

1.0 Scope

This instruction installation, operation and troubleshooting of the Multistar D-series uninterruptible power supply (UPS). covers replacement of an infrared lamp emitter in an IR furnace chamber Applies to most RTC, LCI and TP Solar infrared furnaces.

2.0 Introduction

UPS-D series can instantly switch you computer to emergency backup power and allows you to respond to brief power outages reducing possibility of data loss or downtime. It continuously conditions the power coming into your computer and acts as a power supply. This state-of-the-art UPS is specifically designed for PC users and is also suitable for computer peripherals. It is equipped with an LCD display for the working status. The UPS has a microprocessor controller that renders the product an intelligent UPS capable of self-protection and fault diagnosis. The built-in AVR functions automatically to maintain a stable voltage supply as the supply power varies. High-performance surge suppression helps to protect the furnace computer from electrical noise and damaging power surges.



Figure 1-1 Multistar UPS-650D

3.0 Performance

Uninterruptible Power. Protects data by supplying battery backup when power fails.

Microprocessor Control. Provides diagnostics.

LCD Display and Audible Alarms. Actively informs when unit is on battery, if the battery is low, or if there is an overload condition.

Battery. Sealed lead-acid maintenance-free battery.

Automatic Detection. When the UPS is powered ON, it immediately performs an inspection of the battery capacity.

Automatic Voltage Regulation. Corrects over and under voltage conditions without draining the battery. This preserves battery resources and ensures optimum runtime during complete loss of power.

Surge Protection. Shields hardware from damage from line power surges.

Automatic Charge. The UPS charges its battery whenever it is connected to facility power.

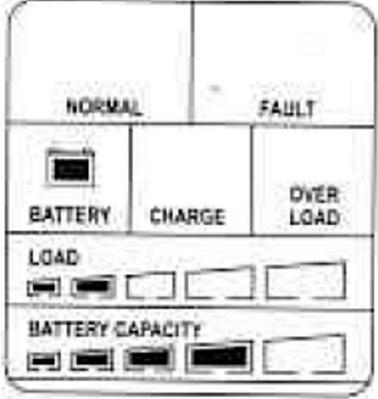
4.0 Installation

Location. Must be in a protected area with adequate airflow and free of excessive dust. Do not operate the UPS where the temperature and humidity is outside the specified limits.

Charge battery. The battery in the UPS will lose some charge when the unit is offline, even when there is no drain on the discharge side. The UPS will completely recharge after 8 hours of normal operation. Do not expect full battery run time during an extended recharge.

5.0 LCD Display

Display information and status.

LCD WINDOW	Status	LCD Display
NORMAL	Facility supply power to UPS is normal.	
FAULT	Facility supply power to ups unusual or problem has occurred	
OVERLOAD	UPS overload. The buzzer emits continuous alarms for 30 seconds	
CHARGE	Battery charge mode	
BATTERY	UPS transfer to backup or battery test mode. The buzzer emits alarm every 4 seconds.	
LOAD bar	Load capacity indicator in percent	
BATTERY CAPACITY bar	Battery capacity indicator in percent	

6.0 Operation

SWITCH ON. With facility power ON to the furnace, press and hold the POWER button more than 4 seconds until hearing one beep, switch On.

SWITCH OFF. Press and hold the POWER button less than 4 seconds until one beep is heard.

Self-Test. In normal utility power, push the POWER button less than 1 second and UPS will perform a self-test on the battery capacity. During the self-test, the UPS operates a backup mode the BATTERY and LOAD icon stay on.

SILENCE. In Back-Up mode, push the POWER button less than 1 second to silence the audible alarm.

BACK-UP(slow alarm). When in Back-Up mode, the BATTERY and LOAD icon illuminate and the UPS emit beeping sound every four seconds. The alarms stop when the UPS returns to utility power operation. Press the POWER button to stop the beeping.

LOW BATTERY (rapid alarm) In Back-Up mode, when the battery energy runs low, the UPS beeps rapidly until the UPS shuts down from battery exhaustion or return to utility power operation.

OVERLOAD (continuous alarm). When the UPS is overloaded, the OVERLOAD icon illuminates and the UPS emits a continuous alarm for 30 seconds to warn of an overload condition. Disconnect nonessential load equipment from UPS to eliminate the overload.

6.1 Battery Alarms

Battery Capacity >40%. Buzzer emits sound every 3 seconds, automatically muffles after 1 minute.

Battery Capacity <40%. Buzzer emits sound every 1 second and does not shut off.

7.0 Maintenance

1. With normal use, a UPS battery will last 3 to 6 years depending on the number of discharges and temperature.
2. Charge the UPS's battery every 3 months during extended storage.
3. Disconnect the power during extended storage to avoid overcharge of the battery.
4. Avoid overload or short circuit although the UPS has built-in overload and short circuit protection functions.

8.0 Troubleshooting

Problem	Possible Cause	Action
UPS not On. LCD not lit	POWER button not pushed or push to short.	Press the POWER button and hold more than 4 seconds.
	PCB failure	Replace the PCB, call for service.
UPS stays at battery mode	Power Cord loose.	Check the power connection.
	AC fuse burned out	Replace AC fuse
	Line voltage too high, too low or black out.	Normal condition.
	PCB failure	Replace the PCB, call for service.
Buzzer continuous beeping	Overload (>1.8A @ 230 Vac / 3.3A @ 120Vac)	Remove the non-critical loads
UPS does not provide expected run time. Low battery warning is sounded prematurely.	Battery is weak due to wear or successive main outages	Allow UPS to recharge battery for a minimum of 8 hours. If UPS sounds low battery warning prematurely when charges and retested, then battery should be replaced.

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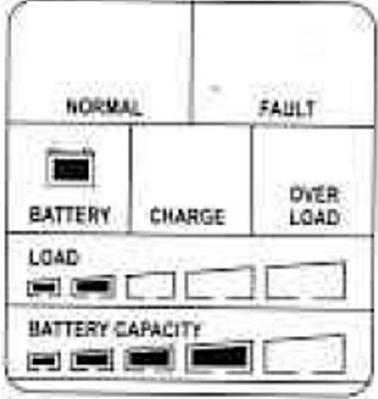
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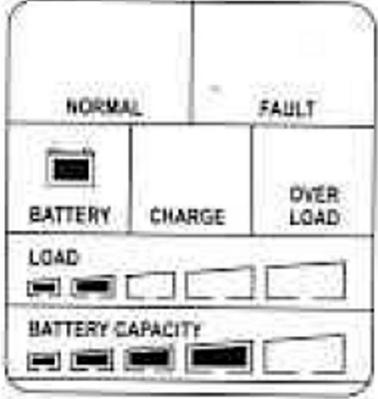
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