ORDERING GUIDE

CPS6000 Plant Systems

-48V DC Rack Power Solution

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CPS6000 Plant Systems
-48V DC Rack Power Solution

Overview

The 48V CPS6000-M2 Power Plant is a 23 inch wide, front access, frame mounted battery plant. The system integrates the QS series rectifiers and ringers, extensive dc distribution options, battery connections and the Galaxy Millennium II controller in 500A and 1000A capacity systems. The system operates directly from commercial power in 208/220/240Vac single phase @ 50/60Hz. 110Vac operation is also available with some rectifiers. AC connects to a terminal block panel at the top of the system.

Shelf / System Options

CPS6000 Plant is a -48Vdc rack mounted power system that includes high density rectifier shelves and extensive distributions shelves with the QS series rectifiers and ringers found in the CPS6000 product line. The CPS6000 Plant Power System can be configured in both 42" and 84" tall 23" wide racks with optional battery trays.

Rectifier/Ringer Options

The CPS6000 has a wide range of rectifiers from 15A to 50A with input voltages both in 120V and 208/240V nominal for worldwide application. The entire line of rectifiers is designed for operation in the temperature range -40C to +75C. The CPS6000 is also available with the ringer module for 100VA ring voltage generation with true 1+1 redundancy for reliable remote terminal deployment.

Galaxy Millennium II Controller

The Galaxy Millennium II controller combines sophisticated power monitoring and remote management. This flagship controller simplifies operations and maintenance while lowering administrative costs. Remote peripheral modules support over 500 monitoring points for OmniOn or third party devices. Ethernet, SNMP, and TL1 provide integration with power engineering and NOC workflow

- Rack systems up to 1000 Amps

- 15" depth, ideal for limited spaces

- 96% efficiency

- Rectifier commonality with CPS6000 OSP systems

- Deployed in small central offices, hut/ vault, and large customer premise applications

- Available battery trays for stand alone deployment

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Benefits

Rack Based Power System

- Vertical Airflow

- Comprehensive distribution options

- Optional battery trays for complete power rack solution

Intelligence

- Industry leading controller features

- Ethernet interface for remote access

- Centralized network management

Investment Protection

- Rectifier commonality with CPS6000 shelf

On Time Delivery

- 4 – 6 week availability

- 24/7 technical support

- Standard building blocks

Total Efficiency

The OmniOn 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.

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![OmniOn Power logo]

CPS6000 QS-TE Rectifiers

The CPS6000 rectifiers are designed to operate in harsh temperature environments converting AC power to DC power. Integrated into the CPS6000 Power System, the Total Efficiency (TM) 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					

*Operating frequency range 45-66Hz

**Nominal Output voltage is 54.5Vdc

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

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

Specifications	
Operating Voltage	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/
	<10% at full load for QS860/QS861/

Safety and Compliance	
NEBs	Evaluated by independent NRTL test lab toTelcordia GR63 and GR1089-CORE, Issue 4NEBs Level 3 Certified Zone 4 rated (all floor)
Safety	UL 609501-1 Recognized CSA C22.2 No. 60950-1-03 Certified
RoHS	Compliant to RoHS Directive 2011/65/EU and amended Directive (EU) 2015/863.
EMC	FCC and EN 55022 Class B, FCC Class B
ESD	EN61000-4-2 Level 4

Dimensions

Outline Drawing

TOP VIEW

FRONT VIEW

SIDE VIEW
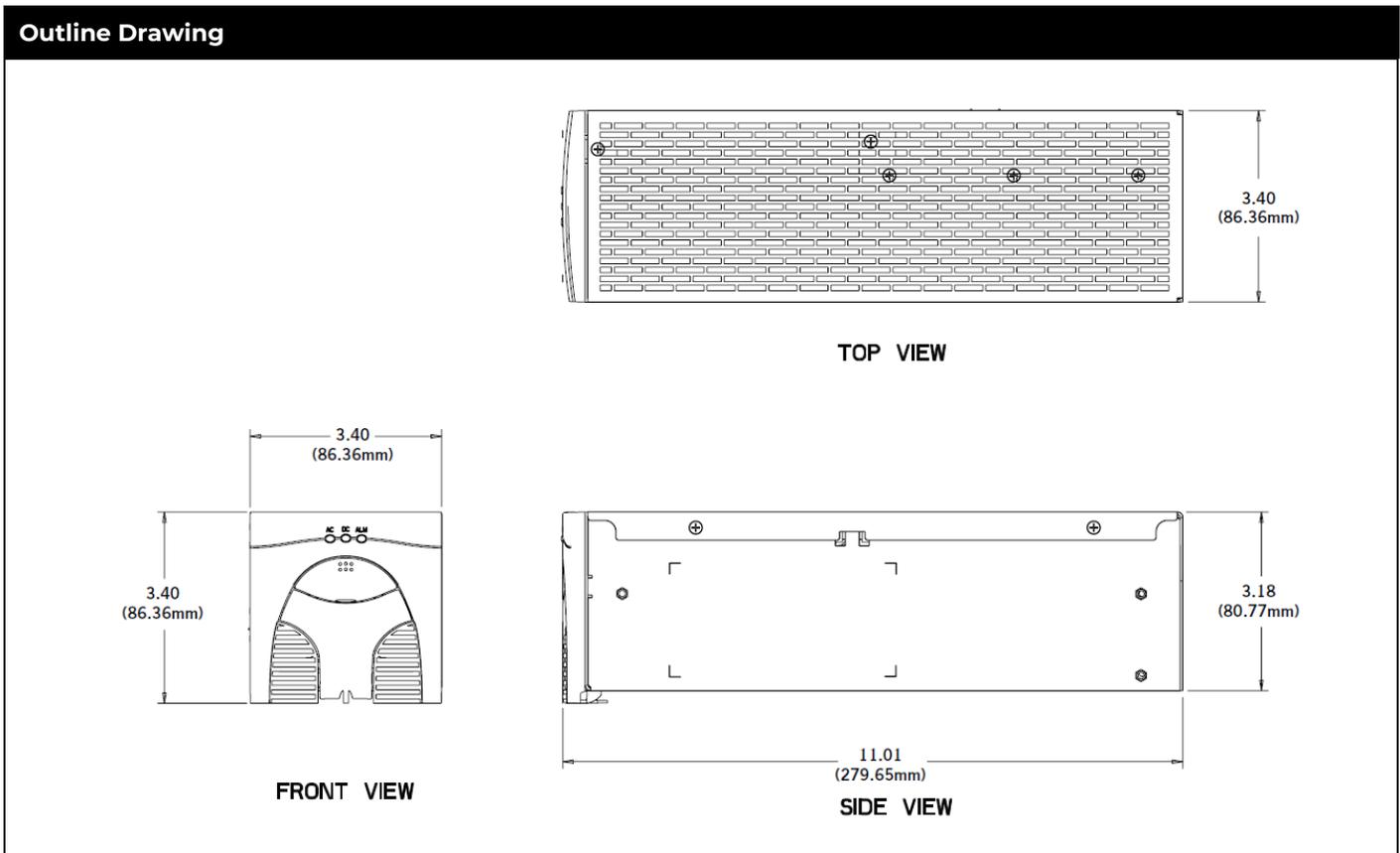
Galaxy Millennium™ II Controller

Galaxy Millennium II is our flagship controller designed to meet the needs of the most advanced power systems. Building on the Galaxy Millennium platform, the Galaxy Millennium II delivers state-of-the art performance by combining sophisticated control, monitoring, and remote network access previously on three separate circuit packs into a single integrated unit. The controller has been designed to simplify plant administrative and surveillance routines as well as reduce operating, provisioning, and personnel expenses.

Configuration of the Galaxy Millennium II can be performed via menu based front panel display, a local terminal or remote modem using EasyView2, or through a local or remote network connection utilizing standard web browsers or network protocols. In addition to its standard integrated monitoring capabilities, this controller offers extensive external monitoring using bay interface cards (BICs), distribution control cards, and remote peripheral monitoring modules (RPMs) designed for various inputs and transducers. Additional external relay contacts are also available.

The Galaxy Millennium II, with integrated network access, allows for advanced network supervision using standard network management protocols and available network management software. The OmniOn Galaxy Manager network management software can be used to meet power system engineering, operations and maintenance needs. Via the World Wide Web, users gain access to live data and information logged into Galaxy Manager's centralized server from each monitored system controller across the power network.

Applications

- Infinity NE-M
- CPS6000-M2
- GPS 4848/100
- Galaxy Vector controller upgrades

- GPS 4812/24
- GPS 2424
- Stand-alone monitoring applications
- Galaxy Millenium upgrades & replacements

Key Features

Remote Access and Features

- Integrated 10/100Base-T Ethernet Network capability
  - TCP/IP
  - SNMP Version 2c for remote management
  - SMTP for email
  - Telnet for remote command line interface
  - TL-1
  - DHCP for network plug-n-play
  - FTP for rapid backup and upgrades

  - HTTP for standard and custom web pages for standard browsers
  - Compatible with Galaxy Manager and other standard network management packages
  - Standard shielded RJ-45 interface referenced to chassis ground
- Optional Data switch
  - Connections to 3 standard RS-232 devices for pass-through and alarm management
  - BSN extension to provide 3 additional RS-232 serial connections

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Key Features (continue)

- Configurable RS-232/485 port for remote via TL1/X.25
  - EasyView2, Windows-based software, for configuration and reporting through local terminal or Modem connections
  - Multiple password-protected security levels: User, Super-User, Administrator for all access

Standard System Features

- Monitoring and control of up to 85 RS485 serial connected devices
  - Maximum of 85 serial switch mode rectifiers
  - Maximum of 32 bay interface cards (BICs)
  - Maximum of 16 serial converters
- Standard and custom User Defined system alarms
  - Alarm cut-off
  - Alarm test
  - Multiple-level alarm severity: Critical, Major, Minor, Warning, and record-only
- Standard rectifier management features
  - Automatic rectifier restart
  - Reserve engine transfer
  - Adaptive Rectifier Management (ARM)/ Energy Efficiency
  - Remote rectifier (on/off) control
  - Automatic rectifier sequence control
  - N + X redundancy check
- Low Voltage Load and Low Voltage Battery Disconnect Options (3)
- Various levels of configuration, statistics, and history
  - All stored in non-volatile memory
  - Remote and local backup and restore of configuration data
- Remote and local software upgrade
- Basic, busy hour, and trend statistics kept
- Detailed history kept
- Maintenance reminders

- Inventory management
- User defined events and derived channels
- Hardware DIP switch access control

Standard Battery Management Features

- Float/boost mode control
  - Manual front panel boost
  - Manual timed boost locally, T1.317, and remotely initiated
  - External timed boost
  - Battery thermal protect module (BTP)
  - Auto boost terminated by time or current
- Battery discharge testing
  - Manual
  - Periodic
  - Plant Battery Test (PBT) input driven
- Slope thermal compensation
  - High temperature compensation
  - Low temperature compensation
  - Step temperature
  - STC Enable/Disable, low temperature Enable/ Disable
  - mV/°C adjustments
- High temperature disconnect/step setting
- Sophisticated reserve-time prediction
  - User configurable system reserve low alarm during normal operation
  - User configurable reserve time low alarm
- Recharge current limit
- Integrated "At Rate Calculator" for estimation purposes
- Battery discharge trace data
- Emergency Power-Off Input
- Lithium battery fail input

Features

Integrated Outputs

- Traditional office alarm interface with 19 Form-C alarm outputs (60VDC @.3A)

  - Standard default assignments: Power Critical-Audio, Power Critical-Visual, Power Critical-External, Power Major   -Audio, Power Major-Visual, Power Major-External, Power Minor-Audio, Power Minor-Visual, Power Minor   -External, Major Fuse (MJF), Minor Fuse (MNF), Battery On Discharge (BD), AC Fail (ACF), Rectifier Fail, High Voltage (HV), Very Low Voltage (VLV), Controller Fail, User Relay 1, User Relay 2

    - 16 Form-Cs are user assignable

- 1 1/3A Auxiliary Battery Supply (ABS) Output

Remote Peripheral Monitoring & Control

- Modular monitor and control growth options for up to 95 monitoring modules optimized for DC voltage and shunt monitoring, binary input detection, temperature monitoring, external transducer monitoring

- Additional Form-C relay output control available

- Devices managed and powered by the controller via one twisted-pair cable over distances of 300m or more

- Daisy-chain connections from module to module reduce installation

- costs and cable congestion

- Modules can be located near monitored source

- Various panels for rack-mounting available

Enhanced Battery Management Features

- Battery discharge test options including periodic and manual tests (local/ remote) with configurable thresholds or 20% discharge algorithm

- State of charge indication

- Rectifiers on-line during test (minimize risk to service)

- Discharge data stored in non-volatile memory. Graphical data available

- Accurate battery reserve time calculations that factor in battery specific parameters, plant voltage, load, temperature, number of battery strings and number of cells per string

- Thermal compensation (STC) and recharge current limit to maximize battery life

Extensive Plant and Monitoring Statistics

- Real-time data and historical statistics help analyze critical

- performance parameters

- Statistics for planning preventive or corrective maintenance before serious problems occur

Derived Channels

- 32 derived channels enable arithmetic and Boolean operations to be performed on measured values to allow customer specific parameters such as output power to be calculated and managed

Rectifier Management

- Energy Efficiency, provides ability to automatically shutdown selected rectifiers during low plant loads maintaining maximum battery plant efficiency without sacrificing reliability

- Provides Reserve Operation feature for maintaining designated number of rectifiers on during Engine runs as well as proper sequencing for generators

- Provides ability to transfer rectifiers (TR1-TR4) on in certain sequences for return of AC

Galaxy Manager Compatible

- Centralized web server and database with multiple user access to live or managed data with drill down to problem details

- Monitor and control of more than 40 connected devices

- Management information from polling or alarms received from alarm traps from multiple sites are available on one screen via the inter/ intranet

- Trend user selected data over time

- Automatic or manual report generation

- Standard engineering tools like reserve time calculators and cable voltage drop analyzer

Specifications

General	
Operating Voltage	± 24Vdc, ± 48Vdc (Range: ± 18 to ±60Vdc)
Input Power	36W (depending on
Operating Temperature Range	-40°C to +75°C (-40 to 167°F)
Storage Temperature	-40°C to +85°C (-40 to
Operating Relative Humidity	0 - 95% (non-condensing)
Physical Specifications	9.24" H x 20.76" W x 2.14"
Display	8-line by 40-character backlit LCD

Agency Certifications	
NEBs	Evaluated by independent NRTL test lab toTelcordia GR63, Issue 3 and GR1089-CORE, Issue 5 (including level 3 testing)
EMC (Emissions)	FCC and EN 55022, Class B; FCC, Class B;GR1089-CORE, Issue 5
Safety	UL Listed Component as Part of GPS Power System

Specifications

AC Input	
Input Distribution	Terminal Block connection per rectifier protected by 20A breaker or fuse at AC service
Wire Size	10 AWG minimum for individual feeds.
DC Output	
System Voltage	-48V
Output Current	15A - 1000A
Low-Voltage Disconnect	39 to 50 Vdc
Low-Voltage Reconnect	39 to 55 Vdc
Mechanical	
Height	17 to 22RU 23" rack mount systems
Width (with mounting ears)	23 inches (584mm)
Depth	15 inches (381mm)
Weight	70lbs to 300lbs for rack mounted systems with optional battery trays included
Safety / Standards Compliance	
Safety Agency Approvals	Underwriters Laboratories (UL) Listed per Subject Letter 1801: Power Distribution Center for Communications Equipment, and cUL Certified (CSA 22.2 950): Safety of Information Technology Equipment VDE licensed to VDE0805/EN60950 Rectifiers are individually UL Recognized (UL1950), cUL Certified (CSA 22.2 234) or evaluated to EN60950 by an EC Notified Body, as appropriate.
European Economic Community Directives	EMC Directive 89/336/EEC, Low Voltage Directive 73/23/EEC as amended by Marking Directive 93/68/EEC
Radiated and Conducted	FCC Part 15, Class A EN55022 (CISPR22), Class A
Harmonics	EN61000-3-2 (IEC61000-3-2)
Voltage Fluctuations	EN61000-3-3 (IEC61000-3-3)
Electromagnetic Immunity	Meets Telcordia GR-1089-CORE
Electrostatic Discharge	EN61000-4-2 Level 3
RF Immunity	IEC61000-4-3 Level 3, 10 V/m
EFT	IEC61000-4-4 Level 3, No Error; Level 4, No Damage
Surge	IEC 61000-4-5 Level 3, No Error; Level 4, No Damage
Conducted Immunity	IEC 61000-4-6 Level 3, 10V
Voltage Dips, Interruptions, and Variations	IEC 61000-4-11
Environmental	
Operating Temperature	-40°C to +75°C
Altitude	-200 to 13,000 feet (-61 to 3962 meters) See Note 1
Humidity	10% to 95% non-condensing
Audible Noise	< 60 dBA
Earthquake Rating	Zone 4, upper floors

Note 1:For altitudes above 5000 feet, derate the temperature by 3.6 °F per 1000 feet. For altitudes above 1524 meters, derate the temperature by 0.656 degrees Celsius per 100 meters.

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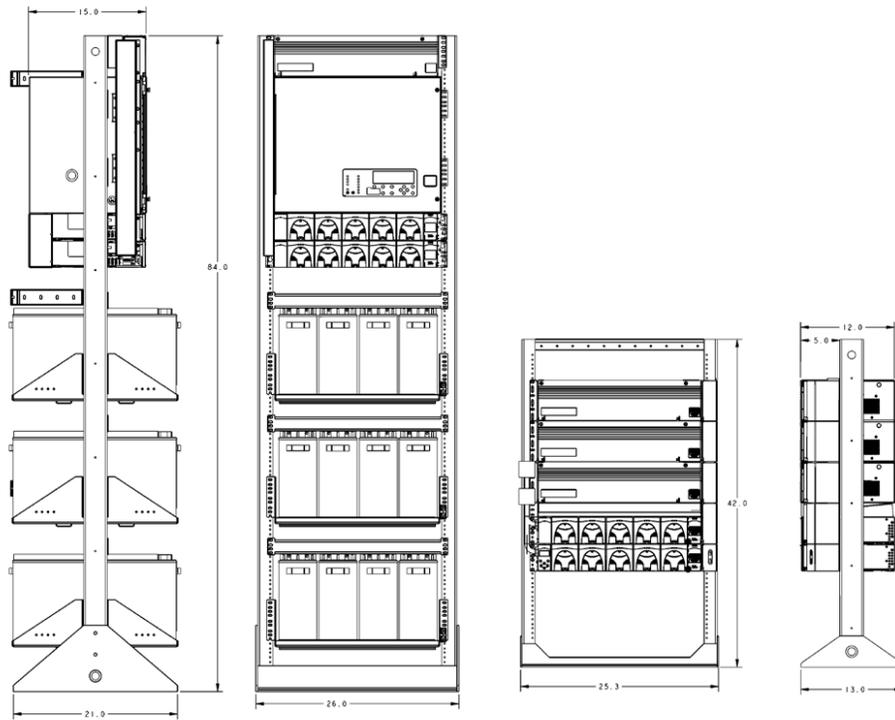
Additional Information
Product Documentation

CC848802595CPS6000   Millennium II Frame-Mounted Battery Plant Manual

108994645   Galaxy Millennium II Controller

DC Distribution and Battery Termination

GROUP 660: DISTRIBUTION/MILLENNIUM II CONTROLLER

GROUP 661: DISTRIBUTION/MILLENNIUM II CONTROLLER

Group 660 Option

- Two 19 position bullet distribution panels.
- 12 pair of battery landings for battery cables.
- 8 position center section for optional:
  - Low Voltage Battery Disconnect (LVBD)
  - GJ type circuit breakers with 25mV shunts
  - TPL-C fuse blocks with 1500A, 50mV shunts.
  - 16 position bullet panel

Group 661 Option

- One 19 position bullet distribution panel.
- One fuse panel equipped with 4 TPS fuses with 100A, 50mV shunts and 4 TPL-B fuses with 600A, 50mV shunts.
- RPM shunt monitoring for fuse panel and up to 4 center TPL-C fuse blocks
- 12 pair of battery landings for battery cables.
- 8 position center section for optional:
  - Low Voltage Battery Disconnect (LVBD)
  - GJ type circuit breakers with 25mV shunts
  - TPL-C fuse blocks with 1500A, 50mV shunts.
  - 16 position bullet panel

Battery Options and Monitoring Features

Battery Options

- Designed for operation with Flooded, VRLA, NiCad, Nickel metal Hydrid and Lithium batteries.
- Half-height systems mount on Unigy II batteries, Full Height systems may be equipped with battery trays.
- Battery trays available for up to 170Ahr batteries with Anderson PowerPole® connectors or circuit breaker disconnects.

Battery Monitoring Features

- Open String (OS) Alarms
- Emergency Power Off (EPO) for disconnecting batteries from the system
- Temperature/voltage probes (up to 16) used in Battery Management options
  - Slope Thermal Compensation
  - Battery High Temp Disconnect
  - Mid-String Voltage Monitoring
- Battery Discharge Test
- Battery Shunt
- Low Voltage Battery Disconnect (LVBD)

CPS6000 Plant Systems with Millennium II Controller - H5694720 Group Code Identification

Framework		
Group Number	**Type**	**Available Rack Spaces**
G102	42" tall framework	22U
G103	7' tall light-duty frame	46U
G104	7' tall heavy-duty frame	46U

Battery Tray Options	
Group Number	**Description**
Battery Tray e/w Anderson Disconnect 2 gauge cables	
G440	Battery tray mounted on 7U (12.25") spacing for 100AH batteries
G450	Battery tray mounted on 8U (14.00") spacing for 110 or 150AH batteries
G470	Battery tray mounted on 9U (15.75") spacing for 170AH batteries
Battery Tray e/w disconnect breaker panel and 2 gauge cable (disconnect breakers ordered separately)	
G441	Battery tray mounted on 7U (12.25") spacing for 100AH batteries
G450	Battery tray mounted on 8U (14.00") spacing for 110 or 150AH batteries
G470	Battery tray mounted on 9U (15.75") spacing for 170AH batteries

Rectifier shelves with AC Connection			
Group Number	**Rack spaces**	**Description**	**System Ampacity**
Shelves with AC terminal strip at top of system			
G255	17U	Two 5-position rectifier shelves and space for one G660 or G661 distribution panels	500A
G256	22U	Four 5-position rectifier shelves and space for one G660 or G661 distribution panels	1000A

Distribution panels		
Group Number DC panel description		**Panel current rating**
G660	Distribution panel e/w Millennium II Controller. Distribution includes 38 positions for bullet style fuse holders or breakers and 8 positions for equipping list 600. Breakers, fuse holders and contactor	800A (charge)1000A (discharge)
G661	Distribution panel e/w Millennium II Controller. Distribution includes 19 positions for bullet style fuse holders or breakers, 4 TPL-B 0-250A fuse holders with load shunts, 4 TPS 0-70A fuse holders with load shunts, and 8 positions for equipping list 600. Breakers, fuse holders and contactor. (Includes shunt module (RPMs) for monitoring up to 12 shunts on TPS, TPL-B and TPL-C holders)	800A (charge)1000A (discharge)
The following groups can be ordered with G660 or G661 (8 positions available)		
G660B	150A KS22012 circuit breaker kit. (Breaker e/w 25mV shunt and wiring to connect to shunt RPM)	Requires 1 position
G600E	250A KS22012 circuit breaker kit. (Breaker e/w 25mV shunt and wiring to connect to shunt RPM)	Requires 1 position
G600G	400A KS22012 circuit breaker kit. (Breaker e/w 25mV shunt and wiring to connect to shunt RPM)	Requires 2 positions
G600M	Fuse block for TPL-C 300A-600A Fuse and 1500A, 50mV load monitoring shunt. Kit includes wireset for connecting to shunt RPM.	Requires 2 positions
G600R	6 channel shunt module (RPM) for monitoring shunts of group 600 large distribution in a group 660 panel. (G661 already includes 2 shunt RPMs) (Mounts on door of distribution)	Requires no positions
G660T	800A low voltage battery disconnect (LVBD) contactor	Requires 3 positions
G660W	16 position bullet distribution panel	Requires 8 positions

Step 1: Select CPS6000 Plant System

| Output	Ordering	Model	Picture
-48V	CC109126744	7 ft frame, 4 rectifier shelves, Millennium II Controller, Two TPL-Cfuse blocks with shunt monitoring and 38 bullet positions.	
		H5694720, 103, 256, 660, (2) 600M, 600R	
-48V	CC109126752	7 ft frame, 4 rectifier shelves, Millennium II Controller, Two TPL-C fuse blocks, four TPL-B fuse blocks, four TPS fuse blocksall with shunt monitoring and 19 bullet positions.	
		H5694720, 103, 256, 661, (2) 600M	
-48V	CC109126728	7 ft frame, 2 rectifier shelves, Millennium II Controller, Two TPL-Cfuse blocks with shunt monitoring and 38 bullet positions.	
		H5694720, 103, 255, 660, (2) 600M, 600R	
-48V	CC109126736	7 ft frame, 2 rectifier shelves, Millennium II Controller, Two TPL-C fuse blocks, four TPL-B fuse blocks, four TPS fuse blocksall with shunt monitoring and	
		H5694720, 103, 255, 661, (2) 600M	**2 Shelf Configuration**
-48V	CC109143590	7 ft frame, 2 rectifier shelves, Millennium II Controller, and 54 bullet positions.	
		H5694720, 103, 255, 660, 600W	
-48V	CC109143582	7 ft frame, 4 rectifier shelves, Millennium II Controller, and 54 bullet positions.	
		H5694720, 103, 256, 660, 600W	
-48V	CC109138475	7 ft frame, 2 rectifier shelves, Millennium II Controller, and 54 bullet positions.	
		H5694720, 103, 256, 660	
-48V	CC109147195	7 ft frame, 4 rectifier shelves, Millennium II Controller, and 54 bullet positions.	
		H5694720, 104, 255, 660, 600W, G424 (3)	**4 Shelf Configuration**
-48V	CC109151593	7 ft frame, 2 rectifier shelves, Millennium II Controller, and 54 bullet positions.	
		H5694720, 103, 255, 660	
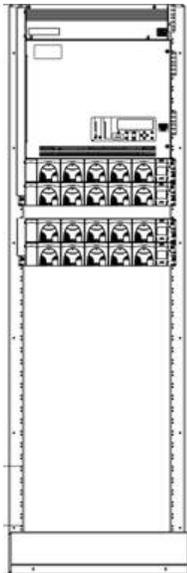
Step 2: Select Rectifiers and Ringers

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
		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					

Ordering Code	Description				Photo
		Output	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 Battery Monitoring

Ordering Code	Description		Photo
CC848806828	Adapter plate kit for mounting a Group 102 ½ height framework on a Unigy battery stack		
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 (for extending item G above)		

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
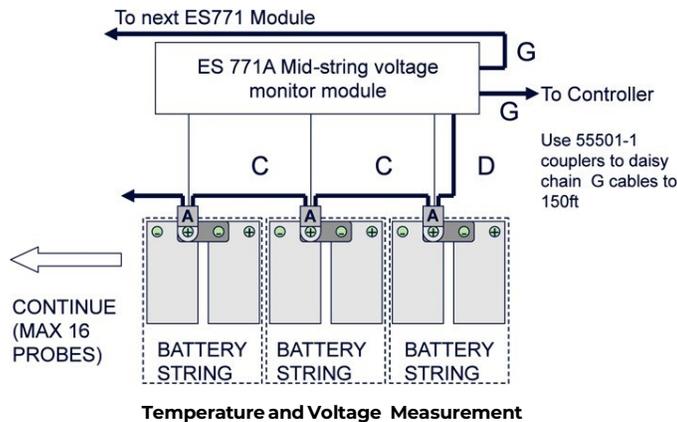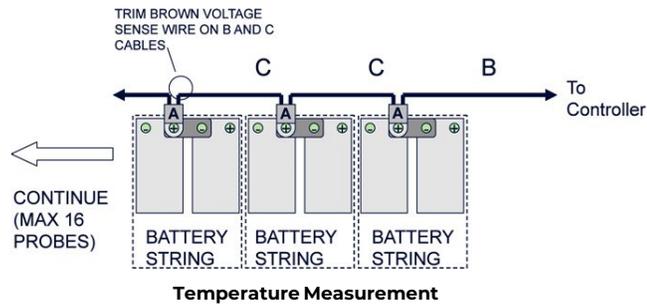
Step 4: Select Distribution Components

Note: CPS6000 Plant Systems support plug-in (bullet style) breakers or fuse modules. Larger breakers can be 2 or even 3 poles. The multi- pole breakers MUST be used with the appropriate multi-pole adapter to parallel the poles for proper operation.

Bullet Style Battery Circuit Breakers (Yellow Handle) (Alarms on Mid-trip and in Off position)				
Ordering Code	Amperage	CB Positions	Min Wire Gauge	Photo
CC408574370	50	1	8	
408560123	60	1	6	
CC408574387	70	1	6	
CC408574395	100	1	2	
CC408574404	125	2	2	
CC408574412	150	2	1/0	
CC408574420	200	2	2/0	

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Step 4: Select Distribution Components (continue)

Note: CPS6000 Plant Systems support plug-in (bullet style) breakers or fuse modules. Larger breakers can be 2 or even 3 poles. The multi-pole breakers MUST be used with the appropriate multi-pole adapter to parallel the poles for proper operation

Bullet Style Load Circuit Breakers				
Ordering Code	Amperage	CB Positions (Poles)	Min Wire Gauge	Photo
407998137	3	1	10	
407998145	5	1	10	
407998152	10	1	10	
407998160	15	1	10	
407998178	16	1	10	
407998186	20	1	10	
407998194	25	1	10	
407998202	30	1	10	
408213486	40	1	8	
407998210	45	1	8	
407998228	50	1	6	
407998236	60	1	6	
407998244	70	1	2	
407998251	80	1	2	
407998269	90	1	2	
407998277	100	1	2	
CC848808551	100	2	2	
408185353	125	2	2	
408185346	150	2	1/0	
408564941	200	3	2/0	
408573975	225	3	4/0	
408535752	250	3	4/0	
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)			

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Step 4: Select Distribution Components (continue)

Bullet Style Fuse Holder and TPS Fuses				
Ordering Code	**Amperage**	**WP-92461 List**	**Min Wire Gauge**	**Photo**
406700567	3	100	10	
406700583	5	101	10	
406700591	6	102	10	
406700609	10	103	10	
406700617	15	104	10	
406700625	20	105	10	
406700633	25	106	10	
406700641	30	107	10	
406700658	40	108	10	
406700674	50	109	8	
406700682	60	110	6	
406700690	70	111	6	
402328926	0.18 Alarm Fuse			
408548944	Bullet Fuse Holder, TFD-101-011-09 (Alarms on Blown Fuse or Fuse Head Removal)			
CC408617410	Bullet Fuse Holder, TFD-101-011-10 (Alarms on Blown Fuse Only)			
Bullet Style GMT Fuse Holder and GMT Fuses				
405006222	0.25A			
3150439	0.5A			
405673146	1.33A			
405181983	2A			
406976985	3A			
406159061	5A			
405725433	7.5A			
406159236	10A			
407845197	12A			
406473959	15A			
CC109103157	6-pos GMT Bullet Fuse Holder (Requires 2 bullet positions)			
408515823	Fuse Puller			
402099436	Dummy Fuse			

Step 4: Select Distribution Components (continue)

Large TPL Fuses

Ordering Code	Amperage	Max # wires per position	Min Wire Gauge	Photo
CC109158762	TPL-C Fuse Holder 90D Shunt Kit			
402328926	0.18A Alarm Fuse			
406794776	70	3	6	
408239648	80	3	4	
406794784	100	3	2	
406925685	125	3	2	
406794792	150	3	1/0	
406794818	200	3	4/0	
406794982	225	3	4/0	
406794842	250	3	4/0	
406794867	300	3	2 x 4/0	
406794875	400	3	2 x 4/0	
406794883	500	3	2 x 4/0	
406794891	600	3	3 x 4/0	

KS22012 GJ Style Breaker Kits for Field Installation of Group 617 / 614 Distributions

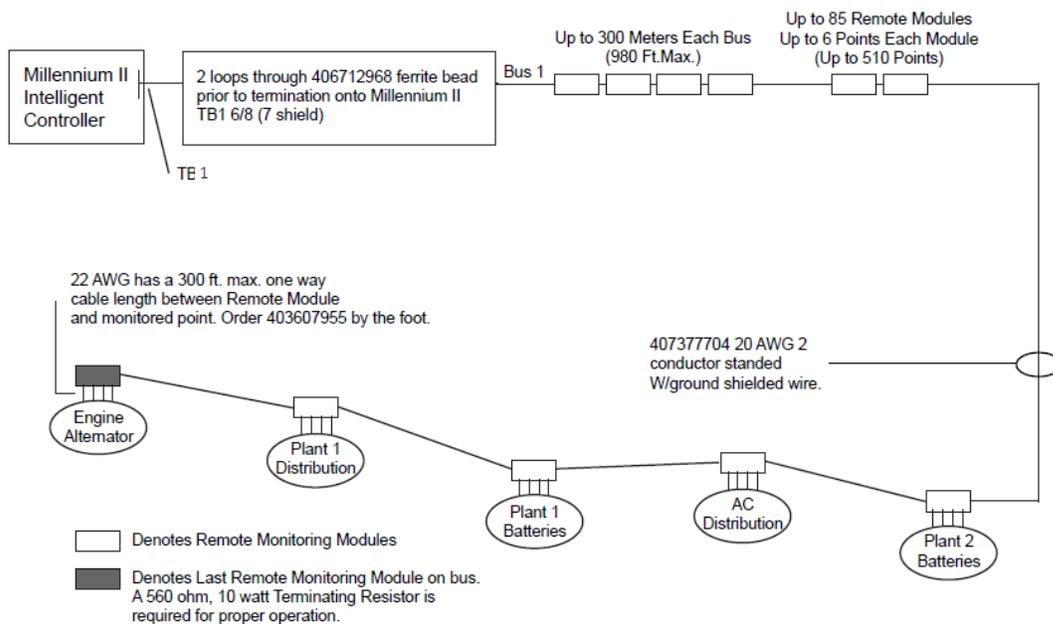| Ordering Code	Description	Photo
CC109127635	150A Single Pole Breaker	
CC109127627	250A Single Pole Breaker	
CC109127486	400A Two Pole Breaker	
CC109151767	600A Three Pole Breaker	

Step 4: Select Distribution Components (continue)

Terminal Lugs for Bullet Style Breakers and TPS Fuses (1/4" bolt on 5/8" centers)				
Ordering Code	STR Wire GA (Class B)	Flex Wire GA (Class I)	WP-91412 List	Photo
406021626	8	8	75	
405347519	6	6	3	
405347576	4	4	5	
405348202	2	-	54	
405347683	-	2	8	
Terminal Lugs for Battery and Large Breakers (3/8" bolt on 1" centers)				
406338665	2	-	-	
405348228	1/0	-	-	
405348236	2/0	1/0	-	
406021725	-	2/0	-	
405348251	4/0	-	-	
405347923	-	4/0	-	
407890763	350	-	-	
407890748	-	350	-	
406335141	750	-	-	
407890730	-	750	-	

Step 5: Select Remote Peripheral Monitoring Options

Ordering Code	Description		# Inputs	# Temp	Photo
	Modules		**# Inputs**	**# Temp**	
108469461	J85501G1L21 RPM Shunt Monitoring (221F)		6	1	
108469479	J85501G1L22 RPM Voltage 0-200VDC (221D)		6	1	
108469495	J85501G1L23 RPM Transducers (221J)		6	1	
108298431	J85501G1L24 RPM Voltage 0-3VDC (221A)		6	1	
108298498	J85501G1L25 RPM Voltage 0-16VDC (221B)		6	1	
108469503	J85501G1L26 RPM Voltage 0-70VDC (221C)		6	1	
108298449	J85501G1L27 RPM Binary (222A)		6	1	
108483538	J85501G1L28 RPM Temperature (223T)		0	7	
108298456	J85501G1L9 RPM Control Relay (214A)		3	0	
	Supporting Material				
407377704	Connecting Cable for RPMs (Order by foot)				
848535332	Blue panel for mounting 6 modules above a GPS cabinet				
847307410	12' Cable to be used with Temperature Probes				
847917879	½" Diameter Ring Terminal Temperature Probe (Cable Required)				
848528881	5/16" Diameter Ring Terminal Temperature Probe (Cable Required)				
405298308	Termination Resistor (1 per bus)				
406712968	Ferrite Bead (1 per bus)				
403607955	Monitor Channel cable KS13385 22AWG stranded pair, R& Bk (order by the foot)				

Millennium Remote Monitoring

Millennium II Intelligent Controller

2 loops through 406712968 ferrite bead prior to termination onto Millennium II TB1 6/8 (7 shield)

TB 1

Bus 1

Up to 300 Meters Each Bus (980 Ft.Max.)

Up to 85 Remote Modules
Up to 6 Points Each Module
(Up to 510 Points)

22 AWG has a 300 ft. max. one way cable length between Remote Module and monitored point. Order 403607955 by the foot.

407377704 20 AWG 2 conductor standed W/ground shielded wire.

Engine Alternator

Plant 1 Distribution

Plant 1 Batteries

AC Distribution

Plant 2 Batteries

Denotes Remote Monitoring Modules

Denotes Last Remote Monitoring Module on bus. A 560 ohm, 10 watt Terminating Resistor is required for proper operation.

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Step 6: Select Additional Options

Ordering Code	Description
Frame Anchor Bolts and Ground Cable	
847135688	(4) 12mm Cap Bolt Floor Anchor
CC848784677	4 ft long green 1/0 gage cable for H-tap or C-tap to aisle ground ring
Bus Bar Kit	
CC109163515	Back-feed Bus Bar Kit

Step 7: Select Modem Kit Option

Ordering Code	Description
108284639	BSM5 Modem Kit

Step 8: Spares for Millennium II Controller

Ordering Code	Description
848741711	BSL3 Alarm Board (punch down)
848749507	BSL4 Alarm Board (wire wrap)
108851338	BSM5 Modem Board
406530725	1-1/3 A fuse (GMT)
406204230	3 A fuse (GMT)
405298308	Terminating Resistor for RPM
406712968	406712968 Inductor Bead for RPM
407377704	RPM Cable (ordered by the foot)

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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

OmniOn 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

OmniOn 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

OmniOn 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 **omnionpower.com**

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