

Teleline™

Standalone Power Supply Unit -129 Vdc to -24 Vdc (7715-24) Description and Installation Guide

925W751005-01E



Contents

Chapter 1 – General Information

1.1 Publication Information	4
1.2 About this Guide	5
Related Documentation	5
Positron Products and Services	5
1.3 Service and Support	6
Technical Customer Support	6
Customer Training	6
Repair Service	7
1.4 Teleline Warranty	8
Limitation of Liability	8
Cancellation and Rescheduling Charges	9

Chapter 2 – Overview

2.1 The Standalone Power Supply Unit	12
2.2 Features	13
2.3 Technical Specifications	14

Chapter 3 – Installation

3.1 Installation	16
3.2 Mechanical Installation	18
Rack-mount	18
Wall-mount	18
3.3 Electrical Installation	19

Appendix A – Acronyms

A 1 Acronyms	24
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Chapter 1

General Information

1.1 Publication Information

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**Teleline Standalone Power Supply Unit, -129 Vdc to -24 Vdc (7715-24),
Description and Installation Guide**

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1.2 About this Guide

This guide introduces you to the Teleline Standalone Power Supply Unit, its features and applications, and describes how to install it in a Teleline shelf. 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

LOSS OF PROFITS, LOSS OF REVENUES, LOSS OF DATA, LOSS OF BUSINESS INFORMATION, LOSS OF GOODWILL, LOSS OF EXPECTED SAVINGS OR BUSINESS INTERRUPTION ARISING OUT OF OR IN CONNECTION WITH THE EQUIPMENT, A PURCHASE ORDER, SUPPLIES, MAINTENANCE SERVICES OR OTHER SERVICES FURNISHED HEREUNDER, EVEN IF POSITRON HAS BEEN ADVISED OR IS AWARE OF THE POSSIBILITY OF SUCH DAMAGES.

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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 The Standalone Power Supply Unit

The Standalone power Supply Unit, model 7715-24 converts floating -129 Vdc from a station battery to -24 Vdc referenced to station ground. This large capacity standalone power supply may be used to power a fully loaded 3-, 5 or 8-card Shelf.

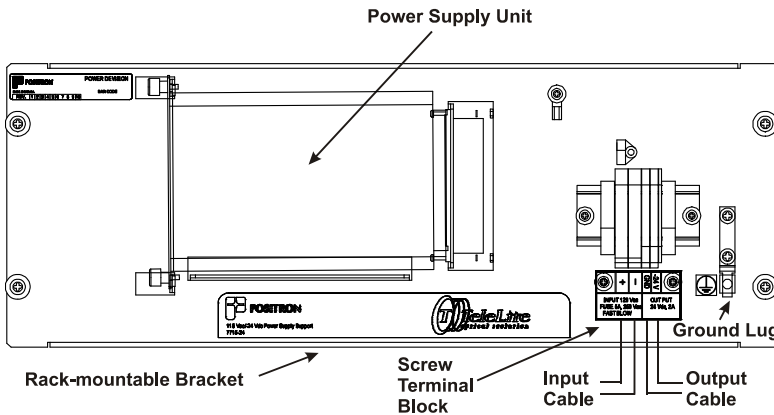
The installation kit consists of the Standalone Power Supply Unit fixed on a stainless steel, rack- or wall-mountable bracket and associated mounting hardware.

NOTE

Do not use Standalone Power Supply 7715-24 with the following equipment:

- A shelf containing one or more -24 Vdc plug-in power supply cards such as: 751313, 751316 or 751324. (The -24 Vdc plug-in card in the shelf must be permanently removed from the shelf if a standalone -24 Vdc supply is used)
- A shelf powered by any other -24 Vdc standalone power supply such as: 7715-2, 7715-3 or 7856-3

Figure 1: Model 7715-24 installed in its mounting bracket



2.2 Features

Features of the Standalone Power Supply Unit, model 7715-24 include the following:

- The unit may be used with any old and new generation 3-, 5 or 8-card Teleline Shelf.
- The unit supplies continuous -24 Vdc up to 2 Amps from a -129 Vdc floating station battery, without compromising its floating nature.
- The power supply uses high-reliability, solid state switching technology to perform the DC to DC conversion.
- The power supply unit's input is protected against overvoltage transients.
- Two five-amp fast blow input fuses protect the power supply against ground faults, and the station battery against a malfunction of the supply. Both fuses are part of the terminal block.
- The unit is equipped with a current limiting circuit at its input to prevent an excessive current surge upon connection of the station battery.
- The unit is equipped with a current limiter at the output for short circuit protection.
- A green "Power Output" LED located on the front panel of the Standalone Power Supply Unit indicates the presence of -24 Vdc output.

2.3 Technical Specifications

Table 2: Electrical Specifications (measured at 77°F or 25°C)

Parameter	Specification
Input station voltage	-105 to -150 Vdc
Input power at full load	65 W
Nominal output voltage	-24 Vdc
Maximum output current	2.0 A
Maximum output power	48 W
Output ripple voltage	100 mV _{pp}
Regulation, line	<1.0%
Regulation, load	<5.0%
Input/output isolation	1500V @ 60 Hz for 1 minute

Table 3: Physical Specifications

Parameter	Specification
Operating Temperature Range	-40°F to 149°F (-40°C to 65°C)
Height	7" (17.8 cm)
Width	19" (48.3 cm)
Depth	3" (7.6 cm)
Weight	4.3 lbs (2 kg)

Chapter 3

Installation

3.1 Installation

This installation procedure assumes that the associated 3-, 5 or 8-card Shelf being used has already been mounted as per its installation instructions. For further information, refer to the Description and Installation documentation for the 3-card Shelf, model 751127, 5-card Shelf, model 751112/1, or 8-card Shelf, model 751109/13.

CAUTION

- Stand on a thick rubber mat and wear rubber gloves during the installation procedure. It is preferable to perform these procedures on a clear dry day when a Ground Potential Rise (GPR) or transients are less likely to occur.
- This unit utilizes CMOS circuitry that can be damaged by static electricity. The unit is not to be opened.

► To install the Standalone Power Supply Unit

1. Verify that you are not using any equipment which is incompatible with the Standalone Power Supply Unit, model 7715-24. Do not use the Standalone Power Supply Unit with any other plug-in or standalone -24 Vdc power supply. Below is a listing of incompatible equipment.

NOTE

Do not use Standalone Power Supply 7715-24 with the following equipment:

- A shelf containing one or more -24 Vdc plug-in power supply cards such as: 751313, 751316 or 751324. (The -24 Vdc plug-in card in the shelf must be permanently removed from the shelf if a standalone -24 Vdc supply is used)
 - A shelf powered by any other -24 Vdc standalone power supply such as: 7715-2, 7715-3 or 7856-3
2. Verify that you have the following tools and hardware required to install the unit:
 - Center punch
 - Electric drill with a 5/32" diameter bit
 - 7/16" hex wrench
 - Phillips screwdriver
 - Cable clamps and mounting hardware for routing cables exterior to the shelf (quantity determined by the cable lengths involved).
 3. Unpack the Standalone Power Supply Unit and its installation hardware from its protective box.
 4. Check the contents of your Standalone Power Supply Unit kit. Below is a listing of the items included in the kit.

Table 4: Model 7715-24 Kit Contents

Items Included	Qty	Part Number
Power Supply Module	1	244W000010-401
Support bracket	1	244W000009-401

5. Confirm that the unit is a Standalone power Supply Unit, model 7715-24 by identifying the model number.

3.2 Mechanical Installation

The Standalone Power Supply Unit can be installed on a 19" rack or on a wall.

3.2.1 Rack-mount

► To install the Standalone Power Supply Unit in an equipment rack

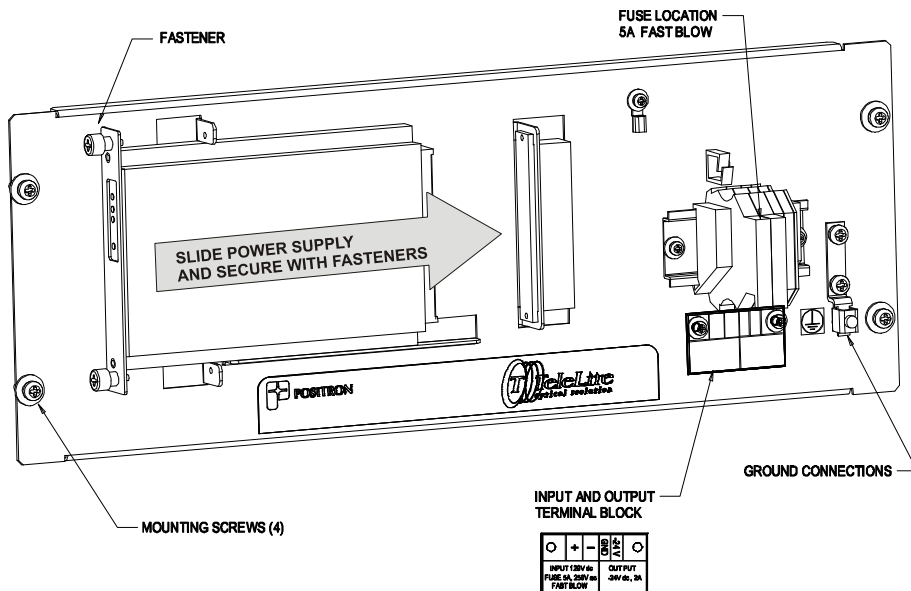
1. Position the support bracket on the rack and fasten using bolts.
2. Install the power converter.

3.2.2 Wall-mount

► To install the Standalone Power Supply Unit using a wall-mount

1. Fasten the support bracket to the wall using four screws.
2. Install the power supply.

Figure 2: Model 7715-24 Installation



3.3 Electrical Installation

CAUTION

The Station and Central Office (CO) cables should be kept at least six inches apart upon wiring in order to prevent an electric arc between the two in the event of damage to, or degradation of, their insulation.

1. Route the station battery cables to the power supply input terminal block. The table below lists the power supply input connections.

Table 5: Standalone Power Supply Input Connections

Station	Power Supply Input
129 Vdc battery, negative lead	-
129 Vdc battery, positive lead	+
Station ground	Support GND connection using the two-hole lug provided

2. For a 3-card Shelf, the only entry is through the Station side cable.

Table 6: Standalone power Supply Unit Output Connections to a 3-card Shelf via the Station Side Cable

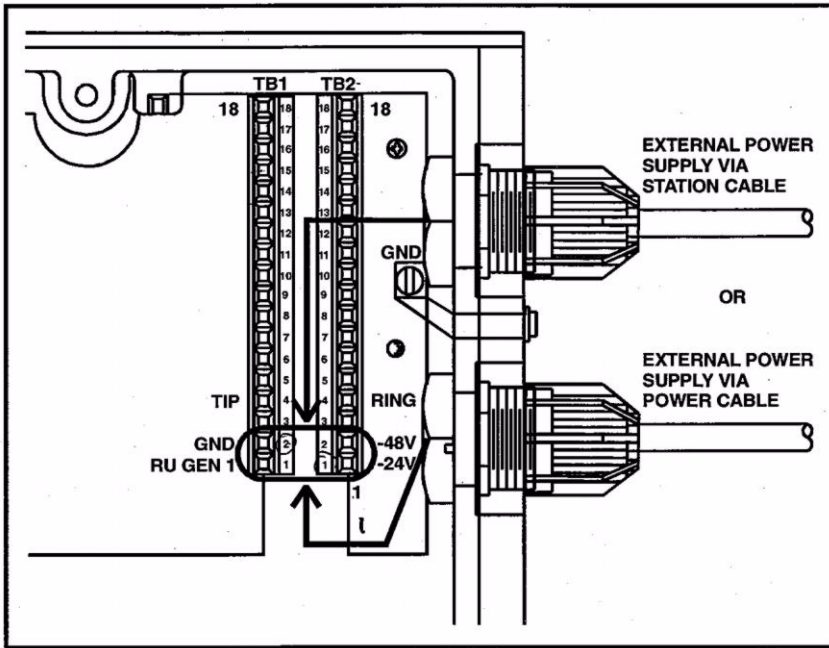
External Supply		Connector Position (3-Card Shelf)	Wire Color
-24 Vdc	Ground	TB2-9 TB2-9	Red/Orange Orange/Red
	-24 Vdc	TB2-11 TB2-11	Brown/Red Red/Brown

3. For a 5- or 8-card Shelf: either connect the power supply output to the shelf using the Station side cable, or use a power cord connected to TB1-2 (Ground) and TB2-1 (-24 Vdc).

Table 7: Standalone Power Supply Unit Output Connections to a 5- or 8-Card Shelf via the Station Side Cable or a Power Cable

Connection Method	Description	Connector Position (5 or 8-Card Shelf)	Wire Color
Station Side Cable	Ground	TB1-2	Yellow/Green
	-24 V Supply	TB2-1	Yellow/Slate
Power Cable	Ground	TB1-2	
	-24 V Supply	TB2-1	

Table 8: Connection Example: 8 - Card Shelf



4. Ensure that there are no excess wires dangling into the isolation gap between the Station and CO side circuits. Then close and secure the shelf cover with the captive screws.

5. Verify that you obtain -24 V inside the shelf.

NOTE

Blown fuses are the only circuit components to be replaced by customer maintenance personnel. Fuses are located on the terminal blocks. Contact Positron should any other maintenance be required.

Appendix A

Acronyms

A 1 Acronyms

CO

Central Office

CMOS

Complementary Metal-Oxide Semiconductor

DC

Direct Current

ESD

Electro static Discharge

GPR

Ground Potential Rise

GND

Ground

LED

Light Emitting Diode

RMT

Remote