



Many Companies • One Solution

INFORMATION

FUTURA PLUS+ SERIES

LABORATORY REFRIGERATORS / FREEZERS

This cooler has passed the
QUALITY CONTROL INSPECTION
And meets the high standards at LabRepCo
This inspection includes complete refrigeration
System, cabinet construction & finish.

SALES OFFICE: 1001 Witmer Rd.,
Suite 700,
Horsham, PA 19044
PHONE: (800)521-0754
FAX: (215)442-9202

IMPORTANT
PLEASE RETAIN FOR YOUR RECORDS

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WARRANTY

So-Low Environmental Equipment Co., Inc. as the Manufacturer WARRANTS the quality of all parts used in the construction of this machine to be free from defects to the original purchaser.

a. This WARRANTY shall continue for three years from the original delivery date, i.e. three years from the time of delivery to the shipper at Cincinnati, Ohio, U.S.A.

b. This WARRANTY shall have force and effect only if all items are used with proper circuits, voltages, and frequencies and the operation thereof is in accordance with instructions furnished by the manufacturer.

c. This WARRANTY shall not extend to such parts as refrigerants, finishes, belts, and dryers.

d. This WARRANTY shall not extend to ordinary wear and tear, or ordinary refrigeration service and refrigeration adjustments, unless specifically included in the equipment purchase contract.

e. This WARRANTY shall not extend in any way to liability (whether or not construed on tort or contract any other theory of law) to consequential damages resulting from:

1. Ordinary use of the machine

2. Abuse or misuse of the machine

3. Interruption or cessation of the operation of the machine from any cause whatsoever, including but not limited to power failure, LOW VOLTAGE, acts of God, explosion, negligent operation and the like. "Consequential damages" shall be defined to include, but not limited to spoilage of, or damage to contents placed in the machine, loss of profits, expenses of delay resulting from interruption or cessation of the operation of the machine, loss of customers or business good will, any time element loss, or any other special damages.

f. This WARRANTY shall extend only to furnishing for replacement a part found by the manufacturer to be defective.

g. This WARRANTY shall not extend nor cover any part used as a replacement part beyond the original three year machine WARRANTY: nor does the manufacturer undertake any obligation in connection with this WARRANTY other than that specifically set forth above. No person is authorized to make any representation as to this WARRANTY except duly authorized officers of So-Low Environmental Equipment Co., Inc.

h. SO-LOW ENVIRONMENTAL EQUIPMENT CO., INC. agrees if instructions as to operation and use are strictly followed, and power sources (circuits, voltages, frequencies, ect.) are properly applied, to provide within three years after original delivery to shipper, labor free of charge to maintain equipment in good working condition.

i. This WARRANTY shall extend replacement compressor parts to four additional years. This compressor WARRANTY shall not extend nor cover any labor during this extended period.

j. This WARRANTY is limited to products purchased and installed in the United States of America.

RECEIVING AND SHIPPING DAMAGE

- Your unit was built, packaged, and inspected with extreme care. We shipped it to you using carriers we trust with a proven track record of careful handling, good customer service, and on time delivery. Unfortunately, regardless of all of these efforts sometimes accidents happen and occasionally those accidents result in shipping damage. When the carrier picked up the merchandise from us, they assumed responsibility for its condition en route to you. Thus, any claims for shipping damage must be filed with the carrier. Like anybody else, carriers don't like to pay out on insurance claims, so their claims procedures and requirements are very restrictive. You should consult the carrier's website for their specific claims procedures. You should also know that time is of the essence.
- There are two general types of shipping damage. The first is **visible damage**. This type of damage includes visible loss, damage, shortage or any external evidence of loss or damage that is visible at time of delivery. **This type of damage must be noted in detail on your delivery receipt. Make sure the driver signs and dates the delivery receipt, acknowledging the damage.** This has to happen at the time of delivery or it won't happen at all. Keep a copy for your records and send another to the carrier's damage claims department along with a formal request for an inspection report. Follow up with a phone call. Their contact information can be found on the carrier's web site.
- The second type of shipping damage is **concealed damage**. This type of damage will probably not be apparent at time of delivery and may not be discovered until unpacking and inspecting the unit. Remember, time is of the essence here. You should unpack and inspect the unit as soon as possible. Each day that passes reduces the likelihood that the carrier will pay the claim. **As soon as the concealed damage is discovered, stop unpacking and retain all packing materials. Contact the carrier by phone to report the claim.** Note the date and time and person you spoke with. Get a claim number. Follow up with a written letter referencing the claim number and including a formal request for an inspection. Again, consult the carrier's website for specific claim instructions and follow them precisely.

SAFETY

- DO NOT store any unsealed chemical material in this refrigerator or freezer. Corrosive fumes from chemical material can linger inside of the chamber, and cause serious damage to the refrigeration coils. Storing unsealed chemical material in this equipment will void the factory product warranty.
- DO NOT store or use gasoline, or flammable liquid in this refrigerator or freezer. This equipment is not rated to be flammable material storage.
- DO NOT operate this equipment in the presence of explosive fumes. This equipment is not rated to be hazardous locations refrigerator or freezer.

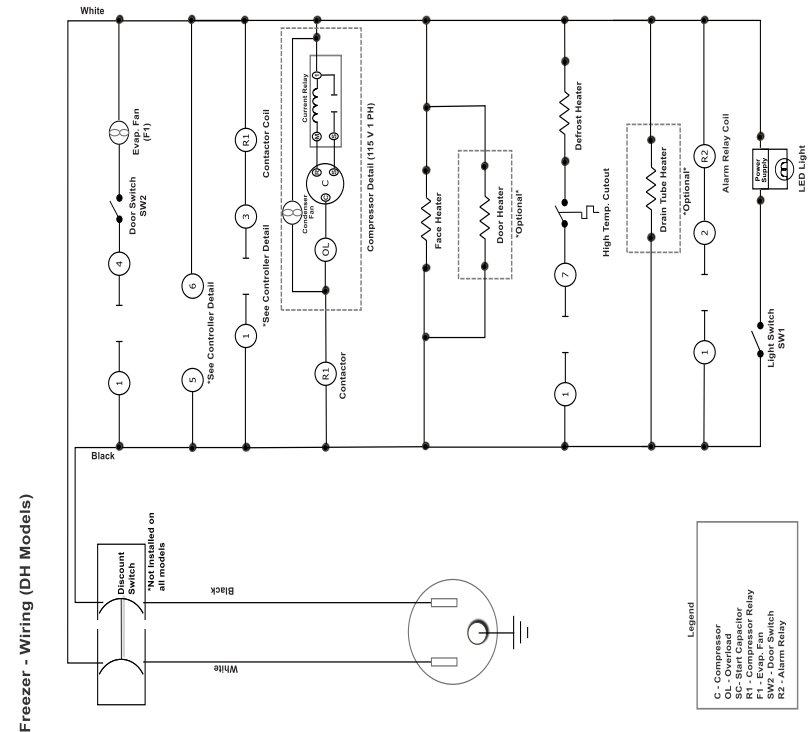
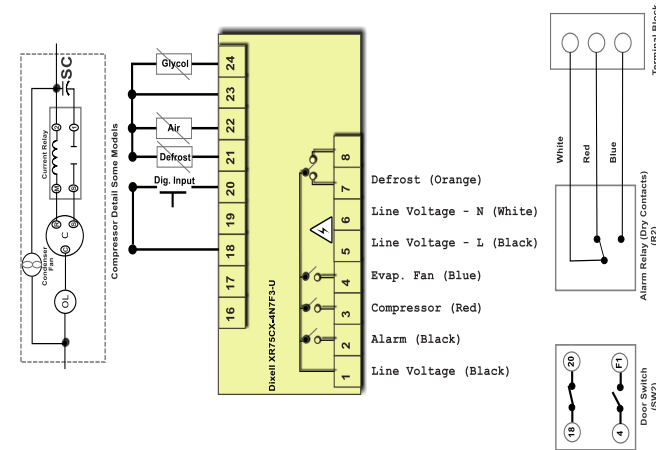
We offer flammable material storage and hazardous locations refrigerators, and/ or freezers for your application. Please contact your local sales

RELEASE OF LIABILITY

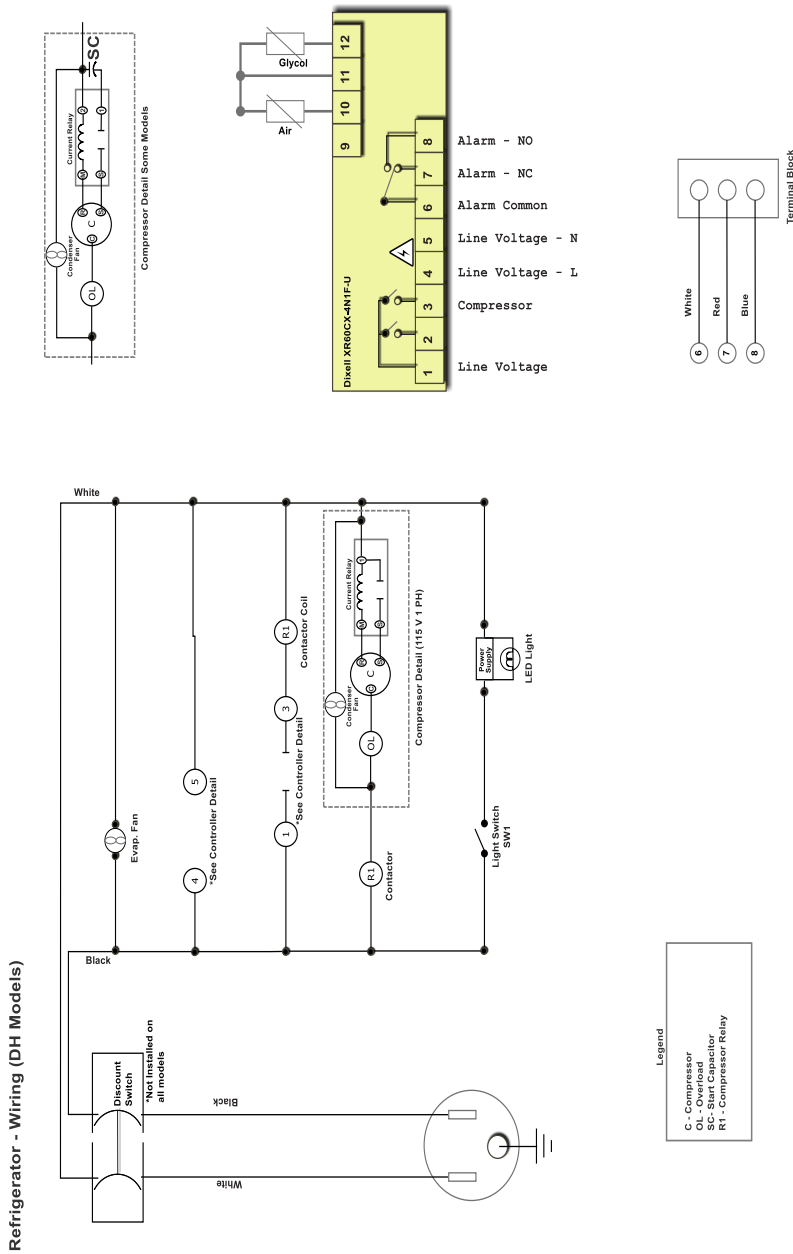
Before you start to use this refrigerator, please take a moment to:

- Connect your remote alarm contacts system, or auto dialer, to the refrigerator's alarm system.
- If your refrigerator model does not have an alarm system, you can install your 3rd party alarm into our refrigerator 1/2" access porthole.
- Develop an emergency backup plan, and designate a different refrigerator or freezer to store the content, if this refrigerator has an unforeseen issue.
- **IF YOU PLAN TO STORE IRREPLACEABLE AND / OR HIGH VALUE PRODUCTS IN THIS UNIT, TAKE PROPER PRECAUTIONS NOW.**
- The manufacturer's sole obligation under warranty is limited to either repair or replacement of parts, subject to the additional limitations below. This warranty neither assumes, nor authorizes any person to assume obligation other than those expressly covered by this warranty.
- **NO CONSEQUENTIAL DAMAGES.** The manufacturer is not responsible for economic loss, profit loss, or special indirect or consequential damages, including without limitation, losses, or damages arising from contents spoilage claims whether or not on account of refrigeration or mechanical failure.

Wire Diagram Freezer



Wire Diagram Refrigerator



ELECTRICAL INFORMATION

- The supply circuit to this cabinet must conform to NEC (National Electrical Code). Consult the cabinet Serial Data plate for voltage, cycle, phase, and amp requirements before making connection.
- SUPPLY VOLTAGE SHOULD NOT VARY MORE THAN 5% FROM SERIAL PLATE RATINGS.
- DO NOT connect this equipment to GFI (Ground Fault Interrupt)
- Do not use an extension cord or any multi-outlet strip or plug. Using such devise can lead to insufficient power, and lead to component failure, such as the compressor or starting components.
- If the power cord is damaged, it should be replaced immediately by an authorized service technician.
- Be sure your unit is properly grounded. Use the 3 prong plug provided into a 3 prong grounded outlet. Unless the above grounded method is followed, you are not protected against severe or lethal shock in the even of a short circuit of an electrical component or

WARNING: Avoid fir hazard or electric shock. Do not use an extension cord or an adapter plug. Do not remove any prong from power cord.

Do not under any circumstances cut, remove, or bypass the grounding prong from this plug.

Power supply cord with 3 - prong grounding plug.

Grounding type wall receptacle

INSTALLATION

- Please take a moment to follow the steps below, before using this equipment.
- Find a suitable location to install this refrigerator (or freezer)
- Level this refrigerator (or freezer)
- Set up the shelves inside (if applicable)
- Install the optional monitor probe for field installation

Suitable Location:

Ambient Temperature—Unlike a household refrigerator, this equipment is designed for scientific / medical application. Many components are heavy duty and extra sized, in order to meet the ultimate temperature performance. Therefore, the sounds generated from its operation may not be accepted by everyone in the room. Please take the operations sound factor into consideration, and locate this refrigerator accordingly.

Please ensure the ambient temperature is climate controller between 65 F to 85F in order to achieve the ultimate temperature performance.

Clearance space— We require 2 to 3 inches of clearance space around the refrigerator. So it would be easier to remove the refrigerator for annual maintenance or service.

Monitor probe for field Installation

Each refrigerator or freezer is equipped with a 1/2” probe access port hole for your independent probe installation. The port hole is generally located in the back of your refrigerator or freezer. Simply remove the black cap, run your probe through, and seal the hole with black cap, or electrical putty to prevent air from getting into chamber.

DO NOT run your probe through the door gasket, as it may cause serious condensation or frozen evaporator issue. The port hole is specifically designed to allow you to install the monitor probe.

This refrigerator or freezer is factory set to run at its ultimate temperature performance. There should be no need to adjust the temp settings. If you feel the temp settings must be adjusted please refer to temperature adjustment section in the manual for details.

MAINTENANCE

- **Maintenance – Caution:**
Disconnect Electrical service before accessing mechanical enclosures having moving and/or electrical components.
- **Cleaning Cabinet Exterior:**
Cabinets should be cleaned with a solution of mild soap and water. Do not use caustic soap or abrasive cleaners, since these might damage the cabinet finish. If stainless steel surface becomes discolored, scrub by rubbing only in the direction of the finish grain. Do not use steel wool.
- **Cleaning Interior Surfaces:**
The inside of the cabinet is coated with baked-on vinyl (except stainless steel cooler). To clean, use mild soapy water and cloth or sponge.
- **Condenser:**
For efficient operation, it is recommended that the condenser coil and fans be cleaned every 3 to 6 months. Remove front grille for access. Vacuum clean front surface of coil thoroughly or direct forced air through condenser fins. Failure to clean condenser can cause compressor malfunction and will void warranty.
- **Evaporator Fan:**
Evaporator pan should be cleaned periodically to prevent odors and maintain evaporating efficiency. The pan contains wicks to assist evaporation and should be replaced periodically.

QUICK TROUBLESHOOTING GUIDE

Appliance runs too long	<ul style="list-style-type: none"> ☒ Prolong door openings. ☒ Control set too cold. ☒ Room temperature is high which will make the unit work harder to keep cool.
Temperature of external wall surface is warm	<ul style="list-style-type: none"> ☒ The exterior walls can be as much as 30 degrees warmer than room temperature due to the embedded condenser coils. This is normal when the unit is operating.
Compressor noises	<ul style="list-style-type: none"> ☒ Compressor may be overheated. Please check the room temp and ensure the range is within 65°F to 85°F. If the problem still exists, call for service.
Moisture collects inside	<ul style="list-style-type: none"> ☒ Door gasket is not sealing properly. Check for debris, cracks, and items passing through door at the gasket. ☒ The refrigerator or freezer is facing a doorway or is underneath of air conditioning vent. Relocate the unit or redirect air vent. ☒ Too many door openings. Minimize time door is open. ☒ Hot, humid weather increases condensation. ☒ Make sure there is a water trap (U-shaped loop) in the drain tube near the compressor. This will “trap” a small amount of water in the loop and prevent air from entering the chamber through the tube.
Moisture collects on outside surface	<ul style="list-style-type: none"> ☒ Hot, humid weather increases condensation. ☒ As humidity decreases, moisture will disappear.
Odor inside the unit	<ul style="list-style-type: none"> ☒ Interior needs to be cleaned. See section on maintenance and cleaning in this manual. ☒ Make sure product containers are tightly sealed to prevent leakage
Door will not close	<ul style="list-style-type: none"> ☒ The unit is not level. Refer to the Leveling section at the beginning of this manual ☒ Check for dirt and debris or items passing through the door seal.

OPERATIONS

Temperature Controller

The digital microprocessor temperature controller is designed to provide temperature control of refrigerator or freezer. The controller also provides a constant readout of the sample temperature inside the unit. A touch keypad allows the user to easily select the display units, set point, and differential set point.

Please Note: The digital temperature controller has been factory set and tested to allow your unit to operate at its desired temperature cycle.

Adjusting the settings on the controller will alter these factory settings. WE STRONGLY RECOMMEND YOU CONTACT THE MANUFACTURER'S TECHNICAL SUPPORT DEPARTMENT BEFORE MAKING ANY ADJUSTMENTS TO THIS CONTROLLER. TECH SUPPORT CONTACT INFO IS 513-772-9410



OPERATIONS

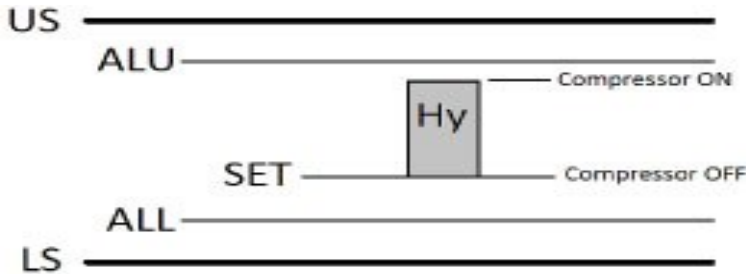
Check Temperature History

- Press and release (UP) button. The display will show the maximum temperature ever reached since the last reset.
- Press and release (DOWN) button. The display will show the minimum temperature ever reached since the last reset.
- Press and hold (SET) for more than 3 seconds, while the maximum or minimum temp is displayed. (RST message will be displayed).

Check The Set Point

- Press and release (SET) button. The display will show the current set point value.

OPERATION



During the normal operation, the refrigerator's (or freezer's) compressor would turn on and off, in order to maintain the cold temperature in the storage chamber.

In this controller, the set point where the compressor is cut off is called "SET POINT" The point where the compressor is turned on is calculated by adding the value of "SET POINT" and "HY" (temp differential).

For example if you wish to maintain the operation temperature between 4C and 6C you would set "SET" =4C and "HY" = 2C.

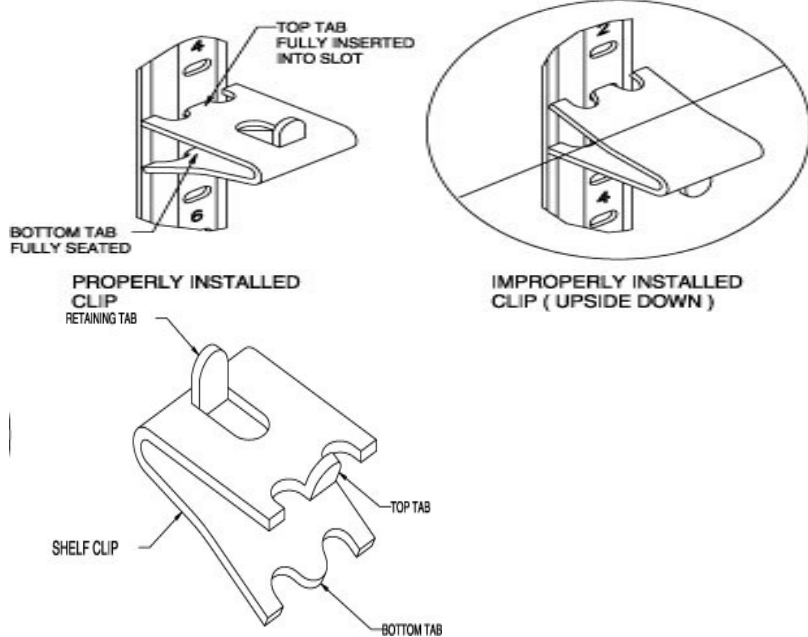
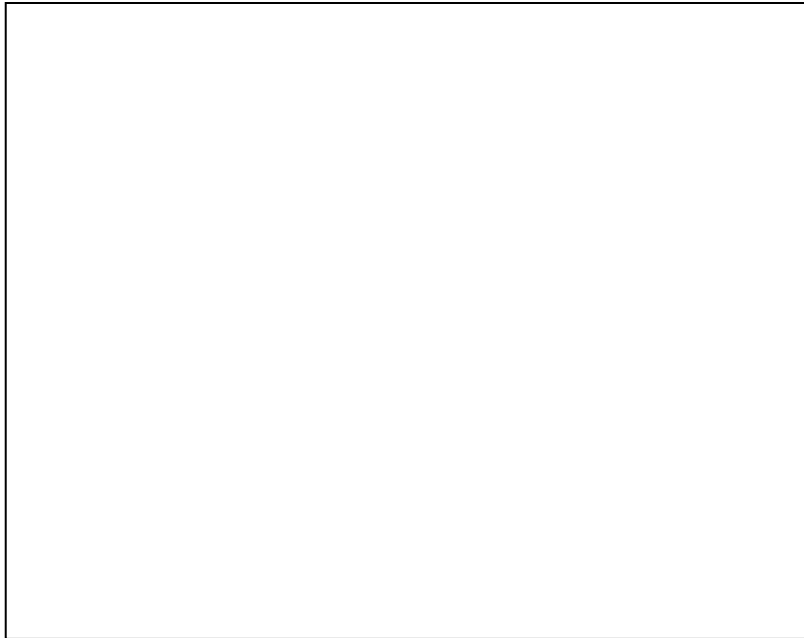
"ALU" is the high temp alarm point, and "ALL" is the low temp alarm point. Both alarm settings will alert users when the refrigerator's (or freezer's) temp is out of range, via visual & audible alarm, and remote alarm contact.

QUICK TROUBLESHOOTING GUIDE

Check these items before calling for service

PROBLEM:	POSSIBLE CAUSE / SOULTIONS:
Unit does not run	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Electrical circuit is not 110-120V 60Hz. <input checked="" type="checkbox"/> The power cord is not plugged in. <input checked="" type="checkbox"/> No power at electrical outlet. Check to make sure breaker is not tripped or fuse is not blown. Additionally, make sure unit is not plugged into a Ground Fault Circuit Interrupter (GFCI) type of outlet.
Unit does not maintain at the proper temperature	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Check the room temperature. We recommend the refrigerator or freezer should be placed in an air conditioned room between 65°F to 85°F. If the room temp is too warm, the refrigerator or freezer may not be able to maintain the interior temp at proper range. <input checked="" type="checkbox"/> Door is not closed properly. <input checked="" type="checkbox"/> Amount of stored product is overloaded. <input checked="" type="checkbox"/> Product replacements are pushed against rear wall or interrupted the proper refrigerator air circulation. For the proper air circulation, place the products evenly on each shelf. Do not push against the refrigerator's rear or side walls. <input checked="" type="checkbox"/> Evaporator is blocked by frost or ice. Remove the products, unplug the refrigerator or freezer power, and allow the unit to defrost. If the problem still exists, call for service. <input checked="" type="checkbox"/> 3rd party thermometer is placed incorrectly. For proper temperature monitoring, the thermometer should be place in the middle of refrigerator. <p>PLEASE NOTE! Prior to shipment, each refrigerator and freezer has been calibrated and tested at proper temperature range.</p>

SHELVING ASSEMBLY



OPERATIONS

CODE	DESCRIPTION	FACTORY SETTING
SET	Temp set point (compressor off point)	4°C or 38°F (Refrigerator) -25°C or -13°F (freezer)
HY	Temp differential between compressor start and off point	2°C or 4°F (not recommended to change)
ALL	Low temp alarm point	1°C OR 34°F (refrigerator) -30°C or -22°F (freezer)
ALU	High temp alarm point	10°C or 50°F (refrigerator) -10°C or 14°F (freezer)
LOD	Screen display choice (Air or Glycol)	P1
CF	Celsius & Fahrenheit unit change	
OT	Glycol display probe calibration offset	-1°
OE	Air probe calibration offset	0°
US	The maximum limit that SET or ALU could reach	10°C or 50°F (refrigerator) -10°C or 14°F (freezer)
LS	The minimum limit that SET or ALL could reach	1°C or 34°F (refrigerator) -30°C or -22°F (freezer)

“US” is the upper setting limit and “LS” is the lower setting limit. Both limit settings will prevent users accidentally adjust “SET”, “ALU”, or “ALL” outside the range.

Change the set point (Compressor turn –off point)

Press and hold (SET) until C or F icon blinking. Press (UP) or (DOWN) to change the setting value. Then, press (SET) once to confirm the new setting.

Change the other settings

Press and hold both (SET) and (DOWN) at the same time until “HY” appears on the display.

Press (UP) or (DOWN) to scroll different settings. Press (SET) to enter the setting.

Press (UP) or (DOWN) to change the value. Press (SET) once to confirm the new setting. The display will show the next setting.

OPERATION SETTINGS

Change the readout from C to F, or F to C

Press and hold the (LIGHT) icon for 5 seconds. The controller will restart and change the display scale to C to F, or F to C.

Advanced Settings– for service technician only

ATTN: This section is for service technicians or experienced users only. Altering the following settings can result in malfunction or inaccurate temperature readouts.

Air and Glycol Temperature Display

The controller has the capability to display either the air or glycol temperature readout. For the normal operations, the Glycol simulated temperature (P1) is displayed in order to provide users the content temperature. For the actual operation, the air temperature (P2) is used to control the compressor's cycle.

This is a useful tool for you to make a precise adjustment, or temperature validation process.

“LOD” setting allows you to display either Glycol (P1) or Air (P2). Press and hold both (SET) and (DOWN) at same time until “HY” appears on the display.

Press (UP) or (DOWN) until “LOD” shows up. Press (SET) to enter the setting press (UP) or (DOWN) to toggle between the glycol temp “P1” and air temp “P2”. Press (SET) once to confirm the new setting. The display will now show the temp you have selected.

WE STRONGLY RECOMMEND YOU CHANGE THE “LOD” SETTING BACK TO P1 (GLYCOL) BEFORE YOU COMPLETE THE SERVICE. THIS WILL ALLOW USERS TO SEE THE GLYCOL SIMULATED TEMPERATURE, AND THE CONTROLLER WILL BE ABLE TO ALERT WHEN THE SAMPLE TEMP IS OUT OF RANGE.

CALIBRATION / CONDENSATION

Calibration / Offset

“OE” setting allows you to change the air probe calibration. “OT” setting allows you to change the Glycol probe calibration.

Please be sure you have a NIST traceable and calibrated thermometer. Place your thermometer probe next to our sensor accordingly air vs. air , or glycol vs. glycol before making an adjustment on either “OE” or “OT”

For more advanced settings, please contact our Technical Service Department for assistance 513-772-9410

Moisture during the summer season

The amount of moisture, condensation, or high humidity related issues increase during the summer end, in most cases, will self-resolve when the weather cools down. Please note a refrigeration system will NOT generate moisture or water but simply condenses the moisture that is already in the chamber. Keeping the unit in an air conditioned, low humidity space will resolve many issues. Other things you should check

- Location of the refrigerator (See quick troubleshooting guide)
- Door sealing and frequency of door opening event (see quick troubleshooting guide)
- Make sure there is a water trap (u-shaped loop) in the drain tube near the end. This will “trap” a small amount of water in the loop and prevent air from entering the chamber through the tube.

BEFORE CALLING THE MANUFACTURER'S TECHNICAL SUPPORT DEPARTMENT, please have the unit's model and serial number ready as well as the problem description. The model and serial number is located on a serial tag which can be found on the interior left upper wall of unit.