

Teleline™

Wall-Mount Closed Power Supply Chassis model 750004 Description and Installation

925W751060-01E



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Chapter 1

General Information

1.1 Publication Information

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Wall-Mount Closed Power Supply Chassis model 750004

Description and Installation Guide

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Positron Inc.

5101 Buchan Street, Suite 220

Montreal, Quebec, Canada

H4P 2R9

Telephone: US and Canada: 1-888-577-5254

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1.2 About this Guide

This guide introduces you to the Wall-Mount Closed Power Supply Chassis model 750004, its features and applications, and describes how to install it. This guide was designed to be read from beginning to end.

1.2.1 Related Documentation

The other guides in the Teleline set are listed below. To order any manuals, please contact your customer service representative.

- Teleline System Manual
- Teleline System Overview
- Teleline Product Guide

1.2.2 Positron Products and Services

Positron engineers and manufactures high voltage isolation products to protect personnel and telecommunications circuits in high voltage areas that are susceptible to the effects of Ground Potential Rise (GPR).

Positron is the leader in isolation technology with its Teleline wireline products and TeleLite optical fiber wireline isolation/protection product families. Positron provides total flexibility in product configuration – from standalone units protecting a single circuit to high-capacity, multi-shelf HVI preconfigured systems.

Positron also provides a wide range of consulting, analysis and training services for communications companies and electrical utilities.

Full details and contact information are available at www.PositronPower.com.

1.3 Service and Support

Table 1: Positron Contact Information

General information:	Positron Inc. 5101 Buchan Street, Suite 220 Montreal, Quebec, Canada H4P 2R9 US and Canada: 1-888-577-5254 International: 1-514-345-2220 Fax: 514-345-2271 E-mail: info@positronpower.com Website: www.PositronPower.com
Customer Service and Repairs:	US and Canada: 1-888-577-5254 International: 1-514-345-2220 E-mail: customerservice@positronpower.com

1.3.1 Technical Customer Support

Positron is committed to providing excellent ongoing technical support to its customers. A team of specialists is always available for telephone consultations or for on-site visits to assist in the maintenance and troubleshooting of Positron equipment.

For pricing information or assistance in the planning, configuration and implementation of the installation of equipment, contact Technical Customer Service.

1.3.2 Customer Training

Full customer training courses on High Voltage Interface (HVI) are also available. For more information, contact Positron.

1.3.3 Repair Service

All warranty repairs are performed at no cost. Positron reserves the right to repair or replace any equipment that has been found to be defective.

For information about out-of-warranty repairs, contact Positron's Repair Department. Due to the varied nature of repairs, no specific turnaround can be guaranteed, but average turnaround time is 20 working days from date of receipt. In emergency situations, special arrangements can be made. All repaired items are warranted for a period of 90 days.

Before returning any items to Positron for repair, warranty repair or replacement, call the Repair department to obtain a Return Material Authorization (RMA) number. Parts returned without RMA numbers cannot be accepted. The RMA number must always be clearly marked on all boxes, crates, and shipping documents. Bulk repairs (more than five items) will require additional processing time, so please take this into consideration when requesting an RMA number.

To accelerate the repair process, whenever possible, include a report detailing the reason for return with the unit(s). Also, please include the name and phone number of a person who can be contacted should our Repair department need further information.

When packing items being returned for repair, please ensure they are properly packed to avoid further damage. TeleLite plug-in cards should never be shipped while installed in a shelf; this will cause damage that can extend the repair period.

1.4 Teleline Warranty

Subject to the provisions of this paragraph, Positron warrants that the equipment shall perform in accordance with Positron's specifications. The warranty remains valid for five (5) years from the date of shipment. The warranty fully covers workmanship, materials and labor. Positron shall, at its sole discretion, repair or replace the problem unit.

Freight costs to ship defective equipment to Positron are borne by the Customer, with return of replaced or repaired equipment to be at Positron's expense.

1.4.1 Limitation of Liability

Subject to anything to the contrary contained herein, Positron's sole obligation and liability and the customer's sole remedy for Positron's negligence, breach of warranty, breach of contract or for any other liability in any way connected with or arising out of, the equipment or any services performed by Positron shall be as follows:

- In all situations involving performance or non-performance of the equipment or any component thereof, the customer's sole remedy shall be, at Positron's option, the repair or replacement of the equipment or said component.
- For any other claim in any other way related to the subject matter of any order under, the customer shall be entitled to recover actual and direct damages; provided that Positron's liability for damages for any cause whatsoever, and regardless of the form of the action, whether in contract or in tort (including negligence), shall be limited to the value of the order.

Positron shall not be obligated to repair or replace any item of the equipment which has been repaired by others, abused or improperly handled, improperly stored, altered or used with third party material or equipment, which material, or equipment may be defective, of poor quality or incompatible with the equipment supplied by Positron, and Positron shall not be obligated to repair or replace any component of the equipment which has not been installed according to Positron specifications.

IN NO EVENT SHALL POSITRON BE LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY OR SIMILAR OR ADDITIONAL DAMAGES INCURRED OR SUFFERED INCLUDING

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1.4.2 Cancellation and Rescheduling Charges

Should the customer cancel, prior to shipment, any part of an order, the customer agrees to pay to Positron cancellation charges, not as a penalty, which shall total all expenses, including labor expenses, incurred by Positron prior to said cancellation. Equipment that has been specially developed for the customer's specific applications shall not be subject to cancellation. Cancellation or rescheduling is not permissible after shipment of the System.

Chapter 2

Overview

2.1 Introduction

The Wall-Mount Closed Power Supply Chassis provides a means to use any of the Teleline Plug-in Power Supplies (751313MC, 751316, 751318MC, 751319MC, 751324) or Battery Backup Module (751312) external to the Teleline Shelves. This also enables legacy/manufacture discontinued standalone power supplies, such as 7715-2, 7715-3, 7856-2, 7885-2 and 7885-3 to be replaced with contemporary products.

The Chassis mounts either flat on a wall or perpendicular to the wall to save space. Multiple modules can be used to provide redundancy or backup.

The Chassis has an input/output terminal block and a battery backup terminal block to connect other Chassis to it.

The Chassis is equipped with spring-loaded locking mechanisms to prevent cards from dislodging due to vibration.

The Chassis, with the cover installed isolates any unsafe voltages (120 Vac, 130 Vdc) to be compliant with safety standards.

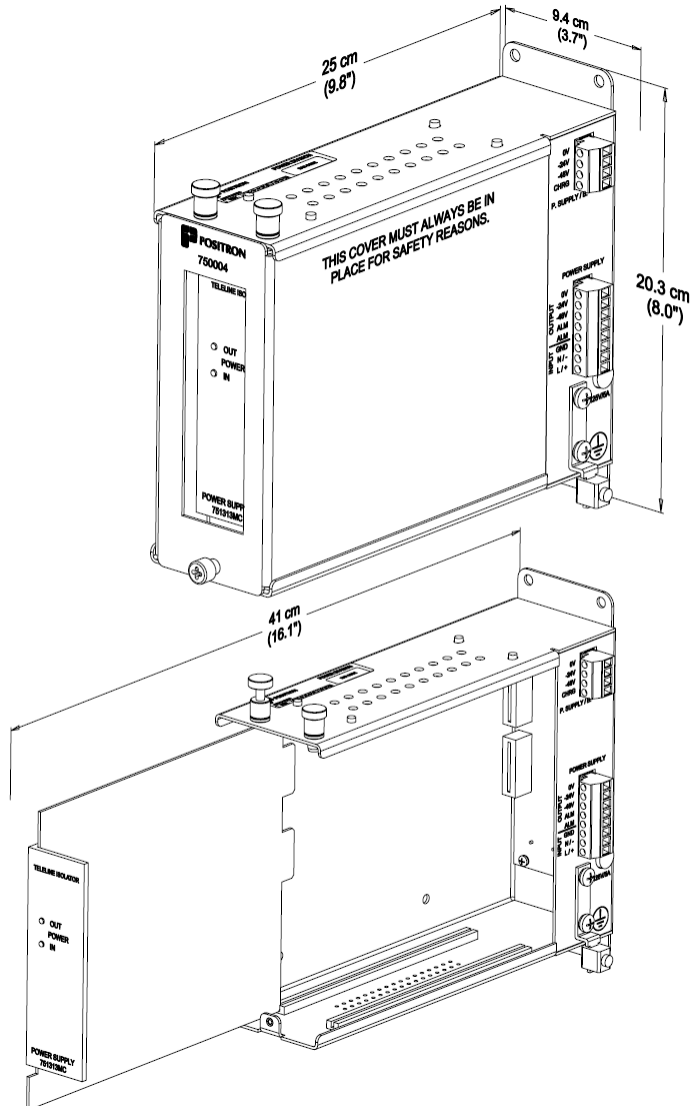
The Wall-Mount Chassis allows the user to configure the output to floating (24 Vdc/48 Vdc), negative voltage (-24 Vdc/-48 Vdc) or positive voltage (+24 Vdc/+48 Vdc) through a jumper setting (W1) located on the backplane of the Chassis.

- The default setting is for -24 Vdc/-48 Vdc.

For a view of the Power Supply Chassis, see Figure 1 on page 15.

For a view of the jumper W1, refer to Figure 3 on page 20.

Figure 1: Power Supply 750004

**NOTE**

- The fuse is a FAST, 5A/125V, 3AG type fuse.

2.2 Description

Below is a description of the Chassis. For a view of the detailed section, please refer to Figure 1 on page 15.

2.2.1 Input/Output terminal block

Input power is brought to the Chassis through the bottom three contacts of the terminal block. Depending on the Power Supply being used, it can be fed either 120 Vac, 130 Vdc, 48 Vdc or 24 Vdc. Although the Power Supply Modules are not polarity-sensitive, the power must be wired according to the polarity indications on the terminal blocks.

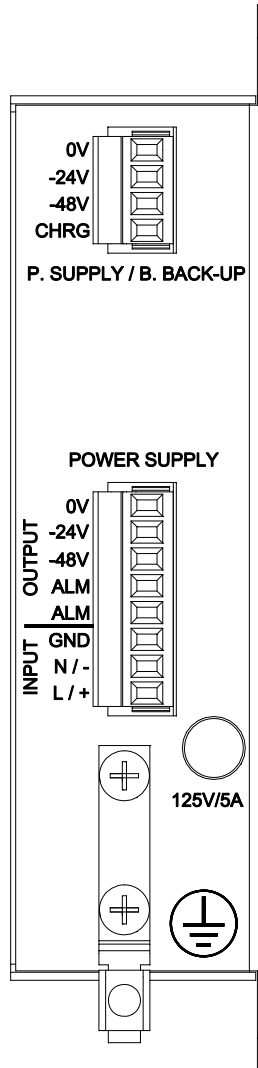
The output from the Power Supply comes out of the top three pins of the terminal block.

The top contact is the positive lead, the second contact provides the negative lead of a 24 V power output and the third contact provides the negative lead of a 48 V power output.

The fourth and fifth output pins provide alarm contacts from the Power Supply.

For a view of the terminal block, refer to Figure 2 on page 17 and Table 2 on page 18.

Figure 2: Wall-Mount Chassis Terminal Block View



2.2.2 Power Supply/Battery Back-up terminal block

This terminal block provides charging power to a second Chassis used to house a Battery Back-up Module 751312.

When a second Chassis is used to provide redundancy, its output will be connected to this terminal block on the primary Chassis.

It is also possible to provide 48 V battery back-up using two 751312 units by wiring the output accordingly. See section 3.5 on page 27 for more information. For a view of the terminal block, refer to Figure 2 on page 17 and Table 2 on page 18.

2.2.3 Input fuse

The input fuse is connected in series with the Live lead of the input power feeding the Chassis to provide overcurrent protection in case of damaging surges or failure of the Power Supply Module. The fuse is a FAST, 5A/125V, 3AG type fuse and must be replaced with the same type of fuse.

2.2.4 Ground lug

The Chassis must be grounded through the ground lug to a solid local ground using a #10 AWG or bigger, wire.

Table 2: Input/Output Terminal Block pinout

	Terminal Block Pin	Function
OUTPUTS:	0V	Positive output of 24 V/48 V
	-24 V	Negative output of 24 V
	-48 V	Negative output of 48 V
	ALM	Normally open relay contact provides dry contact closure for an audio or visual indication of an output power failure.
	ALM	
INPUTS:	GND	Input cable ground wire
	N/-	Power input Neutral wire (for AC input) or negative wire (for DC input)
	L/+	Power input Live wire (for AC input) or positive wire (for DC input)

Table 3: Power Supply/Battery Back-up Terminal Block pinout

Terminal Block Pin	Function
0 V	Positive voltage to/from battery back-up or redundant power supply Chassis
-24 V	Negative of 24 V to/from battery back-up or redundant power supply Chassis
-48 V	Negative of 48 V from battery back-up or redundant power supply Chassis
CHRG	Negative of 48 V to battery back-up Chassis

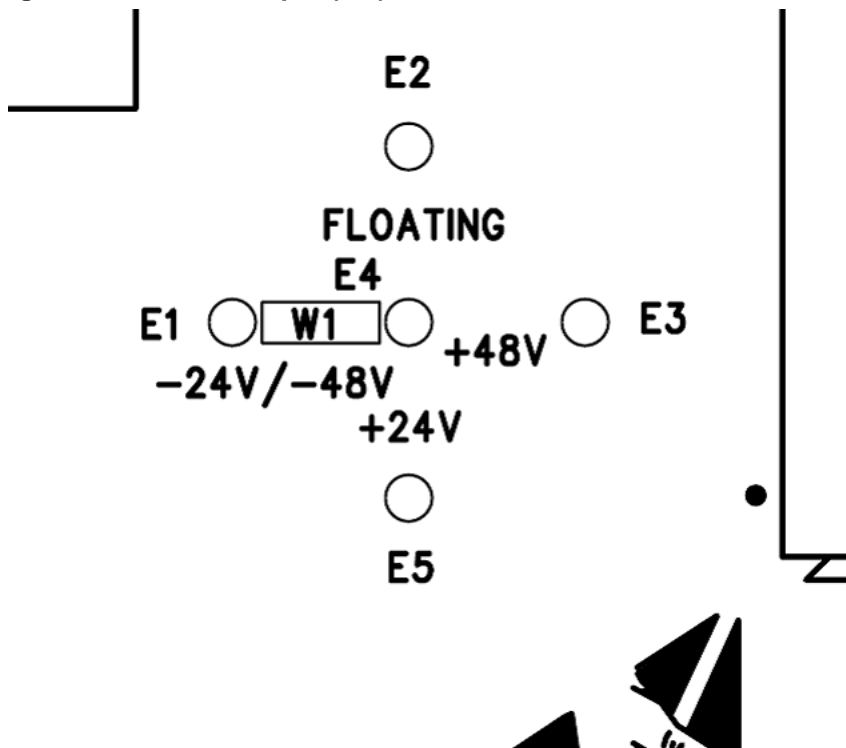
2.2.5 Ground jumper setting

The backplane of the Wall-Mount Chassis is equipped with a jumper setting, W1, that allows the output to be configured as floating, negative voltage or positive voltage referenced to ground. The unit is set at the factory to provide negative voltages (-24 Vdc/-48 Vdc) for Teleline/TeleLite installations.

The configurations are well indicated on the backplane at the different locations where W1 can be installed.

- For a view of the jumper W1, see Figure 3 on page 20.

Figure 3: Ground Jumper (W1)



- E4-E2 Floating output
- E4-E1 Negative voltage (-24 Vdc/-48 Vdc)
- E4-E5 Positive 24 Vdc (+24 Vdc)
- E4-E3 Positive 48 Vdc (+48 Vdc)

2.3 Specifications

Table 4: Physical Specifications

Parameter	Specification
Weight	1.6 kg (3.6 lbs.)
When installed flat against the wall	
Height	20.3 cm (8.0")
Width	24.9 cm (9.8")
Required space at left of Chassis to insert modules	17.7 cm (7.0")
Depth	9.4 cm (3.7")
When installed perpendicular to the wall	
Height	20.3 cm (8.0")
Width	9.4 cm (3.7")
Required space at right of Chassis for connections	8.9 cm (3.5")
Depth	24.9 cm (9.8")

Table 5: Environmental Specifications

Parameter	Specification
Operating temperature	-40° C to +85° C (-40° F to 185° F)
Storage temperature	-40° C to +85° C (-40° F to 185° F)
Humidity (non-condensing)	20% to 80%
Altitude	-61 m to 3048 m (-200 ft to 10,000 ft) above sea level

Table 6: Electrical Specifications


Parameter	Specification
Maximum input current	5 A
Maximum output current	5 A
Alarm contact rating	2 A@30 Vdc, 0.5 A@125 Vac, 10 ⁵ operations

Chapter 3

Installation

3.1 Installation

Installations should conform to local practices and electrical code regulations. The equipment must be installed in restricted or secure area to prevent tampering.

 <p>ATTENTION ELECTROSTATIC SENSITIVE DEVICES HANDLE ONLY AT STATIC SAFE WORKSTATION</p>	<p>ESD Precaution INCORRECT HANDLING MAY VOID WARRANTY</p> <p>These procedures must be followed when handling an electrostatic sensitive device.</p> <ul style="list-style-type: none">• A grounded wrist strap must be worn at all times during installation.• When unpacking, place the antistatic bag containing the device on an electrostatic discharge (ESD) safe surface. An ESD safe surface is a conductive surface connected directly to an earth ground.• When moving, carry the device in an ESD safe container or the antistatic bag, provided with the device.
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3.2 Chassis Mounting

The Wall-Mount Chassis Model 750004, must be installed in a protective environment, close to the equipment it is going to power. Power must be routed to the Chassis.

The Chassis can be mounted in two different orientations, either flat against the wall or perpendicular to the wall where the space is limited.

► **To install the Wall-Mount Chassis:**

1. Verify that you have the following customer-provided tools and hardware required to install the Chassis:
 - Phillips screwdriver
 - 2 cm (3/4") or 2.5 cm (1") thick plywood backboard and appropriate mounting hardware
 - Cable clamps and mounting hardware for routing cables exterior to the shelf (quantity determined by the cable lengths).
 - Black and Red wires, stranded, #18-#14 AWG (lengths determined by number of Chassis and distance to equipment to be powered)
2. Unpack the Wall-Mount Chassis Model 750004 and its hardware from its box.
3. To mount the Chassis, install the plywood backboard on the wall to provide a secure mounting surface.
4. Place the Chassis in the desired location and orientation on the backboard and mark the location of the four mounting holes.
5. Mount the Chassis using the screws supplied in the kit.
6. If another Chassis is used to provide redundant power supplies, increased power output or battery backup, repeat the above steps for the other Chassis.

3.3 Earthing Connector

CAUTION



To ensure safety of personnel, Positron recommends following these guidelines:

- Each Chassis of an installation must be permanently connected to earth using the ground lug on the front/side of the Chassis.
- The field wiring should include a readily-accessible disconnect device. The disconnect device shall disconnect both poles (RTN and Live).
- This equipment must be located in the same immediate area (such as adjacent cabinets) as the equipment it is powering.
- There shall be no switching or disconnecting devices in the earthed circuit conductor between any Chassis of an installation and the point of connection of the earthing electrode conductor.

3.4 Input Power Connections

Depending on which Power Supply is plugged-in, the Wall-Mount Chassis can be powered from 24 Vdc, 48 Vdc, 130 Vdc or 120 Vac. The input power is connected to the Chassis through the input terminal block. For a view of the pinout, see Figure 2 on page 17 and Table 2 on page 18.

When powered from AC, the Live wire is connected to the “L” terminal, the neutral wire is connected to the “N” terminal and the power ground is connected to the “GND” terminal. When powered from DC, the “-” terminal will be connected to the negative input lead and the “+” terminal will be connected to the positive lead.

If multiple Chassis are being used, each must have its own power cable. A fuse is provided on the live/positive input lead to provide input overcurrent protection. That fuse must be replaced with the same type and rating. See section 2.1 on page 14 for more information.

WARNING



- When wiring the Chassis, the input disconnect device (see section 3.3 on page 26) **MUST** always be disconnected. Only when all the wiring is complete and the Chassis cover is in place and secured with the captive screw can the disconnect device be closed and functionality be verified through the Power Supply LEDs.

3.5 Chassis Wiring

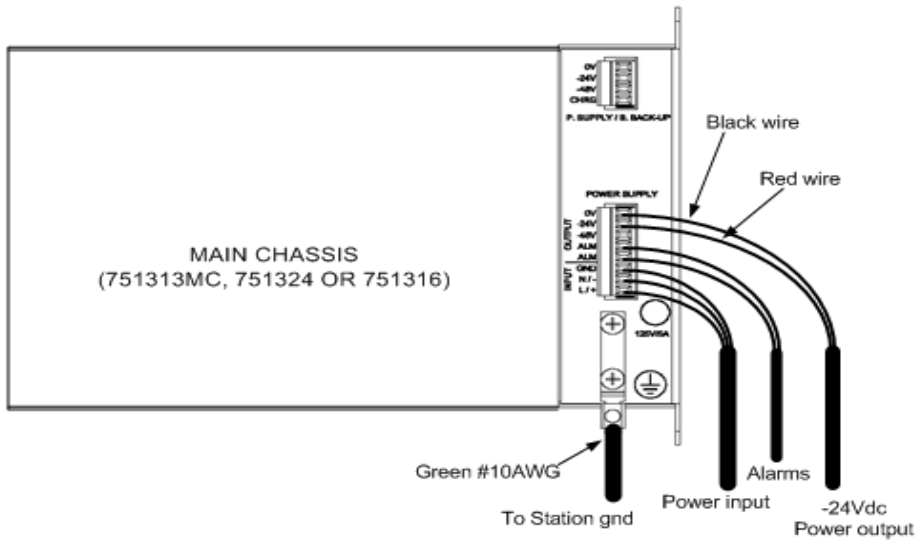
3.5.1 24 V systems

When using 24 V Power Supplies, the Chassis can provide floating 24 Vdc, -24 Vdc or +24 Vdc referenced to ground. Connect the positive output of the Chassis (0 V) to the positive input of the equipment and the negative output of the Chassis (-24 V) to the negative input of the equipment.

- Unit is factory set for -24 Vdc output.

Refer to Figure 4 on page 28 for a view of the 24 V wiring.

Figure 4: 24 V Power supply Source



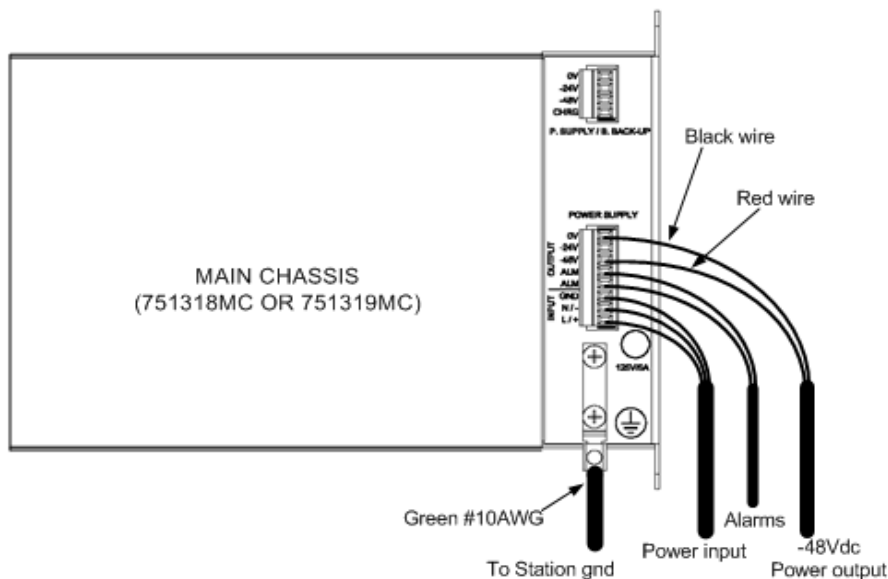
3.5.2 48 V systems

When using 48 V Power Supplies, the Chassis can provide floating 48 Vdc, -48 Vdc or +48 Vdc referenced to ground. Connect the positive output of the Chassis (0 V) to the positive input of the equipment and the negative output of the Chassis (-48 V) to the negative input of the equipment.

- Unit is factory set for -48 Vdc output.

Refer to Figure 5 on page 29 for a view of the 48 V wiring.

Figure 5: 48 V Power Supply Source



3.5.3 Adding redundancy

A second Chassis and Power Supply can be added to the system to provide a redundant power source. With this system, if one of the Power Supply fails, the second Power Supply will take over the load without power interruption. The failing Power Supply will trigger an alarm via its alarm contacts (if used) to let the user know the system needs maintenance.

For such a system, the redundant Chassis would be connected to the Main Chassis as shown in Figure 6 on page 30 and Figure 7 on page 31.

Figure 6: Redundant 24 V Power Supply

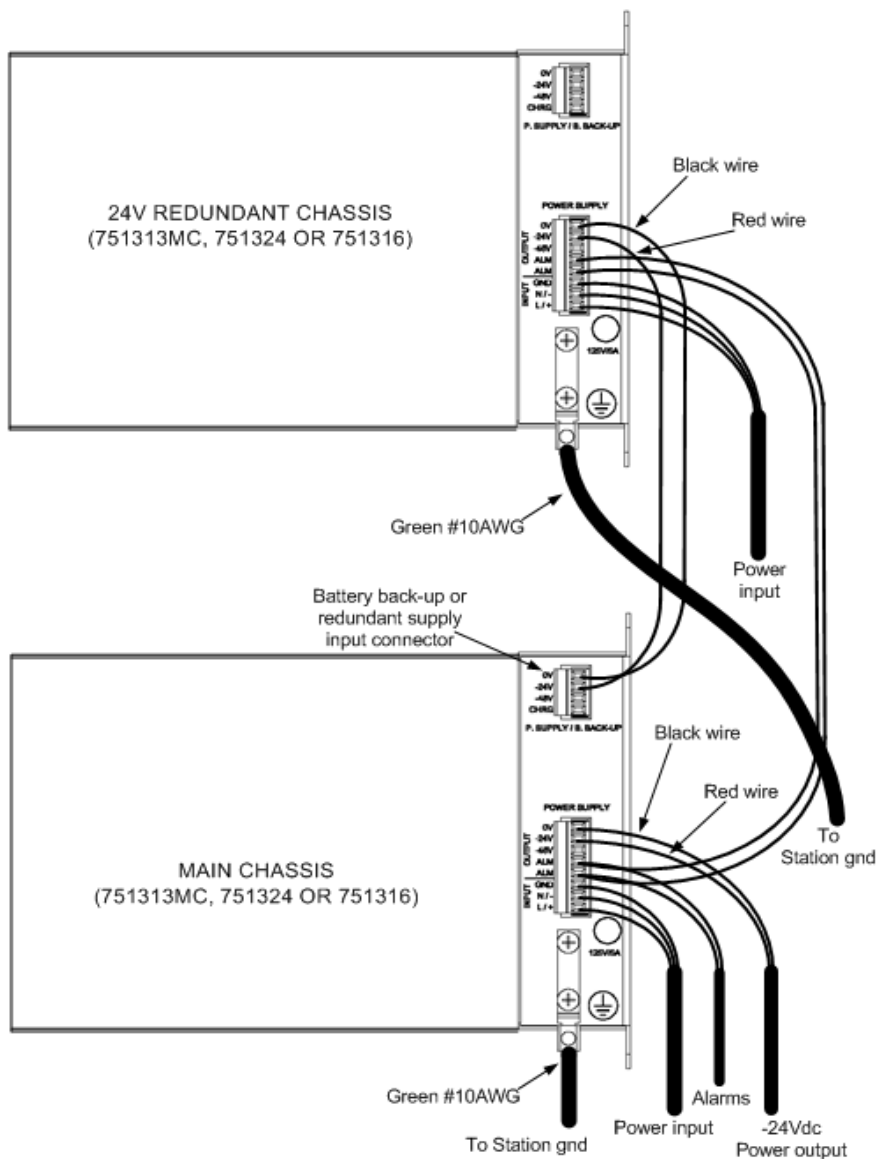
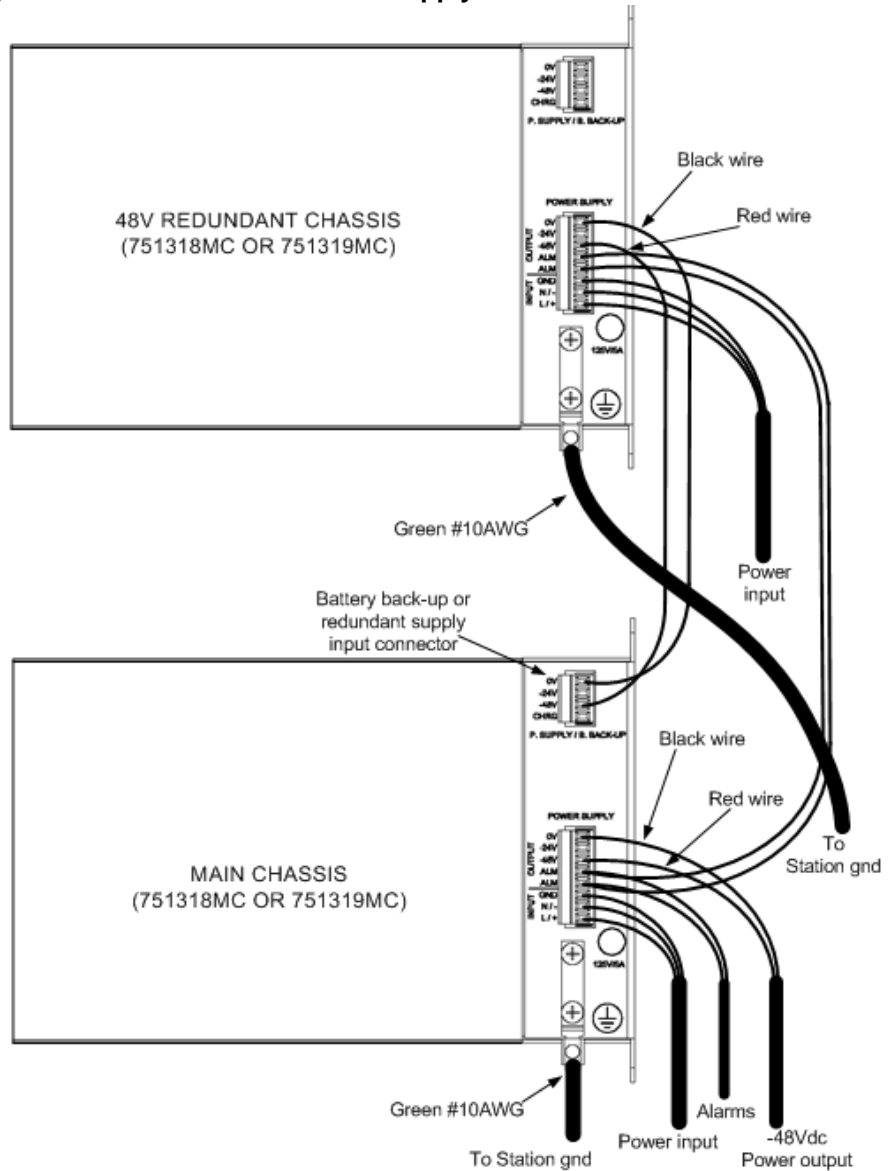


Figure 7: Redundant 48 V Power Supply



3.5.4 Adding Battery Back-up to a 24 V system

A battery back-up can be added to the system to provide an Uninterruptible Power Supply (UPS).

To accomplish this, a second Chassis containing a 751312 battery pack needs to be added. The second Chassis will be wired as shown in Figure 8 on page 33.

3.5.5 Adding Battery Back-up to a 48 V system

A battery back-up can also be added to a 48 V system to provide an Uninterruptible Power Supply (UPS).

To accomplish this, two Chassis must be added. Each Chassis will contain a 751312 battery pack.

NOTE

- When using two battery housings for -48V backup, the jumper inside both housings must be set to "FLOAT".

The three Chassis will be wired as shown in Figure 9 on page 34.

WARNING



- Make sure the Chassis cover is in place and secured with the captive screw before closing the input disconnect device.

Figure 8: 24 V Chassis with Battery Backup

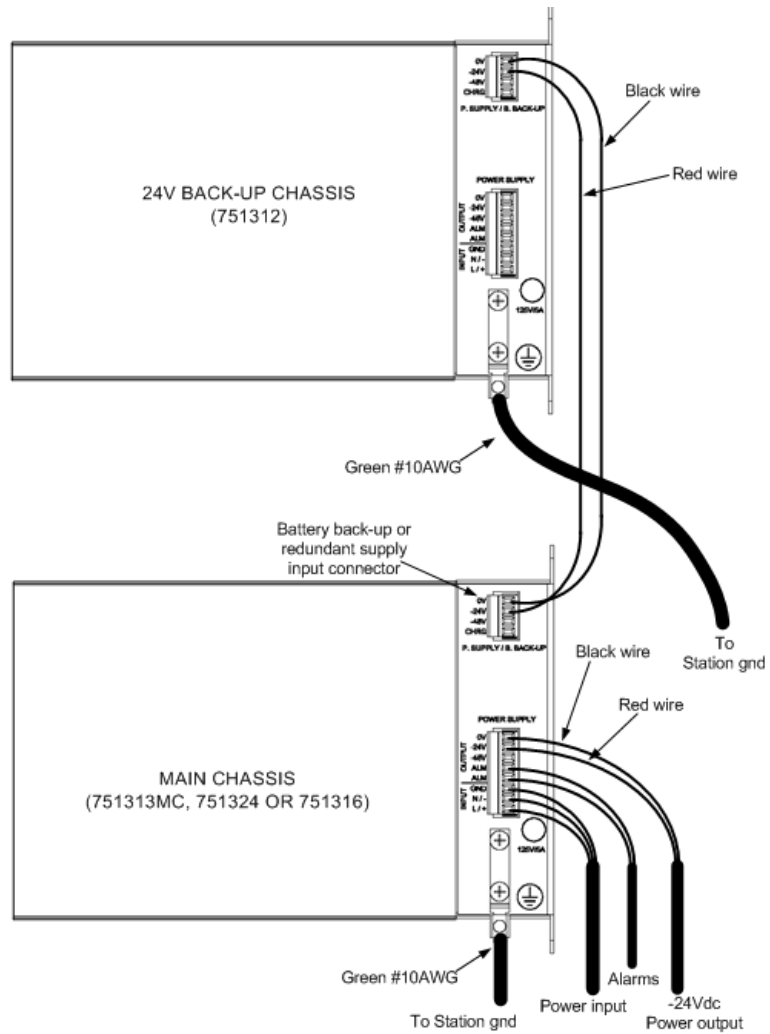
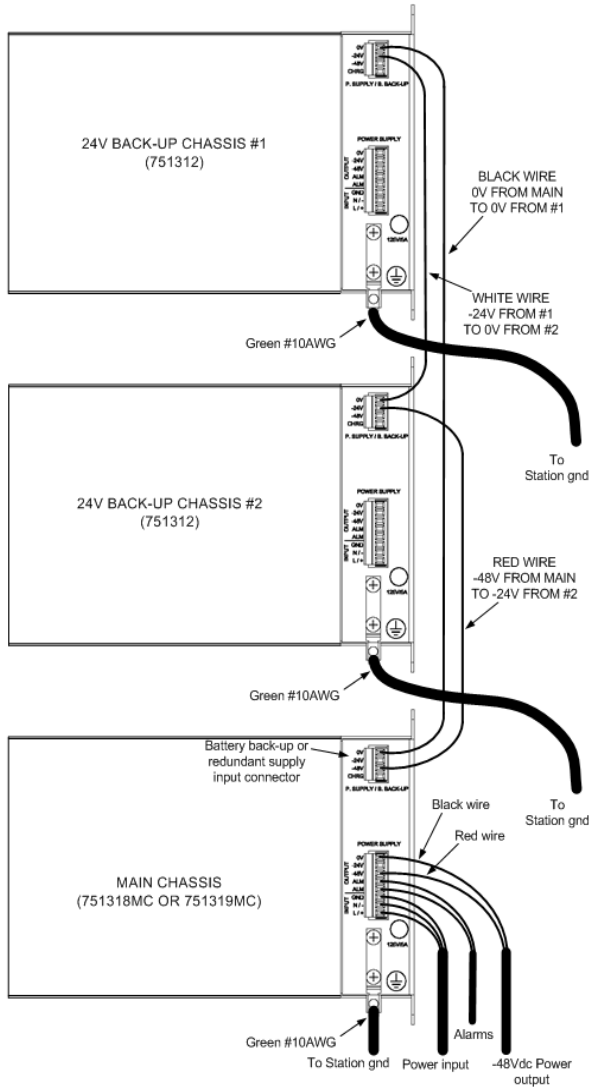


Figure 9: Three -48 V Chassis Wired for Battery Backup



Appendix A

Acronyms

Acronyms

AWG

American Wire Gauge

CO

Central Office

GND

Ground

GPR

Ground Potential Rise

RMA

Return Material Authorization

RMT

Remote

RTN

Return

UPS

Uninterruptible Power Supply