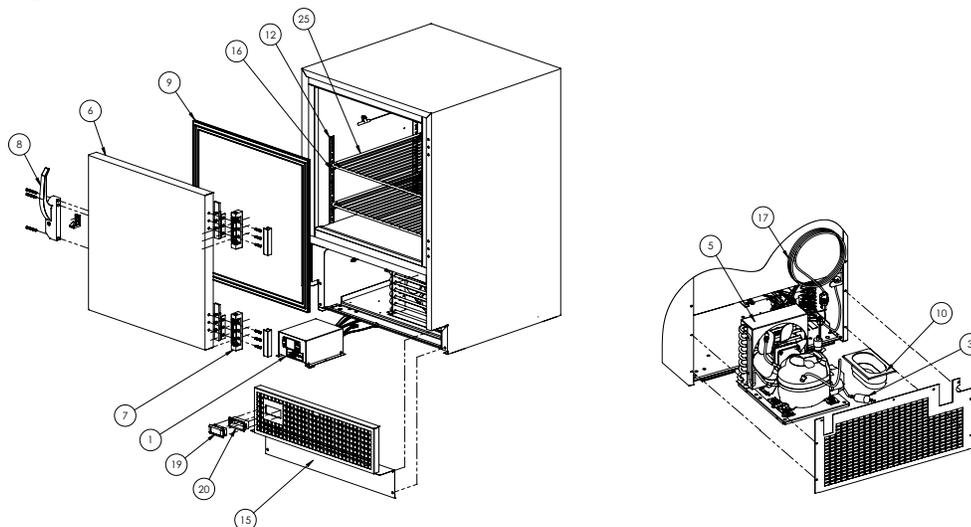
TROUBLESHOOTING SERVICE CHART

	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.
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.

TROUBLESHOOTING SERVICE CHART

	SYMPTOM	POSSIBLE CAUSE	POSSIBLE CORRECTIVE STEP
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.
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.
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.

8.7 Replacement parts



Service Parts List

ITEM NO	PART NO	DESCRIPTION
1	325051G01 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)	324019H02	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)	41026H87	TRANSFORMER, 110/220V PRI 12/24V SEC, 25VA, UL
19	310869H01	DIXELL XT11S DTD 12 VAC NTC PROBE
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 (NOT SHOWN)	325048H01	PROBE HARNESS
25	316277H01	SHELVES, FULL
26 (NOT SHOWN)	326434H01	HARNESS, HEATER

9 Warranty Statement



Fisher Scientific
800-438-4851
275 Aiken Road,
Asheville, NC 28804
www.fishersci.com

Fisher Scientific Isotemp General Purpose Refrigerator Cabinets Warranty for United States and Canada

Laboratory equipment manufactured by Fisher Scientific (hereinafter referred to as “the Company”) is warranted as only as stated below.

The Warranty Period starts one week from the date your equipment is shipped from our facility. This allows shipping time so the warranty will go into effect at approximately the same time your equipment is delivered. The warranty protection extends to subsequent owners during the warranty period.

During the first 13 months, component parts proven to be non-conforming in material or workmanship will be repaired or replaced at the Company’s expense, including labor. During the first 5 years, compressors proven to be non-conforming in material or workmanship will be repaired or replaced at the Company’s expense, excluding labor. Installation, calibration and certification are not covered by this warranty agreement. The Technical Services Department must be contacted for warranty determination and direction prior to performance of any repairs.

Please note the following:

- Service performed by any company not authorized by the Company will void the terms of the warranty.
- Moving the location of the temperature probe will void the warranty.
- Expendable items such as light bulbs and batteries are excluded from this warranty.
- Glass inside the doors that is broken due to customer negligence is not covered by this warranty.
- The company makes no warranty of merchantability, fitness for any particular purpose, or any other warranty, express or implied, either in fact or by operation of law, . . . statutory or otherwise.
- The above warranty and the above obligations to repair, replace or credit are complete and exclusive and the Company expressly disclaims liability for lost profits or for special, indirect, consequential, or exemplary damages of any nature whether attributable to contract warranty, negligence, strict liability, or otherwise even if the Company has been advised of the possibility of such damages.

Replacement or repair of component parts or equipment under this warranty shall not extend the warranty to either the equipment or to the component part beyond the original warranty period. The Technical Services Department must give prior approval for return of any component or equipment. At the Company’s option, all non-conforming parts must be returned postage paid and replacement parts are shipped F.O.B. destination.

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. The Company shall not be liable for any indirect or consequential damages including, without limitation, damages to lost profits or loss of products.

Your local Technical Support Office is ready to help with comprehensive site preparation information before your equipment arrives. Printed instruction manuals carefully detail equipment installation, operation and preventive maintenance.

If equipment service is required, please call your Technical Services Department at 800-438-4851. We are ready to answer your questions on equipment warranty, operation, maintenance, service and special applications. Outside of the United States and Canada, contact your local distributor for warranty information.

