Thermo Scientific Precision Refrigerated 6.1 cu ft Incubator

Installation and Operation Manual 7003724 Rev. 1



Visit us online to register your warranty
www.thermoscientific.com/warranty

Thermo SCIENTIFIC

Catalog Number	Model Number	Description
97990E	3724	120VAC
97995E	3728	230VAC

MANUAL NUMBER 7003724

REV	ECR/ECN	DATE	DESCRIPTION	By
--	--	4/13/12	Corrected catalog numbers above	ccs
1	28508	4/5/12	Chg'd 115V to 120V, indoor use only in Specifications	ccs
--	--	7/2/10	Added voltage range to pg 3-1 in Specifications (per E. Pickrell)	ccs
0	--	3/3/10	Transfer to Marietta (was 95525 3/10/08 Model 146E)	ccs



Important Read this instruction manual. Failure to read, understand and follow the instructions in this manual may result in damage to the unit, injury to operating personnel, and poor equipment performance. ▲

Caution All internal adjustments and maintenance must be performed by qualified service personnel. ▲

Material in this manual is for information purposes only. The contents and the product it describes are subject to change without notice. Thermo Fisher Scientific makes no representations or warranties with respect to this manual. In no event shall Thermo be held liable for any damages, direct or incidental, arising out of or related to the use of this manual.

©2010 Thermo Fisher Scientific. All rights reserved.



Important operating and/or maintenance instructions. Read the accompanying text carefully.



Potential electrical hazards. Only qualified persons should perform procedures associated with this symbol.



Equipment being maintained or serviced must be turned off and locked off to prevent possible injury.



Hot surface(s) present which may cause burns to unprotected skin, or to materials which may be damaged by elevated temperatures.



Marking of electrical and electronic equipment, which applies to electrical and electronic equipment falling under the Directive 2002/96/EC (WEEE) and the equipment that has been put on the market after 13 August 2005.

This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. It is marked with the WEEE symbol. Thermo has contracted with one or more recycling/disposal companies in each EU Member State European Country, and this product should be disposed of or recycled through them. Further information on Thermo's compliance with this directive, the recyclers in your country and information on Thermo products will be available at www.thermofisher.com.

- ✔ Always use the proper protective equipment (clothing, gloves, goggles, etc.)
- ✔ Always dissipate extreme cold or heat and wear protective clothing.
- ✔ Always follow good hygiene practices.
- ✔ Each individual is responsible for his or her own safety.

Do You Need Information or Assistance on Thermo Scientific Products?

If you do, please contact us 8:00 a.m. to 6:00 p.m. (Eastern Time) at:

1-740-373-4763	Direct
1-800-438-4851	Toll Free, U.S. and Canada
1-877-213-8051	FAX
http://www.thermoscientific.com	Internet Worldwide Web Home Page
service.led.marietta@thermofisher.com	Tech Support Email Address
www.unitylabservices.com	Certified Service Web Page

Our **Sales Support** staff can provide information on pricing and give you quotations. We can take your order and provide delivery information on major equipment items or make arrangements to have your local sales representative contact you. Our products are listed on the Internet and we can be contacted through our Internet home page.

Our **Service Support** staff can supply technical information about proper setup, operation or troubleshooting of your equipment. We can fill your needs for spare or replacement parts or provide you with on-site service. We can also provide you with a quotation on our Extended Warranty for your Thermo Scientific products.

Whatever Thermo Scientific products you need or use, we will be happy to discuss your applications. If you are experiencing technical problems, working together, we will help you locate the problem and, chances are, correct it yourself...over the telephone without a service call.

When more extensive service is necessary, we will assist you with direct factory trained technicians or a qualified service organization for on-the-spot repair. If your service need is covered by the warranty, we will arrange for the unit to be repaired at our expense and to your satisfaction.

Regardless of your needs, our professional telephone technicians are available to assist you Monday through Friday from 8:00 a.m. to 6:00 p.m. Eastern Time. Please contact us by telephone or fax. If you wish to write, our mailing address is:

Thermo Fisher Scientific
401 Millcreek Road, Box 649
Marietta, OH 45750

International customers, please contact your local Thermo Scientific distributor.

Table of Contents

Section 1 Safety Information 1-1

Section 2 Introduction 2-1

Section 3 Specifications 3-1

Section 4 Unpacking and Installation 4-1

Installation 4-1
Door Reversal 4-2

Section 5 Controls and Displays 5-1

General Function Checks 5-2

Section 6 Operation 6-1

Changing Chamber Temp Control Setpoint 6-1
Accessing Controller Menus 6-2
Accessing Controller Menus 6-3

Section 7 Maintenance 7-1

Cleaning 7-1
Defrosting 7-1
Suggested Defrost Methods 7-1
Calibration 7-2

Section 8 Repair 8-1

Replacing RTD Temp Sensor 8-1
Replacing Temp Controller 8-1
Replacing FAN2, HTR1, THM1 8-2
Replacing SSR1, K1, K2 or T1 8-2

Section 9 Troubleshooting 9-1

Replacement Parts 9-2

Section 1 Safety Information

Important This manual must be carefully read and thoroughly understood before operating the unit, failure to follow directions or precautionary measures could result in serious adverse effects. s

- This equipment must be used only as specified in these instructions.
- This equipment is intended for indoor use only.
- This equipment must be earth grounded for safe operation.
- Maximum ratings of accessories that may be plugged into convenience outlet: Load current 2 Amps. @ 115VAC, Leakage Current 250 micro Amps.

Important When operating at 100% cooling, the unit should be defrosted periodically, especially during times of high humidity. The customer will be responsible for any repair work done caused by evaporator ice build up. See Defrosting. s

Caution The aluminum evaporator and other portions of these units should not be exposed to the corrosive effects of acidic or caustic materials. Extreme care must be exercised if such materials are stored within to prevent voiding the warranty. This incubator is NOT suitable for flammable material storage. s

Section 2 Introduction

The Fisher Refrigerated Incubator offers laboratories precise temperature control over the -10°C to 60°C range. Performance meets requirements for the preservation of vaccines, biologicals, incubation of bacterial cultures, and determination of bio-chemical oxygen demand of sewage.

The extended operating temperature range also includes temperatures associated with drug stability projects, dairy product evaluation and entomological studies.

Features include:

- Spacious 6.1 cu ft chamber accommodates up to 114 standard BOD bottles or similar containers
- Under-the-counter model with reversible door
- 2 removable shelves
- 3 molded door shelves
- Microprocessor based temperature controller, with temperature readout to 0.1°C
- Solid state relay for heater
- Over/under temperature safety relay and alarm LED
- Over temperature thermostat
- 3 Cooling control modes: High-precision with cooling, high-precision without cooling, and frost-free with variable cooling
- Compressor relay for energy conservation
- Compressor overload relay
- RTD temperature probe
- Protected setpoint mode to avoid accidental change
- 2 amp convenience outlet inside chamber

Section 3 Specifications

Power Requirements:

97990E (3724):

120V nominal, operating range 108-130VAC, 9.5A, 60Hz

97995E (3728):

230V nominal, operating range 208-240VAC, 5.8A, 50Hz

Including 2A for internal convenience outlet.

Dimensions:

Height: 34.5 in (87.6cm)

Width: 24 in (61cm)

Depth: 24.5 in (62.2cm)

Volume: 6.1 cu ft (0.173m^3)

Shelf Data: 2 chamber, 3 door

Capacity: 114 BOD bottles

Shipping Weight:

126 lb. (57 kg)

Operating Environment:

Indoor Use Only

Temperature Range: 10°C to 40°C

Humidity Range: 0% to 90% RH Non-condensing

Maximum Altitude: 6600 ft (2 km)

Air clearances: Front and back, 3" minimum

Overvoltage Category II (IEC664)

Pollution Degree 2 (IEC664)

Performance Characteristics:

Operating Range: -10° to +60°C

Uniformity: ±1.0°C[1]

Stability: ±0.2°C[1]

Display Readability: 0.1°C

[1] *Per ASTM method E 1292-94, cooling modes 00 and 100*

Section 4 Unpacking and Installation

Note If damage is observed, keep the shipment intact (including the carton and all packing material) and file a claim with the final carrier. s

Note When cooling is enabled, heat is dissipated on sides of unit resulting in side temperatures of 35 to 55°C. s

Packing List	
Qty	**Item**
1	Low temperature incubator
1	Instructions
1	Latching duct
1	End cap for duct
3	Adhesive-backed bases and ties
1	Plastic bag containing 4 feet

Installation

The Refrigerated Incubator should be installed on a level, stable floor. Install the 4 adjustable feet per instructions inside package. Use the adjustable feet to level the incubator. Locate the unit so that area in front of door and kick grille is clear. To prevent heat build-up within the unit, do not install it where it will be exposed to strong sunlight, nor near radiators, furnaces, or other sources of heat. Do not install the incubator where flammable or corrosive atmospheres may exist.

The Refrigerated Incubator is not to be used outdoors or where excessive moisture or contamination could cause degrading of mechanical or electrical components.

1. Remove all protective tape from doors and shelves.
2. Clean interior and exterior with warm soap and water. Shipping tape residue can be removed using isopropyl alcohol.
3. Uncoil line cord from rear of unit. Connect the plug to a power outlet that complies with the electrical requirements specified on the unit's label and with proper safety ground connection. If line cord replacement is necessary, use CSA types: SJ, SJO or SJT, 16 GA, 3 conductor or equivalent.

Door Reversal

1. Disconnect unit from power source.
2. On inside of door, directly behind controller, open snapped conduit and remove controller cable.
3. Remove screw that secures cable clamp holding controller cable, then replace screw.
4. Remove controller cable from bases and ties that run along inside chamber side and back walls.
5. Place 3 adhesive-backed mounting bases (provided) at approximately the same spacing (on opposite side) as existing bases.
6. Support door with one hand, remove screw securing door to upper hinge, then lift door off bottom hinge.
7. Remove the three screws securing each hinge to chassis.
8. Remove three plug screws covering holes on left side, then install them in holes on right side.
9. Install hinges on left side, using screws removed in Step 6. Position hinge with door screw on bottom.
10. Position door on hinge, then insert screw previously removed in Step 5.
11. Attach supplied latching duct to inside on door, in line with controller cable, toward opposite side on door from other duct.
12. Route cable using mounting bases, ties and latching duct.
13. Remove screw on left front of enclosure and install cable clamp with removed screw.
14. Adjust size of loop in cable where door is hinged to ensure door can fully open and close without interference.

Section 5 Controls and Displays

Controls

Power ON/OFF Switch: Located on back wall of chamber, is used to turn power (|) ON or (O) OFF to entire unit.

Keys: Located on front panel.

MENU - Used to access menus.

SET - Used to display setting.

s INCREASE setting.

t DECREASE setting.

Display and Indicators

DISPLAY: (On front panel)

Displays chamber and set point temperatures in °C and prompts from menu.

INDICATORS: (On front panel)

DELAY: Lights when delay start timer for compressor is timing. Will begin timing when power is first applied or when cooling compressor is turned off.

ALARM: Indicates that chamber temperature is not within limits and the safety relay is opened.

COOL: Lit when cooling compressor is on.

HEAT: Lights when controller demands heat.

General Function Checks

Note When power is first applied, if display indicates L instead of S, a switch setting on the controller must be changed. Refer to Replacing Temp Controller (TC1). s

Perform the following procedure if incubator is new or hasn't been operated for a long time.

1. Turn power on to unit by placing the Power ON/ OFF switch (located inside chamber) in the I (ON) position. The controller, on front of door, will display S, then, 88.8 (to test display), then begins reading actual chamber temperature.

2. After 3 seconds, the alarm LED on the controller should extinguish and the safety relay will close, applying power to the heater, fan, compressor relay and convenience outlet.

3. Press and hold MENU key. After 3 seconds, the display will indicate CAL.

4. Release and press MENU again to display Pct. Then press SET; display should indicate 100.

5. Press and release MENU again to indicate Pro. Press SET; display should indicate 00.

6. Press and release MENU to return to normal control mode.

7. Press SET to display control setpoint; display should read 25.0. If the control setpoint or any of the other parameters aren't set correctly, use the up or down arrow keys while pressing SET to change the setting.

8. The DELAY LED will be lit for 7 minutes after power is first applied, the COOL LED will be out during this delay period. When the DELAY LED goes out, the COOL LED will light and the compressor relay will close, starting the compressor.

9. Allow unit to stabilize for 1 hour at 25°C, to ensure that all systems are functioning.

Section 6 Operation

Note Frost build-up is normal when unit is being operated below 35°C with cooling set to 100% mode. s

Usually the only controller setting that is necessary to change is the chamber temperature control setpoint. Other parameters of the controller may be changed by accessing them through the MENU key (details later).

Changing Chamber Temp Control Setpoint

1. The chamber temperature is continuously displayed, unless a key is pressed.

2. To display the setpoint temperature press the SET key. The setpoint temperature will remain on the display for 1 sec. after the SET key is released.

3. To change the setpoint temperature, press and hold SET while pressing the up or down arrow keys to change the setting. (Note that when either the up or down arrow keys are first pressed, the display will begin to change slowly at first, then increase change rate after a few seconds.)

4. Select the desired chamber setpoint, then release all keys. The controller display will revert back to actual chamber temperature after a few seconds. Allow up to an hour for unit to stabilize at the new setpoint temperature.

After the incubator temperature has stabilized, place samples into incubator chamber. For best results, arrange samples evenly throughout the chamber. Liquid samples should be covered to prevent evaporation and eventual frost build-up on evaporator coils, particularly when operating below ambient.

The Refrigerated Incubator has an internal 2 amp convenience outlet inside chamber to operate devices such as shakers, rotators, photosynthesis lights, recording thermometers, etc.

Accessing Controller Menus

The temperature controller has three menu selections that can be accessed by pressing and holding the MENU key for 3 seconds. To access menu parameters, press and hold the SET key. To change the parameter, use the up or down arrow keys.

CAL Menu - Calibration Menu is used to change the temperature offset value to correct for differences in chamber temperature and the displayed temperature. Range -5° to 5°C. See Calibration Procedure.

Pct Menu - (Percent Cooling Menu) Used to select one of three cooling modes:

100% Mode - Compressor runs continuously which provides high precision control (±.2°C Stability) over entire temperature range. Requires manual defrost.

50% Mode - Compressor runs approximately half the time, which conserves power and also reduces frost buildup inside chamber. This method decreases the frequency of manual defrost but provides less temperature stability (±1.5°C).

00% Mode - Compressor is completely off. This mode is ideal for incubating samples at temperatures 10°C or higher above ambient (35°C to 60°C). It provides the greatest power savings yet still maintains the advertised stability. Defrosting is not required.

Pro Menu - Protection Menu - Used to select the Protection mode of operation that determines when the alarm is activated and if the control setpoint can be changed. Range 0.0 to 0.2.

0.0 Mode - Normal mode that allows the user to change setpoint. Alarm activates if chamber temperature (chamber) and setpoint temperature (setpoint) are as follows:

Chamber < 15.0°C and chamber < (setpoint -3) or

Chamber > 40.0°C and chamber > (setpoint +3)

Accessing Controller Menus (continued)

While ALARM is activated, the safety relay is opened interrupting power to the heater, fan, convenience outlet and compressor. When chamber temperature returns to acceptable limits, the ALARM will automatically terminate and power is reapplied. In order to allow changing of setpoint and eliminate nuisance alarms, an alarm by-pass takes effect when the setpoint is changed or when power is first applied.

The alarm by-pass works as follows: Present chamber temperature is stored as a nominal alarm temperature (nominal). If chamber < setpoint then alarm temperature (alarm) = nominal -3. If chamber > setpoint then alarm = nominal +3. If chamber should go beyond alarm or < -13 or > 63 then the ALARM will activate. This alarm by-pass is active until chamber reaches setpoint ±1°C.

0.1 Mode - Same as 0.0 Mode, except that the setpoint is locked and can't be changed.

0.2 Mode - Setpoint is locked, plus, the ALARM will activate and the safety relay will open as follows: chamber < (setpoint -3) or chamber > (setpoint +3). In order to use this mode of protection, Mode 0.0 or 0.1 will have to be used to reach the setpoint temperature. Once the chamber temperature reaches the setpoint and is stable, protection mode 0.2 can be set.

As an added safety feature, the incubator has a thermostat in the heater compartment that limits the upper chamber temperature to 65°C.

Note If the chamber temperature falls outside the setpoint by ±3°C, the ALARM will activate and safety relay will interrupt power. This mode can only be used if the door remains closed and other disturbances don't affect the chamber temperature. s

Section 7 Maintenance

Warning To reduce the risk of electric shock, disconnect from power source before servicing. Before re-applying power, after maintenance is complete, check to ensure that safety ground is intact and making a good connection. s

Cleaning

Disconnect incubator from power source. Immediately clean all spilled materials from the incubator and wipe dry.

If necessary, moisten a cloth with soap and water and clean inside and out. Do not use any harsh chemical cleaners.

Defrosting

Periodic defrosting may be necessary. The time between defrosts depends on operating temperature, ambient humidity, and moisture from samples. Time between defrosts may be from 30 days to years. Defrosting may be necessary when operating at 50% mode as well, especially for control temperatures less than 15.0°C.

Suggested Defrost Methods

Method I: For control setpoint down to 10°C, this method is the least disruptive, if samples can withstand temperature stability of ±1.5°C for 24 hours. Samples may remain in chamber during this procedure.

1. (Refer to Accessing Controller Menus) Press and hold MENU key until CAL is displayed, then release and press MENU again until Pct is displayed.
2. Select 50 in the Pct menu then press MENU key twice to return control mode.
3. Allow incubator to remain in this mode for about 24 hours or until frost disappears.
4. Use the MENU key to re-establish the previous selection for Pct (i.e. 100).

Suggested Defrost Methods (continued)

Method II:

1. Remove any samples that may be damaged by temperatures up to 35°C.
2. Refer to Accessing Menu section of manual and set Pct parameter to 00.
3. Place setpoint to 35.0°C.
4. Allow temperature to stabilize for 1 hour.
5. After 1 hour, remove power from unit. Open door and wipe up any excess moisture on floor of chamber with paper towels or sponge.
6. Apply power and set desired operating parameters into controller. After chamber temperature stabilizes, place samples previously removed back into unit.

Calibration

If it becomes necessary to calibrate temperature controller, perform the following:

1. Place an accurate temperature measuring device in the geometric center of the chamber.
2. Set the controller to the desired operating temperature in 100% cooling mode and allow 2 hours stabilization.
3. Note the chamber temperature on the controller display and the temperature at the geometric center.
4. Subtract the chamber display reading from the geometric center reading.
5. Enter into the Calibration Mode as described in Accessing Controller Menus.
6. Press and hold the SET key, using the up or down arrow keys, set the calibration parameter to the value determined in Step 4.
7. Allow unit to stabilize for 1 hour and check that controller value and geometric center value agree ±0.2°C.

Section 8 Repair

Component replacement procedures follow.

Replacing Temp Controller

1. Disconnect incubator from power source.
2. Remove front panel bezel by removing four screws in top and bottom of bezel.
3. Remove four screws that mount controller to mounting bracket.
4. Note wire colors and positions on TB1 and TB2, then remove all wires from TB1 and TB2 and old controller.
5. Locate switch DS1 on lower left corner of new controller and set the switches as follows:

   Set DS1-1 (A) to off (up).

   Set DS1-2 (B) to off (up).
6. Attach wires previously removed from old controller to new controller.
7. Mount new controller and bezel, then apply power.
8. Refer to Calibration section of this manual to calibrate new controller.

Replacing RTD Temp Sensor

1. Disconnect incubator from power source.
2. Refer to Replacing Temp Controller, but only remove sensor wires from TB2.
3. Open incubator door. Remove sensor on door bracket.
4. Remove old sensor, then place new sensor on bracket.
5. Connect new sensor wires to controller, then mount controller and bezel.
6. Apply power, then refer to Calibration section.

Replacing SSR1, K1, K2 or T1

1. Disconnect incubator from power source.
2. Remove screws from lower back panel, then tilt back panel out.
3. Locate device to be replaced on bottom panel, then remove mounting screws.
4. Unplug quick connect terminals, noting positions.
5. Place quick connects on new device and mount on back panel.
6. Replace back panel, then apply power.
7. Refer to General Functional Checks to ensure that new device is operating.

Replacing FAN2, HTR1, THM1

1. Disconnect incubator from power source.
2. Remove shelves from chamber area.
3. Remove heater cover at top back of chamber by removing 2 screws on either side.
4. Replace the THM1 or HTR1, if necessary, then coat electrical connections with RTV102 or other electrical insulator.

   To replace fan, remove HTR1. Remove 4 screws that hold enclosure, then replace fan.
5. Re-assemble in reverse order as previously described.
6. Apply power. Refer to General Functional Checks to ensure that new device is operating.

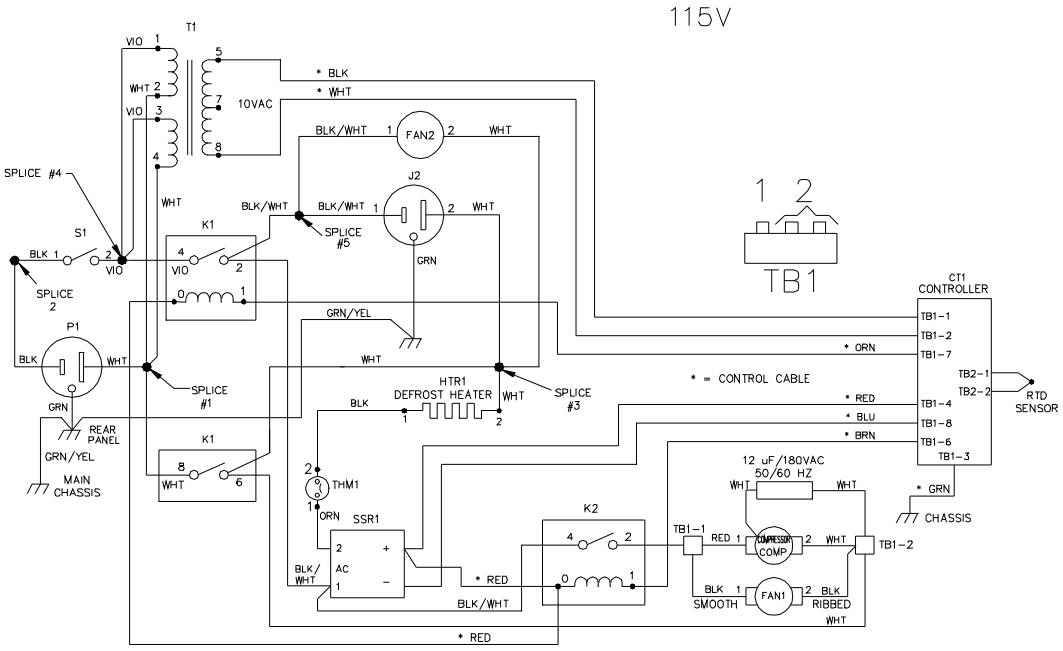
Section 9 Troubleshooting

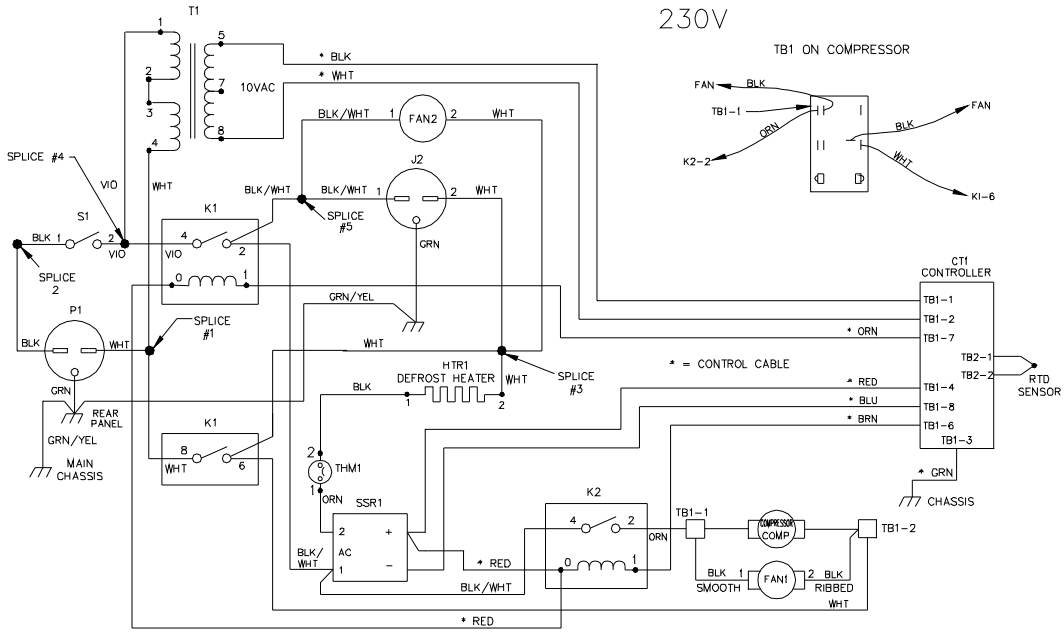
Symptom	Possible Cause	Possible Solution to Condition
Incubator controller isn't functioning, no lights, etc.	Power switch isn't ON or no power to unit.	Place Power ON/OFF switch inside chamber to ON. Check power outlet by plugging a known good device into it.
Erratic temperature display readings above or below set point.	Frost buildup. Look for frost inside chamber around evaporator.	Defrost per instructions. If possible, operate in 50% Cooling Mode to avoid frost buildup.
Temperature uniformity in chamber above specified limit.	Frost buildup or airflow blocked by samples.	Defrost per instruction. If airflow blocked by sample containers, remove some to allow top to bottom airflow.
Temperature readings too high or too low, compared to thermometer	Controller may need to be calibrated.	Refer to CALIBRATION section of this manual.
Control goes into power on reset sequence while operating.	Inadequate line power. Test line voltage of outlet to incubator while unit is is operating.	If line voltage is < 106 VAC while unit is running, then a higher capacity AC line is required.
Compressor not operating while COOL LED is lit.	Compressor stalled and the thermal overloads opens. Test line voltage of outlet while operating.	If line voltage is < 106 VAC while unit is running, then a higher capacity AC line is required.
Temperature readings go far below setpoint and trigger alarm at 15°C.	Open heater or heater control relay SSR1.	Unplug unit from power, then refer to Replacing HTR1. Check heater with OHM meter, about 29 ohms (97-995E 60 ohms).
Temperature readings go far above setpoint and triggers alarm at 40°C or above.	Defective cooling relay, compressor or shorted heater SSR1. Check if compressor is running. If so, touch evaporator in chamber; it should be cold.	If compressor isn't running while Cool LED is on, then replace K2 relay. If compressor is running and evaporator isn't cold, then cooling system needs repair. If evaporator is cold, then SSR1 may be shorted.
Controller display works but heater, compressor and chamber fan don't.	Safety relay K1 not closing.	K1 relay may need replaced.
Display EEE/99.9 & Alarm 1	Open sensor or sensor connection.	Check sensor connection at controller. Check sensor with ohm meter; 100 ohms at 0°C and 110 ohms at 25°C.
Display EEE/99.8 & Alarm 1	Shorted sensor or connection.	Check sensor connection at controller.
Display EEE/temp & Alarm 1	Incubator needs defrosted.	See 'Erratic temperature display readings...'.

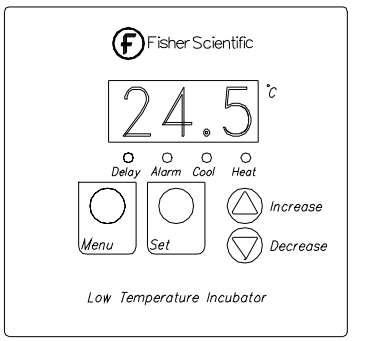
1. Temp Limit = Temp (±3°C or more from setpoint) & (>40°C or <15°C), safety relay opens.

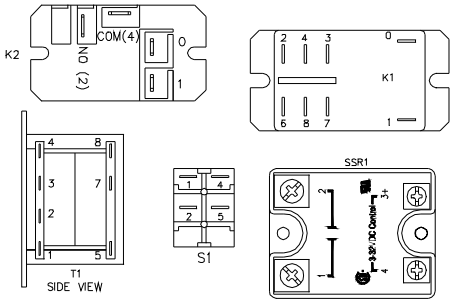
Replacement Parts

Description	Part Number
TC1 Controller	315090
Sensor, RTD	315137
SSR1 Relay	315138
K1 Safety Relay	315092
K2 Comp. Relay	315091
T1 Transformer	315034
Compressor (97-990E)	/.52/4
S1 Switch	315100
HTR1 Heater (115V)	315083
HTR1 Heater (230V)	315159
FAN2 (115V)	315116
FAN2 (230V)	315161
THM1 Thermostat	315136


115V
T1
VIO
WHT
VIO
10VAC
* BLK
* WHT
BLK/WHT
FAN2
WHT
SPLICE #4
J2
SPLICE #5
GRN
S1
K1
BLK
VIO
SPLICE 2
GRN/YEL
P1
SPLICE #1
HTR1
DEFROST HEATER
SPLICE #3
REAR PANEL
MAIN CHASSIS
THM1
ORN
SSR1
AC
BLK/WHT
* RED
K2
12 uF/180VAC 50/60 HZ
COMPRESSOR COMP
FAN1
SMOOTH
RIBBED
TB1
1 2
CT1 CONTROLLER
TB1-1
TB1-2
TB1-7
TB2-1
TB2-2
TB1-4
TB1-8
TB1-6
TB1-3
* ORN
* = CONTROL CABLE
* RED
* BLU
* BRN
* GRN
CHASSIS
RTD SENSOR


230V
TB1 ON COMPRESSOR
FAN
BLK
TB1-1
ORN
K2-2
WHT
KI-6
T1
10VAC
* BLK
* WHT
BLK/WHT
FAN2
WHT
SPLICE #4
J2
SPLICE #5
GRN
S1
K1
VIO
SPLICE 2
GRN/YEL
P1
SPLICE #1
HTR1
DEFROST HEATER
SPLICE #3
REAR PANEL
MAIN CHASSIS
THM1
ORN
SSR1
AC
BLK/WHT
* RED
K2
COMPRESSOR COMP
FAN1
SMOOTH
RIBBED
CT1 CONTROLLER
TB1-1
TB1-2
TB1-7
TB2-1
TB2-2
TB1-4
TB1-8
TB1-6
TB1-3
* ORN
* = CONTROL CABLE
* RED
* BLU
* BRN
* GRN
CHASSIS
RTD SENSOR


Fisher Scientific
24.5
°C
Delay
Alarm
Cool
Heat
Menu
Set
Increase
Decrease
Low Temperature Incubator


K2
COM(4)
NO (2)
K1
T1
SIDE VIEW
S1
SSR1

Thermo Fisher Scientific
401 Millcreek Road
Marietta, Ohio 45750
United States

www.thermofisher.com