

# Installation and Operation Manual

## Thermo Scientific General Purpose, Flammable Storage, and Explosion Proof Freezers







# General Purpose, Flammable Material Storage and Explosion Proof Freezers

Explosion-Proof  
05EFEETSA

Flammable Material Storage  
05FFEETSA

General Purpose  
05LFEETSA  
02LREETSA

---

## Table of Contents

Safety Information .....	3
Alert Signals .....	3
Intended Use Statement .....	4
Explosion-Proof Refrigerators and Freezers.....	5
Overview .....	5
MODEL 05EFEETSA .....	6
Flammable Materials Storage Refrigerators and Freezers.....	7
Overview .....	7
MODEL 05FFEETSA .....	8
General Purpose Laboratory Refrigerators and Freezers.....	9
Overview .....	9
MODEL 05LFEETSA .....	10
MODEL 02LREETSA .....	11
Unpacking and Installation .....	12
Shipping Carton .....	12
Unpacking .....	12
Location .....	12
Clearance.....	12
Electrical .....	13
Be Advised.....	13
How to Seal Killark® Box Conduit with Fiber and Sealing Compound to Help Protect Against Explosions (Explosion-Proof Units Only): .....	14
Reversing the Door Swing .....	17
Operation.....	18
Environmental Operating Conditions .....	18
Start-Up Procedure .....	18
How to Save Energy .....	19
Safety Tips .....	19
Troubleshooting.....	20
Maintenance .....	21
Cleaning of Units .....	21
Interior/Exterior and Door Gaskets .....	21
Condenser .....	21
Manual Defrost Procedure .....	22
Material Compatibility .....	22
Replacement Parts .....	23
Ordering Procedures .....	24
One Year Limited Warranty.....	25

# Safety Information

Thank you for selecting Thermo Scientific products for your equipment needs. These instructions contain important operating and safety information. The user must carefully read and understand these instructions before using the unit. Your unit has been designed to optimize function, reliability, safety and ease of use. It is the user's responsibility to install the unit in conformance with local electrical codes.

## Alert Signals

I	ON	
0	OFF	
	Safety Alert	Important operating instructions. To reduce the risk of injury or poor performance of the unit. Read the user manual before putting the equipment into operation.
	WARNING	Indicates an immediately hazardous situation, which if not avoided, will result in death or serious injury.
	CAUTION	Indicates an immediately hazardous situation, which if not avoided, may result in minor to moderate injury.
(No symbol)	CAUTION	(Without Safety Alert Symbol) indicates a situation that may result in property damage.
	Shock Hazard	Use of this equipment involves power supplies which convert line voltage to low voltage power. Do not modify or use power supplies other than OEM equipment. Connection of the power supply may require a properly grounded receptacle. Potential for electrical shock or equipment damage exists if precautions are not followed.
	Frost bite/ Low Temperature	Avoid contact with cold freezer surfaces potential for cold burns or skin sticking to cold surfaces.



### DANGER RISK OF CHILD ENTRAPMENT

Before you throw away your old refrigerator or freezer:

- Take off doors
- Leave the shelves in the place so that children may not easily climb inside.



If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

---

## Intended Use Statement

The Refrigerators/Freezers described in this manual are for professional use only. These products are intended for use in research for the storage of samples or inventory in the following temperature ranges :

General purpose Freezers: -14 °C to -25 °C

General purpose Refrigerators: 1 °C to 8 °C

FMS and EXP Freezers: -21 °C to -28 °C

Only Explosion Proof Units or Flammable Material Storage Units are to be used for the storage of flammable inventory/samples.

These are not considered medical devices and have therefore not been registered with a medical device regulatory body (e.g. FDA): that is, it has not been evaluated for the storage of samples for diagnostic use or for samples to be re-introduced to the body.

NOTE: Do not store corrosive materials in these units. Any damage which occurs due to storage of corrosives will not be covered under warranty claims.



### Warning

Only Explosion Proof Units or Flammable Material Storage Units are to be used for the storage of flammable inventory/samples.

---

# Explosion-Proof Refrigerators and Freezers

## Overview

Conventional refrigerators and freezers are not suitable for storing flammable materials. Such units have components in their electrical and refrigeration systems that can trigger explosions of flammable air-vapor mixtures inside the unit and/or in the immediate surrounding area.

The Authority Having Jurisdiction (AHJ) determines if work areas are designated as a hazardous location with respect to the presence of flammable gases or vapors. Such locations are defined in (National Fire Protection Agency) NFPA 70 Articles 500-501 and OSHA 29 CFR1910.307. Some of these classified areas are expected to experience concentrations of flammable gases and/or vapors at or above their lower flammability limits for extended periods of time.

The construction of our explosion-proof units has been evaluated by Canadian standards Association (CSA) and are suitable for use in classified areas requiring Class I, Groups C and D\* protected equipment. The electrical components such as thermostats, wiring, splices, relays and compressor motors on explosion-proof units are safely housed within explosion-proof enclosures and conduit. Compressor surface temperatures have been evaluated and determined to remain below the flash point of materials found in Class I, Groups C and D.

All models have heavy-gauge, rigid, steel construction with a durable enamel finish. Interiors have epoxy enamel or ABS plastic construction. Each unit is insulated throughout for energy-efficient operation.

These units are ideal for storing cyclopropane, ethyl ether, ethylene, acetone, alcohol, benzene, butane, gasoline, hexane, lacquer solvent vapors, naphtha, natural gas or propane along with many other potentially hazardous materials.

\*The notation Class I, Groups C and D is an accepted abbreviation for Class I, Div 1, Groups C and D; Class I Zone 1 Group IIB.

## EXPLOSION-PROOF UNITS

### MODEL 05EFEETSA

21.5" Wide,  
Under-counter freezer

*Features:*

- Adjustable thermostat
- Magnetic gasket
- Hermetically-sealed compressor
- Manual defrost
- White color

Model	Refrigerator Chamber Dimensions H x W x D inches (cm)	Freezer Chamber Dimensions H x W x D inches (cm)	Total Vol. Cu. Ft.	Exterior Dimensions H x W x D inches (cm)
05EFEETSA	N/A	26" x 18" x 20.25" (66 x 45.7 x 51.4 cm)	4.4	33.3" x 23.7" x 30.1" (84.5 x 60.1 x 76.4 cm)

Model	Electrical Characteristics Volts/Hz, Watts, Amps	Refrig. Temp. Range °C (°F)	Freezer Temp. Range °C (°F)	Net Wt. Lbs. (kg)	Ship Wt. Lbs. (kg)
05EFEETSA	120/60, 110, 0.96	N/A	-21 to -28 (-5.8 to -18.4)	77 (35)	95 (43)

*NOTE: Amps listed are at normal run mode, starting amps may be higher.*

---

# Flammable Materials Storage Refrigerators and Freezers

## Overview

Conventional refrigerators and freezers are not suitable for storing flammable materials. Such units have components in their electrical and refrigeration systems that can trigger explosions of flammable air-vapor mixtures inside the unit.

Flammable Materials Storage (FMS) refrigerators/freezers are designed for use in locations, which are not classified by the Authority Having Jurisdiction (AHJ) as hazardous. Under normal operating conditions the build up or presence of flammable vapors will not occur in the environment external to the unit. (Commonly known as "Ordinary Locations")

**FMS units are NOT designed for use in Class I, Groups C and D environments, which require an Explosion-Proof Refrigerator/Freezer.**

FMS units are designed and evaluated by Canadian standards Association (CSA) to meet the requirements of the National Fire Protection Association Standards Nos. 45, 70 and 99. These units have no internal electrical components that could trigger an explosion or fire of hazardous materials inside the unit.

These units are ideal for storing cyclopropane, ethyl ether, ethylene, acetone, alcohol, benzene, butane, gasoline, hexane, lacquer solvent vapors, naphtha, natural gas or propane along with many other potentially hazardous materials.

All models have heavy-gauge, rigid, steel construction with a durable enamel finish. Interiors have epoxy enamel or ABS plastic construction. Each unit is insulated throughout for energy-efficient operation.

## FLAMMABLE MATERIALS STORAGE UNITS

### MODEL 05FFEETSA

23.7" Wide

Under Counter freezer

*Features:*

- 4.4 Cuft Under counter
- Mechanical Thermostat
- 3 Wired Shelves and  
3 Door Shelves
- Manual defrost

Model	Refrigerator Chamber Dimensions H x W x D inches (cm)	Freezer Chamber Dimensions H x W x D inches (cm)	Total Vol. Cu. Ft.	Exterior Dimensions H x W x D inches (cm)
05FFEETSA	N/A	26" x 18" x 20.25" (66 x 45.7 x 51.4 cm)	4.4	33.3" x 23.7" x 27.8" (84.5 x 60.1 x 70.6 cm)

Model	Electrical Characteristics Volts/Hz, Watts, Amps	Refrig. Temp. Range °C (°F)	Freezer Temp. Range °C (°F)	Net Wt. Lbs. (kg)	Ship Wt. Lbs. (kg)
05FFEETSA	120/60, 110, 0.96	N/A	-21 to -28 (-5.8 to -18.4)	77 (35)	95 (43)

*NOTE: Amps listed are at normal run mode, starting amps may be higher.*

---

# General-Purpose Laboratory Refrigerators and Freezers

## Overview

These are general-purpose units available in all refrigerators, all freezers and combination refrigerator/freezer models. These units are intended for basic laboratory use only. Storage of high-value, life science materials or clinical biological materials may require alarm, monitoring, back-up and temperature performance features. The need to add these features should be determined by your industrial hygienist or safety officer. These units are not suitable for corrosive environments.



**WARNING:** DO NOT store flammable materials in General Purpose Laboratory Refrigerator / Freezers. Risk of explosion, fire and injury may occur.

For flammable materials use either a Flammable Material Storage Unit or an Explosion Proof Unit.

**GENERAL PURPOSE LABORATORY UNITS**

**MODEL 05LFEETSA**

23.7" Wide,  
Under-counter freezer

*Features:*

- 4.4 Cuft Freezer
- Adjustable mechanical Thermostat
- Manual defrost
- 3 Wired shelves and 3 Door Shelves
- CSA Listed

Model	Refrigerator Chamber Dimensions H x W x D inches (cm)	Freezer Chamber Dimensions H x W x D inches (cm)	Total Vol. Cu. Ft.	Exterior Dimensions H x W x D inches (cm)
05LFEETSA	N/A	26" x 18" x 20.25" (66 x 45.7 x 51.4 cm)	4.4	33.3" x 23.7" x 25.6" (84.5 x 60.1 x 65.1 cm)

Model	Electrical Characteristics Volts/Hz, Watts, Amps	Refrig. Temp. Range °C (°F)	Freezer Temp. Range °C (°F)	Net Wt. Lbs. (kg)	Ship Wt. Lbs. (kg)
05LFEETSA	120/60, 110, 0.96	N/A	-21 to -28 -5.8 to -18.4	77 (35)	95 (43)

*NOTE: Amps listed are at normal run mode, starting amps may be higher.*

**MODEL 02LREETSA**

18.63" Wide,  
Cube Size Refrigerator  
Reversible Door Swing

*Features:*

- Adjustable thermostat
- Automatic defrost
- Front-mounted lock
- 1 interior shelf
- 100% CFC free
- Cold wall design

Model	Refrigerator Chamber Dimensions H x W x D inches (cm)	Freezer Chamber Dimensions H x W x D inches (cm)	Total Vol. Cu. Ft.	Exterior Dimensions H x W x D inches (cm)
02LREETSA	15.5" x 16" x 14" (39.37 x 40.64 x 35.56 cm)	N/A	1.8	19.0" x 18.63" x 17.25" (48.26 x 47.32 x 43.81 cm)

Model	Electrical Characteristics Volts/Hz, Watts, Amps	Refrig. Temp. Range °C (°F)	Freezer Temp. Range °C (°F)	Net Wt. Lbs. (kg)	Ship Wt. Lbs. (kg)
02LREETSA	115/60, 87,1.2	1° to 8° (33.8° to 46.4°)	N/A	38 (17)	55 (25)

*NOTE: Amps listed are at normal run mode, starting amps may be higher.*

---

# Unpacking and Installation

---

## Shipping Carton

This should be inspected upon delivery. When received, carefully examine for any shipping damage before unpacking. If damage is discovered, the delivering carrier should both specify and sign for the damage on your copy of the delivery receipt.

Open the carton carefully making certain that all parts are accounted for before packaging materials are discarded. After unpacking, if damage is found, promptly report it to the carrier and request a damage inspection promptly.

**IMPORTANT:** Failure to request an inspection of damage within a few days after receipt of shipment absolves the carrier from any liability for damage. You must call for a damage inspection promptly.

---

## Unpacking

Use the list below when unpacking to verify that the complete unit has been received. Do not discard packing materials until all is accounted for.

*The following items are included in the shipment:*

Refrigerator/Freezer  
Operation Manual  
Volt Warning Tag  
240V Registration Card  
Inspection Tag

---

## Location

Place the unit on a floor that is strong enough to support the unit when it is fully loaded. To level the unit, adjust the leveling legs at the bottom. To level the unit, the leveling legs can be either turned clockwise to raise that side of the unit, or turn counter-clockwise to lower that side. Locate the unit away from direct sunlight and sources of heat (heater etc.) Locate the unit in most convenient place and near a grounded electrical outlet.

---

## Clearance

For 02LREETSA

Allow 4" of space on the sides and the same amount of space between the back and the wall. Allow at least 1.25" above the top of the unit.

For 05EFEETSA, 05FFEETSA, 05LFEETSA models:

Allow 1" of space on the sides and the same amount of space between the back and the wall. Allow at least 4 inches above the top of the unit.

## Electrical

Units must be connected to a grounded outlet matching the nameplate and/or the information furnished in this manual.

If you are not sure about the outlet, you should contact a qualified electrician for assistance.

The unit should always be connected to its own individual outlet.



### Caution

DO NOT REMOVE, under any circumstance, the grounding prongs from the 3-prong power cord supplied with all units.



### Caution

DO NOT USE electrical extension cords that may result in voltage loss and possible hazardous operation.



### Warning

Explosion-proof units do not come with line cords. They require rigid conduit to be run directly in order to seal off the fitting on thermostat housing. This should be done by a licensed electrician and follow all local and electrician and follow all local electrical codes. If any questions pertaining to electrical safety arises, please refer to article 501 of the National Electrical Code.



**WARNING:** UNLESS UNIT IS SPECIFICALLY DESIGNED FOR COMBUSTIBLE OR FLAMMABLE ATMOSPHERES DO NOT USE IN THE PRESENCE OF FLAMMABLE OR COMBUSTIBLE MATERIALS OR EXPLOSIVE GASES. DO NOT USE IN THE PRESENCE OF PRESSURIZED OR SEALED CONTAINERS— FIRE OR EXPLOSION MAY RESULT CAUSING DEATH.



**CAUTION:** BEFORE CONNECTING THE FINAL POWER SUPPLY, CHECK THE ELECTRICAL CHARACTERISTICS OF THE UNIT NAMEPLATE TO SEE THAT IT IS IN AGREEMENT WITH THE POWER SUPPLIED. IN ADDITION, POWER SHOULD BE WIRED TO THE UNIT ACCORDING TO THE ELECTRICAL SCHEMATIC AND ALL APPLICABLE CODES. ONLY QUALIFIED ELECTRICIANS SHOULD WORK ON THE ELECTRICAL PORTION OF ANY UNIT INSTALLATION.



**CAUTION:** STORAGE BY USER OF ANY MATERIALS IN THE PRODUCT THAT MAY CAUSE A DETERIORATION OF THE PRODUCT SHALL BE DEEMED TO CONSTITUTE ABNORMAL AND IMPROPER USAGE OF THE PRODUCT FOR PURPOSES OF THIS WARRANTY.



**WARNING:** RISK OF CHILD ENTRAPMENT! Before you discard your old refrigerator or freezer:

- Remove door(s),
- Leave the shelves in place so that children may not easily climb inside.

### How to Seal Killark® Box Conduit with Fiber and Sealing Compound to Help Protect Against Explosions (Explosion-Proof Units Only):

The purpose of the procedure that follows is to build fiber rope dams on the left and right hubs of the horizontal conduit. The fiber rope dams will surround conduit wiring that is housed inside the horizontal conduit.

When both the left and right fiber rope dams have been pressed into place, sealing compound is poured between the two and forms into an airtight plug.

All of this is done in order to prevent the very real threat of gas entering the Killark box and a resulting serious explosion.

After the unit wires have been pulled through the horizontal conduit the following procedure is required:

- Turn power off at the circuit breaker before proceeding.
- Place a small amount of sealing compound granules, enclosed, into a clean mixing vessel. Add small amounts of water while stirring until a thick paste is formed, then carefully continue adding smaller amounts of water until a thick gravy consistency is achieved—NOT WATERY. Discard any material that becomes too stiff to use. Never attempt to restore workability by stirring in more water.
- Locate silver Killark box, back/top-center of unit.
- Unscrew conduit domed-cover.

*Note: Killark® is a registered trademark of Hubbell Incorporated, Shelton, CT, USA.*

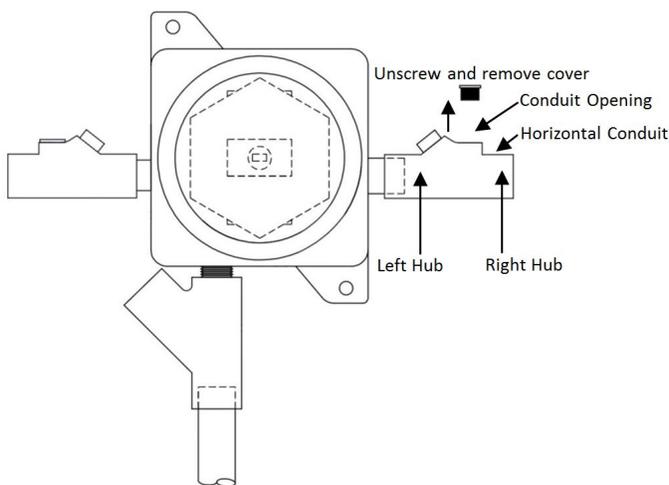
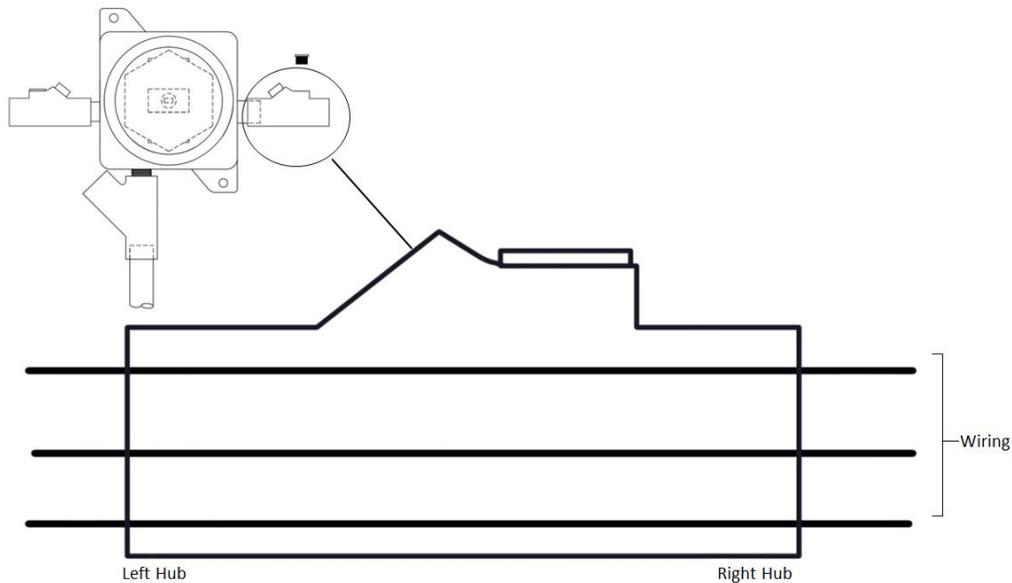


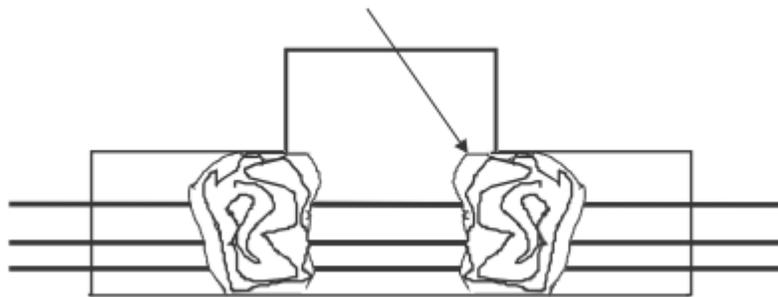
Figure 1: Sealing the Killark Box

## INSTALLATION

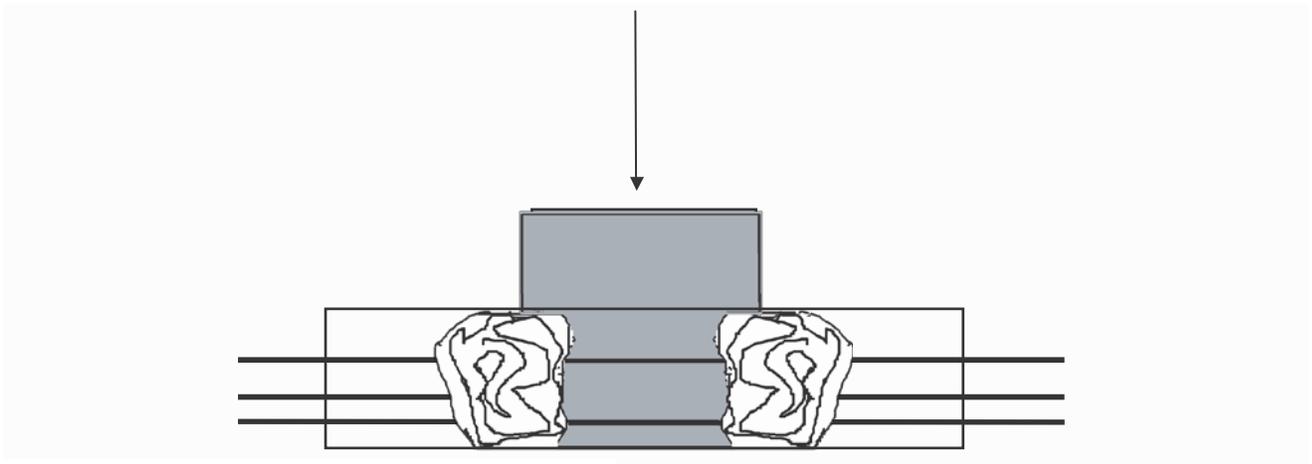
Figure 2: Horizontal Conduit, Cutaway



- Insert fiber rope material down into horizontal conduit opening. Pressing down firmly, work the material into the left hub and—most importantly—being sure the material **COMPLETELY SURROUNDS THE WIRING**, from the top to the bottom, completely blocking this end of the horizontal conduit.



- Insert fiber rope material down into horizontal conduit opening. Pressing down firmly, work the material into the right hub and—most importantly—being sure the material **COMPLETELY SURROUNDS THE WIRING**, from the top to the bottom, completely blocking this end of the horizontal conduit.



- Pour sealing compound down in between the two fiber rope dams filling the remaining space. Pour slowly, being careful not to trap air bubbles. Immediately wipe off any spilled sealing compound.
- Screw conduit domed-cover back onto conduit opening.

NOTE: INITIAL SETUP OF SEALING COMPOUND WILL OCCUR IN APPROXIMATELY 30 MINUTES HOWEVER, THE SEALING COMPOUND REQUIRES A **MINIMUM OF 8 HOURS ABOVE 32°F** TO DEVELOP SUFFICIENT STRENGTH TO WITHSTAND EXPLOSIONS.

# Reversing the door Swing

## Reversing the Door Swing:

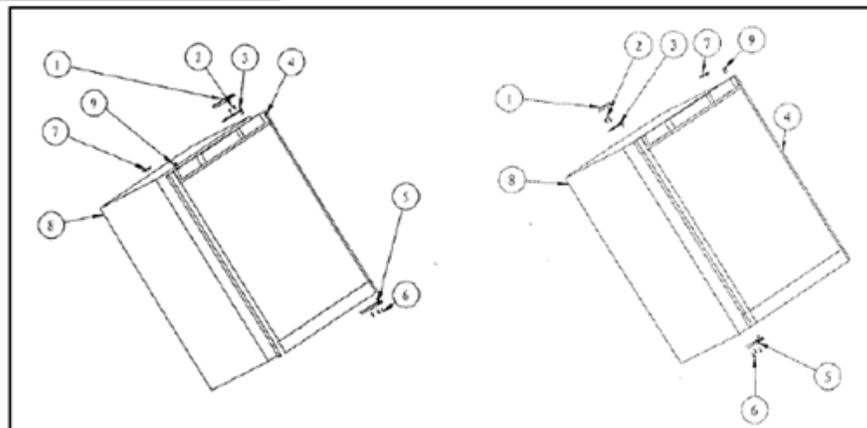


Figure 1 (Default position)

Figure 2 (After door reversal)

- |                      |               |
|----------------------|---------------|
| 1. Upper hinge cover | 6. Screws     |
| 2. Screws            | 7. Hole cover |
| 3. Upper hinge       | 8. Cabinet    |
| 4. Door              | 9. Pin cap    |
| 5. Lower door hinge  |               |

This freezer can be opened from either the right side or the left. By default, the door hinge is on the right side. If you prefer it on the left, please follow these instructions: NOTE: All of the parts that are removed must be kept for the reinstallation of the door.

1. Remove the three screws (6) holding lower door hinge (5). Keep hinge for later use.
2. Remove the door from the upper hinge (3), and keep the padded surface upward to prevent scratching.
3. Remove the upper hinge cover (1), remove the two screws (2), remove the upper hinge (3) and keep it for later use.
4. Remove the hole cover (7) and transfer it to the same location on the opposite side.
5. Insert the lower door hinge (5) into the left side, fixing the hinge into place by tightening all the screws (6).
6. Remove the pin cap (9) from the left side of the upper door frame and then transfer it to the same location on the opposite side.
7. Set the door on the lower door hinge (5), keep the door level, then fix the upper hinge (3) to the body (8) by the screws (2).
8. Put on the upper hinge cover (1).

### Door Handle Installation:

The door has two screw holes on each side, allowing you to install a handle (included). To do so, align the handle with the screw holes on the side you prefer. Fix the handle in place with the included screws, then cover the screw heads with the plugs (included).

---

# Operation

---

## Environmental Operating Conditions

POLLUTION DEGREE*:	2
INSTALLATION CATEGORY*:	II
ALTITUDE:	2000 Meters MSL (Mean Sea Level)
HUMIDITY:	80% maximum, non-condensing
ELECTRICAL SUPPLY:	120VAC or 240VAC
VOLTAGE TOLERANCE: AMBIENT	±10% of normal rated line
TEMPERATURE RANGE:	15°C to 40°C
PRODUCT USAGE:	This product is intended for use indoors only

\*Refer to IEC 664-1

---

## Start-Up Procedure

The markings on the thermostat knob range from **1** through **6**, with **1** being the warmest setting and **6** the coldest.

When the unit is turned on for the first time (or after defrosting), set the control to its maximum position, **6**, and leave it for at least two hours before introducing the material to be stored.

After 24 to 48 hours, adjust the temperature control to the setting that best suits your needs. A setting of **3~4** would be recommended.

NOTE: If the unit is unplugged, has lost power, or is turned off, you must wait 3 to 5 minutes before restarting the unit. If you attempt to restart before this time delay, the freezer will not start.

---

## How to Save Energy

- Be sure to follow location suggestions as mentioned in the previous INSTALLATION section.
- Wipe moisture from glassware or other materials before placing them in a unit.
- Don't overcrowd the unit. Too many items can increase electrical energy demand in order to keep everything cool.
- Close the door as soon as possible in hot, humid weather.
- Make certain that the door is closed tightly.
- As soon as frost has accumulated to 1/4", defrost.
- Keep containers covered, when possible, to reduce moisture buildup.
- Set operating temperature no colder than necessary for the items being refrigerated.

---

## Safety Tips



- After a unit is in operation, do not touch the cold surfaces, particularly when hands are damp. Skin may adhere to the extremely cold surfaces.



- Never disconnect your unit by pulling on the power cord. Always grip the plug securely and pull straight out from the outlet.



- Do not use a power cord that shows cracks or abrasions. Have a qualified electrician repair or replace damaged cords immediately.

# Troubleshooting

In the event that your unit is not operating properly, check the following before calling for service assistance this may save you the cost of unnecessary service calls.

Symptom	Possible Cause of Problem
Unit not operating.	<p>Make certain that the unit is connected to a grounded outlet.</p> <p>Make certain that temperature control knob is ON.</p> <p>Check that circuit breaker is not tripped or fuse is not blown.</p>
Unit runs continuously.	<p>Make certain that there is no heavy frost accumulation. If there is, defrost unit.</p> <p>Look at condenser to see if there is layer of dust or lint. Clean if required with a dry brush or vacuum.</p> <p>A leak around the door gasket will allow cold air to escape. This causes unit to work harder than necessary to maintain cold temperatures. Re-seat or replace the gasket if worn.</p> <p>If you have temperature set too cold, this may cause unit to run continuously. Check optimum running temperature.</p> <p>Is the ambient air over 43°C (109°F), or the units located close to heat sources? If possible, move to a different location.</p> <p>An unusually high frequency of door openings and closings can increase operating load. Unit will stabilize as these are decreased.</p>
Noise problems.	<p>This can be caused by contents of unit being set too close and rattling against each other. Rearrange contents as needed.</p> <p>Hissing or gurgling noise is caused by refrigerating fluid circulating and is normal.</p> <p>Noise can result if unit is not level on floor. Check with level.</p> <p>Fan noise: normal airflow can cause this, not a problem.</p>

---

# Maintenance

## Note

Make no attempt to service or repair a Thermo Scientific product under warranty before consulting your Thermo Scientific dealer. After the warranty period, such consultation is still advised, especially when the repair may be technically sophisticated or difficult. If assistance is needed beyond what the distributor can provide, please call Customer Service at 800-438-4851. No merchandise should be returned directly to the factory without obtaining a Return Materials Authorization (RMA) number from Customer Service.



## Warning

Disconnect plug from electrical outlet before attempting any maintenance or repair of this unit.



Any internal adjustments or repairs must be performed by a qualified service representative.

---

## Cleaning of Units

- Disconnect power cord from its outlet.
- Set the temperature control to the OFF position.
- The unit designs permit easy and rapid cleaning and should not take more than a few minutes. Remember to wear protective gloves to prevent frost bite, especially when removing items from freezer units
- Do not use abrasive scouring powders, waxes, solvents, furniture polish, undiluted detergents or cleansers containing petroleum products on the surfaces of units.

---

## Interior/Exterior and Door Gaskets

A solution of mild soap and water can be used for cleaning the interior, exterior and door gaskets with a soft, clean cloth. Rinse with clean water and dry thoroughly before reconnecting and turning on the unit.

---

## Condenser

With forced-fan vented units, remove the screws that mount the grill to the unit. Pull temperature control knobs straight out. This will expose condenser for cleaning



**Caution**

Do not use any sharp instrument, blade or scraper to remove ice and frost on refrigerator surfaces because of the very real danger of puncturing the cooling coil.



**Caution**

Do not use any electrical device to defrost the unit.

When frost accumulates to 1/4" or more, the operating efficiency of the unit will be affected.

---

## Manual Defrost Procedure

For the most efficient operation and minimum energy consumption, defrost the freezer when the frost on the freezer walls is excessive or 1/4 inch thick.

1. To start defrosting, unplug the freezer and remove the samples.
2. Use a sponge or towel to remove water and melting ice from the freezer floor. After the frost or ice has melted, dry the interior of the freezer thoroughly.
3. Restart the freezer by plugging it in and turning the thermostat to its highest setting, **6**, for at least two hours. Once it is cold, return the food to the freezer. Don't forget to return the thermostat to its normal setting.

Do not use boiling water to help speed up the defrosting because this could damage the plastic parts of the unit. In addition, never use a sharp or metallic instrument to remove frost or separate frozen items as this could damage the cooling coils. We recommend using a plastic scraper.

---

## Material Compatibility

The interior cabinet of this unit is constructed of High impact polystyrene. Care must be exercised when determining which chemicals may be stored in the refrigerator and freezer sections and which type of storage materials should be employed.

HIPS(High Impact Poly styrene) Plastic deteriorates when exposed to, but not limited to the following:

Amines( Aromatic), Aldehydes ( Aromatic , Aliphatic), Ketones (Aromatic , Aliphatic), esters (Aromatic , Aliphatic), Ethers (Aromatic , Aliphatic), Hydrocarbons (Aromatic, Halogenated)

This information is taken from Plastics Edition 8 Thermoplastics and Thermosets published by D.A.T.A. and The International Plastics Selector, Inc. Cordura Companies

9889 Willow Creek Road P.O. Box 26637  
San Diego, California 92126

---

# Replacement Parts

To obtain replacement parts information and pricing, please call the Customer Service Department at 1-800-438-4851 and have the unit's model, serial and code numbers available. This information is located on data plates on the rear of the unit.

---

# Ordering Procedures

Please refer to the Specification Plate for the complete model number, serial number, and series number when requesting service, replacement parts or in any correspondence concerning this unit.

All parts listed herein may be ordered from the **Thermo Scientific** dealer from whom you purchased this unit or can be obtained promptly from the factory. When service or replacement parts are needed we ask that you check first with your dealer. If the dealer cannot handle your request, then contact our Customer Service Department at 800-438-4851.

Prior to returning any materials, please contact our Customer Service Department for a "Return Materials Authorization" number (RMA). Material returned without an RMA number will be refused.

---

# One Year Limited Warranty

This Thermo Scientific product is warranted to be free of defects in materials and workmanship for one (1) year from the first to occur of (i) the date the product is sold by the manufacturer or (ii) the date the product is purchased by the original retail customer (the "Commencement Date"). Except as expressly stated above, the MANUFACTURER MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCTS AND EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF DESIGN, MERCHANT ABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

An authorized representative of the manufacturer must perform all warranty inspections. In the event of a defect covered by the warranty, we shall, as our sole obligation and exclusive remedy, provide free replacement parts to remedy the defective product. In addition, for products sold within the continental United States or Canada, the manufacturer shall provide free labor to repair the products with the replacement parts, but only for a period of ninety (90) days from the Commencement Date.

The warranty provided hereunder shall be null and void and without further force or effect if there is any (i) repair made to the product by a party other than the manufacturer or its duly authorized service representative, (ii) misuse (including use inconsistent with written operating instructions for the product), mishandling, contamination, overheating, modification or alteration of the product by any customer or third party or (iii) use of replacement parts that are obtained from a party who is not an authorized dealer of Thermo Scientific products.

Heating elements, because of their susceptibility to overheating and contamination, must be returned to the factory and if, upon inspection, it is concluded that failure is due to factors other than excessive high temperature or contamination, the manufacturer will provide warranty replacement. As a condition to the return of any product, or any constituent part thereof, to the factory, it shall be sent prepaid and a prior written authorization from the manufacturer assigning a Return Materials Number to the product or part shall be obtained.

IN NO EVENT SHALL THE MANUFACTURER BE LIABLE TO ANY PARTY FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR FOR ANY DAMAGES RESULTING FROM LOSS OF USE OR PROFITS, ANTICIPATED OR OTHERWISE, ARISING OUT OF OR IN CONNECTION WITH THE SALE, USE OR PERFORMANCE OF ANY PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE), ANY THEORY OF STRICT LIABILITY OR REGULATORY ACTION.

E-mail: [mkt@thermofisher.com](mailto:mkt@thermofisher.com)  
Web: [www.thermo.com](http://www.thermo.com)

# WEEE Compliance

**WEEE Compliance.** This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96EC. 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 Thermo Fisher Scientific compliance with these Directives, the recyclers in your country, and information on Thermo Scientific products which may assist the detection of substances subject to the RoHS Directive are available at [www.thermo.com/](http://www.thermo.com/)

**WEEE Konformität.** Dieses Produkt muss die EU Waste Electrical & Electronic Equipment (WEEE) Richtlinie 2002/96EC erfüllen. Das Produkt ist durch folgendes Symbol gekennzeichnet. Thermo Fisher Scientific hat Vereinbarungen getroffen mit Verwertungs/Entsorgungsanlagen in allen EU-Mitgliederstaaten und dieses Produkt muss durch diese Firmen wiederverwertet 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 Scientific Produkte zu identifizieren, die unter diese RoHS. Anweisung fallen, finden Sie unter [www.thermo.com/](http://www.thermo.com/)

**Conformità WEEE.** Questo prodotto deve rispondere alla direttiva dell'Unione Europea 2002/96EC 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 Scientific che possono essere utili alla rilevazione di sostanze soggette alla Direttiva RoHS sono disponibili sul sito [www.thermo.com/](http://www.thermo.com/)

**Conformité WEEE.** Ce produit doit être conforme à la directive européenne (2002/96EC) des Déchets d'Equipements Electriques et Electroniques (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 Scientific qui peuvent aider la détection des substances sujettes à la directive RoHS sont disponibles sur [www.thermo.com/](http://www.thermo.com/)

## Great Britain



## Deutschland



## Italia



## 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.

---

### IF YOU NEED ASSISTANCE:

#### SALES DIVISION

Phone: 828/658-2711  
800/252-7100

FAX: 828/645-3368

#### LABORATORY PARTS and SERVICE

Phone: 800/438-4851

FAX: 828/658-2576

#### TECHNICAL SUPPORT

Phone: 800/438-4851

Thermo Fisher Scientific Inc.

275 Aiken Road  
Asheville, NC 28804  
United States

[www.thermofisher.com](http://www.thermofisher.com)

**Thermo**  
SCIENTIFIC

327342H01 Rev. C