

Instruction Manual

Model 2000-16-3624

Power Supply/Battery Charger

September 2015, Rev. 0



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INSTRUCTION MANUAL

MODEL 2000-16-3624 Power Supply/Battery Charger

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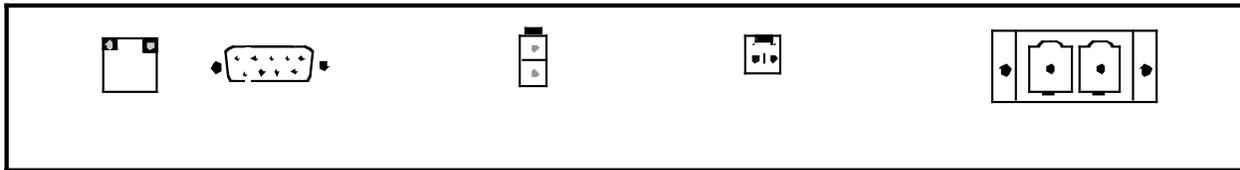
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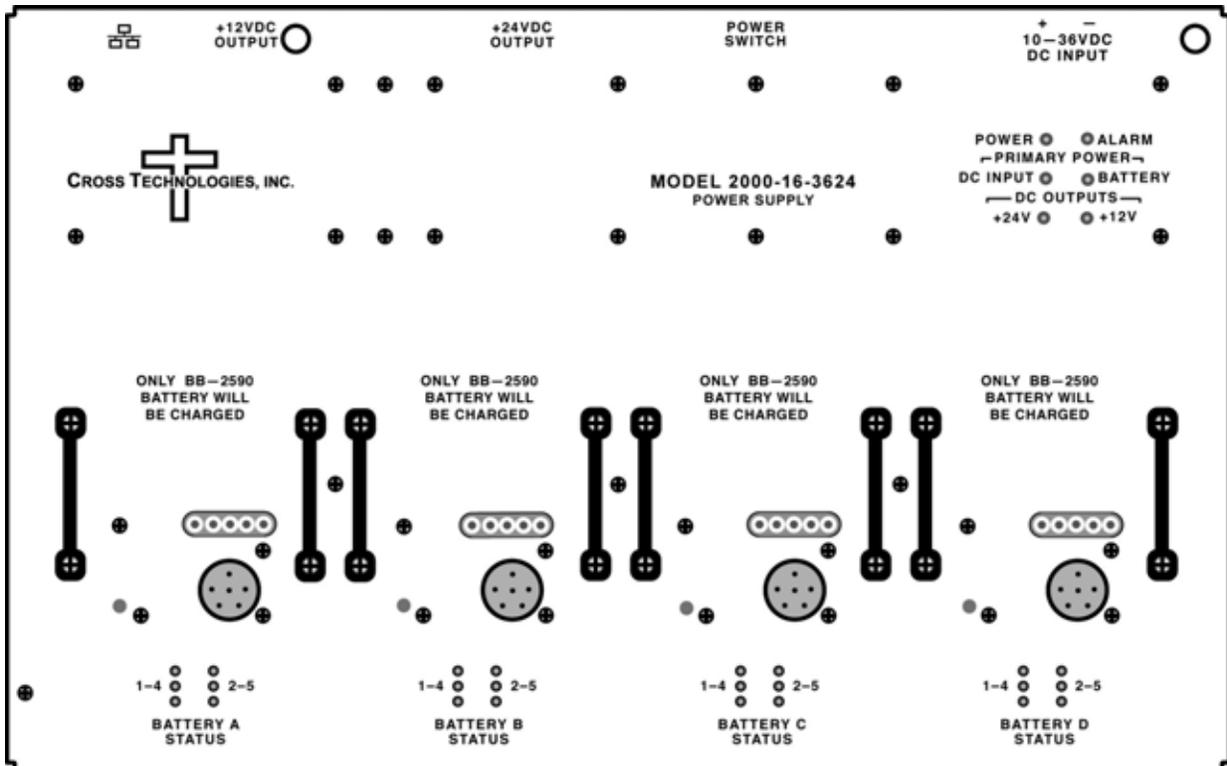
1.0 General

1.1 Equipment Description

The 2000-16-3624 Power Supply/Battery Charger uses a +10VDC to +36VDC input to provide +24VDC @3A and +12VDC @3A outputs used for remote terminals. Additionally the power supply will operate from up to 4 BB-2590 type military batteries when DC input power is not available. The power supply provides all the functionality and safety features of a Level 2 charger and with optional Ethernet will provide Level 3 charger capabilities. With DC input power applied, the power supply will charge the batteries as needed based on the data collected from the batteries via the SMBus to a maximum of 8 Amps total charge current. The power supply can be used as a stand alone charger. LED indicators show battery status, Primary Power Source, +12V and +24VDC Status. The power supply is housed in a 10" X 16" X 1.5" enclosure (connector protrusion not included).



SIDE PANEL (Shown with optional Ethernet)



TOP PANEL

FIGURE 1.1 Top and Side Panels

1.1 Equipment Description (continued)

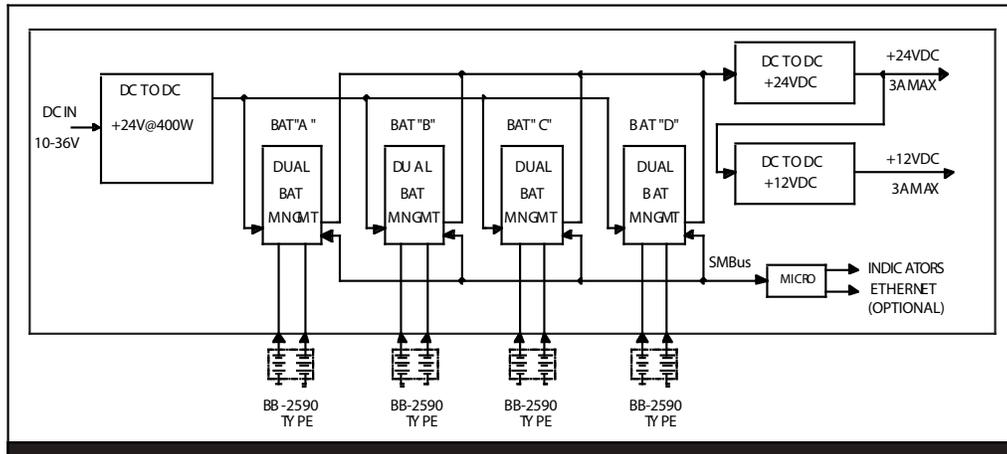


FIGURE 1.2 2000-16-3624 Power Supply/Battery Charger Block Diagram



FIGURE 1.3 2000-16-3624 Power Supply/Battery Charger Side Panel

1.2 Technical Characteristics

TABLE 1.0 2000-16-3624 Power Supply/Battery Charger Equipment Specifications*	
DC Input Characteristics	
Voltage	+10VDC to +36VDC**
Input Power	400 Watts Maximum (i.e., 40 Amps with +10VDC input)
DC Output Characteristics	
Voltage/Current	+12 VDC @ 3 Amps Maximum** +24 VDC @ 3 Amps Maximum**
Load Regulation	±5%
Power Supply Type	Switcher
Switching Frequency	Various
Battery Charger Characteristics	
Number of Chargers	4 Dual
Charger Type	Level 2 "Smart" (Level 3 with Ethernet Option)
Charger Current	8 Amps Maximum Total
Chargeable Battery Type	BB-2590 with SMBus or Compatible
LED Indicators	
Power	Green
Alarm	Red (DC Outputs, Thermal, etc.)
Primary Power (2)	Green (DC Input or Battery)
DC Outputs (2)	Green (+24VDC and +12VDC)
Battery SOC Indicators	
Green (Flashing = Charging)	61% to 100%
Yellow (Flashing = Charging)	21% to 60%
Red (Flashing = Charging)	0% to 20%
All Off	No SMBus Battery Detected
Physical Characteristics	
Size (Excluding Connector Protrusion)	10"W x 16"L x 1.563"D (254 x 406 x 39.7 mm)
Weight	10 lbs. (4.5 kg)
Environmental	
Temperature	10°C - 40°C
Humidity	< 95%, Non-Condensing
Options	
W18	Ethernet with Web Browser & SNMP
W28	Ethernet with TCP/IP, Telnet®
* Specifications subject to change without notice.	
** Consult Factory for different Input and Output Voltage Requirements.	

1.2 Technical Characteristics Continued...

TABLE 1.0 2000-16-3624 Power Supply/Battery Charger Equipment Specifications* Continued	
I/O Connectors	Mating Connectors
DC Input - 1701692 (Phoenix Contact)	1967456 - (Phoenix Contact 6–20 AWG Wire)
+24VDC Output - Molex 39-30-0020	Molex 39-01-2020 (Contact 39-00-0039)
+12VDC Output - D-Sub 9-pin Female	D-Sub 9-pin Male
Remote On/Off - Amp 6403892	Amp 640426-2 (18 AWG Wire)
Battery - SN0019-5NA-0-0 (5 Key)	Battery - SC-C-179495 (or equivalent)
Ethernet - RJ-45 Female (Optional)	RJ-45 Male (Optional)
* Specifications subject to change without notice.	
** Consult Factory for different Input and Output Voltage Requirements.	

2.0 Installation

2.1 Mechanical

Figure 2.0 shows how the 2000-16-3624 is assembled.

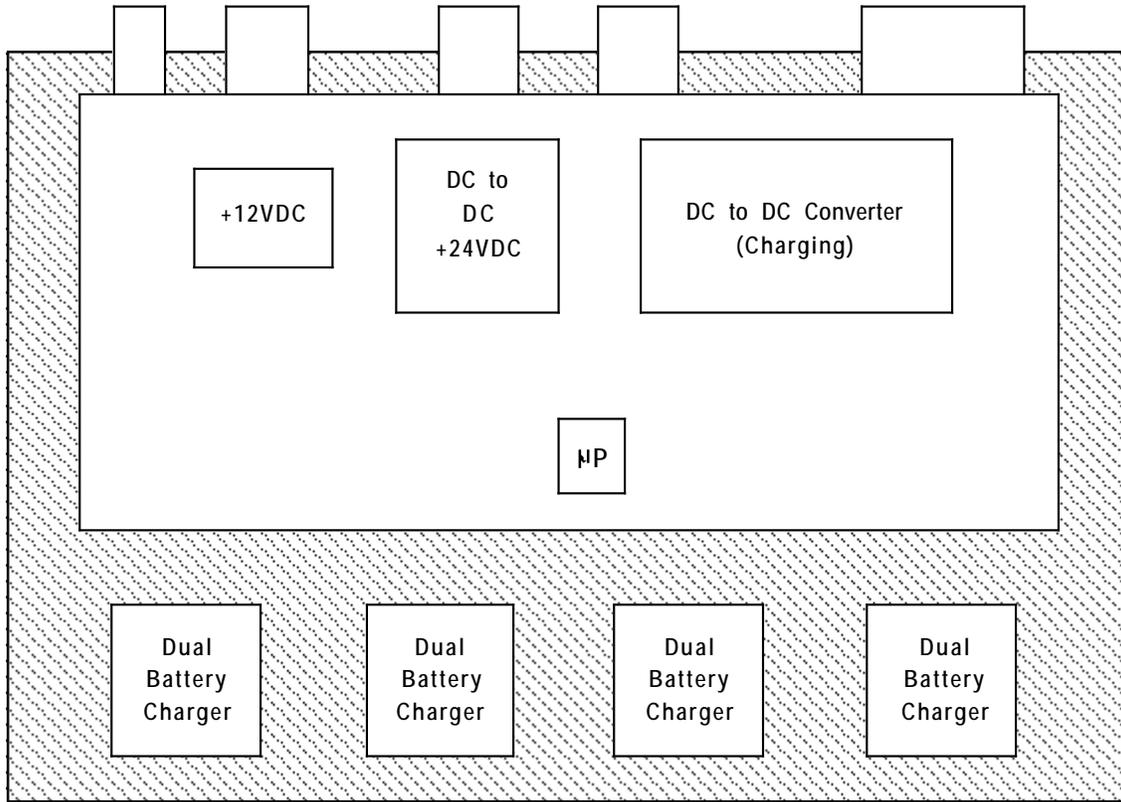


FIGURE 2.1 Mechanical Assembly

2.2 Top & Side Panels, Inputs, Outputs, and Indicators

Figure 2.2 shows the input and output signals and indicators on the top panel.

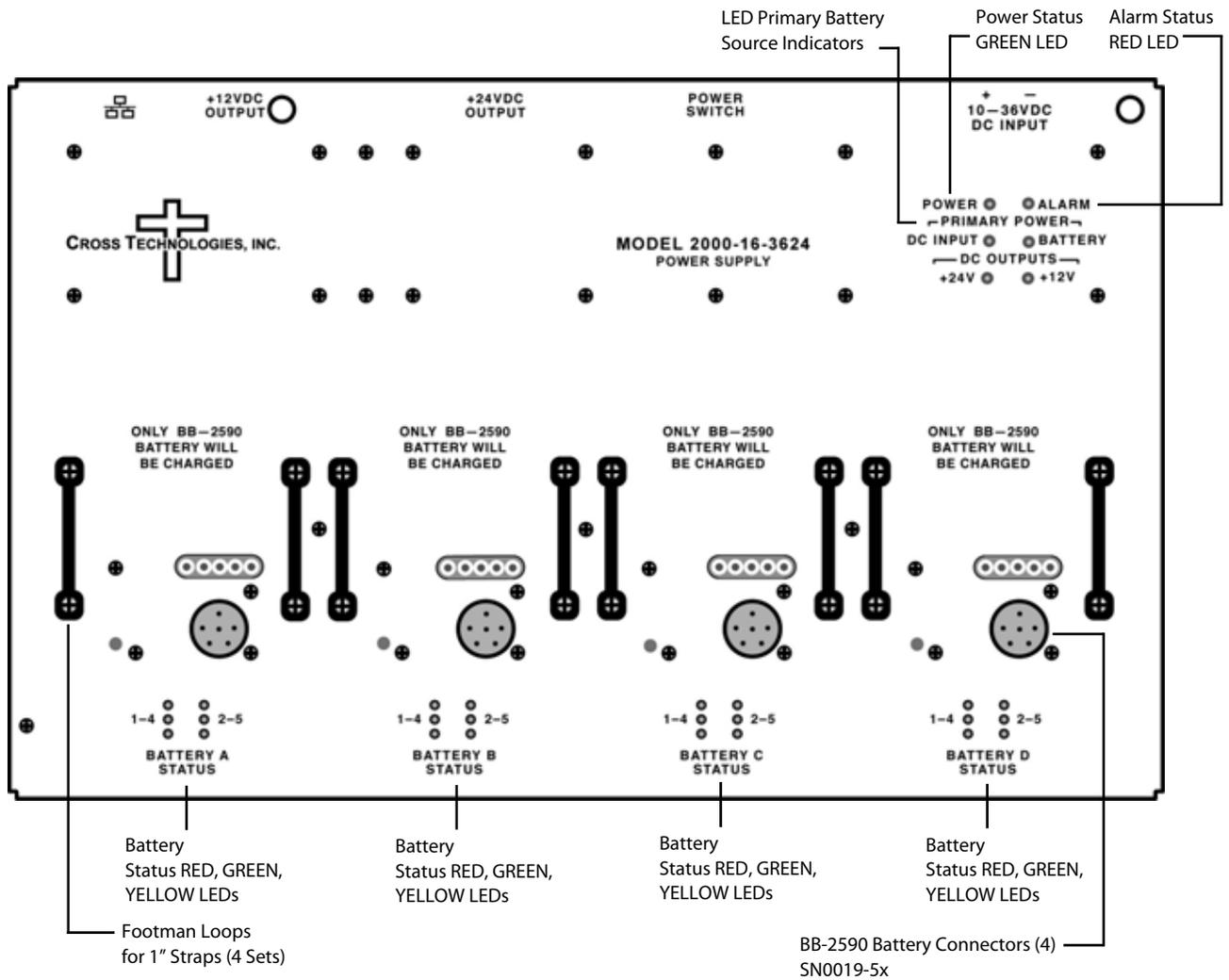


FIGURE 2.2 Top Panel Connections and Indicators

Figure 2.3 shows the signals and indicators on the side panel.

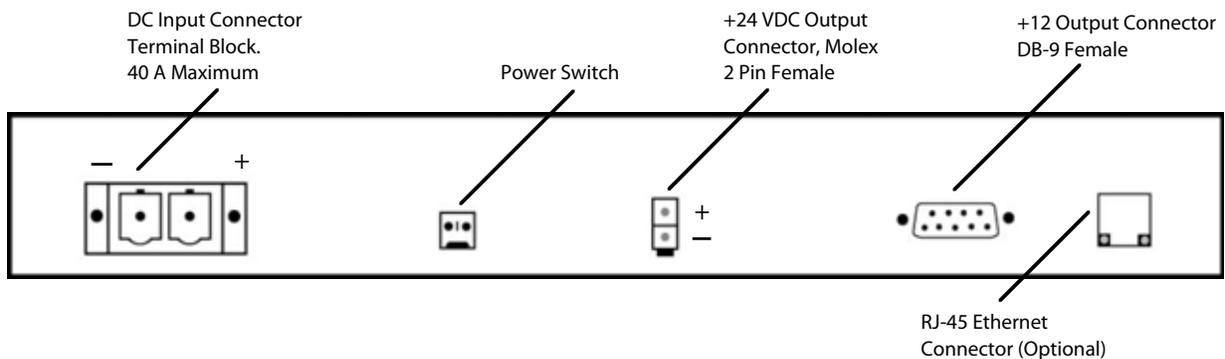


FIGURE 2.3 Side Panel Connections

2.3 Installation / Operation

2000-16-3624 Power Supply/Battery Charger

1. The power switch is shipped with a jumper to turn on the unit. If a remote power switch is desired, remove the jumper and connect a remote power switch to the terminals (Open = Off, Closed = On).
Remove connector while making the following connections!
2. Connect the +24VDC and +12VDC Outputs to respective devices.
3. Connect the DC Input to the mating connector with appropriate wire gauge and insert connector into unit. The DC Input Current is inversely proportional to the Input Voltage (i.e., a +10VDC input can have as much as 40 Amps of input current, whereas a +20VDC input should have no more than 20 Amps of input current). **Make sure to size the input wire gauge appropriately for your application!**
4. Install up to four BB-2590 or equivalent batteries as desired. Batteries are 'Hot Swappable' and can be added or removed at any time. Use one inch straps (not provided) through the 'Footman loops' to hold batteries in place. **This is critical for mobile applications.**
5. Connect the RJ-45 Ethernet jack to your network with appropriate network cable
(Ethernet Option ONLY). Refer to Ethernet insert for detailed operation.
6. Apply power and insert ON/Off Switch jumper and/or turn remote power switch to the ON position.
7. Initial power up begins the unit's self test which includes LED test, DC Output Voltage and Current, Temperature, Charge voltage etc. After initial power up the Power LED, Primary Power (either DC Input or Battery), both +12VDC and +24VDC indicators should be illuminated and the Alarm LED should be off. Battery Status indicators for all compatible batteries installed should also be illuminated according to their status. Non-compatible batteries will not have any status indicators illuminated but can be used to supply battery power to the unit.
8. Verify the Power Supply is providing appropriate power to the external devices.
9. Verify any compatible batteries in need of charging are being charged.
10. Should an Alarm condition occur, refer to Table 2.0 for assistance in determining the cause of the error.
11. The Power Supply/Charger has the option to disable charging of one or more batteries. The interior motherboard contains a four position slide switch (S1) allowing charging to be disabled to one of more batteries (A-D). Onboard LEDs illuminate when charging is Enabled and will be extinguished if charging is Disabled. The bottom cover must be removed to access switch S1.

(Continued on page 10...)

2.3 Installation / Operation, (continued from page 9)

12. The maximum total charge current of the Power Supply/Charger is 8 Amps. In the event that multiple highly discharged batteries are installed and the total desired charging current is greater than 8 Amps, the charger will disable charging on one or more batteries as needed (beginning with D, then C etc.) to keep the charge current below 8 Amps. Charging of the disabled batteries will resume when the power load on the charger allows.

2.4 Alarm Indications

TABLE 2.0 2000-16-3624 Power Supply/Battery Charger Alarm States	
Primary Alarm Indications	
+24VDC Voltage and/or Current Alarm	Alarm LED and +24V LED Flash Simultaneously
+12VDC Voltage and/or Current Alarm	Alarm LED and +12V LED Flash Simultaneously
Charging Voltage and/or Current Alarm	Alarm Flashes twice then pauses (repeats)
Over Temperature Alarm (Charging Disabled)	Alarm Flashes three times then pauses (repeats)
Thermal Shutdown (All Outputs Disabled)	Alarm Flashes Continuously

2.5 Connector - Side panel, DB-9 female

TABLE 2.1 +12VDC DB-9 Connector Pinouts	
Pin	Function
1	No Connection
2	No Connection
3	No Connection
4	+12VDC
5	+12VDC
6	No Connection
7	No Connection
8	Ground (+12VDC Return)
9	Ground (+12VDC Return)

3.0 Environmental Use Information

- A. **Reduced Air Flow** - Installation of the equipment in an enclosure that limits airflow and therefore convection cooling will cause the unit to thermally shutdown. The power supply/charger is designed to be operated at elevated temperatures but must be installed so that air can move in and around its enclosure.
- B. **Circuit Overloading** - Consideration should be given to the connection of the equipment to the output devices and the effect that overloading of these circuits could have on over current protection and supply wiring. The +24V and +12V DC outputs are protected with a resettable PTC fuses. Should one or both of these outputs show a fault condition, remove the output connection(s) and reconnect. If the fault clears and then reoccurs, check the wiring on the output for shorts, etc.
- C. **Bottom Cover** - The Power Supply/Charger has the option to disable charging of one or more batteries. The interior motherboard contains a four position slide switch (S1) allowing charging to be disabled to one of more batteries (A-D). Onboard LEDs illuminate when charging is Enabled and will be extinguished if charging is Disabled. If the Bottom Cover is removed make sure to tightly reinstall all screws.
No user serviceable parts inside.



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