8548-13 48-Volt, 2.5-Amp Power Supply

CLEI™ Code: PWDQAJJ4AA

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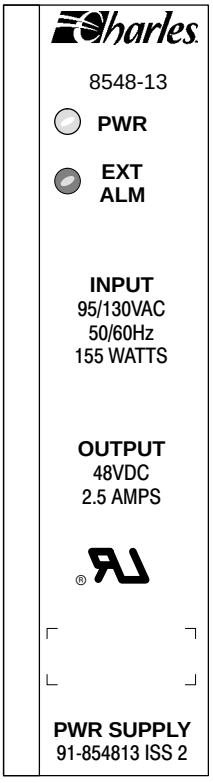

Figure 1. 8548–13 Power Supply Front Panel

1. GENERAL

1.1 Document Purpose

This document provides information on the Charles Industries 8548–13 48–volt, 2.5–amp power supply, shown in Figure 1.

1.2 Document Status

This document is reprinted to correct the front panel and to include a general editorial update.

1.3 Equipment Function

The 8548–13 is designed to provide up to 2.5 amps at 48 VDC and operates from a standard 120 VAC line source.

1.4 Equipment Location/Mounting

The 8548–13 is a 400-type plug-in module and is mounted in any 400-type shelf assembly.

1.5 Equipment Features

The 8548–13 features include the following:

- 400-type mechanics
- 48 VDC 2.5-amp regulation
- Current limiting
- Operation from 95 to 132 VAC, 47-63 Hz
- Output termination to pins 35(–) and 17 (+) of a standard 56-pin connector
- Front panel LEDs for power (green) and external alarm (red)
- 8-foot, 3-wire power cord plugs into any convenient 120 VAC grounding-type receptacle
- Cabled female convenience outlet with a 1-foot cord

2. INSPECTION

2.1 Inspect for Damages

Inspect the equipment thoroughly upon delivery. If the equipment has been damaged in transit, immediately report the extent of damage to the transportation company.

2.2 Equipment Identification

Charles Industries' equipment is identified by a model and issue number imprinted on the front panel or located elsewhere on the equipment. Each time a major engineering design change is made on the equipment, the issue number is advanced by 1 and imprinted on subsequent units manufactured. Therefore, be sure to include both the model number and its issue number when making inquiries about the equipment.

2.3 Static Concerns

Each module is shipped in static-protective packaging to prevent electrostatic charges from damaging static-sensitive devices. Use approved static-preventive measures, such as static-conductive wrist straps and a static-dissipative mat, when handling modules outside of their protective packaging. A module intended for future use should be tested as soon as possible and returned to its original protective packaging for storage.

STATIC-SENSITIVE

This equipment contains static-sensitive electronic devices. To prevent electrostatic charges from damaging static-sensitive units:

- **Use approved static preventive measures (such as a static-conductive wrist strap and a static-dissipative mat) at all times whenever touching units outside of their original, shipped static-protective packaging.**
- **Do not ship or store units near strong electrostatic, electromagnetic, or magnetic fields.**
- **Use static-protective packaging for shipping or storage.**

3. APPLICATION GUIDELINES

The 8548–13 plugs directly into a 400-type shelf where it provides 48 VDC across pins 17 and 35.

The 8548–13 requires a standard 120 VAC power source having grounding-type receptacle.

The maximum power from the 120 VAC line at full load will be 155 watts.

4. CIRCUIT DESCRIPTION

Refer to Figure 2, the 8548–13 Power Supply Block Diagram, while reading the following circuit description.

4.1 Input

The AC voltage is applied to the 8548–13 via the 3-wire power cord and fuse F1. Fuse F1, which is internally mounted, provides protection against a component failure. The AC is then routed through the EMI (Electromagnetic Interference) FILTER which prevents excess RF noise from being modulated back on the AC line.

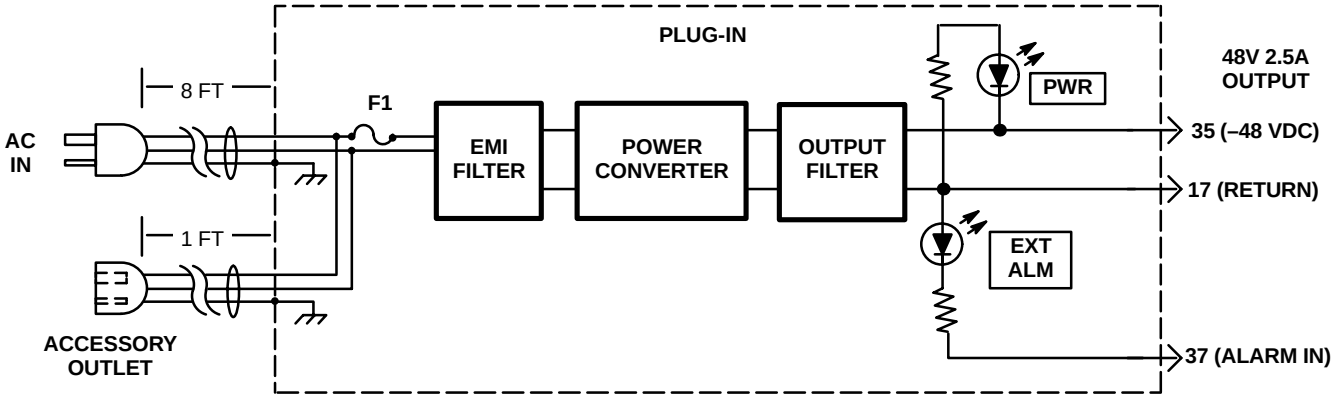

Figure 2. 8548–13 Block Diagram

4.2 Power Converter

The AC voltage from the EMI FILTER is applied to the POWER CONVERTER, where it is converted to DC voltage, chopped at high frequency, rectified, and then applied to the OUTPUT FILTER via an isolation transformer. The chopping of the AC input is actively controlled to maintain a constant output voltage and provide foldback in the event of excess current drain.

4.3 Output Filter

The OUTPUT FILTER smooths the DC voltage from the POWER CONVERTER and applies it to pins 35 and 17.

4.4 PWR LED

The green PWR (power) LED is illuminated when the output is at normal level.

4.5 EXT ALM LED

The red EXT ALM (external alarm) LED will illuminate if a –48 VDC source is connected to pin 37. In most packaged systems, this lead (pin 37) is connected to the flag lead bus of the GMT 48 V distribution fuses.

5. MOUNTING

The 8548–13 is a 400-type plug-in module that mounts in a 400-type mounting shelf.

CAUTION

Installation and removal of modules should be done with care. Do not force a module into place. If excessive resistance is encountered while installing a module, remove the module, and check the card guides and connector to verify proper alignment and the absence of foreign material.

6. INSTALLER CONNECTIONS

When the 8548–13 is installed in a Charles Industries mounting shelf, it makes electrical connections to associated equipment through a 56-pin, card-edge connector, provided as part of the mounting shelf. When using an unwired shelf, make all installer connections to this connector in accordance with Table 1.

Table 1. Installer Connections

Lead Designation	Pin
–48 VDC	35
Return	17
External Alarm Input	37

Size 22-gauge or larger wire should be used to power the shelf.

After all installer connections have been made, plug the AC line cord into an appropriate AC outlet.

7. OPTIONS

The 8548–13 contains no optioning.

8. TESTING

If trouble is encountered, verify all connections are correct. If a problem still exists, disconnect the 8548–13 from the load and AC input. Verify that the voltage at the AC receptacle is 105 to 130 VAC.

If the AC receptacle voltage is correct, plug in the 8548–13 line cord and measure 48VDC across pins 17 (+) and 35 (–). If the 48 VDC is verified, check that the PWR (Power) LED is illuminated.

Connect pin 37 (ALARM) to pin 35 (–48 VDC), and verify that the ALM (Alarm) LED lights.

9. TECHNICAL ASSISTANCE

9.1 Technical Assistance — U.S.

If technical assistance is required, contact Charles Industries' Technical Services Center at:

847–806–8500
847–806–8556 (FAX)
800–607–8500
techserv@charlesindustries.com (e-mail)

9.2 Technical Assistance — Canada

Canadian customers contact:

905–821–7673 (Main Office)
905–821–3280 (FAX)

10. WARRANTY & CUSTOMER SERVICE

10.1 Warranty

Charles Industries, Ltd. offers an industry-leading, 5-year warranty on products manufactured by Charles Industries. Contact your local Sales Representative at the address or telephone numbers below for warranty details. The warranty provisions are subject to change without notice. The terms and conditions applicable to any specific sale of product shall be defined in the resulting sales contract.

Charles Industries, Ltd.
5600 Apollo Drive
Rolling Meadows, Illinois 60008–4049
847–806–6300 (Main Office)
847–806–6231 (FAX)

10.2 Field Repairs (In-Warranty Units)

Field repairs involving the replacement of components within a unit are not recommended and may void the warranty and compatibility with any applicable regulatory or agency requirements. If a unit needs repair, contact Charles Industries, Ltd. for replacement or repair instructions, or follow the *Repair Service Procedure* below.

10.3 Advanced Replacement Service (In-Warranty Units)

Charles Industries, Ltd. offers an “advanced replacement” service if a replacement unit is required as soon as possible. With this service, the unit will be shipped in the fastest manner consistent with the urgency of the situation. In most cases, there are no charges for in-warranty repairs, except for the transportation charges of the unit and for a testing and handling charge for units returned with no trouble found. Upon receipt of the advanced replacement unit, return the out-of-service unit in the carton in which the replacement was shipped, using the preaddressed shipping label provided. Call your customer service representative at the telephone number above for more details.

10.4 Standard Repair and Replacement Service (Both In-Warranty and Out-Of-Warranty Units)

Charles Industries, Ltd. offers a standard repair or exchange service for units either in- or out-of-warranty. With this service, units may be shipped to Charles Industries for either repair and quality testing or exchanged for a replacement unit, as determined by Charles Industries. Follow the *Repair Service Procedure* below to return units and to secure a repair or replacement. A handling charge applies for equipment returned with no trouble found. To obtain more details of this service and a schedule of prices, contact the CI Service Center at 217–932–5288 (FAX 217–932–2943).

Repair Service Procedure

1. Prepare, complete, and enclose a purchase order in the box with the equipment to be returned.

2. Include the following information:

   – Company name and address
   – Contact name and phone number
   – Inventory of equipment being shipped
   – Particulars as to the nature of the failure
   – Return shipping address

3. Ship the equipment, purchase order, and above-listed information, transportation prepaid, to the service center address shown below.

CI Service Center
Route 40 East
Casey, IL 62420–2054

4. Most repaired or replaced units will be returned within 30 or 45 days, depending on the product type and availability of repair parts. Repaired units are warranted for either 90 days from the date of repair or for the remaining unexpired portion of the original warranty, whichever is longer.

11. SPECIFICATIONS

11.1 Agency Compliance

The following agency approvals apply to the 8548–13.

(a) Tested and recognized by Underwriters Laboratories, Standard 1012. Compliance is restricted to inside plant wiring. Field repairs may void compliance.

(b) FCC P.15, Subpart J, Class A.

(c) Canadian Standards Association (CSA) listed.

11.2 Electrical Specifications

The following electrical specifications apply to the 8548–13.

(a) INPUT VOLTAGE: 95 to 132 VAC, 47-63 Hz.

(b) INPUT PROTECTION: Internally fused (2.5 amps).

(c) DC OUTPUT: 48 $\pm$1.0 VDC.

(d) DC OUTPUT CURRENT: 2.5 Amps maximum.

(e) OUTPUT PROTECTION: Current fold-back at at 2.6 Amps at 48 VDC.

(f) NOISE AND RIPPLE: C message, 20 dBrnC maximum; DC-10 kHz, 50 mV p-p maximum; 10 kHz - 30 kHz, 100 mV p-p maximum.

(g) EFFICIENCY: 85% minimum with a 2.5 Amp load at 48 VDC.

(h) GROUNDING: Chassis connected to third wire ground.

(i) LINE CORD: 8-feet (2.43 meters) nominal, 3-conductor.

(j) ACCESSORY OUTLET LINE CORD: 1-foot (0.305 meters) nominal, 3-conductor.

11.3 Physical

Physical specifications are shown in Table 2.

Table 2. Physical Specifications

Feature	U.S.	Metric
Height	5.6 inches	14.2 centimeters
Width	1.4 inches	3.5 centimeters
Depth	6 inches	15.2 centimeters
Weight	2.5 pounds	1134 grams
Temperature	32 to 120°F	0 to 49°C
Humidity	To 95% (no condensation)	