OSP Retrofit Power System

Cost-effective Energy Efficiency Upgrade

- Preserves distribution and cabling investments
- OSP cabinet and customer premise applications
- Efficiency approaching 97%

- High density power
- 15 to 250A Systems at -48V
- Flexible AC Input

Overview

For the past 30 years, GE has offered the CPS2000, CPS4000, OLS and SLC telecom power systems for outside plant (OSP) applications. The OSP Retrofit Power System enables these legacy cabinet power plants to be upgraded to modern rectifiers and controller technology, while leaving the distribution, shelves and frame in place.

The OSP Retrofit Power System upgrades the legacy rectifiers with CPS6000 TE rectifiers to improve energy efficiency and deliver centralized management visibility and control. The OSP RPS kits are designed to be "plug and play" as much as possible. Attention has been given to minimize disruption to power being supplied to the revenue generating equipment in the cabinet. The OSP RPS kits come with a CPS6000 Shelf, AC cables, battery cables, circuit breakers and fuses, alarm cables, and thermal Probe kits.

The OSP RPS kits consist of a Power Shelf Kit (CC109163044) and appropriate combinations of cable and battery kits to complete the retrofit requirements. For some common combinations / cabinets, some pre-kitted combinations are also available. Rectifiers and ringer units are ordered separately.

GE certified field technicians are able to deploy OSP Retrofit Power Systems. GE will re-certify and re-warranty the plant as part of the included retrofit upgrade services. No change is needed to the output distribution, batteries, or LVD contactor of the OSP cabinet power plants with this retrofit.

The OSP retrofit power solution provides a turn-key, cost-effective maintenance upgrade for the installed base of CPS2000, CPS4000, OLS and SLC telecom power systems. For most applications, the retrofit procedure is accomplished in less than 4 hours.

Ringer Options

OSP RPS has an available ringer module for 100VA ring voltage generation with true 1+1 redundancy for reliable remote terminal deployment.

Controller Options

The OSP RPS incorporates three controller types. Some shelves use the QS840/QS841 series controllers which plug into the shelf controller slot and have a cabled display. The latest shelf configurations utilize the Pulsar Edge Controller which consolidates all controller functionality into a single plug-in module for higher reliability.

Benefits

Reliability

- Extends the lifecycle of deployed CPS2000, CPS4000, OLS and SLC power plants
- Proven field performance
- Controller continuity

Intelligence

- Industry leading controller features
- Ethernet interface for remote access
- Centralized network management

Investment Protection

- Energy efficiency improvement
- Avoids complete replacement costs
- Re-certify and re-warranty whole plant

On Time Delivery

- Comprehensive turn-key retrofit service including plant assessmnet
- Fast track deployment
- 24/7 technical support

Total Efficiency

The GE Total Efficiency™ (TE) architecture reduces energy loss and lowers cooling costs by 50-70%. TE products will prioritize sustainable energy sources like solar, wind, water and fuel cells over traditional utility grid or diesel generator sources – and they will intelligently respond to smart grid information to reduce consumption during peak demand periods. Active Rectifier Management (ARM) and Battery Charging Optimization (BCO) features increase efficiency on current and legacy power infrastructures. The Total Efficiency architecture addresses issues end-to-end based on our proven experience and expertise in batteries, power distribution, DC energy systems, AC-DC power supplies, and DC-DC board mounted power to deliver a solution that is more safe, reliable and energy efficient than competitive alternatives.

Ordering Information – OSP Retrofit Power Systems

OSP Retrofit Power Systems have been created for the following cabinet applications:

CPS2000 Retrofit

52B cabinet with DLC
52B cabinet with DSL

CPS4000 Retrofit

52B cabinet with DSL
80A cabinet with DLC
82A cabinet with DSL
2030 cabinet with DSL

OLS Retrofit

80D/80E cabinet with DLC

SLC Retrofit

80C cabinet with 4 SLC-96 channel shelves
80C cabinet with 2 SLC-96 and 2 SLC Series 5
80D/80E cabinet with 4 SLC Series 5

The GE Outside Plant Retrofit kits are designed to be "plug and play" as much as possible. Attention has been given to minimize disruption to power being supplied to the revenue generating equipment in the cabinet. The following kits come with a CPS6000 Shelf, AC cables, Battery cables, Circuit Breakers and Fuses, Alarm cables, and Thermal Probe kits.

The basic kits consist of a Power Shelf Kit (CC109163044) and appropriate combinations of Cable and battery kits to complete the retrofit requirements. For some common combinations / cabinets, some pre-kitted combinations are also available.

Rectifiers and Ringing Units must be ordered separately through your local GE Representative.

CPS2000 Power Shelf Upgrade

52B Cabinet with DLC Retrofit Power System

Commscope 52B DLC/T1 configurations were deployed with the CPS2000 power shelf. This kit contains the necessary hardware to upgrade the CPS2000 system with a CPS6000 shelf
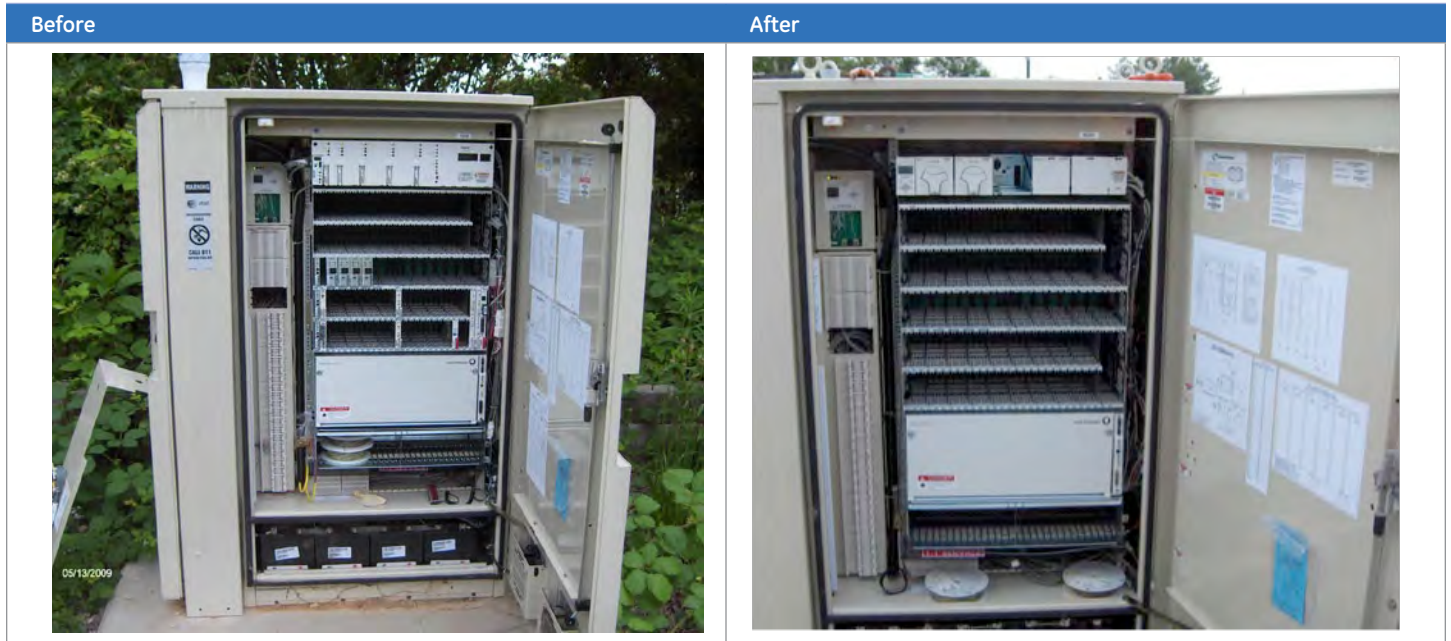
Ordering Code	Description
CC109155842	52B Cabinet DLC (CPS2000) Retrofit Kit

52B DLC (CPS2000) Retrofit Kit contains:

Qty	Ordering Code	Description
1	CC109150760	23" CPS6000 power shelf (23-AC1-PS4-DC1-LVBD)
1	CC848862532	Single AC input 10 awg for CPS6000
1	CC848880708	Ground Cable Assembly (96")
1	CC408574395	100A Bullet Breaker, alarm on trip and off (Battery)
1	406159236	10A GMT fuse
1	CC848787102	Scotchloks T-Tap Blue connectors (24) kit
1	CC848878553	52B CPS2000 to CPS6000 retrofit transfer cable set 40"
1	CC109142980	CPS6000 Thermal Probe QS873A K4
1	CC848817024	10 FT Connect VT Probe to Controller
1	848742362	Alarm adapter cable from CPS6000 to CPS4000/2000 cabinet wiring
1	108991262	Ringer Housing
1	CC848907691	Job Aid JA-CPS6-002LP / Installation Manual

Retrofit Overview

The CPS6000 power shelf is a compact bulk power system designed with reliability, space conservation, and environmental considerations in mind. This solution is capable of powering any of the seven CommScope 52B DLC/T1 configurations. The CommScope 52B DLC/T1 configurations were deployed with the CPS2000 power shelf. The shelf is hardwired with a single 240Vac 30A service. These systems were typically deployed with 7.2 ampere rectifiers but could have the 9.5 ampere rectifiers installed for a total capacity of 38 amperes.

Before	After

The items below will need to be ordered separately. These items will be required in order to turn-up the CPS6000 power shelf.

Qty	Ordering Code	Description
2	108990082	QS820A Ringer
3	CC109158168	QS861ATEZ Rectifier 15A
1	CC109103181	QS840A-BS1 Controller

*Note: Equipment load requirements should be determined and the appropriate number of rectifiers should be ordered to provide an N+1 system.

CPS2000 Power Shelf Upgrade

52B DSL Cabinet Retrofit Kit

This kit is for upgrade of a CPS2000 power shelf in the CommScope 52B DSL cabinet configuration with the CPS6000 power system.
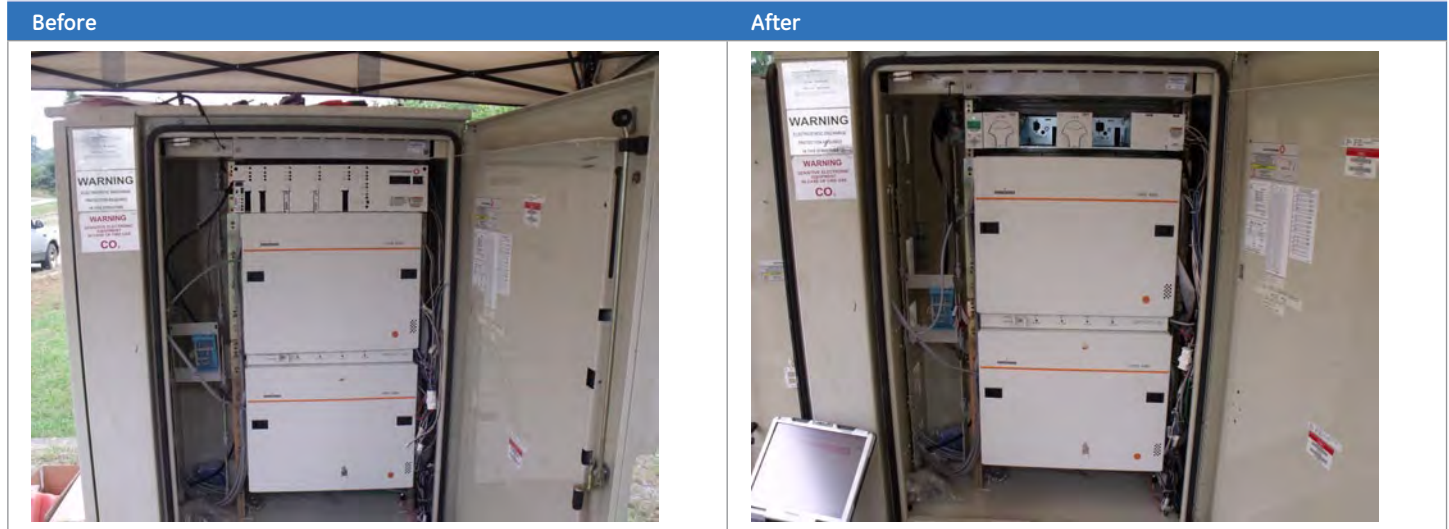
Ordering Code	Description
CC109163457	52B DSL (CPS2000) Retrofit

52B DSL (CPS2000) Retrofit Kit contains :

Qty	Ordering Code	Description
1	CC109150760	23" CPS6000 power shelf (23-AC1-PS4-DC1-LVBD)
1	CC848862532	Single AC input 10 awg for CPS6000
1	CC848879411	Single AC input IEC to Molex Mini-fit Sr adapter cable
1	CC109142980	QS873A K4 Thermal Probe
1	CC848817024	CPS6000 thermal probe cable 10'
1	CC848880708	Ground Cable Assembly
2	407998186	20A Bullet Breaker, alarm on trip only (Load)
1	CC408574395	100A Bullet Breaker, alarm on trip and off (Battery)
2	406700690	15A GMT fuse
1	848742362	Alarm adapter cable from CPS6000 to CPS2000 cabinet wiring
2	405356171	Double hole lug for 10 awg wire. (1/4 inch)
1	CC848878553	52B CPS2000 to CPS6000 retrofit transfer cable
1	CC848787102	Scotchloks T-Tap Blue connectors (24)
1	CC848907717	Job Aid CPS6000 JA-CPS6-007LP / Installation Manual

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Retrofit Overview

The CommScope 52B DSL cabinets were deployed with the CPS2000 power shelf. The shelf may be hardwired with a single 240Vac 30A service. Some configurations utilized an IEC-320 C20 receptacle wired with a single 120Vac 20A service. The kit includes an adapter cable to allow use of the existing power cord in these configurations.

Before	After

The items below will need to be ordered separately. These items will be required in order to turn-up the CPS6000 power shelf.

Qty	Ordering Code	Description
2	CC10915868	QS861ATEZ Rectifier 15A Low and Hi line AC
1	CC109103181	QS840A-BS1 Controller

*Note: Equipment load requirements should be determined and the appropriate number of rectifiers should be ordered to provide an N+1 system.

CPS4000 Power Shelf Upgrade

52B Cabinet with DSL Retrofit Power System

This kit is for upgrade of a CPS4000 power shelf in the CommScope 52B DSL configuration with the CPS6000 power system.

Ordering Code	Description
CC109155850	52B DSL (CPS4000) Retrofit

The CommScope 52B DSL Low Profile -Ultra Density (LP-UD) configurations were deployed with the CPS4000 power shelf. The CPS6000 Retrofit Power System replaces the CPS4000 shelf

52B DSL (CPS4000) Retrofit Kit contains :

Qty	Ordering Code	Description
1	CC109150760	23" CPS6000 power shelf (23-AC1-PS4-DC1-LVBD)
1	CC848871434	CPS6000 to CPS4000 AC Power Adapter
1	CC109142980	QS873A K4 Thermal Probe
1	CC848817024	CPS6000 thermal probe cable 10' VT probe to controller
1	CC848880708	Ground Cable Assembly
1	848742362	Alarm adapter cable from CPS6000 to CPS4000 cabinet wiring
1	407998236	60A Bullet Breaker, alarm on trip only (Load)
1	CC408574395	100A Bullet Breaker, alarm on trip and off (Battery)
2	408555453	20 AGMT fuse
2	402099436	Dummy Fuse
1	CC848907700	Job Aid JA-CPS6-004LP/ Installation Manual

Retrofit Overview

The CommScope 52B DSL Low Profile - Ultra Density (LP-UD) configurations were deployed with the CPS4000 power shelf. The shelf is not wired to an AC distribution panel. A single cable was provided to power only one power slot in the CPS4000. The CPS6000 Retrofit Power System provides an adapter cable that plugs in between the AMP MATE-N-LOK II connector on the existing AC cable and the Molex Mini-fit connector on the CPS6000. This will allow up to two 15 ampere rectifiers to be installed in the CPS6000.

Before	After

The items below will need to be ordered separately. These items will be required in order to turn-up the CPS6000 power shelf.

Qty	Ordering Code	Description
2	108990082	QS820A Ringer
2-3	CC109158184	QS862ATEZ Rectifier 25A
1	CC109103181	QS840A-BS1 Controller

*Note: Equipment load requirements should be determined and the appropriate number of rectifiers should be ordered to provide an N+1 system.

CPS4000 Power Shelf Upgrade

80A Cabinet with DLC Retrofit Power System

This kit is for upgrade of a CPS4000 power shelf in the CommScope 80A DLC configuration with the CPS6000 power system.
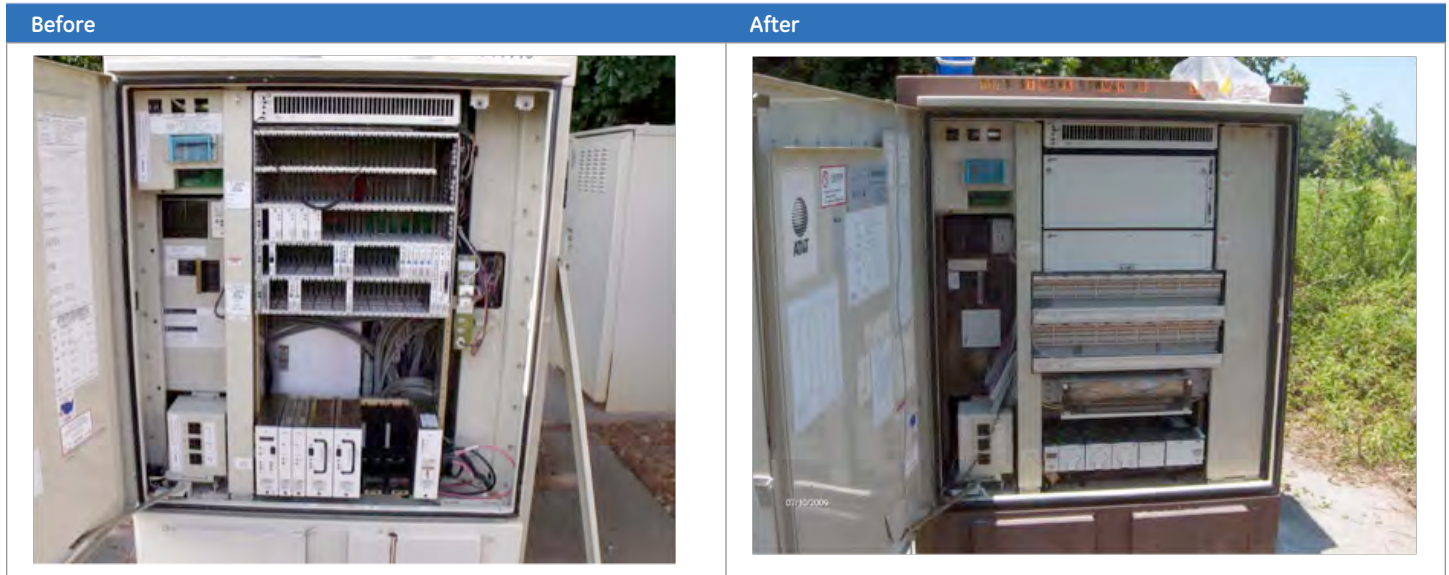
Ordering Code	Description
CC109155867	80A (CPS4000) Bulk Power Retrofit

80A (CPS4000) Bulk Power Retrofit Kit contains :

Qty	Ordering Code	Description
1	CC109150760	23" CPS6000 power shelf (23-AC1-PS4-DC1-LVBD)
2	CC848871434	CPS6000 to CPS4000 AC Power Adapter
3	CC109142980	QS873A K4 Thermal Probe
1	CC848817024	CPS6000 thermal probe cable 10' VT probe to controller
2	848719803	CPS6000 thermal probe cable 6' VT probe to VT probe
1	108991262	QS820A Ringer Housing Chassis
1	CC848880708	Ground Cable Assembly (96")
1	CC848891300	80A CIP Back power Cable 10'
1	848742362	Alarm adapter cable from CPS6000 to CPS4000 cabinet wiring
1	CC848876672	Ringing Adapter Cable for CPS4000 to CPS6000
1	407098474	KS-23616L36 20A breaker
1	407998236	60A Bullet Style Load Circuit Breaker
1	CC408574395	100A Bullet Style Battery Circuit Breaker
1	CC848880716	Job Aid JA-CPS6-005LP/ Installation Manual

Retrofit Overview

The CPS6000 power shelf is a compact bulk power system designed with reliability, space conservation and environmental considerations in mind. The 80A DLC cabinet configurations were deployed with the CPS4000 power shelf. The shelf is hardwired in the AC distribution panel to two 240Vac 20A breakers. The connection on the equipment end is an AMP MATE-N-LOK II connector. The CPS6000 Retrofit Power System is installed utilizing the existing 240Vac 20A services. Two short adapter cables are supplied to connect the existing AC power cables to the CPS6000.

Before	After

The items below will need to be ordered separately. These items will be required in order to turn-up the CPS6000 power shelf.

Qty	Ordering Code	Description
2	108990082	QS820A Ringer
2-3	CC109158168	QS862ATEZ Rectifier 25A
1	CC109103181	QS840A-BS1 Controller

*Note: Equipment load requirements should be determined and the appropriate number of rectifiers should be ordered to provide an N+1 system.

CPS4000 Power Shelf Upgrade

82A Cabinet with DSL Retrofit Power System

This kit is for upgrade of a CPS4000 power shelf in the CommScope 82A DSL cabinet configuration with the CPS6000 power system.

Ordering Code	Description
CC109155875	82A (CPS4000) Bulk Power Retrofit

Retrofit Kit contents :

Qty	Ordering Code	Description
1	CC109150760	23" CPS6000 power shelf (23-AC1-PS4-DC1-LVBD)
2	CC848871434	CPS6000 to CPS4000 AC Power Adapter
3	CC109142980	QS873A K4 Thermal Probe
1	CC848817024	CPS6000 thermal probe cable 10' VT probe to controller
2	848719803	CPS6000 thermal probe cable 6' VT probe to VT probe
1	108991262	QS820A Ringer Housing Chassis
1	CC848880708	Ground Cable Assembly (96")
1	CC848879667	82A CIP Transfer cable 10' with 1/2" x 1" standoffs
1	848742362	Alarm adapter cable from CPS6000 to CPS4000 cabinet wiring
1	CC848876672	Ringing Adapter Cable for CPS4000 to CPS6000
1	407998236	60A Bullet Style Load Circuit Breaker
1	CC408574395	100A Bullet Style Battery Circuit Breaker
1	CC848878264	Job Aid JA-CPS6-006LP/ Installation Manual

Retrofit Overview

The 82A DSL configurations were deployed with the CPS4000 power shelf. The shelf is hardwired in the AC distribution panel to two 240Vac 20A breakers. The connection on the equipment end is an AMP MATE-N-LOK II connector. The CPS6000 Retrofit Power System is installed utilizing the existing 240Vac 20A services. Two short adapter cables are used to connect the existing AC power cables to the CPS6000. The 82A DSL configurations employ up to three strings of front access batteries. These batteries may continue to be used with the CPS6000 retrofit power system.

Before	After

The items below will need to be ordered separately. These items will be required in order to turn-up the CPS6000 power shelf.

Qty	Ordering Code	Description
2	108990082	QS820A Ringer
2-3	CC10915868	QS861ATEZ Rectifier 15A
1	CC109103181	QS840A-BS1 Controller

*Note: Equipment load requirements should be determined and the appropriate number of rectifiers should be ordered to provide an N+1 system.

CPS4000 Power Shelf Upgrade

2030 Cabinet with DSL Retrofit Power System

This kit is for upgrade of a CPS4000 power shelf in the Alcatel LSC-2030 cabinet configuration with the CPS6000 power system.
AC power is provided by two 220Vac 30A receptacles.

Ordering Code	Description
CC109155900	2030 DSL (CPS4000) Retrofit

2030 DSL (CPS4000) Retrofit Kit contains :

Qty	Ordering Code	Description
1	CC109150760	23" CPS6000 power shelf (23-AC1-PS4-DC1-LVBD)
2	CC848871434	CPS6000 to CPS4000 AC Power Adapter
4	CC109142980	CPS6000 Thermal Probe QS873A K4
1	CC848817024	CPS6000 thermal probe cable 10' VT probe to controller
3	848719803	CPS6000 thermal probe cable 6' VT probe to VT probe
1	CC848880708	Ground Cable Assembly
1	CC109155371	Power Connection Panel
1	CC848879667	UFAP temporary return cable set 10'
1	848742362	Alarm adapter cable from CPS6000 to CPS4000 cabinet wiring
1	407998236	60A Bullet Style Load Circuit Breaker
2	CC408574395	100A Bullet Style Battery Circuit Breaker
1	CC848897256	Job Aid CPS6000 JA-CPS6-008LP / Installation Manual

Retrofit Overview

The CPS6000 power shelf is a compact bulk power system designed with reliability, space conservation and environmental considerations in mind. The Alcatel LSC-2030 configurations were deployed with the CPS4000 power shelf. AC power is provided by two 220Vac 30A receptacles. The connections on the CPS4000 end are an AMP MATE-N-LOK II connector. The CPS6000 Retrofit Power Solution is installed utilizing the existing 220Vac 30A services. Two short adapter cables are supplied to connect the existing AC power cables to the CPS6000.

Before	After
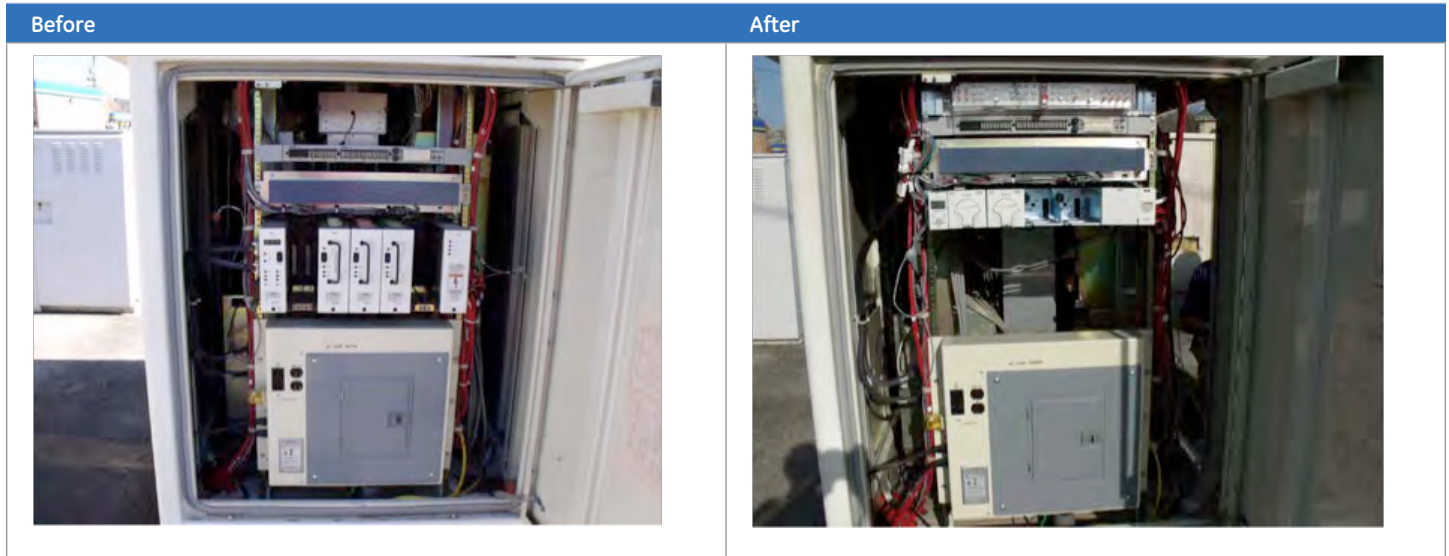
The items below will need to be ordered separately. These items will be required in order to turn-up the CPS6000 power shelf.

Qty	Ordering Code	Description
2-4	CC10915868	QS861ATEZ Rectifier 15A Low and Hi line AC
1	CC109103181	QS840A-BS1 Controller

*Note: Equipment load requirements should be determined and the appropriate number of rectifiers should be ordered to provide an N+1 system.

OLS Power Shelf Upgrade

80D/80E Cabinet with DLC Retrofit Power System

This kit is intended to upgrade legacy OLS bulk power plants found in many 80D-BP and 80E-BP cabinet configurations. The CS787B540 25A power units in the OLS shelf feed an RT-60 Control and Distribution shelf. A CPS6000 shelf is used to replace this plant.
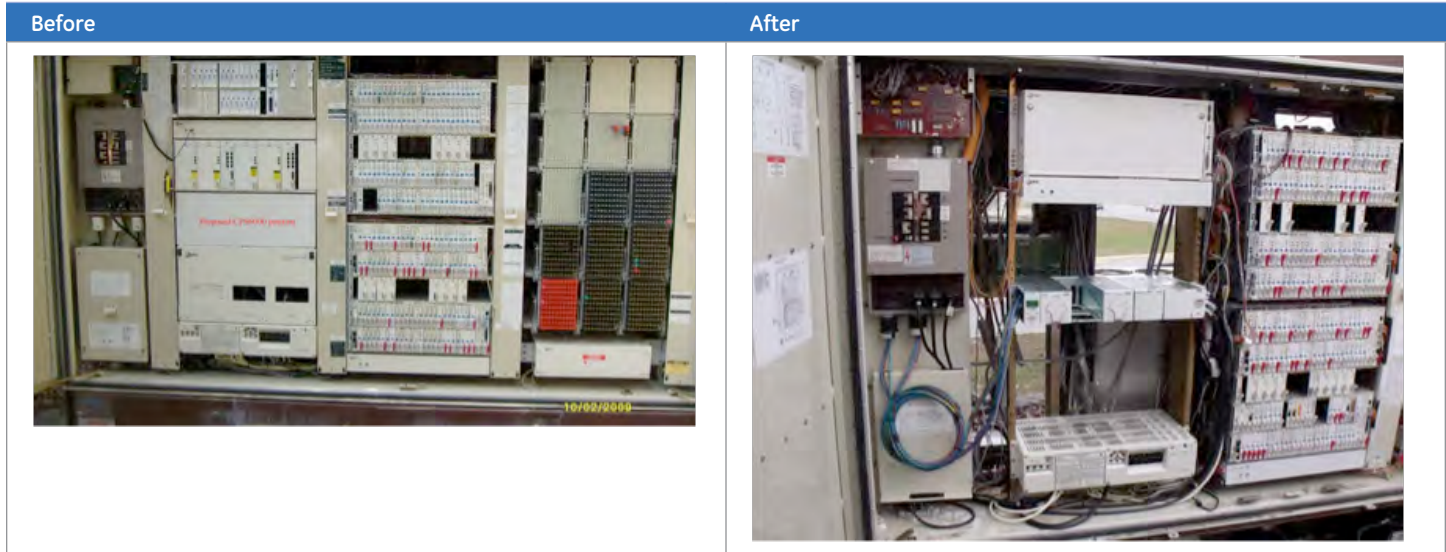
Ordering Code	Description
CC109155883	80D/80E OLS DLC Bulk Power Retrofit

80D/80E OLS DLC Bulk Power Retrofit Kit contents :

Qty	Ordering Code	Description
1	CC109150760	23" CPS6000 power shelf (23-AC1-PS4-DC1-LVBD)
2	CC848878537	6 FT 8 AWG AC Cable Assembly (Molex Mini-fit SR to 20A Plug)
1	CC848878462	OLS Load and Battery Cable Assembly (6 cables)
1	CC848880708	Ground Cable Assembly (96")
1	CC848879551	Ringing adapter for OLS to CPS6000
1	CC848882233	Battery termination plates (2 plates with 4 nuts)
2	407998236	60A Bullet Breaker, Alarm on trip only (Load)
2	CC408574395	100A Bullet Breaker, Alarm on trip and off (Battery)
4	CC109142980	QS873A K4 Thermal Probe
1	CC848817024	Cable 10FT Connect Probe to CPS6000 controller
3	848719803	Cable Assembly 5FT Connect VT Probe to VT Probe
1	848748558	Cable CPS6000 Discrete Office Alarm 25FT
1	108991262	QS820A Ringer Housing Chassis
1	CC848882852	Job Aid JA-CPS6-003LP/ Installation Manual

Retrofit Overview

The CPS6000 power shelf is a compact bulk power system design with reliability, space conservation and environmental considerations in mind. The OLS bulk power plant is an older power system found in many 80D-BP and 80E-BP cabinet configurations. The CS787B540 25A power units in the OLS shelf feed an RT-60 Control and Distribution shelf. The RT-60 distribution shelf provides connection for the battery strings and fault protection for the telecommunication equipment housed in the cabinet.

Before	After

The items below will need to be ordered separately. These items will be required in order to turn-up the CPS6000 power shelf.

Qty	Ordering Code	Description
2	108990082	QS820A Ringer
2-3	CC109158184	QS862ATEZ Rectifier 25A
1	CC109103181	QS840A-BS1 Controller

*Note: Equipment load requirements should be determined and the appropriate number of rectifiers should be ordered to provide an N+1 system.

SLC Retrofit Power System

Ordering Code	Description
CC109163044	Basic SLC Power Shelf Kit

The CPS6000-based SLC Retrofit Power System is designed to be flexible in accommodating different SLC configurations. This solution can handle up to four SLC-Series 5 dual channel shelves or four SLC-96 channel shelves or a combination of two SLC-Series 5 dual channel shelves and two SLC-96 channel shelves. The Basic SLC Power Shelf Kit is required for all solutions with the appropriate combination of SLC and battery cable kits

Basic SLC Power Shelf Kit contents:

Qty	Ordering Code	Description
1	CC109163366	SLC sub assembly (Power Shelf + distribution + misc nuts and bolts + factory assembly)
1	CC848783992	GND cable
1	CC848817024	CPS6000 thermal probe cable 10' VT probe to controller
1	CC109152575	AC Input Dual Power cable with metal mounting bracket.
1	108991262	Ringer Generator Chassis
1	CC848783984	Ringer cable
1	CC848704029	Job Aid JA-CPS6-001LP / Installation Manual

SLC–96 Interface Cable Kit

Ordering Code	Description
CC109163036	SLC–96 Interface Cable Kit

The SLC-96 Interface Cable Kit includes the equipment required to cut over two SLC-96 channel banks.

SLC–96 Interface Cable Kit contents:

Qty	Ordering Code	Description
1	CC848890112	DC Power, Ring Power and Alarm Output from ED83470 G2,B Distribution Panel to SLC 96 Channel Bank
6	406976985	3A GMT fuse
12	406159061	5A GMT fuse
1	CC848818014	Y cable

Note: 1 kit required per two (2) SLC-96 channel banks

SLC Series–5 Interface Cable Kit

Ordering Code	Description
CC109163028	SLC Series–5 Interface Cable Kit

The SLC Series-5 Interface Cable kit includes the equipment required to cut over two SLC Series-5 channel banks to the new power shelf.

SLC Series–5 Interface Cable Kit contents:

Qty	Ordering Code	Description
2	CC848829630	DC Power, Ring Power and Alarm Output from ED83470 G2,B Distribution Panel to SLC series 5 Dual Channel Bank
1	CC848784000	ED83470 G2,B Distribution Panel to 2A Fan Assembly
4	406976985	3A GMT fuse
4	406159236	10A GMT fuse
8	406159061	5A GMT fuse
1	CC848818014	Y cable
1	CC848787102	Jumper Kit. (Scotchloks and Jumper Wires to be used during an installation where dc power is not to be interrupted)

Note: 1 kit required per two (2) SLC-5 Channel Banks

Bulk Battery Cable Kit

Ordering Code	Description
CC10916362	Bulk Battery Cable Kit 2

The bulk battery kit is designed to provide termination to larger battery strings that may be installed in place of the original batteries.

Bulk Battery Cable Kit contains:

Qty	Ordering Code	Description
1	CC848910092	Bulk Battery Cables (one pair, 13ft)
1	CC109142980	QS873A K4 Thermal Probe
1	848719803	Thermal Probe to Thermal Probe (cable 5')
1	CC408574395	100A Battery Breaker

Note: 1 kit required per "Bulk" Battery String

181 Battery Shelf Kit

Ordering Code	Description
CC109163052	181 Battery Shelf Kit

The 181 Battery Shelf Kit is designed to allow the existing 28Ahr batteries typically installed in distributive powered configurations to be reused with the CPS6000 retrofit power system. The cables included in the kit bypass the battery charger circuits in the 181A shelf. This allows the CPS6000 to control charge current and thermal compensation of the batteries.

181 Battery Shelf Kit contains:

Qty	Ordering Code	Description
1	CC848879130	Three way Branch Cable
3	CC848878875	Distributive battery cables
1	CC408574395	100A Battery Breaker
3	848719803	Thermal Probe to Thermal Probe (cable 5')
3	CC109142980	QS873A K4 Thermal Probe

Note: 1 kit required per three (3) 181A Battery shelves

SLC Retrofit Example Applications

80D/80E cabinet equipped with four SLC Series-5 dual channel banks, two J1C182BA power units and six 181A battery shelves.
Order the following:

Qty	Ordering Code	Description
1	CC109163044	SLC Power Shelf Kit
2	CC109163028	SLC-5 Cable Kits
2	CC 109163052	181A Battery Kits

Modular plug-ins not included in Kits – order Rectifiers / Ringers separately

80C cabinet equipped with four SLC-96 channel shelves, two 3B battery chargers, two 1A jack panels and six 181A battery shelves. Order the following:

Qty	Ordering Code	Description
1	CC109163044	SLC Power Shelf Kit
2	CC109163036	SLC-96 Cable Kits
2	CC 109163052	181A Battery Kits

Modular plug-ins not included in Kits – order Rectifiers / Ringers separately

80C cabinet equipped with two SLC-96 channel shelves, one 3B battery charger, two SLC Series-5 dual channel banks, one J1C182BA power unit and two newly installed 100Ahr battery strings. Order the following:

Qty	Ordering Code	Description
1	CC109163044	SLC Power Shelf Kit
1	CC109163028	SLC-5 Cable Kit
1	CC109163036	SLC-96 Cable Kit
2	CC 109163622	Bulk Battery cable Kits

Modular plug-ins not included in Kits – order Rectifiers / Ringers separately

Pre-configured SLC Retrofit Power Systems

80D Cabinet Distributed Power SLC Series-5 Retrofit Kit

Kit to upgrade two J1C182B distributive power plants in an 80D cabinet equipped with four SLC Series-5 Dual channel banks and six 181A battery shelves
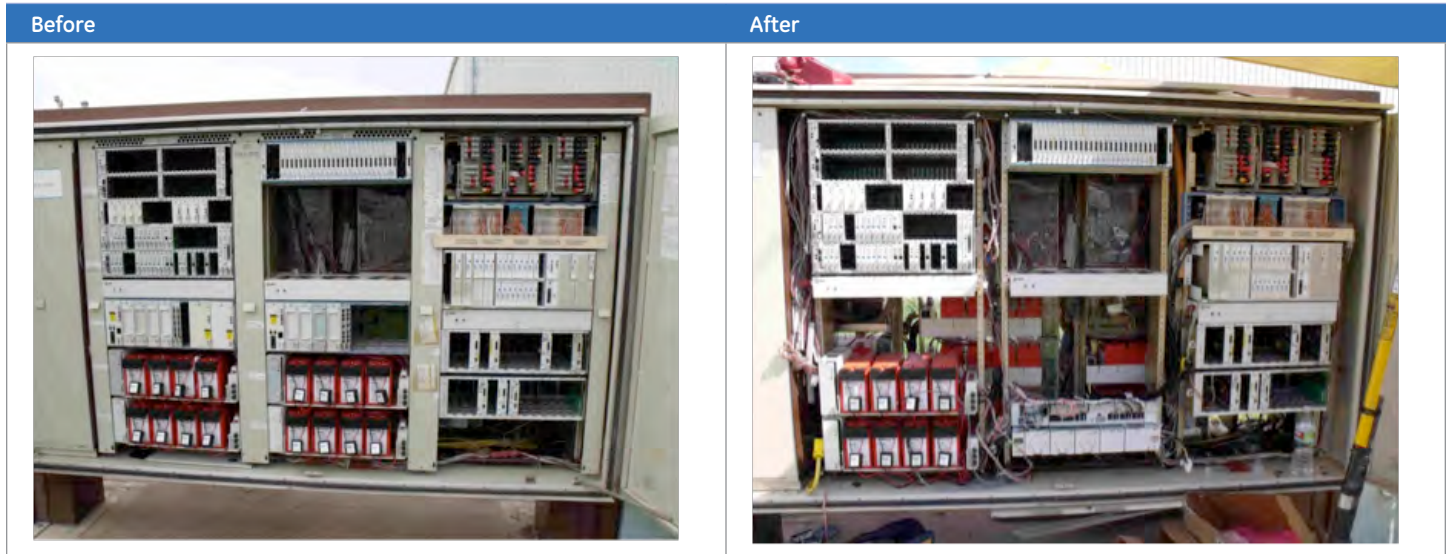
Ordering Code	Description
CC109155891	80D Cabinet Distributed Power SLC Series-5 Retrofit Kit

80D Cabinet Distributed Power SLC Series-5 Retrofit Kit contains :

Qty	Ordering Code	Description
1	CC109163366	SLC sub assembly (Power shelf + distribution + misc nuts and bolts + factory assembly)
1	CC848783992	GND cable
1	CC848817024	CPS6000 thermal probe cable 10' VT probe to controller
1	CC109152575	AC Input Dual Power cable with metal mounting bracket.
1	CC848787102	Jumper Kit. (Scotchloks and Jumper Wires to be used during an installation where dc power is not to be interrupted)
1	108991262	Ringer Generator Chassis
1	CC848783984	Ringer cable
4	CC848829630	DC Power, Ring Power and Alarm Output from ED83470 G2,B Distribution Panel to SLC series 5 Dual Channel Bank
2	CC848784000	Cable - ED83470 G2,B Distribution Panel to 2A Fan Assembly
8	406976985	3A GMT fuse
8	406159236	10A GMT fuse
16	406159061	5A GMT fuse
2	CC848818014	Y cable
2	CC848879130	Distributive battery cables
6	CC848878875	Distributive battery cables
2	CC408574395	100A Battery Breaker
6	848719803	Thermal Probe to Thermal Probe (cable 5')
6	CC109142980	QS873A K4 Thermal Probe
1	CC848704029	Job Aid JA-CPS6-001LP / Installation Manual

Retrofit Overview

The CPS6000 Retrofit Power System operates from two 120Vac 20A services. Three QS861A 15 ampere rectifiers provide a maximum current of 45 amperes total. This solution is capable of powering four (4) SLC-5 Dual Channel Banks from a single distribution shelf. The typical 80D distributed power configurations that employ the J1C182BA power apparatus utilize up to six 181A battery shelves. Each 181A will hold one -48 VDC string of 28 Ahr VRLA batteries. It is recommended that the 181A power shelves be removed and a battery box be added below the cabinet.

Before	After

The items below will need to be ordered separately. These items will be required in order to turn-up the CPS6000 power shelf.

Qty	Ordering Code	Description
2	108990082	QS820A Ringer
2-3	CC109158168	QS861ATEZ Rectifier 15A
1	CC109103181	QS840A-BS1 Controller

*Note: Equipment load requirements should be determined and the appropriate number of rectifiers should be ordered to provide an N+1 system.

Shelf for Upgrade of Ringer Units

19" CPS6000 Shelf with bulk DC option

This shelf is a standard CPS6000 power shelf that is used for housing a dual redundant ringer units. Each ringer has a capacity of 100VA at 20Hz.

The shelf is fed 54V DC from the existing power plant and supplies the ringing signal. The unit is intended for deployment without a shelf controller, and in this deployment NO ringer alarms are available.

Ordering Code	Description
CC109161147	19" CPS6000 Shelf - 19-AC5-PS4-BULK-EDGE

The items below will need to be ordered separately. These items will be required in order to turn-up the CPS6000 ringer shelf.

Qty	Ordering Code	Description
2	108990082	QS820A Ringer

CPS6000 TE Rectifiers

The CPS6000 TE rectifiers are designed to operate in harsh temperature environments converting AC power to DC power. Integrated into the CPS6000 Power System, the Total Efficiency™ QS Series Rectifiers provide a battery reserve system with battery management features such as slope thermal compensation, low-voltage disconnect, battery high temperature alarm and shorted cell detection.

Applications

- OSP Cabinets
- DSL Equipment
- Customer Premise
- Indoor/outdoor wireless
- Fiber in the loop
- Digital Loop Carrier
- Data networks
- PBX

Key Features

- Extended temp range
- Redundant fan cooling
- Front panel LED indicators
- 2U height, minimized depth
- Analog load sharing
- Constant Power Operation
- Hot pluggable
- RoHS compliant

Input/Output

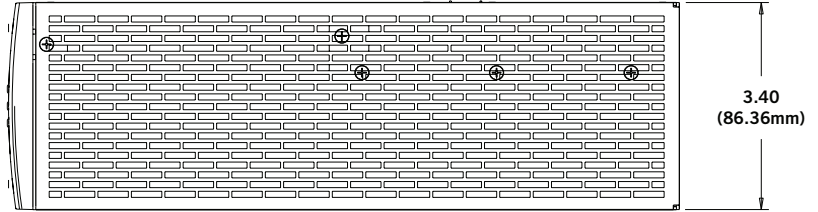| Ordering Code	Rectifier Model Number	Nominal Output Current	Input Voltage*	Input Amps	Output Power**	Heat Dissipation
CC109158176	QS860ATEZ Rectifier	10A	85-150Vac	5.0A	545 W	184 BTU
		10A	165-275Vac	2.8A	545 W	162 BTU
CC109158168	QS861ATEZ Rectifier	15A	85-150Vac	7.3A	818 W	210 BTU
		15A	165-275Vac	4.2A	818 W	162 BTU
CC109158184	QS862ATEZ Rectifier	25A	85-150Vac	12.0A	1362W	339 BTU
		25A	165-275Vac	6.9A	1363 W	245 BTU
CC109161758	QS863ATEZ Rectifier	25A	85-150Vac	12.0A	1362 W	339 BTU
		30A	165-275Vac	8.3A	1635 W	318 BTU
CC109158151	QS864ATEZ Rectifier	25A	85-150Vac	12.0A	1362 W	339 BTU
		40A	165-275Vac	11.1A	2180 W	424 BTU
CC109149340	QS865ATEZ Rectifier	25A	85-150Vac	12.0A	1362 W	339 BTU
		50A	165-275Vac	14.0A	2725 W	614 BTU
CC848902841	CPS6000 Insulating Rectifier Slot Filler					
150019315	QS-Blank Rectifier Chassis					

Environmental

Operating Temperature	-40°C to +75°C (-40°F to 167 °F)
Storage Temperature	-40°C to +85°C (-40°F to 185 °F)
Power Derating	> +55°C
Relative Humidity	0 to 95% non-condensing
Altitude	4000m max
Audible Noise	< 60dBA

Specifications

Operating Voltage Range	42-58 Vdc
Boost Voltage	48-58 Vdc
Operating Frequency	45-66Hz
Output Voltage Regulation	+/- 0.5%
Output Ripple Noise	250mV
Psophometric Noise	2 mV
Power Factor	>0.95 for >50% loads
Total Harmonic Distortion	<5% at full load for QS863/QS864/QS865
	<10% at full load for QS860/QS861/QS862

Mechanical

Length (in. / mm)	11.2 / 285
Width (in. / mm)	3.4 / 87
Height (in. / mm)	3.4 / 87
Weight (lbs. / kg)	5.75 / 2.6

Safety and Compliance

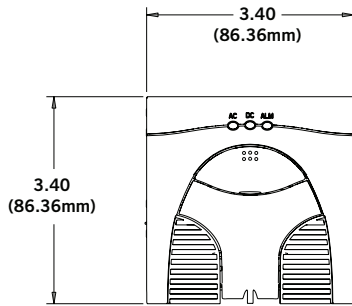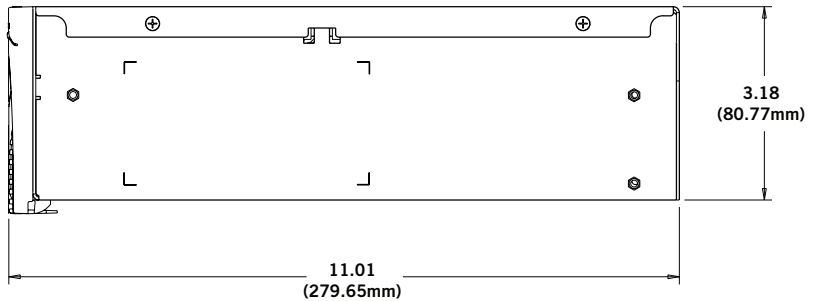|	
NEBs	Evaluated by independent NRTL test lab to Telcordia GR63 and GR1089-CORE, Issue 4 NEBs Level 3 Certified Zone 4 rated (all floor)
Safety	CE mark to low Voltage Directive 2006/95/EC and EMC Directive 2004/108/E UL 609501-1 Recognized CSA C22.2 No. 60950-1-03 Certified
RoHS	Compliant to RoHS EU Directive 2002/95/EC
EMC	FCC and EN 55022 Class B, FCC Class B
ESD	EN61000-4-2 Level 4

Dimensions

Outline Drawing

3.40
(86.36mm)

TOP VIEW

3.40
(86.36mm)

3.40
(86.36mm)

AC DC ALM

FRONT VIEW

3.18
(80.77mm)

11.01
(279.65mm)

SIDE VIEW

Step 2: Select Rectifiers and Ringers

Ordering Code	Rectifier Model Number	Nominal Output Current	Input Voltage*	Input Amps	Output Power**	Heat Dissipation
CC109158176	QS860ATEZ Rectifier	10A	85-150Vac	5.0A	545 W	184 BTU
		10A	165-275Vac	2.8A	545 W	162 BTU
CC109158168	QS861ATEZ Rectifier	15A	85-150Vac	7.3A	818 W	210 BTU
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CC109149340	QS865ATEZ Rectifier	25A	85-150Vac	12.0A	1362 W	339 BTU
		50A	165-275Vac	14.0A	2725 W	614 BTU
CC848902841	CPS6000 Insulating Rectifier Slot Filler					
150019315	QS-Blank Rectifier Chassis					

| Ordering Code	Description				Photo
		Output Current	Input Voltage	Input Amperage	
108990082	QS820A Ringer	1 or 2 Ringers plug into Ringer Chassis.			
108991337	QS820A Ringer Kit	Chassis occupies a single slot in the rectifier shelf (includes 1 ringer)			
847922101	Ringer Output Cable (connects to Ringer Chassis)	15-foot cable			
CC848804765		150-foot cable			
Ringers convert -48Vdc to a 100VA ringing power output with configurable ac voltage, ac frequency, and dc offset. The ringing output can be either Redundant (1+1 ringer module) or non-redundant (1 ringer module). The QS820M ringer chassis mounts in the rightmost available power slot.					

Step 3: Select Alarm Cables

Ordering Code	Description	Photo
CC848817651	50ft Auxiliary input alarm cable for Pulsar Plus Controller	
CC848817668	150ft auxiliary input alarm cable for Pulsar Plus Controller	
CC109157442	15ft alarm cable for Pulsar Plus Controller (for systems with external distribution)	
CC848817635	50ft alarm cable for Pulsar Plus Controller (for systems with external distribution)	
CC848817643	150ft alarm cable for Pulsar Plus Controller (for systems with external distribution)	
CC848890178	15ft alarm cable for Pulsar Edge Controller	
CC848890186	50ft alarm cable for Pulsar Edge Controller	
CC848890194	150ft alarm cable for Pulsar Edge Controller	

Step 4: Select Battery Monitoring

Ordering Code	Description		Photo
CC109142980	QS873A Thermal Probe (A)		
CC848817024	10 ft wire set	(B: thermal probe to controller)	
CC109157434	20 ft wire set	(B:thermal probe to controller)	
CC848822560	1 ft wire set	(C: thermal probe to thermal probe)	
848719803	5 ft wire set	(C: thermal probe to thermal probe)	
CC848822321	10 ft wire set	(C: thermal probe to thermal probe)	
850027334	20 ft wire set	(C: thermal probe to thermal probe)	
108958422	ES771A Battery Voltage Monitor Card		
CC848791517	2-1/2 ft wire set	(D: ES771A to thermal probe)	
CC848797290	6 ft wire set	(D: ES771A to thermal probe)	
848719829	10 ft wire set	(D: ES771A to thermal probe)	
CC848791500	4 ft wire set	(G: ES771A to ES771A or controller)	
848652947	10 ft wire set	(G: ES771A to ES771A or controller)	
555052-1	In-Line Coupler		

Temperature/Voltage probes are needed for battery monitoring. They are connected to each battery or battery string to provide slope thermal compensation, temperature alarms and voltage imbalance alarms.
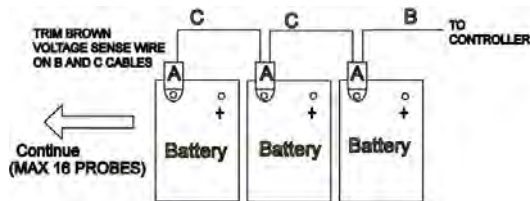
Temperature Measurement
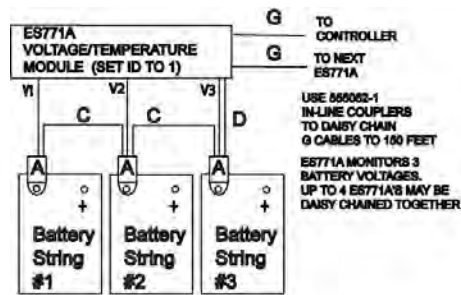
Temperature and Voltage Measurement

Step 5: Select Circuit Breakers or Fuses

Breakers

Ordering Code	Amperage	Ordering Code	Amperage	Photo
Bullet Battery Circuit Breakers (Yellow Handle) (Alarms on Mid-trip and in Off position)				
CC408612758	30	CC408574387	70	
CC408612766	40	CC408574395	100 (2-pole)	
CC408612774	45			
CC408574370	50			
408560123	60			
CC109106548	100A battery bullet bus strap (substitute for battery breaker)			
Bullet Load Circuit Breakers (Alarms on Mid-trip)				
407998137	3	407998236	60	
407998145	5	407998244	70	
407998152	10	407998251	80	
407998160	15	407998269	90	
407998186	20	407998277	100	
407998194	25	CC848808551	100 (2-pole)	
407998202	30			
408213486	40			
407998210	45			
407998228	50			
850021775	2-pole Adapter bus for 100-150A breakers; used for 3/8" on 1" Lugs (order 2 per 2 pole breaker to accommodate load and return lugs)			
850021955	3-pole Adapter bus for 200-250A breakers; Centered Connection (order 2 per 3 pole breaker to accommodate load and return lugs)			

Step 5: Select Circuit Breakers or Fuses (cont.)

Fuses

Ordering Code	Amperage	Ordering Code	Amperage	Photo
Bullet Style Fuse Holder and TPS Fuses				
406700567	3	406700633	25	
406700583	5	406700641	30	
406700591	6	406700658	40	
406700609	10	406700674	50	
406700617	15	406700682	60	
406700625	20	406700690	70	
402328926	0.18 Alarm Fuse			
408548944	Bullet Fuse Holder, TFD-101-011-09 (Alarms on Blown Fuse or Fuse Removal)			
CC408617410	Bullet Fuse Holder, TFD-101-011-10 (Alarms on Blown Fuse Only)			
GMT Fuses				
405006222	0.25A	406159061	5A	
3150439	0.5A	405725433	7.5A	
401841473	1A	406159236	10A	
405673146	1.33A	407845197	12A	
405181983	2A	406473959	15A	
406976985	3A	408555453	20A	
Fuse Accessories				
408515823	Fuse Puller			
402099436	Dummy Fuse			
CC109103157	6 Position GMT Bullet Fuse Holder			

Step 6: Select Lugs

Ordering Code	STR Wire GA (Class B)	Flex Wire GA (Class I)	WP-91412 List	Photo
Straight Lug (1/4" bolt on 5/8" centers) for DC1, DC2 Rear Output, DC4 Top Battery				
406021626*	8	8	75	
405347519*	6	6	3	
405347576*	4	4	5	
405348202*	2	–	54	
405347683*	–	2	8	
Straight Lug (#10 bolt on 5/8" centers) for DC2, DC3, DC4, DC6 Load Connections				
405356171*	14-10	14-10	73	
405348178*	8	8	52	
406338400*	6	6	108	
Straight Lug (1/4" bolt on 3/4" centers) for DC5 Rear Output				
406338343	8	8	103	
406338442	6	6	110	
406338574	4	4	117	
406338673	2	–	122	

* Order 848201919 Hardware Kits (grade 2) for each Return Lug. Hardware is provided for Load Lugs.

Step 7: Select Optional Accessories

Ordering Code	Description	Photo/Description
848683009	19" to 23" Adapter Bracket Kit	
850022254	Battery Lug Connection Bus Kit Used to expand bulk battery landing capacity on external distribution panels. Order (1) for -48V and (1) for Return	
CC109160446	Distribution Hardware Kit	
150024415	Perpendicular Wall mount bracket (shelf stands off from the wall)	
CC848864504	Flush wall mount bracket (shelf is flat on the wall)	
CC408628515	5-15P 15A 120V straight male AC plug	
CC408644917	L6-15P 15A 120V twist lock male AC plug	
CC408642961	L5-20P 20A 120V twist lock male AC plug	
CC408627062	L6-15P 15A 240V twist lock male AC plug	
402530976	L6-30P 30 amp twist lock male AC plug	
450024122	L6-30R 30 amp twist lock female AC connector	
450024416	L6-50P 50 amp twist lock plug	
450024417	L6-50R 50 amp twist lock connector	

GE

Notes:

Management Visibility

Galaxy Manager™ software is the centralized visibility and control component of a comprehensive power management system designed to meet engineering, operations and maintenance needs. The Galaxy Manager client-server architecture enables remote access to system controllers across the power network.

- Dashboard display with one-click access to management information database
- Trend analysis
- Scheduled or on demand reports
- Fault, configuration, asset, and performance management

Training

GE Energy offers on-site and classroom training options based on certification curriculum. Technical training can be tailored to individual customer needs. Training enables customers and partners to more effectively manage and support the power infrastructure. We have built our training program on practical learning objectives that are relevant to specific technologies or infrastructure design objectives.

Service & Support

GE Energy field service and support personnel are trusted advisors to our customers – always available to answer questions and help with any project, large or small. Our certified professional services team consists of experts in every aspect of power conversion with the resources and experience to handle large turnkey projects along with custom approaches to complex challenges. Proven systems engineering and installation best practices are designed to safely deliver results that exceed our customers' expectations.

Warranty

GE Energy is committed to providing quality products and solutions. We have developed a comprehensive warranty that protects you and provides a simple way to get your products repaired or replaced as soon as possible.

For full warranty terms and conditions please go to www.ge.com/powerelectronics.

Contact Us

For more information, call us toll free at **+1 877 546 3243**, or +1 972 244 9288 and visit us on the web at **www.ge.com/powerelectronics**

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