

Scientemp Corp.

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OPERATING AND INSTALLATION MANUAL MODEL 45-01A

This cabinet has passed the
QUALITY CONTROL INSPECTION
and meets the high standards at Scientemp Corp.
This inspection includes the complete refrigeration
system, cabinet construction and finish.

ALARM OPERATION

1. Alarm on/off switch should remain in the off position until the freezer reaches desired set point.
2. Alarm is equipped with a time delay relay to prevent the alarm from going off every time the door is opened. This relay can be adjusted from 1 to 10 minutes. This delay is factory set for 10 minutes.
3. To adjust time delay relay open door to instrument panel. Remove screw located on right side, middle of panel. Instrument panel will hinge open. Time delay relay is orange in color. Relay is located on lower right corner of electric box.

RECORDER BATTERY BACK-UP

1. Recorder has a 9-volt battery back up. Battery is located behind Instrument panel.
2. To install battery open door to instrument panel. Remove screw located on right side, middle of panel. Hinge instrument panel out. Battery is located on backside of panel.

INSTALLATION & OPERATION OF SCIENTEMP LOW TEMPERATURE CABINETS

Scientemp Corp., and its management are dedicated to the production of the most dependable and serviceable product in the industry. The instructions are intended to assist in obtaining the optimum performance from your low temp freezer.

LOCATION: The cabinet should be placed in a location where the air will circulate around the outer case. A minimum of 2” clearance is recommended for proper air circulation. The unit should rest firmly on all four mounting points.

ELECTRICAL CONNECTION: A wiring diagram is affixed in a small envelope on the backside of your freezer. It is important that the cabinet be wired into a separate single circuit. Before connecting cabinet, check line voltage to assure it is compatible with the voltage specified on the data plate. Electrical compliance should be made in compliance with local code. Check the voltage once the freezer has started to be sure circuit is not overloaded.

DEFROSTING: While the freezer is running the frost may be removed with a plastic or wooden scraper or spatula. Do not use metal or sharp objects such as an ice pick. This will prevent serious damage to the finish of the inner – liner of the freezer. The frost and ice may be collected in a pan, towel or any device to prevent it from falling to the bottom of the freezer or onto the material stored in the freezer. Most of the frost and ice collects near the top edge and is easily removed.

Frost and ice may also be removed by disconnecting the power until the frost and ice thaw. After defrosting, dry the freezer compartment interior and turn the power on.

ALARM: The lighted alarm switch should be kept in the off position until the cabinet temperature has reached the appropriate setting. When the temperature has been reached, the alarm should be switched to the “ON” position. The alarm is factory set to sound at 6 degrees warmer than the controller set point. In addition, the alarm has a time delay start that is adjustable to meet your specifications.

PROTECTIVE CLOTHING: Use protective clothing when contacting the inside of the freezer or products stored in it. Hands should be dry and protected by using insulated Cryo-Gloves. Arms should be protected by sleeves or arm length insulated gloves. Coats, insulated aprons, etc should protect other parts of the body that are exposed to the cold.

Frozen packages are often slippery, therefore foot protection should be considered such as hard-toed shoes or foot guards in the event that a package would be dropped.

MAINTENANCE: Cabinets should be cleaned with a solution of mild soap and water. Do not use steel wool or abrasive cleaners, as they might damage the cabinet finish. The inside of the cabinet is coated with a baked-on finish. To clean, use mild soapy water and sponge.

SERVICE INSTRUCTION: If the cabinet is not operating properly, we recommend that you have a qualified refrigeration service man check it to analyze the problem. In case of major difficulties, the factory may be contacted before repair is started. In all contacts with the factory, give the model and serial number.

REFRIGERATION SYSTEM

- **REFRIGERATION SYSTEM**

The refrigeration system consists of a hermetically sealed compressor, cold wall evaporator and air cooled condenser.

- **DRIER**

The drier is installed in the system just before the capillary tube. Its purpose is to trap minute particles of foreign material and absorb any moisture in the system.

- **LIQUID CONTROL AND HEAT EXCHANGE**

Liquid refrigerant control to the evaporator of the system is accomplished by the use of a capillary tube. This capillary tube is soldered to the suction line to form a heat exchanger, which sub cools the liquid refrigerant to maintain high efficiency within the system.

- **REFRIGERATION SERVICE EVACUATION**

Moisture in a refrigeration system is directly or indirectly the cause of more problems and complaints than all other factors combined. When large amounts are present, system freeze ups will occur. Even in minute amounts, moisture will combine with refrigerants to form an acid. The corrosive action of this acid forms sludge which will plug the lines and the drier. Since most field type vacuum pumps cannot pull a low enough vacuum to remove moisture from the system, it is recommended that the system be triple evacuated, breaking each time with dry refrigerant. Use care to purge the air from the system

- **CHARGING REFRIGERATION SYSTEM**

Since capillary tube systems have small critical refrigerant charges, we recommend that a field charge either be weighed in or put in from a portable charge cylinder. After maximum vacuum has been obtained as detailed above, attach charging cylinder to the suction line making sure to purge air from hose with refrigerant. With the unit running, allow refrigerant to run slowly into the system until the desired charge is reached.

OVERCHARGE: When the cabinet has pulled down to operating temperature an indication of an overcharge is that the suction line will be cooler than normal with the compressor running. Running time will be higher than normal. Suction line will sweat or frost. Reclaim excessive refrigerant from the system very carefully in small amounts waiting several minutes for the system to balance.

UNDERCHARGE: An undercharge or shortage of refrigerant will result in any of the following:

1. Lower than normal head pressure.
2. Lower than normal suction pressure.
3. Excessive or continuous operation of compressor.
4. Higher than normal cabinet temperature.

SERVICE AND ANALYSIS CHART

REFRIGERATION SYSTEM

MALFUNCTION	POSSIBLE CAUSE	SOLUTION
Compressor will not start - no hum.	<ol style="list-style-type: none"> 1. Line cord not plugged in. 2. Control stuck in open position. 3. Wiring improper or loose. 	<ol style="list-style-type: none"> 1. Plug in line cord. 2. Repair or replace control. 3. Check wiring against diagram.
Compressor will not start- hums but trips on overload protector	<ol style="list-style-type: none"> 1. Improperly wired. 2. Low voltage to unit. 3. Starting capacitor defective. 4. Compressor motor has a winding open or shorted. 	<ol style="list-style-type: none"> 1. Check wiring against diagram. 2. Determine reason and correct. 3. Determine reason and replace. 4. Determine reason and correct, replace if necessary.
Compressor starts but does not switch off of start winding.	<ol style="list-style-type: none"> 1. Low voltage to unit 2. Relay failing to open. 3. Run capacitor defective. 4. Compressor motor has a winding open or shorted. 	<ol style="list-style-type: none"> 1. Determine reason and correct. 2. Determine reason and correct replace if necessary. 3. Determine reason and replace. *4. Replace the compressor.
Compressor starts and runs, but short cycles on overload protector.	<ol style="list-style-type: none"> 1. Additional current passing through overload protector. 2. Low voltage to unit. 3. Overload protector defective. 4. Run capacitor defective. 5. Excessive discharge pressure. 6. Compressor too hot-return gas hot. 	<ol style="list-style-type: none"> 1. Check wiring diagram. Check for added fan motors, pumps, etc. connected to wrong side of protector. 2. Determine reason and correct. 3. Check current, replace protector. 4. Determine reason and replace. *5. Check ventilation, restrictions in cooling medium, restrictions in refrigeration. *6. Check refrigerant charge (fix leak if necessary)
Run capacitor open, shorted or blown	<ol style="list-style-type: none"> 1. Improper capacitor. 2. Excessively high line voltage 	<ol style="list-style-type: none"> 1. Determine correct size and replace. 2. Determine reason and correct.
Relay defective or burned out.	<ol style="list-style-type: none"> 1. Incorrect Relay 2. Line voltage too high or too low. 3. Relay influenced by loose vibrating mounting 	<ol style="list-style-type: none"> 1. Check and replace 2. Determine reason and replace. 3. Remount rigidly.
Space temperature too high	<ol style="list-style-type: none"> 1. Improper overcharge. 2. Inadequate air circulation. 	<ol style="list-style-type: none"> *1. Recover refrigerant and recharge with proper charge. 2. Improve air movement.
Unit noisy	<ol style="list-style-type: none"> 1. Loose parts or mountings 2. Tubing rattle 3. Bent fan blade causing vibration. 4. Fan motor bearings worn. 	<ol style="list-style-type: none"> 1. Find and tighten 2. Reform to be free of contact. 3. Replace blade. 4. Replace motor.

*** ALL SERVICING MUST COMPLY WITH STATE AND FEDERAL REQUIREMENTS.
FEDERAL LAW REQUIRES THAT SOME REFRIGERANT BE RECOVERED PRIOR TO SERVICING.**

INSTRUMENT PANEL FEATURES

! This page can be photocopied and used as a visual aid and bookmark when working in other parts of the manual.

Green LED:

Setpoint 1 output indicator

Green Display:

Process variable or
Function/Option

Upper Red LED:

Setpoint 2 output
indicator

Lower Red LED:

Setpoint 3 output
indicator



Right Red LED:

Program Holdback
indicator

Orange Display:

Setpoint value or
program selection

ADJUSTMENTS

To enter or exit **program mode**:

To scroll through **functions**:

To change **levels** or **options**:

To view setpoint units:

To increase setpoint:

To decrease setpoint:

To reset latched alarm or tune fail:

To run or Hold a program:

Press ▲ ▼ together for 3 seconds

Press ▲ or ▼

Press ✱ ▲ together or ✱ ▼ together

Press ✱

Press ✱ ▲ together

Press ✱ ▼ together

Press ▲ ▼ together briefly

Press ✱ ▼ together for 3 seconds

Notes: If in difficulty by becoming "lost" in program mode, press ▲ and ▼ together for 3 seconds to return to display mode, check the INSTRUMENT ADJUSTMENTS above and try again.

When in program mode, after 60 seconds of key inactivity the display will revert to either *inPt* : *nonE* or, if the initial configuration has been completed, the measured value. Any settings already completed will be retained. During Program Configuration it is recommended that this feature is inhibited. Select *ProG StAY* at Level 4.

Cal 9500 Configuration Data

Level 3

SP1.d – rly

SP2.d – rly

Burn – uP.SC

rEV.d – 1d.2r

rEV.L – 1i2n

SPAn – 0.0

Zero – 3 (Note: Only Change this parameter if calibrating unit, value may vary.)

ChEk – off

rEAd - Var

tECh – CtA

Ver – 953

rSET – none

Level 2

SP1.P – 0

hAnd – off

PL.1 – 100

PL.2 – 100

SP2.A – Dv.hi

SP2.b – none

di SP – 0.1

hi .SC – 100

Lo. SC – -100

in Pt – tc t

unit – C

Level 1

tune – off

band – 0.3

int.t – off

dEr.t – off

dac – 0.5

cyc.t – on.of

ofSt – 0.0

SP.Lk – off

SPrr – 0

SPrn – off

SoAk – --

Set.2 – 6 (alarm deviation)

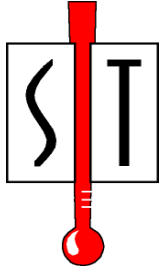
bnd.2 – 0.1

Cyc.2 – on.of

Level P

Prog – 1

Run - OFF



Scientemp™

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Standard Warranty

Applies Only Within the Continental United States

SCIENTEMP WARRANTS TO THE ORIGINAL PURCHASER

FIRST 18 MONTHS – The cabinet and all of its parts shall be free of defects in material and workmanship under normal use and service for a period of 18 months from the date the unit has been shipped from our facility. Scientemp's sole obligation under this warranty shall be limited, at its option, to either repairing or replacing any part of the cabinet determined by an authorized service agent to be defective. Scientemp reserves the right to repair the freezer at our facilities.

THE SCIENTEMP STANDARD WARRANTY DOES NOT COVER

TRANSPORTATION COSTS – Scientemp shall not be responsible for transportation or incidental costs incurred in connection with the repair or replacement of a cabinet or any of its parts.

ABUSE, MISUSE, ACCIDENTS – Scientemp shall not be responsible for parts or assemblies which upon inspection are determined by an authorized Scientemp Service Agent to have been subjected to misuse, neglect, alteration, accident, abuse, damage during transit or delivery, or by fire or flood.

CONSEQUENTIAL DAMAGES – IN NO EVENT SHALL SCIENTEMP CORP BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, PRODUCT LOSS OR PRODUCT SPOILAGE CLAIMS, NOR FOR ANY DELAY IN THE PERFORMANCE OF THIS WARRANTY DUE TO CAUSES BEYOND ITS CONTROL.

GENERAL

The standard warranty and any service contract related to the STANDARD WARRANTY shall apply only to the products sold and used within the boundaries of the Continental United States.

Users may file warranty claims either directly with Scientemp Corp, 3565 S. Adrian Hwy, Adrian, MI 49221, or with the seller from whom the cabinet was purchased. All claims must be supported by information concerning the alleged defect and specifically identified by the Serial Number of the cabinet.

THERE ARE NO OTHER WARRANTIES EXPRESS, IMPLIED, OR STATUTORY, EXCEPT THIS WARRANTY, WHICH IS IN LIEU OF ALL OTHER WARRANTIES INCLUDING TO THE EXTENT PERMITTED BY LAW, ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

DO NOT DRILL HOLES IN CABINET

Refrigeration tubing and wiring is routed through the cabinet walls. Leaks, wet insulation or electrical problems caused by drilling holes are not covered by warranty.

45-01 WIRING DIAGRAM - CAL 9500

