

Installation and Operation Manual

Thermo Scientific General Purpose, Flammable Storage, and Explosion Proof Laboratory Refrigerators and Freezers





Refrigerators, Refrigerator-Freezers and Freezers

Explosion-Proof

10ECEETSA
10ECEETSV
05EREETSA
05EFEETSA

Flammable Material Storage

10FCEETSA
10FCEETSV
05FREETSA
05FFEETSA

Cool-Lab, General Purpose

05LCEETSA 10LCEETSV
05LCEETSV 10LCEETSA
05LREETSA 12LCEETSA
05LREETSV
04LFEETSA
02LFEETSA

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Safety Information

Your satisfaction and safety are important to Thermo Scientific and a complete understanding of this unit is necessary to attain these objectives.

As the ultimate user of this apparatus, it is your responsibility to understand its proper function and operational characteristics. This instruction manual should be thoroughly read and all operators given adequate training before attempting to place this unit in service. Awareness of the stated cautions and warnings, and compliance with recommended operating parameters – together with maintenance requirements – are important for safe and satisfactory operation. The unit should be used for its intended application; alterations or modifications will void the Warranty.

This product is not intended, nor can it be used, as a sterile or patient connected device. In addition, this apparatus is not designed for use in Class I, II or III locations as defined by the US National Electrical Code, unless otherwise noted.

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.

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 Underwriters Laboratories (UL) 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 1, 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 10ECEETSA, 10ECEETSV

23.5" Wide,

Two-door Refrigerator/Freezer

Features:

- Overall 10.1 cu. ft.
- Three adjustable shelves
- Four door shelves
- Hydraulic thermostat
- Adjustable natural air-flow vent
- Manual defrost
- ABS plastic interior
- 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)
10ECEETSA	38.5" x 19.5" x 13.5" (98 x 50 x 34 cm)	11.5" x 17.5" x 15" (29 x 44 x 38 cm)	10.1	60" x 23.5" x 31.5" (152 x 60 x 80 cm)
10ECEETSV	38.5" x 19.5" x 13.5" (98 x 50 x 34 cm)	11.5" x 17.5" x 15" (29 x 44 x 38 cm)	10.1	60" x 23.5" x 31.5" (152 x 60 x 80 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)
10ECEETSA	120/60, 230, 1.9	1° to 12° (33.8° to 53.6°)	-12° to -20° (10.4° to -4°)	120 (54.5)	150 (68)
10ECEETSV	230/50, 360, 1.5	1° to 12° (33.8° to 53.6°)	-12° to -20° (10.4° to -4°)	120 (54.5)	150 (68)

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

EXPLOSION-PROOF UNITS

MODEL 05EREETSA

23.5" Wide,
Under counter refrigerator

Features:

- Cold-wall design
- Ample door storage
- Adjustable thermostat
- Rear rollers
- Front legs level-adjust
- Magnetic gasket
- Sturdy metal hinges
- Seamless one-piece polypropylene liner
- White color
- One glass shelf

MODEL 05EFEETSA

21.5" Wide,
Under-counter freezer

Features:

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

Note (05EREETSA)

THIS UNIT IS DESIGNED FOR FREE STANDING INSTALLATION ONLY. IT MAY BE INSTALLED UNDER A COUNTER ONLY IF SUFFICIENT SPACE FOR AIR FLOW IS PROVIDED. IT IS SUGGESTED THE UNIT BE RECESSED ONLY 21" TO PERMIT EASY ACCESS TO THE LOCK.

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)
05EREETSA	27.5" x 20" x 16" (70 x 51 x 40.64 cm)	N/A	5.5	3.5" x 23.5" x 28" (85 x 59 x 71cm)
05EFEETSA	N/A	28.5" x 18" x 15" (72 x 46 x 38 cm)	5.0	33.5" x 21.5" x 31" (85 x 55 x 79 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)
05EREETSA	120/60, 160, 1.3	1° to 12° (33.8° to 53.6°)	N/A	100 (45.3)	110 (50)
05EFEETSA	120/60, 132, 1.1	N/A	-12° to -20° (10.4° to -4°)	100 (45.3)	110 (50)

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 Underwriters Laboratories (UL) 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 10FCEETSA, 10FCEETSV

23.5" Wide

Two-door refrigerator/freezer

Features:

- Overall 10.1 cu. ft.
- Adjustable thermostat
- ABS plastic interior
- Manual defrost
- White color



Note

In order for freezer to reach -20°C, vent on inside upper rear of refrigerator must be closed.

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)
10FCEETSA	39" x 19.5" x 18" (140 x 69 x 51 cm)	12" x 18" x 16.25" (30 x 46 x 41 cm)	10.1	60" x 23.5" x 30.5" (152 x 60 x 77.47 cm)
10FCEETSV	39" x 19.5" x 18" (140 x 69 x 51 cm)	12" x 18" x 16.25" (30 x 46 x 41 cm)	10.1	60" x 23.5" x 30.5" (152 x 60 x 77.47 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)
10FCEETSA	120/60, 230, 1.9	1° to 12° (33.8° to 53.6°)	-12° to -20° (10.4° to -4°)	120 (54.5)	150 (68)
10FCEETSV	230/50, 360, 1.5	1° to 12° (33.8° to 53.6°)	-12° to -20° (10.4° to -4°)	120 (54.5)	150 (68)

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

FLAMMABLE MATERIALS STORAGE UNITS

MODEL 05FREETS A

23.5" Wide, no-frost
under-counter all refrigerator with
key lock

Features:

- Cold-wall design
- Ample door storage
- Adjustable thermostat
- Rear rollers
- Front legs level-adjust
- Magnetic gasket
- Sturdy metal hinges
- Seamless one-piece polypropylene liner
- White color
- One glass shelf

MODEL 05FFEETS A

21" Wide
Front-opening freezer

Features:

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

NOTE (05FREETS A): THESE UNITS ARE DESIGNED FOR FREE STANDING INSTALLATION ONLY. THEY MAY BE INSTALLED UNDER A COUNTER ONLY IF SUFFICIENT SPACE FOR AIRFLOW IS PROVIDED. 1" ON THE SIDES, TOP AND REAR ARE RECOMMENDED.

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)
05FREETS A	27.5" x 20" x 16" (70 x 51x 41cm)	N/A	5.5	33.5" x 23.5" x 29.5" (85 x 59 x 75 cm)
05FFEETS A	N/A	28.5" x 18" x 15" (72 x 46 x 38 cm)	5.0	33.5" x 21" x 29.5" (85 x 53 x 75 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)
05FREETS A	120/60, 160, 1.3	1° to 12° (33.8° to 53.6°)	N/A	100 (45.3)	120 (54.5)
05FFEETS A	120/60, 132, 1.1	N/A	-12° to -20° (10.4° to -4°)	73 (53)	85 (38.5)

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

Cool Lab, General-Purpose Laboratory Refrigerators/Freezers

Overview

These are general-purpose units available in all refrigerator, all freezer and combination refrigerator/freezer models.

MODEL 05LCEETSA, 05LCEETSV

23.63" Wide,
Refrigerator/freezer

Features:

- One-piece seamless interior
- Three Glass, slide-out shelves
- Three in-door shelves
- Adjustable foot
- Drip tray
- Manual defrost
- White color

NOTE (05LCEETSA and 05LREETSA):

THESE UNITS ARE DESIGNED FOR FREE STANDING INSTALLATION ONLY. IT MAY BE INSTALLED UNDER A COUNTER ONLY IF SUFFICIENT SPACE FOR AIRFLOW IS PROVIDED.

MODEL 05LREETSA, 05LREETSV

23.5" Wide,
Under-counter Refrigerator

Features:

- ABS plastic interior
- Four adjustable shelves
- Adjustable thermostat
- Magnetic door gasket
- White color
- Key lock
- One glass shelf

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)
05LCEETSA	21" x 15" x 18" (53x 38 x 46 cm)	5" x 15" x 11" (13 x 38 x 28 cm)	5.1	33.5" x 23.63" x 23.5" (85 x 60 x 60 cm)
05LCEETSV	21" x 15" x 18" (53x 38 x 46 cm)	5" x 15" x 11" (13 x 38 x 28 cm)	5.1	33.5" x 23.63" x 23.5" (85 x 60 x 60 cm)
05LREETSA	27.5" x 19" x 13" (70x 48 x 33 cm)	N/A	5.5	33.3" x 23.5" x 24.5" (85 x 59 x 62 cm)
05LREETSV	27.5" x 19" x 13" (70x 48 x 33 cm)	N/A	5.5	33.3" x 23.5" x 24.5" (85 x 59 x 62 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)
05LCEETSA	115/60, 160, 1.3	1° to 12° (33.8° to 53.6°)	-12° to -20° (10.4° to -4°)	100 (45.4)	120 (54.5)
05LCEETSV	230/50, 160, 0.66	1° to 12° (33.8° to 53.6°)	-12° to -20° (10.4° to -4°)	100 (45.4)	120 (54.5)
05LREETSA	115/60, 160, 1.3	1° to 12° (33.8° to 53.6°)	N/A	100 (45.4)	120 (54.5)
05LREETSV	230/50, 200, 0.8	1° to 12° (33.8° to 53.6°)	N/A	100 (45.4)	120 (54.5)

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

COOL LAB GENERAL-PURPOSE LABORATORY REFRIGERATORS/FREEZERS

MODEL 04LFEETSA

23.5" Wide,
Under-counter freezer

Features:

- Exterior thermostat
- High temperature alarm
- Reversible door
- 3 slide out drawers
- Key lock
- 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)
04LFEETSA	N/A	24.25" x 17.75" x 16.5" (62 x 45 x 42 cm)	4.0	33.5" x 23.5" x 23.5" (85 x 60 x 60 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)
04LFEETSA	115/60, 144, 1.2	N/A	-12° to -20° (10.4° to -4°)	100 (45.4)	120 (54.5)

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

COOL LAB GENERAL-PURPOSE LABORATORY REFRIGERATORS/FREEZERS

MODEL 02LFEETSA

19.75" Wide,
 Cube Size Freezer
 Reversible Door Swing

Features:

- Adjustable thermostat
- Manual defrost
- Front-mounted lock
- 100% CFC Free

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)
02LFEETSA	N/A	14" x 15.5" x 13.5" (36 x 39 x 34 cm)	1.6	20.75" x 19.75" x 21" (53 x 50 x 53 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)
02LFEETSA	115/60, 83, 1.2	N/A	-12° to -20° (10.4° to 4°)	49 (22)	55 (29)

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

COOL LAB GENERAL-PURPOSE LABORATORY REFRIGERATORS/FREEZERS

MODEL 10LCEETSA, 10LCEETSV

23.5" Wide,

Two-Door Refrigerator/Freezer

Features:

- 3 adjustable shelves
- 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)
10LCEETSA	38.5" x 19.5" x 13.5" (98 x 50 x 34.29 cm)	11.5" x 17.5" x 15" (29.21 x 44.45 x 38 cm)	10.1	60" x 23.5" x 25.5" (152.4 x 60 x 64.77 cm)
10LCEETSV	38.5" x 19.5" x 13.5" (98 x 50 x 34.29 cm)	11.5" x 17.5" x 15" (29.21 x 44.45 x 38 cm)	10.1	60" x 23.5" x 25.5" (152.4 x 60 x 64.77 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)
10LCEETSA	115/60, 360, 3.0	1° to 12° (34° to 53.6°)	-12° to -20° (10.4° to -4°)	120 (54.5)	150 (68.24)
10LCEETSV	230/50, 360, 1.5	1° to 12° (34° to 53.6°)	-12° to -20° (10.4° to -4°)	120 (54.5)	150 (68.24)

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

COOL LAB GENERAL-PURPOSE LABORATORY REFRIGERATORS/FREEZERS

MODEL 12LCEETSA

23.75" Wide,
Combination Refrigerator/Freezer

Features:

- 4 adjustable refrigerator shelves
- 3 fixed freezer shelves
- Automatic defrost refrigerator
- Manual defrost freezer
- Reversible doors
- 2 independent adjustable thermostat
- 2 independent compressors
- 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)
12LCEETSA	35" x 19" x 13.5" (89 x 48 x 34 cm)	28" x 17" x 13.5" (71 x 43 x 34 cm)	11.8	79" x 23.75" x 23.75" (199 x 60 x 60 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)
12LCEETSA	115/60, 648, 5.4	1° to 12° (34° to 53.6°)	-12° to -20° (10.4° to -4°)	192 (87)	251(114)

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	057-196-00
Volt Warning Tag -	528-609-00
240V Registration Card	528-022-00
Inspection Tag	528-028-00

Location

Locate your unit in the most convenient place and near a grounded electric outlet. If units are placed on a counter-top, the front should be 3" or more back from the edge to avoid accidental tipping of the unit.

If possible, locate your unit out of direct sunlight and away from heat sources such as a radiator, stove or heat duct.

Clearance

Position the unit so that there is at least 12" clearance on the top, 3" at the back, and 2" on each side. It is recommended that even more space be left at the back of the unit in case maintenance is required.

INSTALLATION



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.

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.

Be Advised



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.

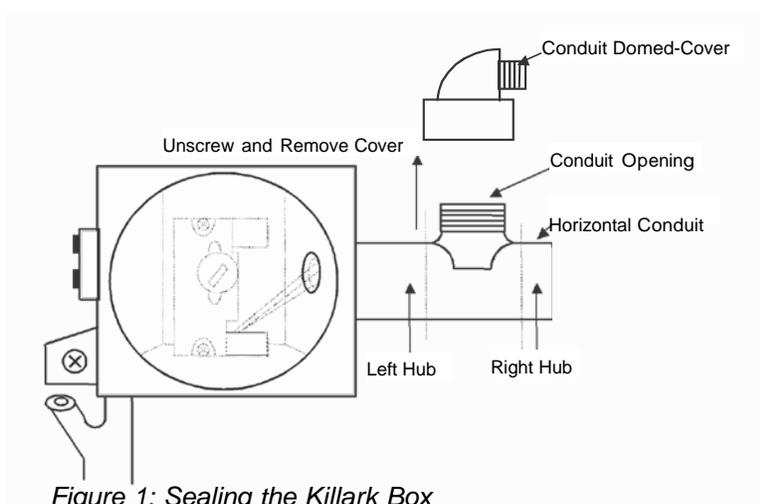
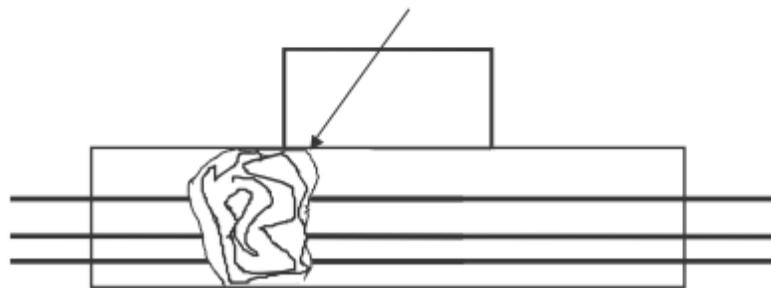
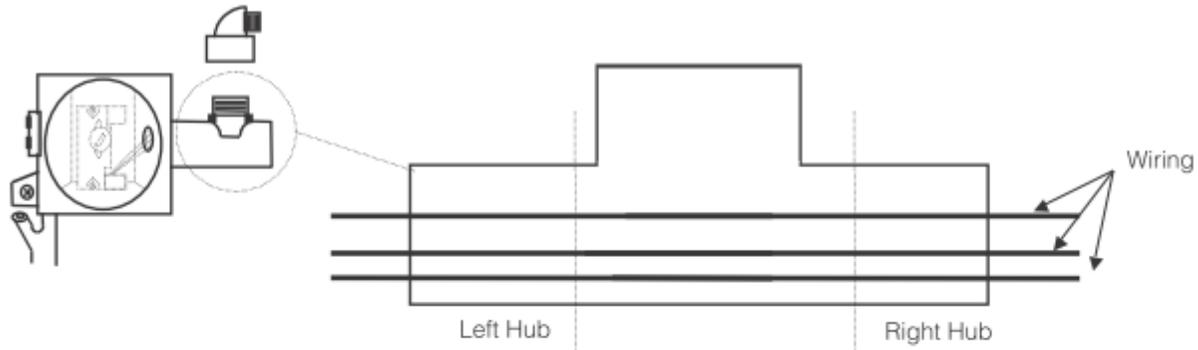


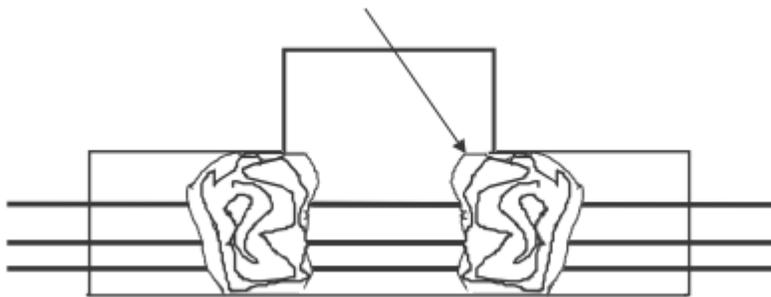
Figure 1: Sealing the Killark Box

INSTALLATION

Figure 2: Horizontal Conduit, Cutaway

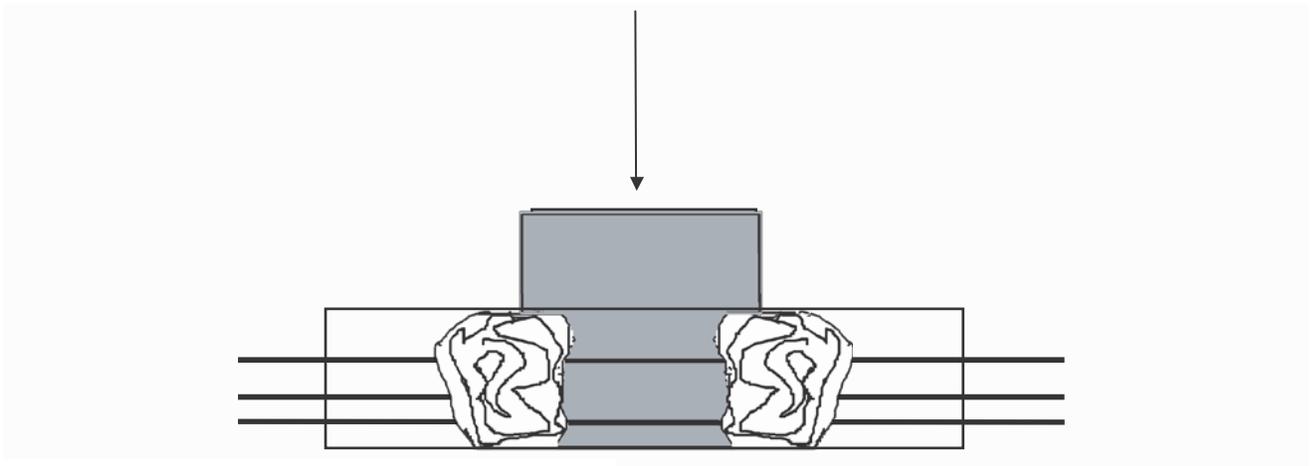


- Insert fiber rope material down into horizontal conduit opening. Pressing down firmly, work the material into the left hub and—most importantly—being sure the material **COMPLETELY SURROUNDS THE WIRING**, from the top to the bottom, completely blocking this end of the horizontal conduit.



- 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.

INSTALLATION



- 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.

Operation

Environmental Operating Conditions

POLLUTION DEGREE*:	2
INSTALLATION	II
CATEGORY*: ALTITUDE:	2000 Meters MSL (Mean Sea Level)
HUMIDITY:	80% maximum, non-condensing
ELECTRICAL SUPPLY:	120VAC or 230VAC
VOLTAGE TOLERANCE:	±10% of normal rated line
TEMPERATURE: PRODUCT	15°C to 40°C
USAGE:	This product is intended for use indoors only

*Refer to IEC 664-1

Start-Up Procedure

Rotate the control knob clockwise to lower the temperature and counterclockwise raise it.

To check chamber temperature, place a dial thermometer on a shelf in the center of the chamber. Initially, rotate the temperature control knob to an arbitrary setting. Allow approximately 2 hours for the temperature to initially stabilize. Check the temperature and compare with the dial setting.

Adjust dial further to reach the desired operating temperature. After chamber initially stabilizes, allow 1/2 to 1 hour for the chamber temperature to stabilize after subsequent temperature adjustments.

Because the markings on the dial do not indicate specific temperatures, use them AS REFERENCE POINTS ONLY for any future setting of the temperature.

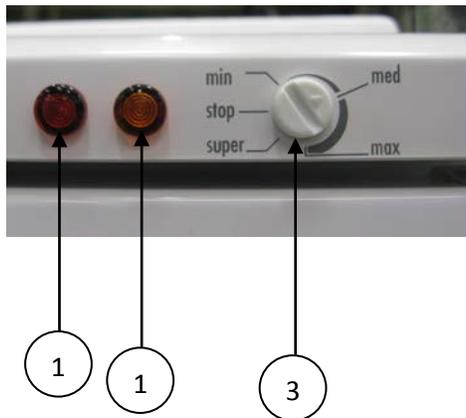
If the room thermostat is turned below 60°F at night, consider setting the temperature control one step colder. It should be left at this setting for the night time period; return temperature control to original setting when the room thermostat is returned to its normal setting.

Restart Procedure

If unit is unplugged or turned off, allow 3 minutes before restarting or plugging it back in.

Control Panel Lights

(Model 04LFEETSA)



The freezer is controlled with the thermostat knob.

1. Red control light
2. Yellow control light
3. Thermostat knob

Modes of operation

Continuous operation – the yellow light is on.

The cooling system operates continuously. This mode is selected when you want to freeze large amounts.

Automatic operation – the yellow light is off.

The interior temperature is controlled by the thermostat which turns the cooling system on and off.

The frequency of switching the cooling system on and off depends on:

- The thermostat knob position (thermostat setting),
- How often you open the door: and
- Ambient temperature.

Temperature Selection

When the freezer operates automatically, the interior temperature is controlled by the thermostat. The most suitable thermostat positions are in the middle between **max** and **min**.

We recommend setting the thermostat on positions towards **max** only in case you want to accelerate cooling or when the operation mode shall correspond to the ambient temperature.

Thermostat setting towards **min** help you save energy provided that the freezer is loaded with smaller amount. Change of the ambient temperature affects temperature in the interior of the appliance. Choose correct setting of the thermostat knob.

Red Control Light

The red light is on when there is something wrong with the temperature in the freezer.

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

(Models 05FFEETSA, 05EFEETSA, 05LCEETSA, and 05LCEETSV)

Use the following procedure to defrost manually:

- Rotate the temperature control knob to the OFF setting.
- Disconnect the power cord from its outlet.
- Remove contents of unit. If practical, wrap contents in paper and then in a heavy blanket to maintain temperature of items, especially those removed from a freezer. Wear protective gloves to prevent frostbite when handling cold items.
- Open door and allow free circulation of ambient air.
- To speed the process, place pan of warm water inside the chamber.
- Wipe out the interior.
- Replace contents.
- Reconnect power cord to outlet and set temperature control to desired operating temperature.



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 (Model 12LCEETSA Only)

Use the following procedure to defrost manually:

1. Turn the temperature control knob to the 0 setting.
2. Disconnect the power cord from its outlet.
3. Remove contents of unit. If practical, wrap contents in paper and then in a heavy blanket to maintain temperature of items, especially those removed from a freezer. Wear protective gloves to prevent frostbite when handling cold items.
4. Open door and allow free circulation of ambient air.
5. Fold out the draining spout, mount the enclosed extension and place a bowl under it.
6. To speed the process, place a pan of warm water inside the chamber.
7. Wipe out the interior when all frozen condensate has thawed.
8. Replace contents.
9. Reconnect power cord to outlet and set temperature control to desired setting.



Model 12LCEETSA Illustrating drip pan position

Reversing the Front Door (Model 10ECEETSA)

1. Switch off at the socket outlet and pull out the mains plug.
2. Remove all items from inside the appliance.
3. Using a cross-headed screwdriver, remove the top hinge screws.
4. Remove the top hinge while holding the door.
5. Lift the door carefully from the lower hinge.
6. Remove the lower hinge.
7. Reposition the upper hinge.
8. Remove the lower hinge plugs. Remove plugs with tip of small a screwdriver.
9. Reposition the door hinge bushing and plugs on the opposite side.
10. Reposition the lower hinge on the opposite side and fit the hinge washer.
11. Refit the door.
12. Locate the top hinge in the door and loosely attach to the cabinet.
13. Align the door and then tighten screws firmly on the top hinge. Check that the door open and closes easily. Make sure there are no gaps that would allow air into the cabinet, adjust the top hinge if necessary.

Reversing the Front Door (Model 05FREETSA, 05EREETSA and 05LREETSA)

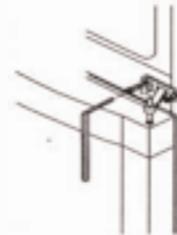
1. Remove bolts and plugs using a screwdriver.
2. Unscrew the bolts connecting the upper hinges to the upper platform. Remove the upper platform by first pulling it forward and then lifting it upwards.
3. Remove the door by unscrewing the bolts in the upper hinges.
4. Remove the buffer by unscrewing the bolts on both of its sides.
5. Break off the part behind the buffer through which the lower hinges pass using a knife or your hands.
6. Remove the lower hinge and mount it on the other side tightening its bolts.
7. Remove the hole plugs of the door handle with a knife.
8. Fit the hole plugs of the door handle to the other side.
9. Fit the buffer to its place.
10. Mount the door to its place.
11. Fit the upper hinges into their places—do not tighten the bolts, but leave them loose.
12. Adjust the vertical and parallel position of the door by eyesight then tighten the bolts of the upper hinges.
13. Fit the upper platform into its place.
14. Fit the bolts connecting the upper hinges and the upper platform but, do not tighten them.
15. Adjust the upper platform until it is level, then tighten the bolts in operations
16. Fit the plugs of the upper platform.

Reversing the Front Door (Model 12LCEETSA)

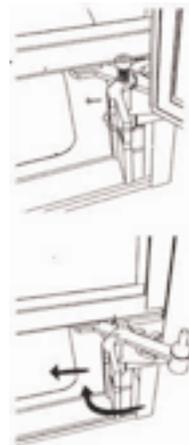
1. Turn thermostats to 0 and disconnect power cords
2. Remove all items from inside the appliance
3. Using the proper hex screwdriver, remove the top hinge screws



4. Remove the top hinge while holding the door
5. Lift the door carefully from the middle hinge
6. Remove the middle hinge and lift the lower door off of pivot



7. Remove the kick panel. Unscrew nuts and pivot, remount on the opposite side of the angle iron.



8. Remove plastic caps on the new middle hinge side.
Remove screw and mount lower door and fasten middle hinge
9. Remove the door handle by removing mounting screws and remount on opposite side
10. Mount the upper door on pivot and fasten the upper hinge on opposite side then tighten screws



11. For adjustment of doors, loosen screws and reposition door into place and tighten screws



12. Move handle to opposite side of door



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
Web: www.thermo.com

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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

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