

Line Power

CPS3200U, CPS2500D & X-Pair

ORDERING GUIDE — RFT-V +/-190V SYSTEMS

Network Architecture

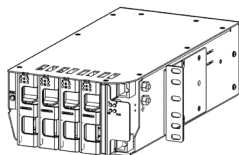
**Upstream or CO end
of the network.**

*Locations with centralized
batteries.*



The CPS3200U Power System powers remote telecom equipment from the CO using twisted pairs. Provided in accordance with UL60950-21 (RFT-V), The system consists of sixteen converter/limiter cards providing 32 100VA limited output channels. Each converter card converts -48VDC to two channels of protected +/-190VDC.

Redundant Fan Tray shown for use in 23 inch frame.



The CPS800U Power System uses the same QS982A converter/limiter cards as the CPS3200U. 4 cards provide 8 100VA limited output channels. Sized for mounting off a single rack rail, or with one on each rail of a 19 inch frame.

Converter shelves are 2RU high before addition of cooling fans.

**Downstream or Remote end
of the network.**

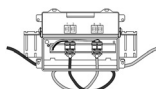
*Locations with inconvenient AC
service or a desire for no battery
life, environmental and
replacement service issues.*



The CPS2500D Power System is designed for powering telecom equipment at the remote end of twisted pairs. UL60950-21 RFT-V compliant, the CPS2500D is ideally suited to supply 48V loads from 200 to 2000 Watts. Each QS882A converter card receives power from 2 twisted pairs and delivers up to 130W of 48V power (2.35A). Externally provided forced air cooling is required, but for loads in this power range, system airflow is often sufficient.



The X-Pair H5684772 series of products are designed to support 48V loads of up to 65W in weather protected natural convection environments. Each X-Pair contains 2 circuits for redundant operation. The Group 100 is shown above.



The X-Pair Group 300 mounts on a strand for powering radios & cameras when real-estate is constrained.



**Valued Voice and Data Services
with Reliability
from the Central Office**

Application Specific Provisioning:

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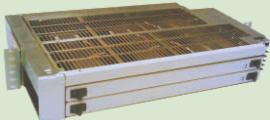


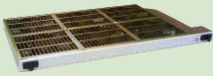
Special points of interest:

- Keep employees away from unprotected high voltage DC. Module contains entire 48V to protected +/-190V conversion.
- Simplify provisioning and growth. Modules contain 2 circuits that operate directly from 48V.
- Simplify emergency response and maintenance. Keep your backup energy in one place .

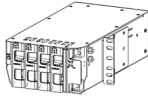

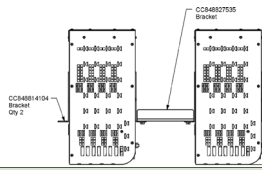
Provision the Central Office (order at least one item from each category)

Category	Item	Description	Ordering #
Fan Shelf 	H5694820G050	QS930A Redundant Fan shelf equipped with air baffle and air filter. Pulls air down through up to 3 converter shelves.	CC109122074
	H5694820G051	QS930A Redundant Fan shelf equipped with baffle without brackets for air filter. Pulls air down through up to 3 converter shelves.	CC109132271
Converter Shelf 	H5694820G012	BDFB Fed Converter Shelf with alarm card, 4 pairs of lug landings for 4 48A input feeds @48Vdc. 16 card slots support 32 +/-190V 100VA limited circuits. Converter cards purchased separately.	CC109122082
Converter Items: Total from this category must be 16 per converter shelf 	QS982A	48V to ±190V Converter/Limiter card, 2 x 100 VA	108996641
	Empty Slot Filler	Converter Slot Filler needed for all unfilled converter slots	CC109121992
Controller: 1 per site 	QS941A Ethernet Controller	Ethernet controller module with display. Mounts in left end of Fan Shelf	108996947
Spare Parts 	Air filter	Replacement Air filter to be used with Airflow baffle in H5694820G050	CC109121984
	QS930B	Spare Fan Tray assembly, air flows down	108997623
	QS920A	Alarm Module (Spare)	CC109102118

Provision an Upstream Cabinet with 23 inch Rack Rails using CPS3200U

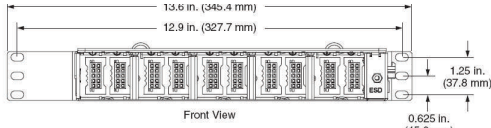
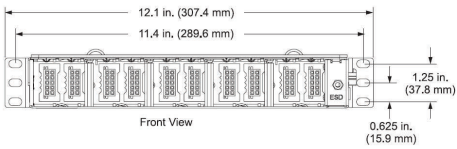

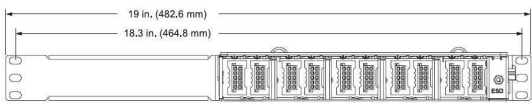
Category	Item	Description	Ordering #
Fan Shelf 	QS931A	QS931A Redundant Fan shelf. Blows air up through up to 2 converter shelves in cabinet applications. Heat exchanger assist may allow for 3 converter shelf engineered solutions.	CC109146354
Converter Shelf 	QS9010	BDFB Fed Converter Shelf with alarm card, 2 pairs of lug landings for 2 48A input feeds @48Vdc. 16 card slots support 32 +/-190V 100VA limited circuits. Includes 16 empty slot fillers to support field provisioned converters. Converters purchased separately.	CC109147740
Converter Items:			
Controller: 1 per site 	QS941A Ethernet Controller	Ethernet controller module with display. Mounts in left end of Fan Shelf	108996947
Spare Parts 	QS931B	Spare Fan Tray assembly, air flows up	CC109146362
	QS920A	Alarm Module (Spare)	CC109102118

Provision a Small Upstream Remote Cabinet with CPS800U


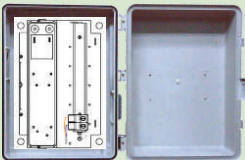
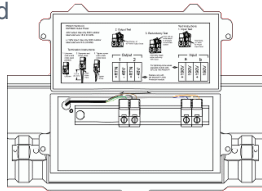
Category	Item	Description	Ordering #
Fan Shelf	Fans	Airflow must be provided by customer system.	
Converter Shelf: Order 2 if desire to span 19" rack.	 QS912C	CPS800U Converter Shelf with Alarm Module (provides pigtailed inputs and outputs). 4 card slots support 8 +/-190V 100VA limited circuits. Converter cards purchased separately.	CC109134912
Converter Items: Total from this category must be 4 per converter shelf	 QS982A	48V to ±190V Converter/Limiter card, 2 x 100 VA	108996641
	Empty Slot Filler	Converter Slot Filler needed for all unfilled converter slots	CC109121992
Brackets:	Extra Rack Ear	Extra rack ear with same setback as right rack ear	CC848814104
	 19 inch Bridge Bracket	Bracket that bridges two QS912C shelves together to fit in a 19 inch rack. To create a 19 inch system order one of these and two extra rack ears (CC848814104).	CC848827535
Spare Parts	QS920A	Alarm Module (Spare)	CC109102118

Provision a Downstream Cabinet with CPS2500D



Category	Item	Description	Ordering #
Fan Shelf	Fans	Airflow must be provided by customer system.	
Converter Shelf	 QS800A	CPS2500D Converter shelf. Holds 10 dual circuit downstream cards for a maximum output power of 1300W @-48V. Return is referenced to Chassis Ground inside the unit to set the output voltage to -48V. Mounting hole centers are 12.9 inches apart.	108994926
	 QS800B	CPS2500D Converter shelf. Holds 10 dual circuit downstream cards for a maximum output power of 1300W @48V. Identical to QS800A except different mounting ear hole centers and requires external reference to Chassis Ground. Mounting hole centers are 11.4 inches apart.	CC109139853
Converters: Use calculator for quantity	 QS882A	±190V to 48V Converter/Limiter card, 2 input channels.	108994918
Brackets		19 inch adapter bracket can be added to one side of QS800 shelf for mounting in 19 inch rack rails.	CC848828525
Spare Parts	-	-	-



+/-190V to -48V X-Pair for Small Remote Sites (special order items)

Category	Item	Description	Ordering #
In your weather-proof enclosure	 H5694772G100-CC	Sealed dual-channel +/-190V to -48V downstream converter Supplies -48V: 65 W @ 55 °C dual fed; 35 W @ 55 °C single feed 55 W @ 65 °C dual fed	CC109140357
As part of an enclosure.	 H5694772G200-CC	Sealed dual-channel downstream converter in a vented polycarbonate enclosure with 2 input protection blocks. Supplies -48V: 65 W @ 55 °C dual fed; 35 W @ 55 °C single feed 55 W @ 65 °C dual fed	CC109140365
On a Strand	 H5694772G300-CC	Sealed dual-channel downstream converter in a 3-inch aerial strand-mount enclosure. Provides 4 protection blocks. Supplies -48V: 55 W @ 55 °C dual fed; 35 W @ 55 °C single feed	CC109140340

Network Planning

Lineage Power has several tools to help you plan your network. Line Power needs are determined by 1) the amount of -48V power needed at the remote site, 2) the gage of wire used in the network, and 3) the distance to the remote site. Our on-line reach calculator allows you to enter the parameters for each remote site to determine how many RFT-V power circuits are required. If there is uncertainty about the quality of the existing copper network wiring, there is a field where measured resistance values for each loop can be entered.

If you have an interest in serving your remote customers with batteries at a central location, contact Lineage Power at 1-800-843-1797 and ask for the Energy Solutions sales person in your region. Ask for deployment information about FTTN CPS3200U and CPS2500D products.

Lineage CPS2500D Downstream ±190V to 48V Power Conversion

[Click here](#) to open the CPS2500D product documentation webpage v1.0 - 2008.10.02, [all feedback](#) welcome

[restart](#) | [select and copy](#) | [print this page](#)

Application Assumptions:			
Projected Converter Performance Parameters	Upstream	Low end of Voltage Tolerance:	378 Volts
		Low end of Current Tolerance:	0.252 Amps
	Downstream	Low end of input current limit channel:	0.233 Amps
		Converter Efficiency:	0.83 %

User Entered Data			
Step 1:	Watts at 48V needed in the remote (downstream) cabinet:	<input type="text" value="300"/>	Watts
Step 2:	Enter wire gage used in your network for remote power:	<input type="text" value="24"/>	Gage (AWG)
Step 3:	Enter the one way distance from the power source to the remote cabinet:	<input type="text" value="2000"/>	Feet
		<input type="text" value="610"/>	Meters
Alternate:	Enter average measured loop resistance per channel:	<input type="text" value="Not known"/>	Ohms
		<input type="text" value="111"/>	calculated

Redundancy	
Configure CPS2500D Converter Cards for N+1 Redundancy?	<input type="text" value="Yes"/>

Online Planning Tool uses three step process to size installation