

➤ Critical Facilities Powering and Construction

TOTAL POWER SOLUTIONS BY ALPHA TECHNOLOGIES



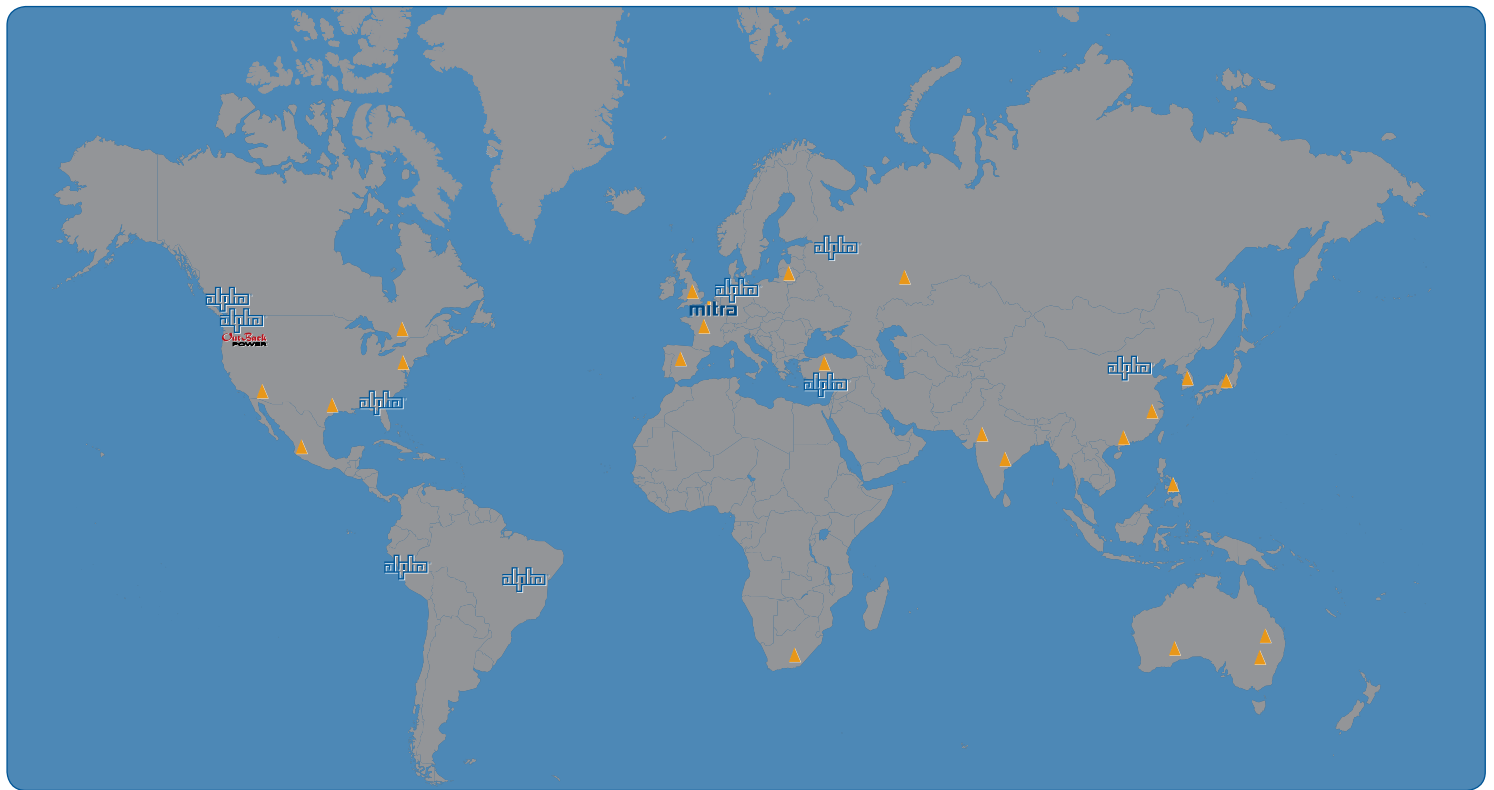
The Alpha Group - Total Power Solutions

› Alpha Power

Alpha pioneered the concept of reliable uninterruptible power for communications networks, and in the process has set a 35-year precedent for visionary, market-driven power solutions. Today, with millions of power systems installed around the world, we continue to focus on providing the most reliable, innovative and energy efficient powering solutions.

› Global Reach

With millions of powering system installed and sales, manufacturing and service facilities located around the world, we are able to help you in a language you'll understand. This global reach gives us the expertise to provide your specific power solution.



› Our Goal: Reducing Your Total Cost of Ownership



› Reliability

We are engineering the next generation of power technologies committed to reliability, cost savings and best-in-class performance.



› Intelligence

Instead of giving you data, intelligent products give you answers. We are working to provide the answers to optimize system performance.



› Sustainability

Running a more efficient powering network can reduce the resources consumed, and your operational expenses.



› Efficiency

Through proper load matching and power supply sizing, tailored powering systems can perform at up to 94 percent efficiency.



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DC Power Systems

The Alpha Group has more than 30 years of experience providing a wide variety of fully integrated power system solutions. With options for standardized systems and custom DC system integration, The Alpha Group has the flexibility to provide DC power solutions perfect for a wide range of power needs and various site installation requirements.

Integrated shelf systems are available for all small power rectifier models providing a complete power solution in a single rack mount package. These systems incorporate a Cordex™ controller, rectifiers and DC distribution options in a compact shelf design. Optional accessories such as LVDs, shunts and temperature compensation are available.

For medium to large system applications, The Alpha Group can provide both standard and custom DC system solutions designed to maximize space and cost savings. Systems can be integrated with a wide array of options including various rack solutions, custom DC distribution configurations, multiple voltage output designs and front access.

Coupling advanced Cordex power technology with an enormous selection of system components, The Alpha Group can easily provide optimal system solutions up to 8,000 Amps.

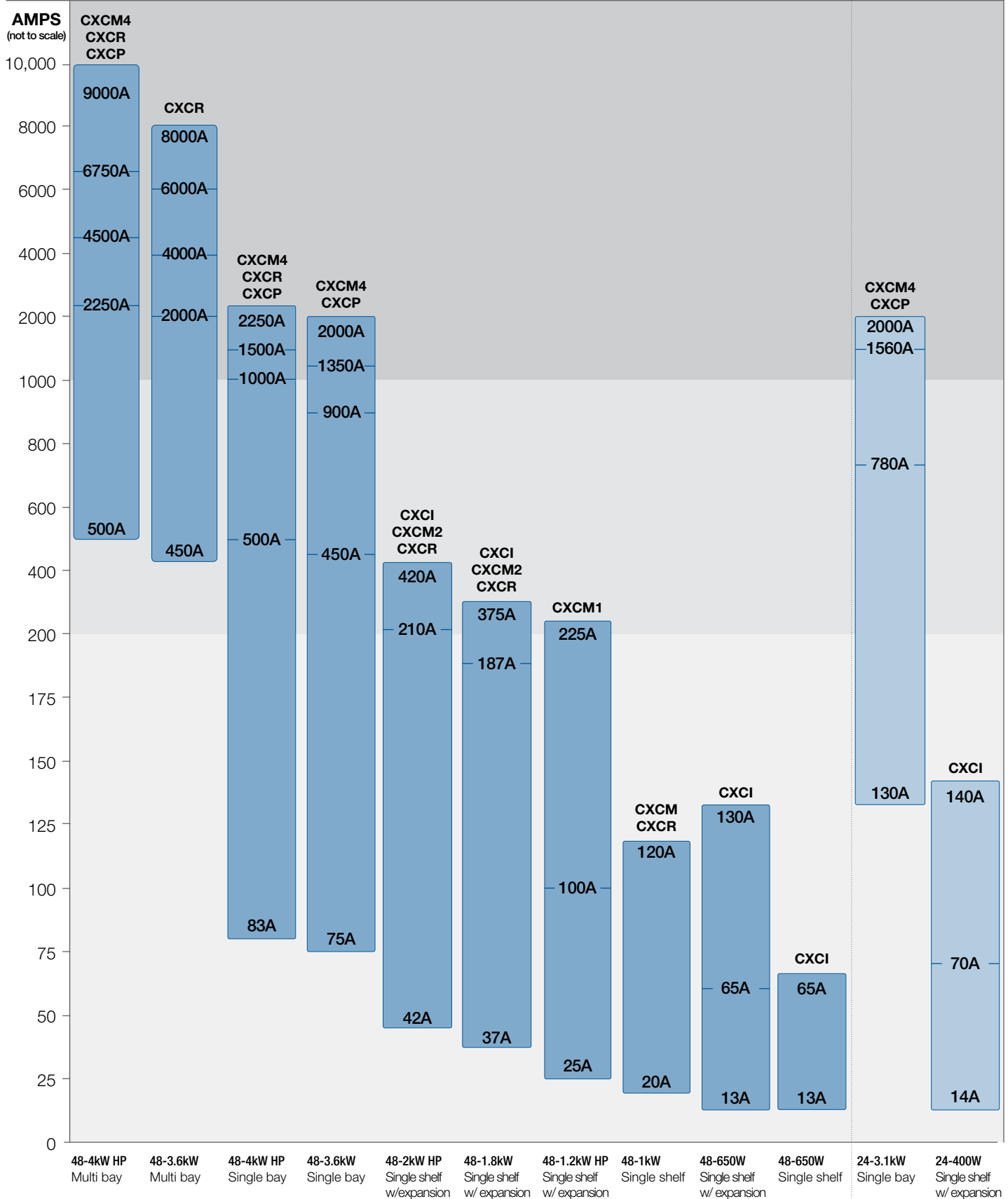


Cordex™ Power Systems Matrix

DC Power Systems

48V

24V



Cordex™ Controller Features

➤ The Cordex™ CXC is Alpha's latest generation of advanced digital controllers for power system monitoring and control. Cordex™ supervisory controllers come in a wide array of modular designs for compact integration into Alpha power systems. Stand-alone rack mount versions are also available for DC systems, legacy controller upgrades and site monitoring solutions. A graphic LCD display with state-of-the-art touch-screen interface allows simple and convenient set up, control and monitoring of Cordex™ rectifiers. Innovative IP technology allows complete configuration and monitoring from any location via the Internet using a standard web browser. Cordex™ CXC controllers come standard with several advanced battery management features to allow for significant savings of capital and operational expenses. Additional features include user definable alarms with custom algorithms, digital and analog input monitoring, data logging, integrated SNMP and highly reliable CAN bus communications. Software upgrades are easily downloaded and provided free of charge.

➤ Main

- Web based GUI Interface: Web browser support for local or remote control and monitoring.
- Single point set up and control.
- Auto voltage adjustment and load sharing.
- Analog digital inputs.
- Configurable Form C relay outputs.
- Various preset alarms and ability to configure up to 20 customized alarms.
- User programmable logic statements.
- Legacy Power System Upgrade: Controls legacy Pathfinder based systems and can be used as a site monitor for any 3rd party DC power system.
- CAN Communications: Common platform for Alpha power electronics and peripherals. Rugged and field proven protocol.
- Fail Safe System Operation: In the event of CXC failure, rectifiers continue to run with default settings, fail alarm is generated and LVDs (if equipped) remain energized.
- Power Save Function: Improves operational efficiency by running the minimum number of rectifier modules required per system load.
- System Start Delay: Allows delay for other AC powered equipment to start before rectifiers.
- Ramp Test Control: Disables fail alarm on no-load conditions.
- SNMP Support: Network management service support for managing multiple systems in a single network.
- Email notifications via TCP/IP.
- Cordex Peripheral Support: Optional add-ons for individual cell and temperature monitoring and controller I/O expansion.
- Multi language support including Chinese characters.

➤ Battery Management

- Temperature Compensated Float Voltage: Increases voltage in temperatures below 25°C / 77°F and decreases charge voltage above 25°C / 77°F. Maximizes life and capacity of battery and prevents thermal runaway.
- Battery Equalize: Manual, automatic and periodic equalize charge modes. Optional Battery Current Terminate function to prevent over charging of battery.
- Battery Boost Mode: Offline high-voltage equalize charge with interlock safety feature.
- Dynamic Charge Current Control: Limits battery recharge current to a fixed value. Helps prevent thermal runaway.
- Battery Test: Sets rectifier voltage low and performs safe discharge of batteries through the connected system loads.
- Battery Capacity Prediction: Calculates current battery capacity after a discharge.
- Battery Runtime Prediction: Based on current battery capacity and system load.
- Battery Logging: Retain up to 40 records of battery statistics and events.

➤ Maintenance

- Data Logger: Record any system input(s), and set sample rate of record on deviation. Store up to 500 events via manual or auto start/stop.
- Typical data log applications: Detailed battery discharge info, AC voltage watch dog and outdoor cabinet thermal performance.
- Easy Remote Software Upgrades: Fail-safe protected upgrades for controllers, rectifiers and peripherals.

Cordex™ Comparison Chart

➤ Cordex Controllers come standard with several advanced battery management features to allow for significant savings of capital and operational expenses. Some additional features include user definable alarms with custom algorithms, digital and analog input monitoring, data logging, integrated SNMP and CAN bus communications. The Cordex CXC is designed for effortless operation of the Cordex rectifier family, making time consuming and complicated set up and monitoring of DC power systems a thing of the past.

	CXCR/CXCP	CXCM4	CXCM2	CXCM1	CXCM	CXCI
Specifications						
Screen:	Full Graphic LCD 160 x 160 pixels	Full Graphic LCD 160 x 160 pixels	Full Graphic LCD 160 x 160 pixels	Basic Current / Volts Display Only	Full Graphic LCD 160 x 160 pixels	Basic Current / Volts Display Only
Inputs						
Analog:	2V, 2T, 4C, 2BIV	2V, 2T, 4C, 2BIV	1V, 2T, 2C, 4BIV	1V, 1C, 2T	2V, 2T, 1C, 1BIV	1V, 1C, 2T
Digital:	8	4	6	2	3	2
Alarm Relay Outputs:	8 Form C	8 Form C	6 Form C	4 Form C	8 Form C	4 Form C
Dimensions						
Height x Width x Depth (in/mm):	5.1 x 16.9 x 3.9 / 131 x 431 x 100	7 x 3.4 x 10.1 / 177 x 87 x 257	3.4 x 5 x 9.7 / 86.4 x 128 x 247	1.6 x 334 x 10.1 / 41.4 x 84.4 x 256.8	6.9 x 2.9 x 10 / 177 x 74 x 255	3.5 x 1 x 11 / 88 x 26 x 280
Rectifier shelf option availability						
4kW HP (48Vdc)	Yes	Yes				
3.6kW (48Vdc)	Yes	Yes				
2kW HP (48Vdc)	Yes		Yes			Yes
1.8kW (48Vdc)	Yes		Yes			Yes
1.2kW HP (48Vdc)				Yes		
1kW (48Vdc)	Yes				Yes	
650W (48Vdc)						Yes
400W (24Vdc)						Yes

Cordex™ CXCR/CXCP

System Controller

- LCD touch-screen user interface
- Internet ready, integrated SNMP
- High reliability CAN bus communication
- User definable alarms
- Flexible battery management features
- Smart peripheral monitoring features
- 19" and 23" Universal rack or panel mount configurations



CXCR Rack mount Controller

Cordex CXCR/CXCP

Features	
Electrical	
Display:	LCD touchscreen display (160 x 160 pixels), "OK / Major / Minor" 3-Color, LED display, Web based GUI via ethernet
Communication Ports:	RJ45 ethernet port (front accessible rear port) RS232 craft port (front) RS232 modem port (optional)
Controller I/O	
Voltage Inputs:	2
Temperature Inputs:	2
Current Inputs:	4
Bi Voltage Inputs:	2
Digital Inputs:	8
Relay Outputs:	8
Mechanical	
Dimensions H x W x D (excludes mounting brackets) (in/mm):	5.1 x 16.9 x 3.9 / 131 x 431 x 100
Mounting:	CXCR with 19" or 23" rack mounting CXCP panel mount
Weight (lb/kg):	13.8 / 6.2

Environment	
Extended Temperature:	-40 to 65°C / -40 to 149°F
Humidity:	0 to 95% non-condensing
Standards	
Safety:	CSA C22.2 No 60950-1-03 CE marked
EMC:	ETSI 300 386
Emissions:	CFR47 (FCC) Part 15 Class B ICES-03 Class B EN55022 (CISPR 22) Class B C-Tick (Australia)
Immunity:	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6

Cordex™ CXCM4

System Controller

- User definable alarms and data logging
- Flexible battery management features
- Smart peripheral monitoring features
- 4RU modular CXC for 3.1/3.6kW rectifiers



CXCM4

Cordex CXCM4

Features	
Electrical	
Display:	LCD touchscreen display (160x160 pixels), "OK / Major / Minor" 3-Color, LED display, Web based GUI via ethernet
Communication Ports:	RJ45 ethernet port, RS232 craft port (front)
Controller I/O	
Voltage Inputs:	1 + 1 Internal
Temperature Inputs:	2
Current Inputs:	4
Bi Voltage Inputs:	2
Digital Inputs:	4
Relay Outputs:	8
Mechanical	
Dimensions H x W x D (in/mm):	7 x 3.4 x 10.1 / 177 x 87 x 257
Weight (lb/kg):	3.9 / 1.8
Mounting:	Modular controller for 3.1kW and 3.6kW shelves

Environment	
Extended Temperature:	-40 to 65°C / -40 to 149°F
Humidity:	0 to 95% non-condensing
Standards	
Safety:	UL/CSA C22.2 No 60950-1-03 CE marked
ECM:	ETSI 300 386
Emissions:	CFR47 (FCC) Part 15 Class B ICES-03 Class B EN55022 (CISPR 22) Class B C-Tick (Australia)
Immunity:	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6

Cordex CXCM2

System Controller

- LCD touch-screen user interface
- Internet ready, integrated SNMP
- High reliability CAN bus communication
- 2RU modular CXC for 1.8kW rectifiers



CXCM2

Cordex CXCM2

Features	
Electrical	
Input Voltage:	17 to 65Vdc
Current:	<100mA @ 48Vdc or <200mA @ 24Vdc
Display:	LCD touchscreen display (160x160 pixels), "OK / Major / Minor" 3-Color, LED display, Web based GUI via ethernet
Communication Ports:	RJ45 ethernet port (front)
Controller I/O	
Voltage Inputs:	1 + 1 Internal
Temperature Inputs:	2
Current Inputs:	2
Digital Inputs:	6
Relay Outputs:	6
Mechanical	
Dimensions H x W x D (in/mm):	3.4 x 5 x 9.7 / 96.4 x 128 x 247
Mounting:	Modular controller for 1.8kW shelves

Environment	
Extended Temperature:	-40 to 65°C / -40 to 149°F
Humidity:	0 to 95% non-condensing
Standards	
Safety:	CSA C22.2 No 60950-1-03 CE marked
ECM:	ETSI 300 386
Emissions:	CFR47 (FCC) Part 15 Class B ICES-03 Class B EN55022 (CISPR 22) Class B C-Tick (Australia)
Immunity:	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6

Cordex™ CXCM

System Controller

- LCD touch-screen user interface
- Internet ready, integrated SNMP
- High reliability CAN bus communication
- User definable alarms and data logging
- 4RU modular CXC for 1kW rectifier



CXCM

Cordex CXCM

Features	
Electrical	
Display:	LCD touchscreen display (160 x 160) pixels, "OK / Major / Minor" 3-color, LED display, Web based GUI via ethernet
Communication Ports:	RJ45 ethernet port (front accessible rear port) RS232 craft port (front) RS232 modem port (optional)
Controller I/O	
Voltage Inputs:	1 + 1 Internal
Temperature Inputs:	2
Current Inputs:	1
Bi Voltage Inputs:	1
Digital Inputs:	3 (2 + 1 internal on some models)
Relay Outputs:	8
Mechanical	
Dimensions H x W x D (in/mm):	6.9 x 2.9 x 10 / 177 x 74 x 255
Weight (lb/kg):	3.9 / 1.8
Mounting:	Modular controller for 1kW rectifier shelves

Environment	
Extended Temperature:	-40 to 65°C / -40 to 149°F
Humidity:	0 to 95% non-condensing
Standards	
Safety:	CSA C22.2 No 60950-1-03 CE marked
EMC:	ETSI 300 386
Emissions:	CFR47 (FCC) Part 15 Class B ICES-03 Class B EN55022 (CISPR 22) Class B C-Tick (Australia)
Immunity:	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6

Cordex CXCI

System Controller

- Control and monitor via Internet Explorer browser
- Flexible battery management features
- Smart peripheral monitoring features
- Integrated option on 1.8kW, 650W and 400W shelves



CXCI

Cordex CXCI

Features	
Electrical	
Input Voltage:	17 to 65Vdc
Current:	<100mA @ 48Vdc or <200mA @ 24Vdc
Display:	4 segment LCD for V/I display, "OK / Major / Minor" 3-color, LED display, Web based GUI via ethernet
Communication Ports:	RJ45 ethernet port (front), RS232 modem port (front)
System I/O	
Voltage Inputs:	1 + 1 internal
Temperature Inputs:	2
Current Inputs:	1 (0 + 1 internal on some models)
Digital Inputs:	2
Alarm Relays:	4 (3 + 1 internal on some models)

Mechanical	
Dimensions H x W x D (in/mm):	3.5 x 1 x 11 / 88 x 26 x 280
Mounting:	Integrated on Cordex 2RU series 19" and 23" shelves
Environment	
Temperature:	-40 to 65°C / -40 to 149°F
Humidity:	0 to 95% non-condensing
Standards	
Safety:	CSA C22.2 No 60950-1-03 CE marked

Cordex™ 400 and 650W

Modular Switched Mode Rectifier

- Available in 13.5A @ 48Vdc and 14A @ 24Vdc
- High power density
- Power limiting and wide range AC input
- 91% efficiency and power factor correction
- Hot swappable, 2RU ultra compact design



CXRC 24-400W

Cordex 400W Rectifier Module

Electrical	
Input Voltage:	90 to 320Vac
Power Output:	400W (max)
Input Frequency:	45 to 70Hz
Power Factor:	>99%
THD:	<5%
Efficiency:	>90%
Output Voltage:	20 to 29Vdc
Output Current:	14A (current limited)
Load Regulation:	Static $\leq \pm 0.5\%$, Dynamic $\leq \pm 2\%$ for 50 to 100% load step, 2ms recovery time
Line Regulation:	Static $\leq \pm 0.1\%$, Dynamic $\leq \pm 1\%$ for any change within rated limits
Mechanical	
Dimensions H x W x D (in/mm):	3.4 x 2.8 x 9.5 / 88.4 x 71.6 x 242
Weight (lb/kg):	3 / 1.4

Cordex 650W Rectifier Module

Electrical	
Input Voltage (120Vac Model)	
Operating:	90 to 140Vac (output power 650W)
Extended:	90 to 70Vac (derated output power)
Power Output:	650W at nominal 120Vac
Input Voltage (Universal 100 to 240Vac Model)	
Operating:	176 to 320Vac (output power 650W)
Extended:	176 to 90Vac (derated output power)
Operating:	100 to 140Vac (output power 500W)
Power Output:	650W at nominal 208 to 240Vac and 500W at nominal 120Vac
Specifications	
Input Frequency:	45 to 70Hz
Power Factor:	>99%
THD:	<5%
Efficiency:	>91% (1% loss for 120Vac model)
Output Voltage:	42 to 58Vdc
Output Current:	12A @ 54Vdc (13.5A max)
Load Regulation:	Static $\leq \pm 0.5\%$, Dynamic $\leq \pm 2\%$ for 50 to 100% load step, 2ms recovery time
Line Regulation:	Static $\leq \pm 0.1\%$. Dynamic $\leq \pm 1\%$ for any change within rated limits
Mechanical	
Dimensions H x W x D (in/mm):	3.4 x 2.8 x 9.5 / 88.4 x 71.6 x 242
Weight (lb/kg):	3 / 1.4

Noise	
Wide Band Noise:	<30mVrms, <150mVpk to pk
Psophometric Noise:	<1mV
Features	
Indicators:	AC mains OK — green LED Module alarm — red LED
Cooling:	Natural convection
Adjustments (via CXCI Controller):	Float and equalize voltage Battery test voltage High and low voltage alarms High voltage shutdown Current limit Start delay time Slope %
Protection:	Current limit/short circuit Input/output fuses Output high voltage shutdown Output power limiting Thermal foldback/shutdown Input transient AC low line foldback/shutdown AC high voltage shutdown
Environment	
Operation Temperature:	-40 to 50°C / -40 to 122°F (power derated up to 70°C / 158°F)
Storage Temperature:	-40 to 85°C / -40 to 185°F
Humidity:	0 to 95% non-condensing
Elevation:	-500 to 3000m / -1640 to 9840ft
Heat Dissipation:	<94BTU per hour
Standards	
Safety:	CSA C22.2 No 60950-1-03 UL 60950-1 1st Edition CE marked IEC/EN 60950-1
EMC:	ETSI 300 386
Emissions:	CFR47 (FCC) Part 15 Class B ICES-03 Class B EN55022 (CISPR 22) Class B C-Tick (Australia) EN 61000-3-2 EN 61000-3-3
Immunity:	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6 EN 61000-4-11 ANSI/IEEE C62.41 Cat B3

Cordex™ 400W/650W Rectifier Shelf Systems

- Integrated DC distribution with optional LVD
- Integrated 24 and 48Vdc shelf power systems up to 2.6kW
- Bulk 24 and 48Vdc power systems up to 3.2kW
- 19" and 23" rack mounting solutions
- Designed for CSA, UL, CE, FCC and C-tick standards



Cordex 48V-2.6kW Shelf System



Cordex 24V-1.6kW Shelf System

Cordex 24-400W Rectifier Shelves

	Rectifiers	Controllers	Distribution
19/23" 2RU Universal Mount	4 x CXRC 24-400W	1 x CXCI	(4) AM bullet type breakers
19/23" 2RU Universal Mount	5 x CXRC 24-400W	1 x CXCI	Bulk power for external distribution panel

19" and 23" Shelf Systems

	650W Cordex 2.6kW shelf power system with CXCI controller and bullet breaker distribution
	650W Cordex 3.2kW bulk power system with CXCI controller. Optional LVD shunt with battery breaker
	650W Cordex 2.6kW front access shelf power system with CXCI controller and bullet/fuse distribution
	650W Cordex 1.9kW front access shelf power system with CXCI controller and plug-in/fuse distribution
	400W Cordex 1.6kW shelf power system with CXCI controller and bullet breaker distribution
	400W Cordex 2kW bulk power system with CXCI controller

Cordex 48-650W Rectifier Shelves

	Rectifiers	Controllers	Distribution
19/23" 2RU Universal Mount	4 x CXRC 48-650W	1 x CXCI	(4) AM bullet type breakers
19/23" 2RU Universal Mount	5 x CXRC 48-650W	1 x CXCI	Bulk power for external distribution panel
23" 2RU Front Access	4 x CXRC 48-650W	1 x CXCI	(4) AM bullet (10) GMT fuse
19" 2RU Front Access	3 x CXRC 48-650W	1 x CXCI	(4) AM plug-in (10) GMT fuse

19" Shelf Systems

Mechanical	
Dimensions H x W x D (in/mm):	3.5 x 17.1 x 11.9 / 89 x 435 x 302
Weight (lb/kg):	15.5 / 6.9

Note:
Shelf P/Ns do not include modules or distribution breakers
Weights do not include modules
Dimensions do not include mounting bracket

23" Front Access Shelf Systems

Mechanical	
Dimensions H x W x D (in/mm):	3.5 x 21.4 x 12 / 88.9 x 543.6 x 304.8
Weight (lb/kg):	37 / 16.8 (fully equipped with four rectifiers)

Note:
Shelf P/Ns do not include modules or distribution breakers
Weights do not include modules
Dimensions do not include mounting bracket

Communication Ports	
CAN:	Interface to control rectifiers. Smart peripherals
Ethernet:	10/100 Base-T for TCIP/SNMP features
Environment	
Operating Temperature:	-40 to 50°C / -40 to 122°F
Storage Temperature:	-40 to 85°C / -40 to 185°F
Humidity:	0 to 95% non-condensing
Elevation:	-500 to 3000m / -1640 to 9840ft
Cooling:	Natural or forced convection, vertical airflow

Cordex HP™ 1.2kW

Modular Switched Mode Rectifier



Cordex HP 1.2kW

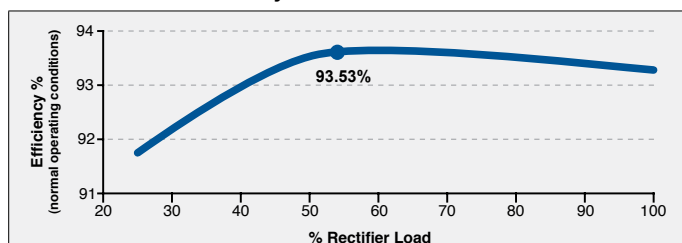
- 93% efficiency for increased Op-Ex savings and reduced carbon footprint
- High temperature operation for installation in harsh outdoor environments
- 1RU x 2RU footprint for flexible and multiple mounting options
- High power density (21.8W/in³) yields more space for revenue generating equipment
- Wide AC input range for a variety of global installation requirements

Cordex HP 1.2kW

Electrical	
Nominal Input Voltage:	176 to 276Vac
Input Voltage Extended (Low):	90 to 175Vac (derated output power)
Input Voltage Extended (High):	277 to 300Vac (derated power factor)
Input Current Nominal:	7.5A max
Input Current 90 to 132Vac:	6A max
Input Frequency:	45 to 70Hz
Power Factor:	>99%
THD:	<5% @ nominal input voltage
Efficiency:	>93% 50 to 100% load (nominal AC input) >90% 40 to 100% load (120Vac input)
Output Voltage:	42 to 58Vdc
Output Power (Nominal AC Input):	1200W
Output Power 110 to 132Vac:	600W (derated linearly to 491W @ 90Vac)
Output Current (Nominal AC Input):	22.2A @ 54V (25A max @ 48V)
Output Current 110 to 132Vac:	12.5A max (derated linearly to 10.2A @ 90Vac)
Load Regulation:	Static <±0.5%, Dynamic <±1% for 40 to 90 to 40% load step, 2ms recovery time
Line Regulation:	Static <±0.1%, Dynamic <±1% for any change within rated limits
Noise	
Web Band:	<30mVrms, <150mV pk to pk
Psophometric:	<2mV
Mechanical	
Dimensions H x W x D (in/mm):	1.63 x 3.34 x 10.11 / 41.4 x 84.8 x 256.8
Weight (lb/kg):	2.7 / 1.2
Environment	
Operation Temperature:	-40 to 65°C / -40 to 149°F (power derated up to 80°C / 176°F)
Storage Temperature:	-40 to 85°C / -40 to 185°F
Humidity:	0 to 95% non-condensing
Elevation:	-500 to 3000m / -1640 to 9840ft
Heat Dissipation:	<308BTU per hour

Features	
Indicators:	AC mains OK — green LED DC output OK — green LED Module alarm — red LED
Cooling:	Fan cooled
Adjustments (Via CXC Controller):	Float and equalize voltage Battery test voltage High and low voltage alarms High voltage shutdown Current limit Start delay time Slope %
Protection:	Current limit/short circuit Input/output fuses Output high voltage shutdown Output power limiting Thermal foldback/shutdown Input transient AC low line foldback/shutdown AC high voltage shutdown
Standards	
Safety:	CSA C22.2 No 60950-1-03 CE marked
EMC:	ETSI 300 386
Emissions:	CFR47 (FCC) Part 15 Class B ICES-03 Class B EN55022 (CISPR 22) Class B C-Tick (Australia) EN 61000-3-2 EN 61000-3-3
Immunity:	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6 EN 61000-4-11 ANSI/IEEE C62.41 Cat B3
NEBS / Telcordia:	GR-1089-CORE GR-63-CORE

Cordex HP 1.2kW Efficiency



Cordex HP™ 1.2kW

Modular Rectifier Shelf Systems

- Multiple 48V configurations up to 125A for various 48Vdc applications
- High Efficiency design for increased Op-Ex savings
- High temperature rated fan-cooled design for harsh outdoor installations
- Wide range AC input and IEC line cords for multiple AC services
- Front access options for space restricted enclosures



CXRF-HP 48-1.2kW

Cordex 48-1.2kW Rectifier Shelves

	Rectifiers	Controllers	Distribution
19/23" 2RU Universal Mount (Front Access)	4 x CXRF HP 48-1.2kW	1 x CXCM1	(4) AM plug-in (10) GMT fuse
19/23" 1RU Universal Mount (Bulk Power w/ CXC)	4 x CXRF HP 48-1.2kW	1 x CXCM1	Bulk power for external distribution
19/23" 1RU Universal Mount (Bulk Power)	5 x CXRF HP 48-1.2kW	N/A (External)	Bulk power for external distribution

19" and 23" Shelf Systems

	19/23" 2RU universal mount (Front Access)
	19/23" 1RU universal mount (Bulk Power w/ CXC)
	19/23" 1RU universal mount (Bulk Power)

2RU Front Access Shelf System

Mechanical	
Dimensions H x W x D (in/mm):	3.5 x 17.3 x 12 / 88 x 439.5 x 305
Shelf Weight (lb/kg):	10.03 / 4.55
Rectifier Weight (lb/kg):	2.72 / 1.23
Note: Rectifier front handle adds additional 0.49 / 12.5 depth	

1RU Rear Access Shelf System

Mechanical	
Dimensions H x W x D (in/mm):	1.7 x 17.3 x 12 / 44 x 439.5 x 305
Shelf Weight (lb/kg):	6.6 / 3
Rectifier Weight (lb/kg):	2.72 / 1.23
Note: Rectifier front handle adds additional 0.49 / 12.5 depth. Shelf P/Ns do not include modules or distribution breakers. Dimensions do not include mounting bracket	

Communication Ports	
CAN:	Interface to control rectifiers, Smart peripherals
Ethernet:	10/100 Base-T for TCIP/SNMP features
Environment	
Operating Temperature (Standard):	-40 to 65°C / -40 to 149°F
Operating Temperature (Extended):	-40 to 80°C / -40 to 176°F (derated output power)
Storage Temperature:	-40 to 80°C / -40 to 176°F
Humidity:	0 to 95% non-condensing
Elevation:	-500 to 2800m / -1640 to 9186ft
Cooling:	Fan cooled (front to rear)
Components	
877-690-19:	5-15P (120V) line cord, 2.m
877-671-19:	Universal lmc cord, ying leads, 3.5m
747-622-20-000:	Blank plate
567-837-19:	Kydex rear cover (1RU only)
036-201-20-000:	CXCM1 I/O terminal black kit (1RU only)

Cordex™ 1.8kW

Modular Switched Mode Rectifier and Shelf

- Available in 37.5A @ 48Vdc
- High power density, fan cooled
- Universal, wide range AC input
- 91% efficiency and power factor correction
- Hot swappable, 2RU ultra compact design



Cordex 48-1.8kW

Cordex 1.8kW

Electrical	
Nominal Input Voltage:	208 to 277Vac
Operating Input Voltage:	176 to 312Vac
Extended Input Voltage:	176 to 90Vac (derated power)
Input Frequency:	45 to 66Hz
Power Output:	1800W continuous @ nominal I/P 1150W (115 to 135Vac) (derated linearly to 900W @ 90Vac)
Power Factor:	>0.99 (50 to 100% load)
THD:	<5%
Efficiency:	>91%
Output Voltage:	42 to 60Vdc
Output Current:	37.5A @ 48Vdc (nominal I/P) 24A @ 48Vdc (115 to 135Vac) (derated linearly to 18.75W @ 90Vac)
Load Regulation:	<±0.5% (static)
Line Regulation:	<±0.1% (static)
Transient Response:	±2% for 50 to 100% load step, 2ms recovery time
Noise	
Voice Band:	<32dBmC
Wide Band:	<30mVrms (10kHz to 10MHz), <150mVpk to pk (10kHz to 100MHz)
Psophometric:	<1mV
Acoustic:	<60dBA @ 1m / 3ft
Mechanical	
Dimensions H x W x D (in/mm):	3.3 x 3.9 x 9.3 / 84 x 100 x 235
Weight (lb/kg):	6.2 / 2.8
Features	
Indicators:	AC mains OK — green LED Module OK — green LED Module fail — red LED
Controls:	CAN interface to CXC
Adjustments (via CXC Controller):	Float voltage, Equalize voltage, High voltage alarm, Low voltage alarm, High voltage shutdown, Current limit, Slope, Start delay timers
Protection:	Current limit/short circuit, Start delay, Input/output fuses, Output high voltage shutdown, Power limiting, Thermal foldback/shutdown, Input transient, AC low line foldback/shutdown, AC high voltage shutdown



Typical 7.2kW 23" Shelf with CXCM2

Environment	
Operating Temperature:	-40 to 65°C / -40 to 149°F
Storage Temperature:	-40 to 85°C / -40 to 185°F
Humidity:	0 to 95% non-condensing
Elevation:	-500 to 2800m / -1640 to 9186ft
Heat Dissipation:	<608BTU per hour
Standards	
Safety:	CSA C22.2 No 60950-1-03 UL 60950-1 1st Edition CE marked IEC/EN 60950-1
EMC:	ETSI 300 386
Emissions:	CFR47 (FCC) Part 15 Class B ICES-03 Class B EN55022 (CISPR 22) Class B C-Tick (Australia) EN 61000-3-2 EN 61000-3-3
Immunity:	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6 EN 61000-4-11 ANSI/IEEE C62.41 Cat B3

19" and 23" Shelf Systems

Mechanical	
Dimensions H x W x D (in/mm):	3.5 x 17.2 x 12.2 / 89 x 438 x 310
Weight (lb/kg):	19 / 8.5
Mounting:	19" flush or center mount, 23" center mount only

23" Shelf Systems

Mechanical	
Dimensions H x W x D (in/mm):	3.5 x 21.3 x 12.2 / 89 x 541 x 310
Weight (lb/kg):	22 / 10
Mounting:	23" flush or center mount

Connections	
Input:	Terminal blocks, mini-fit connectors (23" only)
Output:	Bus adapters with 3/8" studs on 1" center holes
Chassis Ground:	1/4" studs on 5/8" centers
CAN Communication:	RJ12 offset

Cordex HP™ 2kW

Modular Switched Mode Rectifier

- 94% efficiency for increased Op-Ex savings and reduced carbon footprint
- High temperature operation for installation in harsh outdoor environments
- Backwards compatible solution with Cordex 1.8kW rectifier shelves and power solutions
- Wide AC input operating range that satisfy a variety of global installation requirements



Cordex HP 2kW

Cordex HP 2kW

Electrical	
Nominal Input Voltage:	208 to 277Vac
Input Operating Voltage:	187 to 320Vac
Input Extended Voltage:	187 to 90Vac (derated power)
Input Frequency:	45 to 70Hz
Power:	2000W continuous/module (~1250W Output at 120Vac Input)
Power Factor:	>0.99 (50 to 100% load)
THD:	<5%
Efficiency:	94%
Output Voltage:	42 to 60Vdc
Output Current:	37A @ 54Vdc (41.6A max. 48V) (~26A @ 48Vdc at 120Vac Input)
Load Regulation:	<±0.5% (static)
Line Regulation:	<±0.1% (static)
Transient Response:	±2% for 40 to 90% load step, 10ms recovery time
Noise	
Web Band:	<30mV RMS (10kHz to 10MHz) <150mV pk to pk (10kHz to 100MHz)
Voice Band:	<38dBmC
Psophometric:	<2mV
Acoustic:	<55dBa @ 1m / 3ft
Mechanical	
Dimensions H x W x D (in/mm):	3.3 x 3.94 x 9.25 / 84 x 100 x 235
Weight (lb/kg):	6.6 / 3
Environment	
Standard Temperature:	-40 to 55°C / -40 to 131°F
Extended Temperature:	-40 to 75°C / -40 to 167°F (derated power) ~1800W @ 65°C / 149°F
Storage Temperature:	-40 to 85°C / -40 to 185°F
Humidity:	0 to 95% non-condensing
Elevation:	-500 to 2800m / -1640 to 9186ft
Heat Dissipation:	<437BTU per hour



Typical 10kW 23" Shelf with CXCI



Typical 8kW 23" Shelf with CXCM2

Features	
Indicators:	AC mains OK — green LED DC output OK — green LED Module alarm — red LED
Controls:	CAN interface to CXC controller
Adjustments (Via CXC Controller):	Float and equalize voltage, High and low voltage alarms, High voltage shutdown, Current limit, Start delay time, Slope %
Protection:	Current limit/short circuit, Start delay, Input/output fuses, Output high voltage shutdown, Power limiting, Thermal foldback/shutdown, Input transient, AC low line foldback/shutdown, AC high voltage shutdown
Standards	
Safety:	CSA C22.2 No 60950-1-03, UL 60950-1 1st Edition, CE marked
EMC:	ETSI 300 386
Emissions:	CFR47 (FCC) Part 15 Class B, ICES-03 Class B EN55022 (CISPR 22) Class B, C-Tick (Australia) EN 61000-3-2, EN 61000-3-3
Immunity:	EN 61000-4-2, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11, ANSI/IEEE C62.41 Cat B3

19" / 23" Shelf

Mechanical	
Dimensions H x W x D (in/mm):	3.4 x 17.4 x 12 / 86.3 x 442 x 304.8
Weight (lb/kg):	14.7 / 6.7
Mounting (4 Modules):	Fits 19" rack flush/center mount Fits 23" rack center mount only

23" Shelf

Mechanical	
Dimensions H x W x D (in/mm):	3.4 x 20.8 x 12 / 86.3 x 530 x 304.8
Weight (lb/kg):	18.1 / 8.2
Mounting (5 Modules):	Fits 23" racks only flush/center mount

Connections	
Input:	Molex mini-fit type
Output:	Bus adapters with 3/8" studs on 1" centers
Chassis Ground:	Compression lug 6 to 16mm ² (10 to 6AWG)
CAN Communications:	RJ 12 offset

Cordex™ 3.6kW

Modular Switched Mode Rectifier

- Available in 130A @ 24Vdc or 75A @ 48Vdc
- High power density, over 21kW per 23" shelf
- Power limiting and wide range AC input
- High efficiency and power factor correction
- Hot swappable, 4RU ultra compact design



Cordex 48-3.6kW

Cordex 3.6kW

Electrical	
Nominal Input Voltage:	208 to 277Vac
Operating Input Voltage:	176 to 312Vac
Extended Input Voltage:	176 to 90Vac (derated power)
Input Frequency:	45 to 66Hz
Power Output:	3600W continuous/module
Power Factor:	>0.99 (50 to 100% load)
THD:	<5%
Efficiency:	>92%
Output Voltage:	42 to 60Vdc
Float Voltage:	48 to 58Vdc
Output Current:	66A @ 54Vdc (75A max 48V)
Load Regulation:	<±0.5% (static)
Line Regulation:	<±0.1% (static)
Transient Response:	±2% for 50 to 100% load step, 2ms recovery time
Noise	
Voice Band:	<32dBmC
Wide Band:	<30mVrms (10kHz to 10MHz), <150mVpk to pk (10kHz to 100MHz)
Psophometric:	<1mV
Acoustic:	<60dBA @ 1m / 3ft
Mechanical	
Dimensions H x W x D (in/mm):	6.3 x 3.4 x 11.8 / 160 x 87 x 300
Weight (lb/kg):	10 / 4.6
Features	
Indicators:	AC mains OK — green LED Module OK — green LED Module fail — red LED
Controls:	CAN interface to CXC
Adjustments (via CXC Controller):	Float voltage, Equalize voltage, High/Low voltage alarm, High voltage shutdown, Current limit, Slope, Start delay
Protection:	Current limit/short circuit, Start delay, Input/output fuses, Output high voltage shutdown, Power limiting, Thermal foldback/shutdown, Input transient, AC low line foldback/shutdown

Environment	
Operating Temperature:	-40 to 65°C / -40 to 149°F
Storage Temperature:	-40 to 85°C / -40 to 185°F
Humidity:	0 to 95% non-condensing
Elevation:	-500 to 4000m / -1640 to 13120ft
Heat dissipation:	<1176BTU per hour
Standards	
Safety:	CSA C22.2 No 60950-1-03 UL 60950-1 1st Edition CE marked IEC/EN 60950-1
EMC:	ETSI 300 386
Emissions:	CFR47 (FCC) Part 15 Class B ICES-03 Class B EN55022 (CISPR 22) Class B C-Tick (Australia) EN 61000-3-2 EN 61000-3-3
Immunity:	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6 EN 61000-4-11 ANSI/IEEE C62.41 Cat B3
NEBS:	GR-1089 CORE GR-69 CORE



Cordex HP™ 4kW

Modular Switched Mode Rectifier

- Near 95% efficiency for increased OPEX savings and reduced carbon footprint
- High temperature tolerance for installation in harsh outdoor environments
- Backwards compatibility with Cordex 3.6kW rectifier shelves and power solutions provide cost effective upgrade path
- Wide AC input operating range that satisfies a variety of global installation requirements



CordexHP 4kW

Cordex HP 4kW

Electrical	
Nominal Input Voltage:	208 to 277Vac
Operating Input Voltage:	187 to 320Vac
Extended Input Voltage:	187 to 95Vac (derated power)
Input Frequency:	45 to 66Hz
Power Output:	4000W continuous/module
Power Factor:	>0.99 (50 to 100% load)
THD:	>7%
Efficiency:	94.9% peak @ 240Vac
Output Voltage:	44 to 60Vdc
Flood Voltage:	48 to 58Vdc
Output Current:	74A @ 54Vdc (85A max 48V)
Load Regulation:	<±0.5% (static)
Line Regulation:	<±0.1% (static)
Transient Response:	±3% for 40 to 90% load step
Noise	
Voice Band:	<38dBnC
Wide Band:	<20mVrms (10kHz to 10MHz), <100mVpk to pk (10kHz to 100MHz)
Psophometric:	<2mV
Acoustic:	<60dBA @ 1m / 3ft (at 30°C / 86°F)
Mechanical	
Dimensions H x W x D (in/mm):	6.3 x 3.4 x 11.8 / 160 x 87 x 300
Weight (lb/kg):	11 / 5
Features	
Indicators:	AC mains OK — green LED DC Output OK — green LED Module fail — red LED
Controls:	CAN interface to CXC Controller
Adjustments (via CXC Controller):	Float voltage Equalize voltage High/Low voltage alarm High voltage shutdown Current limit Slope Start delay timers
Protection:	Current limit/short circuit Start delay Input/output fuses Output high voltage shutdown Power limiting Thermal foldback/shutdown Input transient AC low line foldback/shutdown AC high voltage shutdown

Environment	
Standard Operating Temperature:	-40 to 55°C / -40 to 131°F
Extended Operating Temperature:	-40 to 75°C / -40 to 167°F (derated power) ~ 3600W @ 65°C / 149°F
Storage Temperature:	-40 to 85°C / -40 to 185°F
Humidity:	0 to 95% non-condensing
Elevation:	-500 to 4000m / -1640 to 13120ft
Heat dissipation:	<1190BTU per hour
Standards	
Safety:	CSA C22.2 No 60950-1-03 UL 60950-1 CE marked IEC/EN 60950-1
EMC:	ETSI 300 386
Emissions:	CFR47 (FCC) Part 15 Class B ICES-03 Class B EN55022 (CISPR 22) Class B EN 61000-3-2 EN 61000-3-3
Immunity:	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6 EN 61000-4-11 ANSI/IEEE C62.41 Cat B3

19" and 23" Shelf (5 Modules)

Mechanical	
Dimensions H x W x D (in/mm):	6.9 x 17.4 x 15.3 / 177 x 442 x 389
Weight (lb/kg):	19 / 8.5
Mounting:	19" flush or center mount, 23" center mount only

23" Shelf (6 Modules)

Mechanical	
Dimensions H x W x D (in/mm):	6.9 x 20.8 x 15.3 / 177 x 530 x 389
Weight (lb/kg):	21 / 9.5
Mounting:	23" flush or center mount

Connections	
Input:	Box type terminal block, 6 to 16mm ² (10 to 6AWG)
Output:	Bus adapters with 3/8" studs on 1" centers
Chassis Ground:	Compression lug, 6 to 16mm ² (10 to 6AWG)
CAN Communication:	RJ12 offset

CXPS 48-1.2-225

Standard 48Vdc Power System

- Integrated 48V, 225A system package with front access distribution
- High efficiency design for increased Op-Ex savings
- High temperature rated fan-cooled design for harsh outdoor installations
- Wide range AC input and IEC line cords for multiple AC service
- Flexible ordering options including configurations with racks and battery trays



CXPS 48-1.2-225

CXPS 48-1.2-225

Electrical		
Input		
Operating Voltage:	208/220/240Vac (Continuous operation 90 to 300Vac)	
Extended Voltage (High):	277 to 300Vac (derated power factor)	
Extended Voltage (Low):	90 to 176Vac (derated output power)	
Current:	7.5A max per module (176 to 300Vac) 6A max per module (90 to 176Vac)	
Frequency:	45 to 66Hz	
Efficiency:	>93% (50 to 100% load @ nominal voltage)	
Power Factor:	>.99	
Output		
Current	System:	225A max @ nominal I/P 112.5A @ 115Vac I/P
	Rectifier:	25A @ 48Vdc (nominal I/P) 12.5A @ 48Vdc (115Vac) (Subject to derating below 110Vac)
Power	System:	10800W max @ nominal I/P 5400W @ 115Vac I/P
	Rectifier:	1200W max @ nominal I/P 600W @ 115Vac (Subject to derating below 110Vac)
Features		
Configurations		
053-691-20-000:	Base system with 19/23" universal mounting	
053-619-20-040:	System mounted in 23", 44RU Z4 rack with 2x battery trays for 2x 48V strings	
053-691-20-031:	System mounted in 19", 44RU Z4 rack with 3x battery trays for 3x 48V strings	
Rectifier:	Up to 9x HP 48V-1.2kW rectifier positions	
Distribution:	14x load breaker positions (mid-trip, plug-in style) 4x battery breaker positions (series-trip, plug-in) Low voltage disconnect Shunt	
Controller:	CXCM1 Modular Controller	

Mechanical	
Dimensions H x W x D (in/mm):	8.7 x 17.2 x 14.8 / 222 x 438 x 376 (-000 configuration - excludes mounting brackets, rear cover, and module handle)
System Weight (lb/kg):	47/21.3
Rectifier Weight (lb/kg):	6.2/2.8 each
Mounting:	19/23" universal mount (center or flush)
Connections	
Load Breaker:	14x sets, 1/4"-20 studs on 5/8" centers
Battery Breaker:	4x sets, 1/4"-20 studs on 5/8" centers
Return Bar:	18x sets, 1/4" holes on 5/8" centers
Alarm:	Screw terminal 1.31mm ² to 0.128mm ² (#16 to #26 AWG)
CXCM1 Input:	25-pin D-Sub cable
Access:	Front access after installation
Environment	
Operating Temperature:	-40 to 65°C / -40 to 149°F -40 to 75°C / -40 to 167°F derated output
Humidity:	0 to 95% non-condensing
Elevation:	-500 to 2800m / -1640 to 9186ft -500 to 4000m / -1640 to 13124ft with temperature derated to -40°C / 104°F output
Components	
877-690-19:	5-15P (120V) line cord, 2.5m
877-671-19:	Universal lmc cord, flying leads, 3.5m
747-622-20-000:	Blank plate
470-347-10:	100A battery breaker
747-503-20:	150A battery breaker
747-504-20:	250A battery breaker

CXPS 48-1.8-i and CXPS 48-1.8-M2

Standard 48Vdc Power System

- Integrated 48V, 150-262A system package with front access distribution
- High temperature rated fan cooled design for harsh outdoor installations
- Wide range AC input for multiple worldwide AC services
- Modular controller with touch screen display for full local control over system (CXPS 48-1.8-M2 only)
- Flexible ordering options including configurations with racks and battery trays



CXPS 48-1.8-M2

CXPS 48-1.8-i and CXPS 48-1.8-M2

Electrical		CXPS 48-1.8-i	CXPS 48-1.8-M2
Input			
Nominal Input Voltage:		176 to 312 Vac, 90 to 176Vac (derated O/P power)	
Input Current:		14.6A @ 240Vac, 12.2A @ 120Vac (per module)	
Input Frequency:		45 to 66Hz	45 to 66Hz
Efficiency:		>91% (50 to 100% load @ nominal voltage)	
Input Power Factor:		>.99	>.99
Output			
Current	System:	150A max @ nominal I/P 96A max @ 120Vac I/P	262.5A max @ nominal I/P 96A max @ 120Vac I/P
	Rectifier:	37.5A @ 48Vdc (nominal I/P) 24A @48Vdc (115 to 135Vac) (derated linearly to 18.75A @ 90Vac)	
Power	System:	7200W max @ nominal I/P 4600W @ 120Vac I/P	12600W max @ nominal I/P 8050W @ 120Vac I/P
	Rectifier:	1800W max @ nominal I/P 1150W (115 to 135Vac) (derated linearly to 900W @ 90Vac)	
Features			
Configurations			
Base System with 19/23" Universal Mounting:		053-990-20-000	053-991-20-000
System Mounted in 23", 44RU Z4 Rack with 2x Battery Trays for 2x 48V Strings:		053-990-20-040	053-991-20-040
System Mounted in 19", 44RU Z4 rack with 3x Battery Trays for 3x 48V Strings:		053-990-20-031	053-991-20-031
Rectifier:		Up to 4x 48V-1.8kW rectifier positions	
Distribution:		14x load breaker positions (mid-trip, plug-in style) 4x battery breaker positions (series-trip, plug-in) Low voltage disconnect Shunt	
Controller:		CXCI integrated controller	CXCM2 integrated controller

Mechanical	CXPS 48-1.8-i	CXPS 48-1.8-M2
Dimensions H x W x D (in/mm):	8.7 x 17.2 x 12.2 / 222 x 438 x 310 (-000 configuration - excludes mounting brackets, rear cover, and module handle)	
System Weight (lb/kg):	42 / 19	62 / 28
Rectifier Weight (lb/kg):	6.2 / 2.8 each	6.2 / 2.8 each
Mounting:	19/23" universal mount (center or flush)	
Connections		
Load Breaker:	14x sets, 1/4"-20 studs on 5/8" centers	
Battery Breaker:	4x sets, 1/4"-20 studs on 5/8" centers	
Return Bar:	18x sets, 1/4" holes on 5/8" centers	
Rectifier Input:	HOT: 2x sets, 3/8" holes on 1" centers RTN: 2x sets, 3/8" holes on 1" centers	
Alarm:	Screw terminal 1.31mm ² to 0.128mm ²	
CSCI Input:	25-pin D-Sub cable	-
CXCM2 Input:	-	3x DB-style cable connections
Access:	Front access after installation	
Environment		
Operating Temperature:	-40 to 65°C / -40 to 149°F -40 to 75°C / -40 to 167°F derated output	
Humidity:	0 to 95% non-condensing	
Elevation:	-500 to 2800m / -1640 to 9186ft -500 to 4000m / -1640 to 13124ft with derated output	
Components		
058-156-20:	23" battery tray expansion kit (for use with -040 configuration)	
058-157-20:	19" battery tray expansion kit (for use with -031 configuration)	
470-347-10:	100A battery breaker	
747-503-20:	150A battery breaker	
747-504-20:	250A battery breaker	



CXPS 48-1.8-i

CXPS 48-1T

48V 375 to 825A Power Systems

- 48Vdc systems using high density 3.6kW rectifiers
- Front access DC connections
- CXCM4 advanced modular controller
- Flexible integrated rack options
- Integrated system shunt and LVD

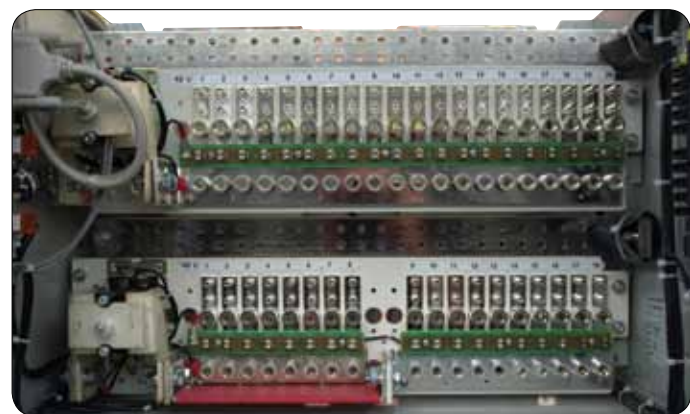


CXPS 48V 375A

CXPS 48-1T

Configurations	
CXPS 48-1T (with LVD)	
053-392-20-000:	Base system with 23" mounting
053-392-20-010:	System mounted in 22RU (1/2 height) battery mount rack
053-392-20-020:	System mounted in 44RU Zone 4 seismic rack
053-392-20-030:	System mounted in 44RU Zone 4 rack with 3x battery trays for 3x 48V strings
Rectifier:	Up to 5x 48V to 3.6kW rectifier positions
Distribution:	18x AM plug-in breaker positions, 10x GMT type fuse positions, Shunt, Low voltage disconnect
Controller:	CXCM4 modular controller
CXPS 48-1T_b (no LVD)	
053-692-20-000:	Base system with 23" mounting
053-692-20-010:	System mounted in 44RU Zone 4 seismic rack
053-692-20-020:	System mounted in 44RU Zone 4 rack with 3x battery trays for 3x 48V strings
Rectifier:	Up to 5x 48V to 3.6kW rectifier positions
Distribution:	24x AM plug-in breaker positions, 10x GMT type fuse positions, Shunt, Low voltage disconnect
Controller:	CXCM4 modular controller
Electrical	
Input Voltage:	176 to 320Vac
Current:	16.8A @ 240Vac nominal (per rectifier module)
Frequency:	45 to 66Hz
Power Factor:	>0.99
Output Voltage:	42 to 60Vdc
Current:	System: 375A (expandable to 600A with additional CXRF shelf), Rectifier: 75A @ 48Vdc
Power:	System: 18kW (expandable to 28.8kW with additional CXRF shelf), Rectifier: 3600W max
Environment	
Temperature:	-40 to 65°C / -40 to 149°F -40 to 75°C / -40 to 167°F derated output
Humidity:	0 to 95% non-condensing
Elevation:	-500 to 2800m / -1640 to 9186ft -500 to 4000m / -1640 to 13124ft with derated output

Mechanical	
Dimensions H x W x D (in/mm):	19.25 x 23 x 18.8 / 488 x 584 x 477 (-000 configuration - excludes mounting brackets)
Weight (lb/kg):	110 / 49.8 (no rectifiers or breakers included)
Mounting:	23" center mount
Connections	
Load Breaker:	Hot: 1/4" -20 studs on 5/8" centers Return: 1/4" holes on 5/8" centers
GMT Fuses:	Screw terminal 1.31mm ² to 0.128mm ² (#16 to #26 AWG)
Battery Terminations:	5/8" holes on 1" centers 4x sets per polarity
Rectifier Input:	5/8" holes on 1" centers
Alarm Connections:	Screw terminal 1.31mm ² to 0.128mm ² (#16 to #26 AWG)
Access:	Cable: top or bottom User: front access after installation
Related Components	
010-567-20:	Cordex 48V-3.6kW rectifier
058-716-20:	Cordex rectifier CXRF 48-3.6kW expansion shelf kit



CXPS 48-1T Internal Distribution

CXPS 48-2T

48V 375 to 825A Power Systems

- 48Vdc systems using high density 3.6kW rectifiers
- Front access DC connections
- CXCM4 advanced modular controller
- Flexible integrated rack options
- Integrated system shunt and LVD



CXPS 48V 825A

CXPS 48-2T

Configurations	
CXPS 48-2T (with LVD)	
053-393-20-000:	Base system with 23" mounting
053-393-20-010:	System mounted in 22RU (1/2 height) battery mount rack
053-393-20-020:	System mounted in 44RU Zone 4 seismic rack
053-393-20-030:	System mounted in 44RU Zone 4 rack with 3x battery trays for 3x 48V strings
Rectifier:	Up to 11x 48V-3.6kW rectifier positions
Distribution:	38x AM plug-in breaker positions, 10x GMT type fuse positions, Shunt, Low voltage disconnect
Controller:	CXCM4 modular controller
CXPS 48-2T_b (no LVD)	
053-693-20-000:	Base system with 23" mounting
053-693-20-020:	System mounted in 44RU Zone 4 seismic rack
053-693-20-030:	System mounted in 44RU Zone 4 rack with 3x battery trays for 3x 48V strings
Rectifier:	Up to 11x 48V-3.6kW rectifier positions
Distribution:	48x AM plug-in breaker positions, 10x GMT type fuse positions, Shunt
Controller:	CXCM4 modular controller
Electrical	
Input Voltage:	176 to 320Vac
Current:	16.8A @ 240Vac nominal (per rectifier module)
Frequency:	45 to 66Hz
Power Factor:	>0.99
Output Voltage:	42 to 60Vdc
Current:	System: 825A (expandable to 1200A with additional CXRF shelf), Rectifier: 75A @ 48Vdc
Power:	System: 39.6kW (expandable to 57.6kW with additional CXRF shelf), Rectifier: 3600W max
Environment	
Temperature:	-40 to 65°C / -40 to 149°F -40 to 75°C / -40 to 167°F derated output
Humidity:	0 to 95% non-condensing
Elevation:	-500 to 2800m / -1640 to 9186ft -500 to 4000m / -1640 to 13124ft with derated output

Mechanical	
Dimensions H x W x D (in/mm):	29.7 x 23 x 18.8 / 755 x 584 x 477 (-000 configuration - excludes mounting brackets)
Weight (lb/kg):	155 / 70.3 (no rectifiers or breakers included)
Mounting:	23" center mount
Connections	
Load Breaker:	Hot: 1/4" -20 studs on 5/8" centers Return: 1/4" holes on 5/8" centers
GMT Fuses:	Screw terminal 1.31mm ² to 0.128mm ² (#16 to #26 AWG)
Battery Terminations:	3/8" holes on 1" centers 4x sets per polarity
Rectifier Input:	3/8" holes on 1" centers
Alarm Connections:	Screw terminal 1.31mm ² to 0.128mm ² (#16 to #26 AWG)
Access:	Cable: top or bottom User: front access after installation
Related Components	
010-567-20:	Cordex 48V-3.6kW rectifier
058-716-20	Cordex rectifier CXRF 48-3.6kW expansion shelf kit



CXPS 48-2T Internal Distribution

Cordex™ System

48V 2000A Power Systems

- Up to 2000A system
- Cordex modular rectifiers
- User-configurable, modular distribution tiers
- Intelligent system control and communication



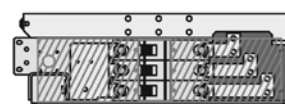
Cordex 48V 2000A

Cordex System

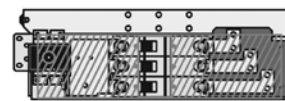
Electrical	
AC Input:	Single Phase, 208 to 277Vac Dual 3 Phase, 208 to 240Vac (w/o neutral) Dual 3 Phase, 360 to 480Vac (with neutral)
Rectifier Voltage:	208 to 277Vac 45 to 70Hz
Output Voltage:	42 to 58Vdc (Cordex rectifiers)
Output Current:	66A @ 54Vdc per 3.6kW rectifier
Power:	21.6kW per rectifier shelf
Max. Bus Capacity:	2000A system bus 600A max. per distribution tier
Mechanical	
Dimensions H x W x D (in/mm):	84 x 28.1 x 19 / 2133 x 714 x 483
Weight (lb/kg):	Approx. 902 / 410 with 4 tier distribution center and 5 fully loaded Cordex shelves
Environment	
Temperature:	0 to 50°C / 32 to 122°F
Humidity:	0 to 95% non-condensing
Elevation:	-500 to 2800m / -1640 to 9186ft

Related Components	
Rectifiers:	Choose up to six Cordex 48V rectifiers per shelf Choose up to six field-expandable shelves per system
Low Voltage Disconnect:	LVD optional 48Vdc/600A (one per distribution tier)
Distribution:	Choose distribution center for 1 tier, 2 tier or 4 tier Terminations (breaker options for tiers 1 through 4)
AM-type/TPS Bullet Style:	2 x 1/4"-20 studs on 5/8" centers per pole
GJ Breaker:	2 x 3/8"-16 studs on 1" centers per pole; i.e., 2-pole breaker will have two sets
Cordex Controller:	The system's monitoring and control center
Battery Options:	2V Battery cell monitor (1 string) 12V Battery cell monitor (4 strings) Battery tray with breaker (12V blocks)
Tier 1 Can Be Equipped With:	24-position AM-type bullet style breakers* 20-position bullet style breakers* with LVD
Tiers 2 to 4 Can Be Equipped With:	24-position AM-type bullet style breakers* 20-position bullet style breakers* with LVD 3-position GJ (with or without LVD)

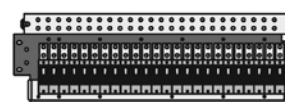
* Bullets style TPS fuse holder and GMT fuse blocks available



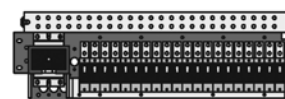
3 positions GJ breaker tier rated at 600Amps



3 positions GJ breaker tier with LVD rated at 600Amps



24 position bullet breaker tier rated at 600Amps



20 position bullet breaker tier with LVD rated at 600Amps

Cordex™ System

48V 8000A Power Systems

- 8000A Capacity
- Designed for MSCs, COs and Cable Headend facilities
- Cordex 3.6kW modular rectifiers
- Circuit breaker and TPL fuse options
- Internal bay-to-bay copper busswork
- Expandable power and distribution bays
- Optional overhead buss duct system



Cordex 48V 4000A

Cordex System

Electrical	
AC Input:	Single Phase, 208 to 277Vac Dual 3 Phase, 208 to 240Vac (w/o neutral) Dual 3 Phase, 360 to 480Vac (with neutral)
Rectifier Voltage:	208 to 277Vac
Max. Bus Capacity:	10000A system 2000A per bay
Distribution	
Fuses	
TPL:	2 position, 61 to 800A breakers
GJ/GJ1P:	1 pole up to 225A 2 pole 250 to 400A 3 pole 450 to 700A
Output Termination	
TPL Fuse:	2 hole ½" dia. on 1¼" centers or 2 hole ¾" dia. on 1" centers
GJ Breaker:	1 pole and 2 pole are ¾" to 16, 3 pole are 2 hole, ½" dia. on 1¼" centers or ¾" dia. on 1" centers
Ground Bar:	Overhead buss ground, 15 sets of 2 hole ½" dia. on 1¼" centers (basic system)
Mechanical	
Enclosure:	1.095mm (14 gauge) steel
Mounting:	Standard 23" relay rack (flush rack mount) in box bay
Dimensions H x W x D (in/mm):	84 x 28 x 28 / 2133.6 x 711.2 x 711.2
Weight (lb/kg):	Approx. 600 / 272 per bay (no rectifiers)

Environment	
Temperature:	0 to 50°C / 32 to 122°F
Humidity:	0 to 95% non-condensing
Elevation:	-500 to 2800m / -1640 to 9186ft
System Level Alarms/Controls:	Alarms/control parameters are user-programmable through built-in digital supervisory unit
Indicators:	LCD with touch screen System OK — green LED System minor alarm — yellow LED System major alarm — red LED
Alarm Connections:	0.34 to 2.5mm ² (14 to 22AWG)
Load Disconnect:	48Vdc/1200A x N mounted on load side (optional)
Smart Peripheral Modules	
Shunt Multiplexer:	16 shunts per module
Battery Cell Monitor:	1 string, 2V cells per module
Battery Cell Monitor:	4 strings, 12V blocks per module

CXPS 24-48-i

24 to 48V DC-DC Converter System

- Integrated 8kW capacity 24-48Vdc converter system with front access distribution
- Support for small to medium 48Vdc loads from legacy 24V power system
- Integrated Cordex CSCi for advanced local and remote monitoring and control
- Internal low voltage shutdown for cost effective integration into existing systems
- Universal 19/23" mounting for flexible installation options into existing racks



CXPS 24-48-i Power System

CXPS 24-48-i

Electrical	
Input	
Voltage:	+21 to +30Vdc 90 to 176Vac (derated O/P power)
Current System:	Feed A: <188A @ +24V input (216A max) Feed B: <188A @ +24V input (216A max)
Current Converter:	<94A @ +24V input (108A max)
Efficiency:	>88% (50 to 100% load @ nominal voltage)
Output	
Current System:	148A max @ 54Vdc
Current Converter Module:	37A max @ 54Vdc
Power System:	8000W max @ 54Vdc output
Power Rectifier:	2000W max @ 54Vdc output
Features	
Configurations	
053-997-20-000:	Base system with 19/23" universal mounting
Converter:	Up to 4x CXDF 24-48/2kW converter positions
Distribution:	18x load breaker positions (mid-trip, plug-in style), shunt
Controller:	CXCI integrated controller

Mechanical	
Dimensions H x W x D (in/mm):	8.75 x 17.24 x 12.2 / 222 x 438 x 310 (-000 configuration - excludes mounting brackets, rear cover, and module handle)
System Weight (lb/kg):	42 / 19
Rectifier Weight (lb/kg):	6.2 / 2.8 each
Mounting:	19/23" universal mount (center or flush)
Connections	
Load Breaker:	18x sets, 1/4"-20 studs on 5/8" centers
Return Bar:	18x sets, 1/4" holes on 5/8" centers
Alarm:	Screw terminal 1.31mm ² to 0.128mm ² (#16 to #26 AWG)
CXCI Input:	25-pin D-Sub cable
Access:	Front access after installation
Environment	
Operating Temperature:	-40 to 65°C / -40 to 149°F -40 to 75°C / -40 to 167°F derated output
Humidity:	0 to 95% non-condensing
Elevation:	-500 to 2800m / -1640 to 9186ft

Distribution Centers

- Various modular distribution configurations
- Complete front access
- Integrated Cordex™ system controller
- Integrated shunt and LVD options
- AM plug-in breaker, GJ breaker and GMT fuse options



DCP03 Distribution Center

Vista Distribution Panel

	Part Number	Breakers	Position	Capacity	Mounting	RU
Single Tier:	020-645-20	AM plug-in	20-24	600A	23"	7
Two Tier:	020-646-20	AM plug-in	40-48	1200A	23"	9
Four Tier:	020-635-20	AM plug-in	80-96	2000A	23"	17
Modular Distribution Tier Options						
Single Voltage:	24 Position AM plug-in 20 Position AM plug-in w/ 600A LVD 3 Position GJ 3 Position GJ w/ 600A LVD					
Dual Voltage:	12x Primary and 10x secondary (AM plug-in) 16x Primary and 6x secondary (AM plug-in) 8x Primary (w/ LVD) and 10x secondary (AM plug-in) 12x Primary (w/ LVD) and 6x secondary (AM plug-in)					

Note: Consult factory for NEBS L3 certified system solutions using Vista UDC's



Vista Two Tier UDC

Distribution Panel Overview

	Part Number	Fuse Position	Fuse Type	Breaker Position	Breaker Type	Capacity	Mounting	Front Access	RU	Additional Options
Stand Alone Breaker / Fuse Panels	020-107-20	0	-	16/22	AM bolt-in	550A	19/23"	No	3	Gnd bar
	020-588-20	16*	TPS*	16	AM bolt-in	400A	19/23"	Yes	5	Gnd bar, LVD
	020-589-20	20*	TPS*	20	AM bolt-in	400A	23"	Yes	5	Gnd bar, LVD
	020-671-20	24*	TPS*	24	AM bolt-in	600A	23"	No	3	-
	020-675-20	18*	TPS*	18	AM bolt-in	600A	19/23"	No	3	-
	020-534-20	0	-	3	GJ bolt-in	-	19/23"	No	3	-
	020-578-20	0	-	4	GJ bolt-in	-	23"	No	4	-
	020-103-20	32	GMT	0	-	60A	19/23"	No	1	Gnd bar
	020-005-20	20	GMT	0	-	90A	19/23"	No	1	Gnd bar
020-597-20	2	TPL	0	-	1200A	23"	No	4	Shunt	
Universal Distribution Centers:	020-702-20	18*	TPS*	18	AM plug-in	300A	19/23"	Yes	3	Controller I/O, LVD, Shunt, Batt breakers
	020-645-20	20-24"	TPS*	20-24	AM plug-in**	800A	23"	Yes	7	Controller, LVD, Shunt
		10	GMT							-
	020-646-20	40-48"	TPS*	40-48	AM plug-in**	1000A	23"	Yes	9	Controller, LVD, Shunt
		10	GMT							-
	020-635-20	80-96"	TPS*	80-96	AM plug-in**	2000A	23"	Yes	17	Controller, LVD, Shunt
10		GMT							-	

Notes: * TPS Fuses with AM plug-in breaker cartridges may be used as an alternative to breakers ** Compatible with multiple pole AM plug-in breakers (110 to 250A)

DC Accessories

- Rack mount power sources including integrated distribution fuses save space and provide flexibility
- Distribution systems from 50A GMT fuse panels to 800A circuit breaker distribution centers
- 19"/23" universal rack mount



HDDC: High Density

GMT Fuse Panels

GMT 50 Series



19"/23" rack mount, 1RU high
 Flush mount and center positions
 Standard capacity: 50A per input
 Bright, color coded LED indicators for A/B input power status, A/B fuse failure alarms
 Form-C alarm contacts for A/B input power fail, A/B fuse fail (4 relays)
 Single input and dual input:

- 10 GMT output
- 10A/10B output
- 20 GMT output

GMT 100/High Capacity Series



19"/23" rack mount, 1RU high
 Flush mount and center positions
 Bright, color coded LED indicators for A/B input power status, A/B fuse failure alarms
 Single input, A/B insulated input and A/B/C redundant configuration available
 Included LED indicators, form-C alarm contacts

100 Series

High power density and ampacity:

- 100A per input: (single input, A/B input)
- 70A: (A/B/C- source)

Form-C alarm

- 16 GMT outputs
- 16A/16B GMT outputs

C-output diode routed, 32 fused redundant outputs

High Capacity Series

24 GMT fuse sockets
 150A input bus rating
 Configurations include:

- Single input, 24 fuses
- A/B input, 12A/12B fuses, A/B/C version, 24 fuses

TPA Fuse Panel



1RU, 19"/23" rack mount
 Single input, A/B isolated input and A/B/C redundant configurations available
 12 TPA fuse sockets
 200A input bus rating
 Includes LED indicators, form-C alarm contacts

Circuit Breaker Panel

KTK Fuse Panel



19"/23" rack mount, 1RU high
 High power density
 High ampacity: 120A per A/B input
 Bright, color coded LED indicators for A/B input power status, A/B fuse failure alarms
 Form-C alarm contacts for A/B input power fail, A/B fuse fail (4 relays)
 Dual input: 4A/4B and KTK 30A fuse outputs

HDDC: High Density



19"/23" rack mount, 3RU high
 Single input
 A/B isolated input
 A/B input
 C-output redundant diode routed
 High breaker count to support VOD server redundant power supply circuit requirements and combined high current load
 High power density and ampacity:

- 300A per input: (single input, A/B input)
- 200A combined load: (A/B/C-source)

Accepts up to 22 plug-in bullet terminal circuit breakers
 Alphanumeric LCD display for voltage, load current per bus, breaker status
 Form-C alarm contacts for Major and Minor alarms



DC Accessories

- Compact, high power density DC distribution fuse panels and circuit breaker panels
- High current, high fuse/breaker count in a small RU footprint
- Battery disconnect for circuit breaker protection of the entire facility DC plant



HDX Compact

DCX Series

DCX Series
EEE Disconnect One Series

400, 600, 800, 1000, 1200, 1800 and 2400A models
 Direct Battery Terminal mounting options for most battery configurations. Bus adapter and hardware kits provided for individual battery cell size configurations.
 LED indicators for On Line/Off Line status, EPO trip and general fault alarm status
 Form-C relay contact output for remote monitoring of status
 Integrated EPO function for remote trip
 Over-current and non over-current models

Matrix Breaker Panel



1RU, 19"/23" rack mount
 Single input, A/B insulated input and A/B/C redundant configurations available
 200A input bus rating
 Uses new "slimline" 1RU circuit breakers (Breaker choices available from 5A to 100A)
 Includes LED indicators, form-C alarm contacts
 Configurations include:

- Single input, 20 breakers
- A/B input, 10A/10B breakers, A/B/C version, 16 breakers

Super HDX



2RU, 19"/23" rack mount
 Single input, A/B insulated input configurations available
 400A input bus rating
 Uses AM series bullet terminal circuit breakers (Breaker choices available from 5A to 100A)
 16 circuit breaker position
 No GMT fuses (unlike standard HDX)
 Targeted at Cisco 7609 installations

HDX Compact

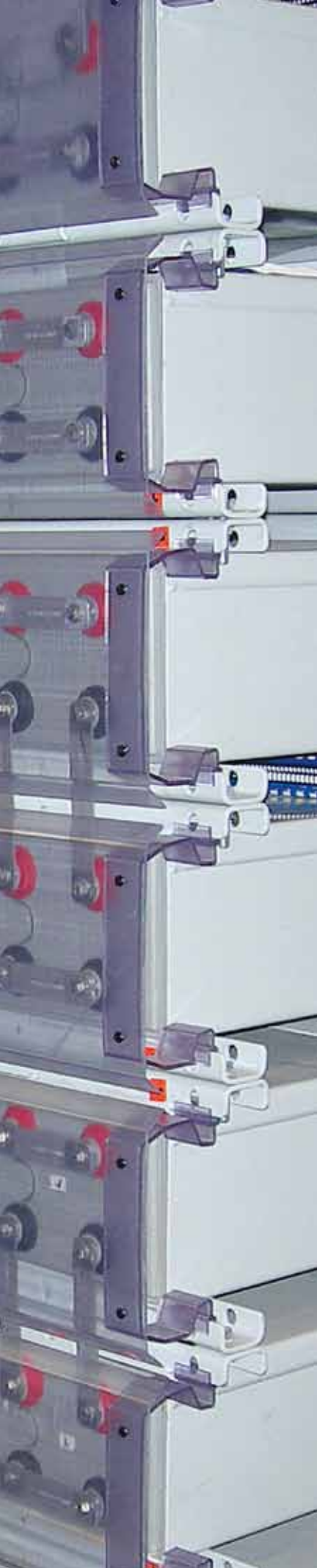


19"/23" rack mount, 2RU high
 Single input
 A/B isolated input
 High power density and ampacity:

- 300A per input: (single input, A/B input)
- 300A combined load: (A/B/C-source)
- Accepts up to 12 plug-in bullet terminal circuit breakers
- 8 GMT fuses

 Standard unit includes front panel with A and B input LED indicators and breaker/fuse trip indicator LED
 Form-C alarm contacts for Major and Minor alarms





Batteries and Accessories

Alpha's Headend battery line includes three distinct types of models: 20-year batteries, 10-year telecom front and top terminal, and flame retardant UPS batteries. These batteries provide improved performance, longer runtimes and extended service life. The front terminal models allow for easier access to the batteries during installation and routine maintenance. Alpha's Headend batteries are ideal for broadband, cellular, electric utility, PCS, customer premise, long distance and distributed power.

➤ Telecommunications

In critical standby power applications, maximum battery life is essential. Alpha offers a wide range of large format 2V Cell batteries, front and top terminal batteries ideal for providing extended runtime for telecom and wireless applications. Alpha's Telecom batteries include features such as 10-20 year design life, small footprint, customizable configuration, strong corrosion-resistant grid design, and easy installation and maintenance.

➤ AlphaCell™ HPL-FT

Alpha expands its Alphacell battery family to include the HPL-FT Series of front terminal batteries for Broadband Cable and Telecommunications applications. The AlphaCell HPL-FT series are valve regulated lead acid batteries designed for long life. Benefits of these new batteries include central gassing system, snap-in front covers, integral flame arrestor, construction from recyclable materials and low self-discharge rates.

➤ PowerAgent

The PowerAgent BMS is a remote monitoring system that alerts managers to degradations in the power-producing capacity of batteries indoor/outdoor uninterruptible power supply applications. Based on an advanced patent pending technology called "admittance" testing, the BMS employs DSP (Digital Signal Processing) and standards-based interface protocols to facilitate seamless integration of battery monitoring into an enterprise-wide network management fabric.

➤ AlphaGuard™

AlphaGuard monitors and protects your batteries by spreading the charge voltage equally across all the batteries in the string, ensuring that every battery, whether old or new, is properly charged. With an ideal voltage across each battery, life and runtime are optimized. Individual batteries in a string can be replaced as they fail, allowing batteries to be left in service longer.

➤ Battery Testing Equipment

A fast, reliable and affordable testing process is now available with the development of conductance based battery measurement technology. By coupling conductance testing with a simple utility load test, the system operator is armed with the quality of data necessary to know the status of their installed standby batteries and budget their replacement with confidence.

Telecommunications

Large Format 2V Cell Batteries



MsEndur

- 20-year design life batteries with VRLA technology
- Space saving design for the greatest amount of power in a small footprint
- Customizable to your system's configuration needs

C&D MS Endur 345 to 2180Ah									
Part Number	# Cells/Module	# Plates/Cell	Nom Ah Cap (8hr)	System # of Cells	System Voltage	Model Volts	Dimensions H x W x D (in/mm)	Weight (lb/kg)	Cell Layout W x H
RAA64024CE01:	3	7	345	24	48	6	21.4 x 44.7 x 23.1 / 544 x 1135 x 587	1970 / 849	6 x 4
RBB46024CE01:	3	9	480	24	48	6	18.7 x 64.5 x 23.1 / 475 x 1638 x 587	2470 / 1120	4 x 6
RBB64024CE01:	3	9	480	24	48	6	26.1 x 44.7 x 23.1 / 663 x 1135 x 587	2410 / 1093	6 x 4
RCC46024CE01:	3	11	599	24	48	6	21.4 x 64.5 x 23.1 / 544 x 1638 x 587	2920 / 1324	4 x 6
RDF38024CE01:	3	15	839	24	48	6	30.4 x 44.7 x 23.1 / 772 x 1135 x 587	2850 / 1293	3 x 8
RDF46024CE01:	3	15	839	24	48	6	21.4 x 84.4 x 23.1 / 544 x 2144 x 587	3860 / 1751	4 x 6
REH38024CE01:	3	19	1079	24	48	6	27.9 x 64.5 x 23.1 / 703 x 1638 x 587	3790 / 1719	3 x 8
REH46024CE01:	3	19	1079	24	48	6	26.1 x 84.4 x 23.1 / 663 x 2144 x 587	4740 / 2150	4 x 6
RFK38024CE01:	3	23	1319	24	48	6	33.5 x 64.5 x 23.1 / 851 x 1638 x 587	4670 / 2118	3 x 8
RFK46024CE01:	3	23	1319	24	48	6	30.4 x 84.5 x 23.1 / 772 x 2146 x 587	5620 / 2549	4 x 6
RHP38024CE01:	3	27	1559	24	48	6	39.5 x 64.5 x 23.1 / 1001 x 1638 x 587	5550 / 2517	3 x 8
RHP46024CE01:	3	27	1559	24	48	6	34.4 x 84.4 x 23.1 / 874 x 2144 x 587	6550 / 2971	4 x 6
RJS38024CE01:	3	35	2038	24	48	6	45.5 x 64.5 x 23.1 / 1156 x 1638 x 587	6540 / 2966	3 x 8
RJS46024CE01:	3	35	2038	24	48	6	43.6 x 84.4 x 23.1 / 1107 x 2144 x 587	8320 / 3774	4 x 6

East Penn Unigy II 760 to 2000Ah									
Part Number	# Cells/Module	# Plates/Cell	Nom Ah Cap (8hr)	System # of Cells	System Voltage	Model Volts	Dimensions H x W x D (in/mm)	Weight (lb/kg)	Cell Layout W x H
24AVR95-17:	3	17	760	24	48	6	21.9 x 68.3 x 27.1 / 556 x 1735 x 688	3260 / 1479	3 x 8
24AVR95-19:	3	19	855	24	48	6	24.2 x 68.3 x 27.1 / 615 x 1735 x 688	3612 / 1638	3 x 8
24AVR95-21:	3	21	950	24	48	6	26.4 x 68.3 x 27.1 / 671 x 1735 x 688	3956 / 1794	3 x 8
24AVR95-23:	3	23	1045	24	48	6	28.7 x 68.3 x 27.1 / 729 x 1735 x 688	4308 / 1954	3 x 8
24AVR95-25:	3	25	1140	24	48	6	30.1 x 68.3 x 27.1 / 765 x 1735 x 688	4652 / 2110	3 x 8
24AVR95-27:	3	27	1235	24	48	6	33.2 x 68.3 x 27.1 / 843 x 1735 x 688	4972 / 2255	3 x 8
24AVR95-29:	3	29	1330	24	48	6	35.4 x 38.3 x 27.1 / 899 x 1735 x 688	5348 / 2426	3 x 8
24AVR95-31:	3	31	1425	24	48	6	37.7 x 68.3 x 27.1 / 958 x 1735 x 688	5668 / 2571	3 x 8
24AVR95-33:	3	33	1520	24	48	6	39.9 x 68.3 x 27.1 / 1013 x 1735 x 688	6020 / 2737	3 x 8
24AVR125-33:	2	33	2000	24	48	6	53.2 x 71.4 x 28.6 / 1351 x 1814 x 726	8616 / 3908	(2 x 6) x 2

GNB Absolyte GP									
Part Number	# Cells/Module	# Plates/Cell	Nom Ah Cap (8hr)	System # of Cells	System Voltage	Model Volts	Dimensions H x W x D (in/mm)	Weight (lb/kg)	Cell Layout W x H
100G13:			600	24	48	6			
100G15:	3	15	696	24	48	6	22.2 x 68.7 x 26.4 / 564 x 1745 x 671	2992 / 1357	3 x 8
100G17:	3	17	800	24	48	6	24.5 x 68.7 x 26.4 / 622 x 1745 x 671	3391 / 1539	3 x 8
100G19:	3	19	896	24	48	6	26.8 x 68.7 x 26.4 / 681 x 1745 x 671	3760 / 1706	3 x 8
100G21:	3	21	1000	24	48	6	29 x 68.7 x 26.4 / 737 x 1745 x 671	4120 / 1869	3 x 8
100G23:	3	23	1096	24	48	6	31.3 x 68.7 x 26.4 / 795 x 1745 x 671	4488 / 2036	3 x 8
100G25:	3	25	1200	24	48	6	33.5 x 68.7 x 26.4 / 851 x 1745 x 671	4864 / 2206	3 x 8
100G27:	3	27	1296	24	48	6	35.8 x 68.7 x 26.4 / 909 x 1745 x 671	5224 / 2370	3 x 8
100G29:	3	29	1400	24	48	6	38 x 68.7 x 26.4 / 965 x 1745 x 671	5632 / 2555	3 x 8
100G31:	3	31	1496	24	48	6	40.3 x 68.7 x 26.4 / 1024 x 1745 x 671	6000 / 2722	3 x 8
100G33:	3	33	1600	24	48	6	42.5 x 68.7 x 26.4 / 1080 x 1745 x 671	6360 / 2885	3 x 8

Telecommunications

Front Terminal Batteries

- 10-year design life batteries
- Valve regulated lead-acid batteries
- Front access terminal design
- Strong corrosion resistant grid design
- Multicell design for ease of installation and maintenance
- Can be used in any position: Upright, side or end mounting recommended



Front Terminal Batteries

C&D True Front Access Series

Part Number	Model Volts	Capacity @ 8hr Rate @ 1.75V/C	Dimensions H x W x D (in/mm)	Weight (lb/kg)	Terminal Type
TEL 12-160FW:	12	159.7	10.10 x 16.37 x 6.88 / 256.54 x 415.90 x 174.70	121 / 54.9	Threaded insert
TEL 12-160F:	12	157.3	11.14 x 20.16 x 4.86 / 282.96 x 512.17 x 123.39	115 / 52.2	Threaded insert
TEL 12-180F:	12	181.2	12.60 x 20.16 x 4.86 / 320.04 x 512.17 x 123.39	131 / 59.4	Threaded insert

East Penn ET Series

Part Number	Model Volts	Capacity @ 8hr Rate @ 1.75V/C	Dimensions H x W x D (in/mm)	Weight (lb/kg)	Terminal Type
12AVR100-3ET:	12	96	20.1 x 4.3 x 9.4 / 510.5 x 109.2 x 2238.7	75 / 34	Threaded insert
12AVR150-ET:	12	150	22 x 4.9 x 11.75 / 558.8 x 124.5 x 298.5	115 / 52	Threaded insert

GNB Marathon Front Terminal

Part Number	Model Volts	Capacity @ 8hr Rate @ 1.75V/C	Dimensions H x W x D (in/mm)	Weight (lb/kg)	Terminal Type
M12V90FT:	12	90	10.6 x 4.1 x 15.6 / 270 x 105 x 395	68 / 31	Threaded insert
M12V105FT:	12	104	9.4 x 4.3 x 20.1 / 238 x 110 x 511	79 / 35.8	Threaded insert
M12V125FT:	12	125	11.1 x 4.9 x 22 / 283 x 124 x 559	105 / 47.6	Threaded insert
M12V155FT:	12	155	11.1 x 4.9 x 22 / 283 x 124 x 559	119 / 53.8	Threaded insert
M12V180FT:	12	180	12.5 x 4.9 x 22 / 317.5 x 124.6 x 558.8	133 / 60.3	Threaded insert

AlphaCell™ SMU-F

Part Number	Model Volts	Capacity @ 8hr Rate @ 1.75V/C	Dimensions H x W x D (in/mm)	Weight (lb/kg)	Top Access Stud Hole Size	Front Access Stud Size
SMU12-155FR:	12	150	21.9 x 4.9 x 11.1 / 558 x 125 x 283	119 / 54	8mm	6mm
SMU12-170FR:	12	172	21.9 x 4.9 x 12.2 / 558 x 124 x 310	129.8 / 59	8mm	6mm

Telecommunications and Business Services

- 10 to 12-year design life batteries
- Top terminal access design
- Valve regulated lead acid technology
- Heavy duty copper alloy terminals for ease of assembly and reduced maintenance



Top Terminal Batteries

C&D Tel Series

Part Number	Model Volts	Capacity @ 8hr Rate @ 1.75V/C	Dimensions H x W x D (in/mm)	Weight (lb/kg)	Terminal Type
Tel12-30:	12	30	7.8 x 5.2 x 6.8 / 197.4 x 131.9 x 172.7	27 / 12	Threaded insert
Tel12-45:	12	46	8.9 x 5.4 x 8.1 / 228.3 x 138.9 x 205.6	40 / 18	Threaded insert
Tel12-70:	12	69	10.3 x 6.8 x 8 / 260.5 x 173.4 x 203.6	55 / 25	Threaded insert
Tel12-80:	12	79	12 x 6.8 x 8.1 / 305.8 x 173.4 x 205.3	68 / 31	Threaded insert
Tel12-90:	12	88	13.5 x 6.8 x 8.5 / 343.1 x 171.7 x 216.2	72 / 33	Threaded insert
Tel12-105:	12	102	20.1 x 4.3 x 9.4 / 511 x 110 x 238	80 / 36	Threaded insert
Tel12-125:	12	127	13.6 x 6.8 x 10.9 / 344.7 x 171.7 x 277.7	100 / 45	Threaded insert

East Penn Unigy I Series

Part Number	Model Volts	Capacity @ 8hr Rate @ 1.75V/C	Dimensions H x W x D (in/mm)	Weight (lb/kg)	Terminal Type
12AVR-30:	12	3.4	6.97 x 5 x 6.55 / 177.04 x 127 x 166.37	21 / 9.5	Threaded insert
12AVR-40:	12	4.4	6.97 x 5 x 8.16 / 177.04 x 127 x 207.26	26 / 11.8	Threaded insert
12AVR-75:	12	8.82	8.24 x 6.56 x 10.20 / 209.3 x 166.6 x 259.1	55 / 25	Threaded insert
12AVR-100:	12	11.76	8.70 x 6.75 x 12.93 / 221 x 171.5 x 328.4	72 / 32.7	Threaded insert
12AVR-130:	12	15.6	11.21 x 12.75 x 6.77 / 285 x 342 x 172	98 / 44.5	Threaded insert

GNB Marathon Series

Part Number	Model Volts	Capacity @ 8hr Rate @ 1.75V/C	Dimensions H x W x D (in/mm)	Weight (lb/kg)	Terminal Type
M6V190:	6	190	9.25 x 6.85 x 12.04 / 235 x 174 x 306	74 / 33.6	Threaded insert
M12V30T:	12	28	7.32 x 5.11 x 6.73 / 186 x 130 x 171	24 / 10.9	Threaded insert
M12V40:	12	40	7.44 x 6.57 x 7.79 / 189 x 167 x 198	39 / 17.7	Threaded insert
M12V45F:	12	46	10 x 4.76 x 8.66 / 254 x 121 x 200	39 / 17.7	Threaded insert
M12V70:	12	72	9.25 x 6.85 x 10.23 / 235 x 174 x 260	61 / 27.7	Threaded insert
M12V90:	12	90	9.25 x 6.85 x 12.04 / 235 x 174 x 306	72 / 32.7	Threaded insert

Business Services

AlphaCell™ HPL-FT Batteries



AlphaCell™ HPL-FT Batteries

- Front terminal design with protective covers
- Specifically designed for mission-critical applications
- High cyclic life capability
- Flame retardant case and cover (to UL94VO)
- 3-step terminal seal design ensures leak-free operation
- Integral handles (115HPL-FT, 220HPL-FT) for ease of handling
- Ideally suited for use in Alpha NPS and FT enclosures
- Approved as non-hazardous cargo for ground/sea/air transportation

Models:	70HPL-FT	115HPL-FT	220HPL-FT
Standard Warranty¹:	3 years	3 years	3 years
Service Life:	Long	Long	Long
VRLA Battery Type:	High performance lead alloy	High performance lead alloy	High performance lead alloy
Heat Resistant:	High	High	High
Hydrogen Emission:	Low	Low	Low
Terminals:	14mm insert M8 x 1.25 thread	14mm insert M8 x 1.25 thread	14mm insert M8 x 1.25 thread
Terminal Torque:	8Nm	8Nm	8Nm
Case Material:	VO	VO	VO
Typical Runtime (minutes)²:	70	115	220
Cells Per Unit:	6	6	6
Voltage Per Unit:	12.8	12.8	12.8
Conductance Value:	1050	1200	1600
Max. Discharge Current (A):	1000	1000	1000
Short Circuit Current (A):	1400	2000	3500
10 Second Volts @ 100A:	11.3	11.5	11.7
Ohms Impedance 1 kHz:	6.5mOhms	4.1mOhms	2.5mOhms
Capacity @ 20hrs (to 1.75VPC) @ 25°C / 77°F:	42Ah	62Ah	107Ah
Dimensions H x W³ x D³ (in/mm):	8.2 x 3.8 x 9.8 / 209 x 97 x 249	10.3 x 4.2 x 11.3 / 263 x 108 x 287	11.3 x 4.2 x 15.6 / 287 x 108 x 396
Weight (lb/kg):	27.9 / 15.3	46.2 / 22.2	78.5 / 36
Operating Temperature Range			
Discharge:	-40 to 60°C / -40 to 140°F	-40 to 60°C / -40 to 140°F	-40 to 60°C / -40 to 140°F
Charge (with temp compensation):	-40 to 60°C / -40 to 140°F	-40 to 60°C / -40 to 140°F	-40 to 60°C / -40 to 140°F
Float Charging Voltage @ 25°C / 77°F (Vdc):	13.5 to 13.6	13.5 to 13.6	13.5 to 13.6
AC Ripple Charger:	0.5% RMS or 1.5% of float charge voltage recommended for best results. Max. allowed = 4%V pk to pk		

Notes:

¹ Warranty varies by country and region. Warranty valid only when used with Alpha approved Power Supplies, Chargers and Enclosures. Consult your sales person for details

² Runtimes at 25A to 1.75VPC @ 25°C. No deep discharge cycling required to obtain maximum runtime ratings

³ Dimensions at battery base

Business Services

FTTx Batteries

- Specifically engineered for long-life float service, standby applications
- One-year typical and three-year warranty option for the 7.2Ah battery
- Qualified with Alpha's FlexPoint™ and FlexNet™ battery backup power supplies
- UL recognized component per UL 1989 for standby batteries



17Ah, 12Ah and 7.2Ah FTTx Batteries

Models:	AX-STDBAT-7	AX-LONGBAT-7	AX-STDBAT-12	AX-STDBAT-17
Specifications				
Warranty:	1 year	3 year	1 year	1 year
Service Life:	Standard	Long	Standard	Standard
Battery Type:	7.2Ah AGM	7.2Ah AGM	12Ah AGM	12Ah AGM
Dimensions H x W x D (in/mm):	3.94 x 2.56 x 5.94 / 100 x 65 x 151	3.94 x 2.56 x 5.94 / 100 x 65 x 151	3.94 x 2.56 x 5.94 / 100 x 65 x 151	6.57 x 3 x 7.13 / 167 x 76.2 x 181
Weight (lb/kg):	5.28 / 2.4	6.17 / 2.8	5.94 / 2.69	12.13 / 5.5

7.2Ah Battery @ 25°C / 77°F

Constant Wattage Performance for 7.2Ah Battery (final voltage 1.75Vpc)

Discharge Time:	90min	2hrs	3hrs	4hrs	5hrs	6hrs	7hrs	8hrs	9hrs	10hrs	12hrs	20hrs
Discharge Wattage:	35.3	28	20	16	13.2	11.5	10.1	9.1	8.1	7.4	6.3	4.1

12Ah Battery @ 25°C / 77°F

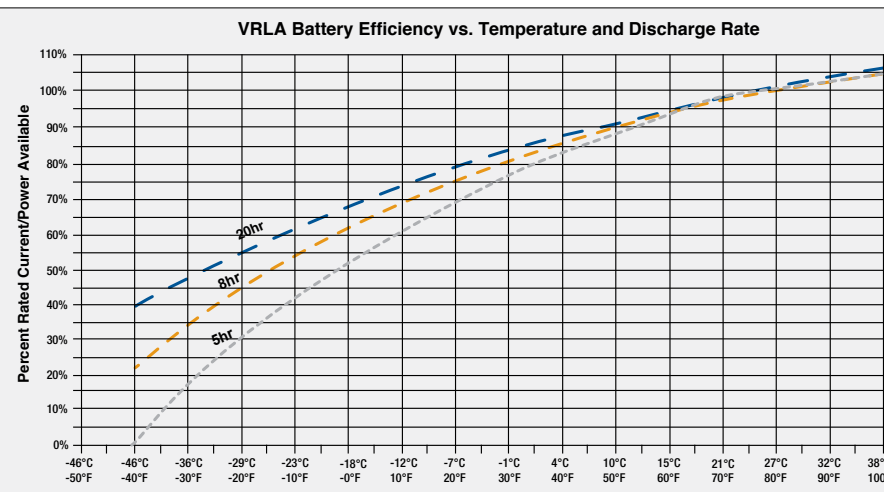
Constant Wattage Performance for 12Ah Battery (final voltage 1.75Vpc)

Discharge Time:	90min	2hrs	3hrs	4hrs	5hrs	6hrs	7hrs	8hrs	9hrs	10hrs	12hrs	20hrs
Discharge Wattage:	—	—	33.4	26.7	22	19.2	16.9	15.2	13.5	12.4	10.5	6.8

17Ah Battery @ 25°C / 77°F

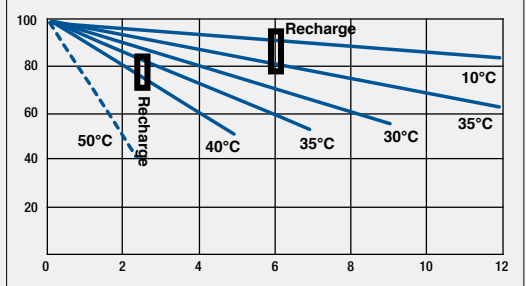
Constant Wattage Performance for 17Ah Battery (final voltage 1.75Vpc)

Discharge Time:	90min	2hrs	3hrs	4hrs	5hrs	6hrs	7hrs	8hrs	9hrs	10hrs	12hrs	20hrs
Discharge Wattage:	—	—	—	—	30.9	26.4	22.9	20.4	18.4	16.8	14.2	9.8



Battery Storage Guidelines

Under 25°C / 77°F storage conditions, batteries self-discharge at a rate of approximately 5% per month. The self-discharge rate of VRLA batteries increases with temperature. Recommended recharge times are shown at 180 days (6 months) at 25°C / 77°F, or 75 days (2.5 months) at elevated temperatures of 35 to 40°C / 95 to 104°F.



UPS

Uninterruptible Power Supply Batteries

- 10-year design life
- High rate flame retardant AGM UPS batteries for all standby applications
- Absorbed valve-regulated, lead-acid battery technology designed for UPS standby power systems
- Alpha Technical Services offers removal, replacement and recycling of UPS Batteries
- Most UPS brands serviced



UPS batteries

East Penn Unigy High Rate Series					
Part Number	Model Volts	Watts per Cell @ 15min Rate @ 1.67Vpc	Dimensions H x W x D (in/mm)	Weight (lb/kg)	Terminal Type
U1HR1500:	12	119	6.93 x 5.18 x 7.71 / 176 x 132 x 196	27 / 12	Threaded insert
45HR2000:	12	168	8.26 x 5.31 x 8.84 / 210 x 135 x 225	40 / 18.1	Threaded insert
24HR3000:	12	253	8.24 x 6.80 x 10.20 / 209 x 173 x 259	56 / 25.4	Threaded insert
27HR3500:	12	314	8.24 x 6.80 x 12.01 / 209 x 173 x 305	66 / 30	Threaded insert
31HR4000:	12	377	8.70 x 6.75 x 12.93 / 221 x 171 x 328	74 / 33.6	Threaded insert
31HR5000:	12	475	11.20 x 6.77 x 13.46 / 284 x 172 x 342	98 / 44.5	Threaded insert

CED AGM UPS - Flame Retardant High Rate Series					
Part Number	Model Volts	Watts per Cell @ 15min Rate @ 1.67Vpc	Dimensions H x W x D (in/mm)	Weight (lb/kg)	Terminal Type
UPS12-100MR:	12	91	6.5 x 5.2 x 6.9 / 166.2 x 131.3 x 174.3	21 / 10	Flag terminal
UPS11-150MR:	12	148	7.8 x 5.2 x 6.8 / 197.1 x 131.9 x 172.7	27 / 12	Threaded insert
UPS12-210MR:	12	206	9 x 5.5 x 8.1 / 228.6 x 139.2 x 205.1	40 / 18	Threaded insert
UPS12-300MR:	12	300	10.3 x 6.8 x 8 / 260.9 x 173.4 x 203.5	57 / 26	Threaded insert
UPS12-350MR:	12	350	12 x 6.8 x 8.1 / 305.8 x 173.4 x 204.8	67 / 30	Threaded insert
UPS12-400MR:	12	400	13.4 x 6.8 x 8.5 / 340.9 x 172.7 x 216.4	74 / 34	Threaded insert
UPS12-490MR:	12	488	13.6 x 6.8 x 10.9 / 344.7 x 172.7 x 277.7	10 / 45	Threaded insert
UPS12-540MR:	12	537	12.6 x 6.9 x 8.9 / 320.8 x 177 x 227.2	100 / 45	Threaded insert
UPS6-620MR:	6	620	12.6 x 6.9 x 9.9 / 321 x 177 x 253	72 / 33	Threaded insert

GNB Sprinter UPS					
Part Number	Model Volts	Watts per Cell @ 15min Rate @ 1.67Vpc	Dimensions H x W x D (in/mm)	Weight (lb/kg)	Terminal Type
S6V740:	6	746	9.25 x 6.85 x 12.04 / 235 x 174 x 306	74 / 33.6	Threaded insert
S12V120:	12	117	6.53 x 6.57 x 6.81 / 166 x 167 x 173	27 / 12.2	Threaded insert
S12V170:	12	167	7.44 x 6.57 x 7.79 / 189 x 167 x 198	36 / 16.3	Threaded insert
S12V285:	12	285	9.25 x 6.85 x 10.23 / 235 x 174 x 260	61 / 27.7	Threaded insert
S12V300:	12	306	9.25 x 6.85 x 9.25 / 235 x 174 x 306	63 / 28.6	Threaded insert
S12V370:	12	373	9.25 x 6.85 x 12.04 / 235 x 174 x 306	74 / 33.6	Threaded insert
S12V500:	12	505	11.33 x 6.77 x 13.54 / 288 x 172 x 344	107 / 48.5	Threaded insert

Battery Monitoring

PowerAgent

- Ethernet, TCP/IP or SNMP
- Flexible, scalable, easily installed
- Programmable alarm thresholds for each battery
- Built-in email notification
- Sensors powered from monitored battery



PowerAgent Site Controller and Sensor Module

Specifications	
Site Controller	
Number of Monitored Strings:	6 max
Number of Batteries:	240 max
Network Interface:	Ethernet 10/100 BaseT
Network Protocols:	TCP/IP, UDP, HTTP, SNMP, Telnet, DHCP, SMTP
Local Diagnostic Interface:	Proprietary 9600 baud, RJ-45, ASCII
Power:	15 to 60Vdc, 2W nom, (110/220Vac power pack available)
Dimensions H x W x D (in/mm):	6 x 9 x 1.6 / 152.4 x 228.6 x 40.64
Mounting:	Rack or wall

Sensor Modules (Model PAS-PA-BSx-y-z)	
Measurements:	String volts, battery volts, temperature, dynamic resistance/admittance
Controller Interface:	2 ea, RJ-45
Mounting:	Mounts on battery negative terminal; wire/lug connection to positive terminal
Indicators:	Red/green LED
Power:	Powered from monitored battery; 10ma avg standby current
Isolation:	Optically isolated from controller
Dimensions H x W x D (in/mm):	1.5 x 3 x 0.75 / 38.1 x 76.2 x 19.05

Network Monitoring

ContactAgent

- Remote site monitoring and control for generators
- Provides network access for non-network equipment via web and SNMP
- Email Alarm Capability
- Contact closure or analog inputs and latched relay contact outputs
- Optional temperature and humidity measurements



ContactAgent

Specifications	
Master Unit	
Number of Inputs:	8 Digital (contact closure)
Electrical Input:	1ma max closed-switch current
Number of Outputs:	2 Form-C contact sets; state not preserved on power failure
Electrical Output:	60V max; 5A
Slave Unit Interface:	RS-485/RJ-45 connector
Operating Power	5Vdc from supplied wall-mount power supply
Network Interface:	10/100 Ethernet
Protocols:	TCP/IP, SMTP, HTTP, SMTP, DHCP, TFTP
Dimensions H x W x D (in/mm):	1.5 x 8 x 4.3 / 38.1 x 203.2 x 109.2 (rack mountable)

* SNMP MIB documentation available upon request

RIM Module	
Number of Inputs:	6 Digital/analog (user/definable)
Analog Measurements:	±12Vdc, 0 to 8Vrms
Temperature Sensor:	Standard, ±2°C/35.6°F from -40 to 80°C / -40 to 176°F
Humidity Sensor:	Optional ±3% accuracy from 20 to 80% RH, ±5% accuracy from 0 to 19% RH and 81 to 100% RH
Max Number of Units:	4 RIM modules per Master Unit
AC Line Measurement:	Optional 90 to 140Vac, RMS, sine, 50/60Hz
ROM Module	
Number of Outputs:	4 Form-C contacts, state-preserved on power failure
Electrical Output:	60V max, 2A
Temperature Sensor:	Standard, ±2°C/35.6°F from -40 to 80°C / -40 to 176°F
Humidity Sensor:	Optional ±3% accuracy from 20 to 80% RH, ±5% accuracy from 0 to 19% RH and 81 to 100% RH
Max Number of Units:	RS-485 on RJ-45 connector, power supplied via daisy chain

AlphaGuard™ Battery Charge Management System

- Maximizes battery life
- Spreads charge voltage equally across batteries
- Compensates for battery differences as they age
- Replace single batteries, not the entire string
- Single battery connections for charge management and status monitoring
- Safe unattended operation designed to CSA C22.2 No. 107.1 and UL 1778 Standards
- Optional Potted AlphaGuard for underground battery vault applications



AlphaGuard CMT-3

AlphaGuard

Models:	
AG-CMT-3:	AlphaGuard Charge Management SC, 36V —including 36Vdc battery string interface cable
AG-CMT-4:	AlphaGuard Charge Management SC, 48V —including 48Vdc battery string interface cable
Configuration	
Quantity:	One (1) AlphaGuard is required per battery string
Service Location:	With the battery string
Mechanical	
Housing Material:	High impact plastic
Dimensions H x W x D (in/mm):	1.4 x 4.8 x 4.3 / 36 x 122 x 108
Weight (lb/kg):	0.8 / .36
Electrical	
Batteries:	Individual 12Vdc nominal batteries configured into 36 or 48Vdc strings
Circuit Protection:	Fast blow fuse, reverse polarity protected
Quiescent Current Draw:	1mA max. (Current consumed by AlphaGuard after low voltage total shutdown)
Charge Management:	Most effective during float period of charge
Max. Current:	2A @ 25°C / 77°F
Quality of Final Balance:	±100mV max. between any two (2) batteries
Charging Efficiency:	80 to 90%
Charge Balance:	±100mV typical
Low Voltage Cutoff:	34.5Vdc/46Vdc ±5%
Communication to XM2:	AG-DSM cable supplies battery readings to a DSM status monitoring card
Voltage Sense Regulation:	±100mV
Environment	
Operating Temperature:	-40 to 55°C / -40 to 131°F
Humidity	5 to 95% non-condensing
Warranty	
Warranty:	5 years

The AlphaGuard employs a patented Charge Management Technology (CMT) to shuttle excess charge current to batteries requiring a greater charge, and is contained in a small plastic enclosure that installs directly on top of one of the batteries in the string or in the optional battery integration tray. A short service cable connects the AlphaGuard to each of the batteries in the string. Both 36Vdc (3 battery) and 48Vdc (4 battery) versions are available. One AlphaGuard is required per string.

An AlphaGuard configured with the optional voltage sense cabling and interface module (DSM, ESM, EDSM or External DOCSIS®) allows the AlphaGuard to interface with a status-monitoring module. Two AlphaGuard modules can be connected to single interface module. Refer to individual interface module documentation for additional information.



Potted AlphaGuard CMT-3



AG-DSM-S9-Cable

AG-DSM-D9-Cable

AG-DSM-D35-Cable



AG-DSM-S35-Cable



Battery Cable 36V 6ft



Battery Cable 48V 6ft

Battery Testing Equipment

AlphaCell™ Battery Testing Equipment

- Complete battery life trending through conductance tests
- Non-intrusive conductance measurements do not reduce string life
- Quick, accurate measurements and data recording reduce on-site time
- Simple pinpoint testing requires only access to two battery posts or straps
- Enables early detection of questionable batteries in the network



Battery Testing Equipment

Model:	Celltron Ultra	Celltron Advanced™
Model Number:	CTU-6000 (w/ temp. sensor)	CTA-4000 (kit) CTA-2000 (analyzer only)
Applications:	Tests individual lead acid cells or monoblocs (up to 16V) in any common configuration, approximately 10-6000Ah	Tests individual lead acid cells or monoblocs (up to 16V) in any common configurations
Voltage:	1.5 to 20Vdc	1 to 20Vdc
Conductance:	100 to 19990 Siemens	100 to 9999 Siemens
Test Data Storage:	500 string locations of 480 test results stored internally	16 string locations of 480 test results stored internally
Accuracy:	+2% across test range	+2% across test range
Voltmeter Resolution:	5mVdc	5mVdc
Environmental:	0 to 40°C / 32 to 104°F, 95% non-condensing	
Conductance Technology/Industry Approvals and Recommendations:		
IEEE Standards 1188 and 484 EPRI Guide for testing stationary batteries International Telecommunications Energy Conference Bellcore T1Y1 Presentation for American National Standards Institute International Lead Zinc Research Organization Battery Council International		
Applications		
Cable TV/Broadband Power Networks • Outside Plant Batteries • Headend DC/AC Batteries • Premise Backup Supplies (FTTx) 6/12V, 5 to 600Ah Stationary Batteries Security system batteries Emergency lighting batteries		
Features and Benefits		
<p>Simple - One-step testing, no instrument inputs or adjustments required.</p> <p>Quick - Battery voltage and conductance displayed in less than 10 seconds. Test an entire 48V string in less than 1 minute.</p> <p>Safe - Utilizes patented conductance technology, a passive method that minimizes technician risk.</p> <p>Accurate - Field test proven to ±2% accuracy across test range. Conductance method recognized by IEEE standard for the testing of lead-acid batteries with proven correlation to battery capacity.</p> <p>Economical - Efficient and accurate battery tester priced to fit into every technician's tool kit.</p>		

Kit Contents

Celltron Ultra Kit CTA-6000AT	Celltron Advanced Kit CTA-4000AT
Contains: Digital multimeter Infrared strip printer Lighted probes Clamps and probes	Contains: Protective boot Rechargeable battery pack Infrared PC data receiver and software Infrared printer Infrared temperature sensor Protective carrying case Both clamp and probe cables Spare fuses, printer paper, probe tips
Optional Equipment:	
Handheld Printer Infrared Module for PC	

WARNING ACCESS PANEL
QUALIFIED SERVICE PERSONNEL ONLY



MODULAR POWER SYSTEM 80 HP

CAUTION
RISK OF ELECTRIC SHOCK

- * MULTIPLE POWER SOURCES
EQUIPMENT, DISCONNECT ALL
POWER SOURCES BEFORE SERVICING
- * SEE INSTALLATION INSTRUCTIONS
BEFORE CONNECTING TO THE SUPPLY
- * DO NOT ENERGIZE THE SYSTEM UNTIL
ALL INVERTER SLOTS ARE FILLED

RECTIFIER
INPUT



1 2 3

AC OUTPUT DISTRIBUTION



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

INVERTER
AC IN



BY PASS



INVERTER

INVERTER
OUTPUT



OPEN



alpha 

MODEL: HP80R0110A
SERIAL: 100 000000
AC INPUT: 120V 60Hz 1500VA 50/60Hz
AC OUTPUT: 240VAC 1575VA 50/60Hz
AC OUTPUT: 200VAC 1000VA 50/60Hz
AC OUTPUT: 120VAC 1000VA 50/60Hz
SERIAL: 10000000
MFG: 10000000
MFG: 10000000
MFG: 10000000
MFG: 10000000



DC to AC Inverters

Alpha Technologies offers a full line of modular inverter systems providing a new level of scalability, maintainability, compactness, reliability and performance. Alpha's scalable DC to AC inverter is recognized as the industry standard for critical AC power by many of the world's leading communications companies.

➤ AMPS80HP

Alpha's new high performance AC or hybrid AC/DC system offers telecom grade reliability, 94% efficiency and high power density. The AMPS80 features hot swappable 2.5kVA/ 2.0kW inverter modules and optional 1.8kW rectifier. The AMPS80 meets your current and future power needs by allowing you to purchase only the power modules you need for current needs while having ultimate flexibility to scale up or down, depending on future power needs. Front access and user-friendly connections make the system easy to install, service and upgrade.

➤ AMPS24HP

The AMPS24 features hot swappable 1.5kVA/1.2kW inverter modules and 1.8kW rectifier modules that are the building blocks of a highly reliable power system utilizing 48Vdc batteries. The AMPS24 meets your current and future needs by allowing them to purchase only the power modules for current needs while having ultimate flexibility to scale up or down, depending on future power needs.

➤ Arcon Inverter Series

The Arcon Inverter System provides pure sine wave output ideal for telecom applications. Its high frequency conversion and topology allow for high efficiency in a compact and user-friendly design. With hot swappable modules and a patented technology, the Arcon Inverter System is very flexible and customizable.

➤ TEBEVERT Inverter Series

The TEBEVERT DSP inverter system featuring Digital Signal Processing technology can be used in a wide array of telecom and industrial applications. The introduction of enhanced DSP controls and higher semi-conductor switching frequencies improves power density and operating efficiency while dramatically reducing physical size and weight.

➤ Invertronic Inverter System

The Invertronic Inverter System is a modular three phase inverter system with a high power density ideal for telecom and headend applications. The efficient load balancing between phases allows for minimal costs associated with distribution transformers, protective devices and cabling. The system's unique topology consisting of each inverter module having its own Static Bypass Switch, secures data bus communications.

➤ Media Inverter System

The Media Inverter System is a parallelable, rack-mounted twin sine inverter (TSI) system providing a pure AC sine wave output at 120 to 240Vac, 60 or 50Hz, with a THD <3% for any kind of load. Utilizing 48Vdc input, this high density system ranges from 1500 to 6000VA and is mountable on either a 19" open relay rack or conventional box bays. Unlike traditional inverters, the TSI increases your network's overall efficiency without compromise to the quality and stability of the output wave form.

➤ DSP Inverter Series

The DSP inverter system is designed to address the critical AC powering requirements of telecom applications, Voice over Internet Protocol (VoIP) and mission critical servers. The system can be scaled in 1kVA or 2.5kVA increments up to 27.5kVA in an N+1 redundant configuration. These units have been NEBS Level 3 Certified by a nationally recognized testing lab.

➤ MS Power Inverter Series

MS Inverters feature an integrated utility bypass and can be cascaded for redundancy. Designed for long mean time between failure, these inverters provide the dependable AC power your networks demand. These intelligent, dependable inverters provide economical AC power for all of your network needs.

AMPS80HP

Modular AC UPS System



AMPS80

- High performance AC or hybrid AC/DC backup power system offering 99.999% availability
- 94% Efficiency, 15 year Design Life and MTBF (Mean Time Between Failures) greater than 200,000 hours
- Intelligent system controller with integrated SNMP for local and remote management of AC and DC power modules, batteries, and other peripherals
- Hot swappable 2.5kVA/2.0kW inverter modules and optional 1.8kW rectifier modules
- Small footprint system offers up to 75kVA/60kW in a single 19" box bay rack

AMPS80HP

Specifications				
Model	AMPS80-3-75	AMPS80-3-30	AMPS80-2-40	AMPS80-1-20
Input and Output Phase:	120/208V 3-ph		120/240 or 120/208V2ph	120 single ph
Output Capacity:	7500 to 75000VA	7500 to 30000VA	5000 to 40000VA	2500 to 20000VA
Output Power (Resistive Load):	6000 to 60000W	6000 to 24000W	4000 to 32000W	2000 to 16000W
Maximum Output Current:	208Arms per phase	83Arms per phase	168Arms per phase	168Arms
Max./Min. No. of 2500VA/2000W Inverter Modules:	30/3	12/3	16/2	8/1
Technology:	Twin Sine Inverter (TSI) technology; each inverter module has DC input and AC input			
Static Switch:	Not required; each module has its own static switch			
Efficiency:	94% AC to AC; 90% DC to AC (from 50 to 100% full resistive load)			
Waveform:	Pure sine wave			
Output Power Factor:	0.8 (can run capacitive and inductive loads)			
Transfer Time:	Zero transfer time			
Warranty:	2 year standard (1 and 3 year optional extensions)			
Inverter Module AC Output				
Power Rating:	2500VA/2000W			
Voltage Range (AC):	90 to 140V	90 to 140V	90 to 140V	90 to 140V
Voltage Accuracy:	±2%	±2%	±2%	±2%
Frequency:	60Hz (same as input frequency)			
Inverter Frequency Accuracy:	0.03%	0.03%	0.03%	0.03%
Input Power Factor:	>99%	>99%	>99%	>99%
THD (Resistive Load):	<1.5%	<1.5%	<1.5%	<1.5%
Transient Load Recovery Time:	0.4ms	0.4ms	0.4ms	0.4ms
Soft Start Time:	20s	20s	20s	20s
Max. Crest Factor @ No. Power:	3.5	3.5	3.5	3.5
Short Circuit Overload Capacity:	10 x I _n for 20msec (AC to AC mode)			
Short Term Overload Capacity:	150% for 5 seconds			
Permanent Overload Capacity:	110%	110%	110%	110%
Synchronization Range:	57 to 63Hz	57 to 63Hz	57 to 63Hz	57 to 63Hz
Inverter Module DC Output				
Nominal Voltage:	48Vdc	48Vdc	48Vdc	48Vdc
Voltage Range (max.):	40 to 60Vdc (User Adjustable)			

Max. DC Input Current				
@ 48Vdc:	1375A	550A	734A	366A
@ 40Vdc:	1700A	680A	900A	450A
Voltage Ripple:	<2mV / <38dbmrc			
Unified System Controller with Integrated SNMP				
Control and Monitoring:	Configure, control and monitor inverter and rectifier modules via Internet Explorer 7 onwards			
Display:	LCD Touch-screen Display (160 x 160 pixels), OK/Major/Minor 3-Color LED display, Web based GUI via Ethernet			
Communication Ports:	RJ45 Ethernet Port, R232 Port (Front)			
Mechanical				
Dimensions H x W x D (in/mm):	84 x 23.6 x 26.8 / 213 x 600 x 680			
System Weight Without Modules (lb/kg):	595 / 270			
Module Dimensions H x W x D (in/mm):	3.5 x 4 x 17.1 / 88.9 x 102 x 435			
Module Weight (lb/kg):	11 / 5			
Clearance (in/mm)				
Front:	33 / 838.2			
Rear:	12 / 304.8			
Sides:	No clearance required			
Top:	12 / 304.8			
Environment				
Operating Temperature:	-20 to 40°C / -4 to 104°F (full load)			
Storage Temperature:	-40 to 70°C / -40 to 158°F			
Humidity:	Up to 95% non-condensing			
Elevation:	Up to 2000m / 6562ft above sea level			
Standards				
Safety:	UL1778 (2nd Ed); CSA C22.2 No. 107.3-05 UPS General Safety			
EMC:	FCC CFR47 Part 15 Class A; ICES-003			
Features:	Unified system controller with integrated SNMP communications, Top AC and DC feed access; bottom DC feed access (All user connections are front access), AC input and output breaker/disconnect switch, Industrial grade surge suppression (rated to 40kA)			
Options:	Up to 8 x 1.8kW rectifier modules, Integrated maintenance bypass switch, Inverter DC input breakers, Service-entrance grade surge suppression: 140kA rating (per phase), Lockable rack front-door, Batteries (various sizes and technologies)			

AMPS24HP

Modular AC and Hybrid Power System



AMPS24

- High performance AC and hybrid AC/DC backup power system offering 99.999% reliability for mission critical indoor applications
- 93% Efficiency, 15 year Design Life and MTBF (Mean Time Between Failures) greater than 200,000 hours results in class leading TCO (Total Cost of Ownership)
- Intelligent system controller with integrated SNMP for local and remote management
- Hot swappable 1.5kVA/1.2kW inverter modules and 1.8kW rectifier modules (optional for inverter only systems) offer complete flexibility, scalability and low MTTR (Mean Time To Repair)
- Up to 24kVA/19.2kW small footprint system may be installed in a 19" or 23" open-relay rack or box bay rack/cabinet with flexible mounting options

AMPS24HP Hybrid Systems

Specifications*					
Models:	AMPS24-3-13.5-H3	AMPS24-2-18-H4	AMPS24-2-9-H2	AMPS24-1-9-H2	AMPS24-1-4.5-H1
Input and Output Phase:	120/208V 3-ph	120/240 or 120/208V 2-ph		120V single ph	
Nominal Output Power (max):	4500 to 13500VA	3000 to 18000VA	3000 to 9000VA	1500 to 9000VA	1500 to 4500VA
Output Power (Resistive Load):	3600 to 10800W	2400 to 14400W	2400 to 7200W	1200 to 7200W	1200 to 3600W
Max. Output Current:	37.5Arms per phase	75Arms per phase	37.5Arms per phase	75Arms per phase	37.5Arms per phase
Max. No. of 1500VA/1200W Inverter Modules Per System:	9	12	6	6	3
Min. No. of 1500VA/1200W Inverter Modules Per System:	3	2	2	1	1
Max. No. of 1800W Rectifier Modules Per System:	3	4	2	2	1

AMPS24HP Inverter Systems

Specifications*					
Models:	AMPS24-3-18-3i	AMPS24-2-24-4i	AMPS24-2-12-2i	AMPS24-1-12-2i	AMPS24-1-6-1i
Input and Output Phase:	120/208V 3-ph	120/240 or 120/208V 2-ph		120V single ph	
Nominal Output Power (max):	4500 to 18000VA	3000 to 24000VA	3000 to 12000VA	1500 to 12000VA	1500 to 6000VA
Output Power (Resistive Load):	3600 to 14400W	2400 to 19200W	2400 to 9600W	3600 to 9600W	2400 to 4800W
Max. Output Current:	50Arms per phase	100Arms per phase	50Arms per phase	100Arms per phase	50Arms per phase
Max. No. of 1500VA/1200W Inverter Modules Per System:	12	16	8	8	4
Min. No. of 1500VA/1200W Inverter Modules Per System:	3	2	2	1	1
Technology:	Twin Sine Inverter (TSI) technology; each inverter module has DC and AC input				
Static Switch:	Not required; each module has its own static switch				
Efficiency:	93% AC-to-AC; 90% DC-to-AC (from 50 to 100% full resistive load)				
Waveform:	Pure sine wave				
Output Power Factor:	0.8 (Can run capacitive and inductive loads)				
Transfer Time:	Zero transfer time				
Warranty:	2 Years (1 and 3 year optional extensions)				
Inverter Module AC Output					
Power Rating:	1500VA/2000W				
Nominal Voltage:	120Vac				
Voltage Accuracy:	±2				
Frequency:	60Hz (same as input frequency)				
Inverter Frequency Accuracy:	0.03%				
THS (Resistive Load):	<1.5%				
Transient Load Recovery Time:	0.4ms				
Soft Start Time:	20s				
Max. Crest Factor at Nominal Power:	3.5				
Short Circuit Overload Capacity:	10 x I _n for 20msec (AC to AC mode)				

* Specifications subject to change.

Arcon Inverter Series



Arcon Inverter

- High efficiency
- Full Digital Signal Processing control
- Outstanding response time
- Input / Output Radio Frequency Interference compliant to FCC
- Complete supervision possibility
- Parallel operation in True Redundant System
- Large DC input voltage range
- Patented technology

Arcon Inverter Series

Specifications	
Input	
Operating Voltage Range:	40 to 80Vdc
Max. Input Current:	89%
Output	
Nominal Output Voltage:	120V, adjustable 108-125Vac
Output Voltage Tolerance:	+3% of adjustable nominal voltage
Output Voltage Frequency:	50 or 60Hz, selectable
Total Harmonic Distortion:	Less than 3% (on linear load at nominal power)
Total Transient Recovery Time:	Less than 0.3 msec (typical)
Turn-on Delay:	Less than 3 sec
Nominal Value of Output Current:	29.1A
Crest Factor at Nominal Power:	2
Output Power	
Nominal Value:	3000W/3500VA
Overload:	6000VA (±15%, 5 sec. max, self-protected)
Permanent Overload:	110%
Power Factor Influence:	Full power output (3500VA) with Pf from 0 to 0.86 Limited to 3000W with Pf from 0.86 to 1
Electro-Magnetic Compatibility	
Standards Applied For Immunity:	EN 61000-4-2 / 4-3 / 4-4 / 4-5 / 4-6
Standards Applied For Emission:	ETS300-132-2 CISPR 22 Class B
Efficiency:	More than 89% (Nominal power in Watts)

Environment	
Storage Temperature:	-40 to 80°C / -40 to 176°F
Permissible Ambient Temperature:	-20 to 50°C / -4 to 122°F
Standards	
Safety:	EN60950 / UL1950
Protections:	Internal electronic + Relays + Fuses
Dielectric Strength:	4300Vdc input/output, 4300Vdc output/earth, 2000Vdc input/earth
Cooling:	Forced
Mechanical	
Dimensions H x W x D (mm):	2RU x 436 x 440
Weight (lb/kg):	33.1 / 15 (approximately)

TEBEVERT Inverter Series

5 to 25kVA Inverter System

- NEBs level 3 certified to assure compatibility with the telecommunications environment
- Hot swappable 5kVA inverter modules
- Hot swappable static switch module
- Integrated maintenance bypass switch
- Automatic master-slave operation
- Up to five inverter modules can be paralleled as load increases



TEBEVERT DSP

TEBERVERT Inverter Series

60Hz Models		
Output Capacity:	5 to 25kVA	
Max. Number of Modules:	5	
Input		
Nominal Bypass AC Input:	120Vac	208, 220, 240, 480Vac
Number of Bypass AC Phases:	1	2
Bypass AC Input Wiring:	L, N, PE	L1, L2, PE
Nominal DC Input:	-48Vdc or 120Vdc (requires different inverter modules)	
DC Input Range:	-15%	+20%
Reflected DC Ripple (48Vdc) (120Vdc):	<2mV reverse smoothing, <5% RMS	<2mV reverse smoothing, <5% RMS
Output		
Nominal AC Output Voltage:	120Vac	120Vac
Optional AC Output Voltage:	120/240Vac	120/240Vac
Output Voltage Regulation:	±5% for all combinations of line, load and temperature	
Output Power Factor:	0.7 lagging to 0.8 leading	
Output Voltage Waveform:	PWM Sine wave	PWM Sine wave
Output Crest Factor:	2.8:1	2.8:1
Output Voltage Distortion:	<3% @ 100% rated linear load	
Output Overcurrent Protection:	Electronic current limiting	
Overload Rating (Inverters):	200% for approx. 75 cycles (1.25 seconds)	
Overload Rating (Static Bypass):	500% for 100ms	500% for 100ms
System Operating Efficiency:	>85% on-line mode >97% off-line mode	
Frequency Stability:	±0.1% free running, ±3% when AC present	
Module Capacity:	5kVA/4kW	5kVA/4kW
Static Switch Transfer Time:	<2ms	<2ms

60Hz Models	
	120, 208, 220, 240, 480Vac
Output Capacity:	5 to 25kVA
Cooling:	Temperature controlled fans
Maintenance Bypass Switch:	Standard make-before-break mechanically interlocked switch provided on all models equipped with the static bypass module
Remote Alarming:	(1) Form-C Summary Alarm, Optional Relay Card (8 Alarms), Optional SNMP
LED Indicators (Inverter Modules):	Output present, fault, overload, AC synchronized, parallel operation
LED Indicators (Static Bypass Module):	Power flow diagram, normal, fault, AC present, DC present, overload, load on bypass, load on inverter
Metering:	(4) segment LCD display switchable between output voltage and current
Cabinet Dimensions H x W x D (in/mm):	84 x 23.6 x 23.6 / 2134 x 600 x 600
Standards	
Radio Interference:	Certified to Telecordia GR-1089
Safety Listing:	UL60950, UL, cUL Pending
Product Certification:	NEBS Level 3
Environment	
Seismic Rating:	NEBS Level 3, Seismic Zone 4 Optional
Elevation:	1800m / 6000ft, 4000m / 1300ft at 30°C/86°F
Operating Temperature:	-5 to 50°C / 23 to 122°F
Operating Humidity:	0 to 95% non-condensing
Module Data	
Power Rating:	5000VA / 4000W
Nominal Input Current (-48Vdc):	98A
Max. Input Current (-48Vdc):	115.4A
Output Current (120Vac):	41.6A

Invertronic Inverter System

Modular 3 Phase Inverter System

- Hot swappable 10kVA modules each with built-in SBS for scalability
- Employs 4th Generation DSP Technology for dynamic step load response
- Integrated Manual Bypass Switch in primary cabinet 1
- Front door mounted Graphical Display of Operating Mode and System Parameters
- Remote Monitoring via Network (HTML, SNMP)



Invertronic Inverter System

Invertronic Inverter System

Electrical	
Input	
Input Voltage:	Nominal: 48Vdc, Operating range 42 to 60Vdc
Input Current:	Max. 228A at 42Vdc at full load, Nominal: 138A at 54Vdc at 80% load
Inrush Current:	Soft-start circuit limits inrush to <25% of full load current
Output	
Inverter Module Rating:	10kVA/8kW at 0.8 power factor inductive
Max. System Capacity:	120kVA/96kW at 0.8 power factor inductive
Max. Modules Per Cabinet:	6
Max. Cabinets:	2
AC Output Voltage:	120/208Vac 3 phase, 4 wire, Y connected
AC Output Amps:	27.8A per phase at full load
AC Output Frequency:	60Hz \pm .01% on internal crystal; tolerance is programmable when synced to mains
Max. Allowable Phase Imbalance:	100%, up to full load per phase current rating
Load Power Factor Range:	0.7 lagging (inductive) to 0.8 leading (capacitive) with standard UPS de-rating
Output Regulation:	Static: \pm 1%; Dynamic: \pm 5% max with 100% step load change, settling time: <10msec
Efficiency:	>86%
Crest Factor Accommodated:	3.0 / 1
Distortion:	<2% THD into a linear load; pure sine wave output
Overload Capability:	120% for 10min; 200% for 200min

System	
Static Bypass Switch (SBS):	3 Phase SCR bridge built into each module
SBS Priority:	Inverter Priority Only; Offline mode not possible
Transfer Time:	SBS is make-before-break; 2ms typical, 6mm max.
SBS Overload Capability:	120% for 10min; 1000% for 8ms
SBS Transfer Criteria:	Overload, modules over temperature, short circuit on output, low DC voltage, manual initiation, output AC volts out of range
Remote Alarming:	Mains Failure, Battery Failure, Loss of Redundancy, Common Failure Output
Metering:	Phase voltages, currents, kW, kVA
Indicators:	13 Programmable LEDs on front door display panel
Mechanical	
Module Dimensions H x W x D (in/mm):	8.75 x 19.9 x 17.7 / 222 x 505 x 450
Module Weight (lb/kg):	99 / 45
Cabinet Dimensions H x W x D (in/mm):	84 x 24 x 31.5 / 2134 x 600 x 800
Cabinet Weight (lb/kg):	528 / 240
Heat Output:	<30000BTUs/hour/fully loaded cabinet at full power
Operating Temperature Range:	0 to 40°C / 32 to 104°F
Operating Humidity Range:	0 to 95% non-condensing
Elevation:	Fully rated to 1000m / 3280ft
Standards	
Safety:	EN 60950, UL 1778, UL 1950
Design:	NEBS Level 3 compliant (certification in progress), Zone 4 cabinets
Emissions:	EN 62040-2 classification C3, FCC Class A
Immunity:	EN 61000-4-4, EN 61000-4-5
Electrostatic Discharge Immunity:	EN 61000-4-2, (level: 4kV contact, 8kV air discharge)

Media Inverter System

TSI Media 48/120 Inverter Platform



Media Inverter System

- Scalable up to 3kVA
- Enhanced Power Conversion Feature
- Supports redundancy
- Hot swappable
- Input DC Breakers
- Output AC Breakers
- Optional NEMA Outlets

Media Inverter System

Electrical	
AC Output Power	
Nominal Output Power**:	n x 1500VA
Output Power**:	n x 1200W (resistive load)
Short Time Overload Capacity:	150% 15Sec
Permanent Overload Capacity:	110% @ 40°C / 104°F
Load Power Factor:	Full power rating from 0 inductive to 0 capacitive, internal temperature management and cut off
AC Input	
Nominal Voltage (DC):	48Vdc
Voltage Range (DC):	40 to 58Vdc
Nominal Current (@ 40Vdc)**:	n x 34A
Max. Input Current**:	n x 42A for 5sec
Voltage Ripple:	<1mV resistive load @ 54Vdc input voltage boundaries user selectable
DC Input	
Nominal Voltage:	120 or 240Vac (Single or dual phase)
Voltage Range:	83 to 140Vac (each phase)
Conformity Range:	Adjustable
Power Factor:	>99%
Frequency Range:	50 to 60Hz (selectable)
Synchronization Range:	47 to 53Hz / 57 to 63Hz
Transfer Performance	
Total Transient Voltage Duration:	0s (transient free)
AC Output	
Nominal Voltage:	120 or 240Vac (Single or dual phase)
Adjustable Voltage Range:	90 to 130Vac
Voltage Accuracy:	2%
Frequency:	50 to 60Hz
Frequency Accuracy:	0.03%
Total Harmonic Distortion:	<3% (resistive load)
Load Impact Recovery Time:	0.4ms
Turn On Delay:	30s
Nominal Current**:	n x 12.5A (protected against reverse current)
Crest Factor @ Nominal Power:	2.2 with short circuit management and protection
Short Circuit Clear Up Capacity:	10 x I _n for 20sec Available while Mains is available at AC input port; with magnitude control and management

Mechanical	
Dimension H x W x D (in/mm):	3.5 x 19 or 23 x 12.5 / 88.9 x 482.6 or 584.2 x 317.5
Weight (lb/kg):	14.4 + n x 5.3 / 7.9 + n x 2.4
Material (Casing):	Coated steel
General	
EMC (Immunity):	IEC 1000-4
EMC (Emission):	FCC Part 15
Safety:	UL 1778 (Ed.4) Listed
Cooling:	Forced
MTBF:	>200,000hrs
Efficiency (Max) Online:	90%
Enhanced Power Conversion (EPC):	93%
Dielectric Strength DC/AC (@ 0.6mA):	4,300Vdc
RoHS-6:	Compliant
Connection I/O:	Terminal block or NEMA receptacle or Twist Locks or combo AC output receptacles Protected against reversed polarity Self adaptive to wide operating conditions
Environment	
Elevation:	<1500m / 4921ft
Ambient Temperature**:	n x 1500VA, -20 to 40°C / -4 to 104°F, Pmax @ 100% Load, de-rating up to 65°C / 149°F
Storage Temperature:	-40 to 70°C / -40 to 158°F
Humidity:	95% non-condensing
Signaling and Supervision	
Display:	Synoptic LED
Alarms Output:	Dry contacts on shelf (optional)
Supervision:	Use optional devices, Comprehensive table of troubleshooting codes

* Operation within lower voltage networks leads to derating of power performances
** "n" stands for Number of Modules in parallel

DSP Inverter Series

1 to 15kVA Inverter System



DSP inverter

- Nebs level 3 certified to assure compatibility with the telecommunications environment
- Fourth generation DSP architecture utilizing SMD for high reliability
- Hot swappable EUE static switch and inverter modules
- 6 or 15kVA EUE static switch available

DSP Inverter Series

Inverter Module Rating:	1kVA	2.5kVA
Nominal System Output Capacity with One Rack Shelf:	1 to 5kVA (6kVA w/o EUE)	2.5 to 12.5kVA (15kVA w/o EUE)
Nominal Bypass AC Input:	120Vac	120Vac
Number of Bypass AC Phases:	1	1
Bypass AC Input Wiring:	L, N, PE	L, N, PE
Bypass Voltage Tolerance:	±10% (Adjustable ±5% to ±15%)	±10% (Adjustable ±5% to ±15%)
Maximum System Capacity with Two Rack		
Shelves, without EUE:	12kVA	30kVA
Nominal DC Input:	-48Vdc	-48Vdc
DC Input Range:	40.8 to 60Vdc	40.8 to 60Vdc
Power Rating:	1000VA / 800W	2500VA / 2000W
Nominal Input Current (-48Vdc):	19A	47A
Maximum Input Current:	22.5A	55A
Output		
Output Current (120Vac):	8.33A	20.83A
Nominal Output Voltage:	120Vac	120Vac
Output Voltage Regulation:	±5% for all combinations of line, load and temperature	
Output Power Factor:	0.7 lagging to 0.8 leading	0.7 lagging to 0.8 leading
Output Voltage Waveform:	DSP Sine wave	DSP Sine wave
Output Crest Factor:	2.8:1	2.8:1
Output Voltage Distortion:	<3% @ 100% rated linear load	<3% @ 100% rated linear load
Output Overcurrent Protection:	Electronic current limiting	Electronic current limiting
Overload Rating (Inverters):	110% continuous, 120% for ~1 minute, 200% for ~4 seconds	
Overload Rating (Static Bypass):	500% for 100mS	500% for 100mS
Optional Maintenance Bypass Switch:	Internally mounted, Make-before-break mechanically interlocked switch provided on all models equipped with the EUE static bypass module	
Inverter Module Rating:	1kVA	2.5kVA
Remote Alarming:	(1) Form-C Inverter fault, (1) Form-C Static Switch fault	
LED Indicators (Inverter Modules):	On, Output present, DC Input OK, Inverter Fault, Parallel Operation, Overload, Bar graph for output power	
Display/Metering (EUE, Static Bypass Module):	Graphic Display (Menu Driven, password protected), Power flow diagram, LED's (Normal, fault)	
Mechanical		
Rack Shelf Dimensions (in/mm):	12.25 x 23 x 19.8 / 311 x 584 x 503	12.25 x 23 x 25.25 / 311 x 584 x 590
Weight (lb/kg):	11 / 5	17.6 / 8
Environment		
Elevation:	<3000m / 10000ft without derating	
Operating Temperature:	0 to 55°C / 32 to 131°F	
Operating Humidity:	0 to 95% non-condensing	
Standards		
Radio Interference:	Certified to Telecorodia GR-1089	Certified to Telecorodia GR-1089
Safety Listing:	UL60950	UL60950
Product Certification:	NEBS Level 3, Seismic Zone 4	NEBS Level 3, Seismic Zone 4

MS Power Inverter Series

1 and 2kVA Inverter System



MS Power Inverter

- Standard 19"/23", 2RU rack mount
- 1kVA/800W and 2kVA/1600W
- Pure sine wave output
- Utility bypass function
- UL/cUL approved
- RS-232 communication
- Internal "over temperature" protection
- Input reverse polarity protection
- Output overload protection

MS Power Inverter Series

Models	Majorsine1000-24-2U	Majorsine1000-48-2U	Majorsine2000-48-2U
Input			
Voltage:	20 to 30Vdc	40 to 60Vdc	40 to 60Vdc
Rated Current:	50A	25A	50A
Protection:	Fuse and DC Breaker	Fuse and DC Breaker	Fuse and DC Breaker
Efficiency:	>85% (full linear load), 24Vdc I/P, 120Vac O/P		
Output (Backup)			
Capacity:	1kVA / 800W	1kVA / 800W	2kVA / 1600W
Voltage:	110, 115, 120, 125Vac	110, 115, 120, 125Vac	110, 115, 120, 125Vac
Voltage Regulation:	±2%	±2%	±2%
Frequency:	50/60Hz ±0.2Hz	50/60Hz ±0.2Hz	50/60Hz ±0.2Hz
Waveform:	Pure sine wave	Pure sine wave	Pure sine wave
THD (Linear Load):	3% 120V/100%	3% 120V/100%	3% 120V/100%
THD (SPS Load):	5% 120V/100%	5% 120V/100%	5% 120V/100%
Crest Factor:	31	31	31
Receptacles:	(4) NEMA 5-20R outlets	(4) NEMA 5-15R outlets	(4) NEMA 5-20R outlets
Utility Power (Bypass)			
Voltage (Nominal):	120Vac	120Vac	120Vac
Frequency:	60 ±5Hz	60 ±5Hz	60 ±5Hz
Protection:	AC Circuit Breaker	AC Circuit Breaker	AC Circuit Breaker
Communication:	RS232 / Dry-contact	RS232 / Dry-contact	RS232 / Dry-contact
LED Display:	Inverter ON, Overload, DC Abnormal	Inverter ON, Overload, DC Abnormal	Inverter ON, Overload, DC Abnormal
LCD Display:	Inverter ON, Output voltage and frequency, Input voltage, Load percentage, DC voltage, System model, Internal environment temp., Utility status, Short circuit, Over temp.		
Protection			
Short:	For 1 second; Switch to bypass, then shutdown		
Overload:	105 to 125% for 3 minutes; 126 to 150% for 3 seconds; >150% for 1 second; Switch to bypass		
Temperature:	55° ±5°C (Inside the case) 131° ±41°F	55° ±5°C (Inside the case) 131° ±41°F	55° ±5°C (Inside the case) 131° ±41°F
Environment			
Operating Temperature:	0 to 50°C / 32 to 122°F	0 to 50°C / 32 to 122°F	0 to 50°C / 32 to 122°F
Storage Temperature:	-20 to 70°C / -4 to 158°F	-20 to 70°C / -4 to 158°F	-20 to 70°C / -4 to 158°F
Humidity:	0 to 90°C / 32 to 194°F non-condensing	0 to 90°C / 32 to 194°F non-condensing	0 to 90°C / 32 to 194°F non-condensing
Acoustic Noise:	46dBA @ 1 M	46dBA @ 1 M	46dBA @ 1 M
Safety:	UL / cUL	UL / cUL	UL / cUL
EMI / RFI:	FCC Class A	FCC Class A	FCC Class A
Mechanical			
Dimensions H x W x D (in/mm):	3.5 x 17.3 x 11.8 / 88 x 440 x 300, 2RU		
Weight (lb/kg):	15.4 / 7	15.4 / 7	17.6 / 8

WRING ACCESS PANEL
QUALIFIED SERVICE PERSONNEL ONLY



MODULAR POWER SYSTEM 80 HP

CAUTION
RISK OF ELECTRIC SHOCK

- * MULTIPLE POWER SOURCES
- * EQUIPMENT DISCONNECT ALL POWER SOURCES BEFORE SERVICING
- * SEE INSTALLATION INSTRUCTIONS BEFORE CONNECTING TO THE SUPPLY
- * DO NOT ENERGIZE THE SYSTEM UNTIL ALL INVERTER SLOTS ARE FILLED

RECTIFIER
INPUT



1 2 3

AC OUTPUT DISTRIBUTION



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

INVERTER
AC INPUT



BY PASS



INVERTER

INVERTER
OUTPUT



OPEN



alpha 

MODEL: 80HP-8000
S/N: 00000000
AC INPUT: 208V 3W 100A
AC OUTPUT: 208V 3W 100A
SERIAL: 00000000
DATE: 00/00/00
MFG: 00/00/00



Single and Three Phase UPS

➤ AMPS80HP

Alpha's new high performance AC or hybrid AC/DC system offers telecom grade reliability, 94% efficiency and high power density. The AMPS80 features hot swappable 2.5kVA/ 2.0kW inverter modules and optional 1.8kW rectifier. The AMPS80 meets your current and future power needs by allowing you to purchase and install individual modules for the ultimate flexibility to scale up or down. Front access and user-friendly connections make the system easy to install, service and upgrade.

➤ AMPS24HP

The AMPS24 features hot swappable 1.5kVA/1.2kW inverter modules and 1.8kW rectifier modules that are the building blocks of a highly reliable power system utilizing 48Vdc batteries. The AMPS24 meets your current and future needs by allowing them to purchase only the power modules for current needs while having ultimate flexibility to scale up or down, depending on future power needs.

➤ EX UPS

The EX UPS offers high-performance power protection. With the ability to be rack mounted or a standalone tower, this UPS is ideal for mid-range servers, networks, IT equipment, and medical and storage devices. With a low cost of ownership and a broad range of features, the EX UPS is one of the best in its class.

➤ EX RT UPS

The EX RT UPS is a UPS designed for sensitive high-density server environments and harsh industrial applications. Specifically engineered to meet demanding customer applications in IT systems, measuring instruments, PLCs and industrial PC markets, the EX RT is fully compatible with genset redundancy requirements in most instances. The manual bypass, hot swappable I/O box and intuitive LCD control panel are just a few of the many differentiating features that make the EX RT the ideal product for the 5-11kVA power range.

➤ 1600XP Series

The 1600XP series offers a tower design solution with a LCD touchscreen display that provides unmatched access for UPS monitoring and control. As a double conversion on-line UPS, it is able to supply uninterrupted, clean single-phase power to your critical systems while keeping batteries charged continuously.

➤ Triniti™ 4200 Series

The Alpha Triniti Series three phase UPS incorporates dual conversion technology designed to provide power conditioning for sensitive headend electronics, regardless of the quality of the utility or generator input power. Its unique active front end design provides power factor correction. In addition to providing utility cost savings, this feature provides compatibility with most existing headend generators, including those with mechanical governors running at near capacity.

➤ Galaxy

The Galaxy Series is the world's first data-center grade UPS designed specifically for mid-range enterprise level applications. The AlphaSource Galaxy delivers the optimum level of reliability, availability and scalability demanded by the new generation of critical enterprise applications.

➤ G9000

Using IGBT technology in the rectifier/converter, DC/DC chopper and inverter sections, the G9000 Series' double-conversion topology provides an AC/DC/AC efficiency of 97% at loads from 50 to 100%. Even at 20% loading, the efficiency remains greater than 95%. This industry-leading performance makes the G9000 the perfect solution for N+1 parallel systems where loads are typically 30 to 40%.

➤ Symmetra PX

The Symmetra PX 100kW is a world-class, high-efficiency power protection system designed to cost-effectively provide redundancy and high levels of availability in a two-rack footprint. The hot scalable Symmetra PX 100 provides up to 100kW of modular power protection for 208V deployments, as well as hot swappable long-life batteries and power distribution.

AMPS80HP

Modular AC UPS System



AMPS80

- High performance AC or hybrid AC/DC backup power system offering 99.999% availability
- 94% Efficiency, 15 year Design Life and MTBF (Mean Time Between Failures) greater than 200,000 hours
- Intelligent system controller with integrated SNMP for local and remote management of AC and DC power modules, batteries, and other peripherals
- Hot swappable 2.5kVA/2.0kW inverter modules and optional 1.8kW rectifier modules
- Small footprint system offers up to 75kVA/60kW in a single 19" box bay rack

AMPS80HP

Model	AMPS80-3-75	AMPS80-3-30	AMPS80-2-40	AMPS80-1-20
Input and Output Phase:	120/208V 3-ph		120/240 or 120/230V2ph	120 single ph
Output Capacity:	7500 to 75000VA	7500 to 30000VA	5000 to 40000VA	2500 to 20000VA
Output Power (Resistive Load):	6000 to 60000W	6000 to 24000W	4000 to 32000W	2000 to 16000W
Maximum Output Current:	208Arms per phase	83Arms per phase	168Arms per phase	168Arms
Max./Min. No. of 2500VA/2000W Inverter Modules:	30/3	12/3	16/2	8/1
Technology:	Twin Sine Inverter (TSI) technology; each inverter module has DC input and AC input			
Static Switch:	Not required; each module has its own static switch			
Efficiency:	94% AC to AC; 90% DC to AC (from 50 to 100% full resistive load)			
Waveform:	Pure sine wave			
Output Power Factor:	0.8 (can run capacitive and inductive loads)			
Transfer Time:	Zero transfer time			
Warranty:	2 year standard (1 and 3 year optional extensions)			
Inverter Module AC Output				
Power Rating:	2500VA/2000W			
Voltage Range (AC):	90 to 140V	90 to 140V	90 to 140V	90 to 140V
Voltage Accuracy:	±2%	±2%	±2%	±2%
Frequency:	60Hz (same as input frequency)			
Inverter Frequency Accuracy:	0.03%	0.03%	0.03%	0.03%
Input Power Factor:	>99%	>99%	>99%	>99%
THD (Resistive Load):	<1.5%	<1.5%	<1.5%	<1.5%
Transient Load Recovery Time:	0.4ms	0.4ms	0.4ms	0.4ms
Soft Start Time:	20s	20s	20s	20s
Max. Crest Factor @ No. Power:	3.5	3.5	3.5	3.5
Short Circuit Overload Capacity:	10 x I _n for 20msec (AC to AC mode)			
Short Term Overload Capacity:	150% for 5 seconds			
Permanent Overload Capacity:	110%	110%	110%	110%
Synchronization Range:	57 to 63Hz	57 to 63Hz	57 to 63Hz	57 to 63Hz
Inverter Module DC Output				
Nominal Voltage:	48Vdc	48Vdc	48Vdc	48Vdc
Voltage Range (max.):	40 to 60Vdc (User Adjustable)			

Max. DC Input Current	
@ 48Vdc:	1375A 550A 734A 366A
@ 40Vdc:	1700A 680A 900A 450A
Voltage Ripple:	<2mV / <38dbmrc
Unified System Controller with Integrated SNMP	
Control and Monitoring:	Configure, control and monitor inverter and rectifier modules via Internet Explorer 7 onwards
Display:	LCD Touch-screen Display (160 x 160 pixels), OK/Major/Minor 3-Color LED display, Web based GUI via Ethernet
Communication Ports:	RJ45 Ethernet Port, R232 Port (Front)
Mechanical	
Dimensions H x W x D (in/mm):	84 x 23.6 x 26.8 / 213 x 600 x 680
System Weight Without Modules (lb/kg):	595 / 270
Module Dimensions H x W x D (in/mm):	3.5 x 4 x 17.1 / 88.9 x 102 x 435
Module Weight (lb/kg):	11 / 5
Clearance (in/mm)	
Front:	33 / 838.2
Rear:	12 / 304.8
Sides:	No clearance required
Top:	12 / 304.8
Environment	
Operating Temperature:	-20 to 40°C / -4 to 104°F (full load)
Storage Temperature:	-40 to 70°C / -40 to 158°F
Humidity:	Up to 95% non-condensing
Elevation:	Up to 2000m / 6562ft above sea level
Standards	
Safety:	UL1778 (2nd Ed); CSA C22.2 No. 107.3-05 UPS General Safety
EMC:	FCC CFR47 Part 15 Class A; ICES-003
Features:	Unified system controller with integrated SNMP communications, Top AC and DC feed access; bottom DC feed access (All user connections are front access), AC input and output breaker/disconnect switch, Industrial grade surge suppression (rated to 40kA)
Options:	Up to 8 x 1.8kW rectifier modules, Integrated maintenance bypass switch, Inverter DC input breakers, Service-entrance grade surge suppression: 140kA rating (per phase), Lockable rack front-door, Batteries (various sizes and technologies)

AMPS24HP

Modular AC and Hybrid Power System



AMPS24

- High performance AC and hybrid AC/DC backup power system offering 99.999% reliability for mission critical indoor applications
- 93% Efficiency, 15 year Design Life and MTBF (Mean Time Between Failures) greater than 200,000 hours results in class leading TCO (Total Cost of Ownership)
- Intelligent system controller with integrated SNMP for local and remote management
- Hot swappable 1.5kVA/1.2kW inverter modules and 1.8kW rectifier modules (optional for inverter only systems) offer complete flexibility, scalability and low MTTR (Mean Time To Repair)
- Up to 24kVA/19.2kW small footprint system may be installed in a 19" or 23" open-relay rack or box bay rack/cabinet with flexible mounting options

AMPS24HP Hybrid Systems

Specifications*					
Models:	AMPS24-3-13.5-H3	AMPS24-2-18-H4	AMPS24-2-9-H2	AMPS24-1-9-H2	AMPS24-1-4.5-H1
Input and Output Phase:	120/208V 3-ph	120/240 or 120/208V 2-ph		120V single ph	
Nominal Output Power (max):	4500 to 13500VA	3000 to 18000VA	3000 to 9000VA	1500 to 9000VA	1500 to 4500VA
Output Power (Resistive Load):	3600 to 10800W	2400 to 14400W	2400 to 7200W	1200 to 7200W	1200 to 3600W
Max. Output Current:	37.5Arms per phase	75Arms per phase	37.5Arms per phase	75Arms per phase	37.5Arms per phase
Max. No. of 1500VA/1200W Inverter Modules Per System:	9	12	6	6	3
Min. No. of 1500VA/1200W Inverter Modules Per System:	3	2	2	1	1
Max. No. of 1800W Rectifier Modules Per System:	3	4	2	2	1

AMPS24HP Inverter Systems

Specifications*					
Models:	AMPS24-3-18-3i	AMPS24-2-24-4i	AMPS24-2-12-2i	AMPS24-1-12-2i	AMPS24-1-6-1i
Input and Output Phase:	120/208V 3-ph	120/240 or 120/208V 2-ph		120V single ph	
Nominal Output Power (max):	4500 to 18000VA	3000 to 24000VA	3000 to 12000VA	1500 to 12000VA	1500 to 6000VA
Output Power (Resistive Load):	3600 to 14400W	2400 to 19200W	2400 to 9600W	3600 to 9600W	2400 to 4800W
Max. Output Current:	50Arms per phase	100Arms per phase	50Arms per phase	100Arms per phase	50Arms per phase
Max. No. of 1500VA/1200W Inverter Modules Per System:	12	16	8	8	4
Min. No. of 1500VA/1200W Inverter Modules Per System:	3	2	2	1	1
Technology:	Twin Sine Inverter (TSI) technology; each inverter module has DC and AC input				
Static Switch:	Not required; each module has its own static switch				
Efficiency:	93% AC-to-AC; 90% DC-to-AC (from 50 to 100% full resistive load)				
Waveform:	Pure sine wave				
Output Power Factor:	0.8 (Can run capacitive and inductive loads)				
Transfer Time:	Zero transfer time				
Warranty:	2 Years (1 and 3 year optional extensions)				
Inverter Module AC Output					
Power Rating:	1500VA/2000W				
Nominal Voltage:	120Vac				
Voltage Accuracy:	±2				
Frequency:	60Hz (same as input frequency)				
Inverter Frequency Accuracy:	0.03%				
THS (Resistive Load):	<1.5%				
Transient Load Recovery Time:	0.4ms				
Soft Start Time:	20s				
Max. Crest Factor at Nominal Power:	3.5				
Short Circuit Overload Capacity:	10 x I _n for 20msec (AC to AC mode)				

* Specifications subject to change.

EX UPS

- Double conversion UPS technology for 100% compatibility with any application, environment or genset and high output to protect equipment with PFC power supplies
- Wide input voltage window to conserve battery time for blackouts only
- Automatic bypass for high availability



EX UPS Mini Tower

EX UPS

Models	PULSL700T	PULSL1000T	PULSL1500T	PULSL1000R-XL2U	PULSL1500R-XL2U
Specifications					
Input Voltage:	100/120/140/160 ¹ to 248V				
Frequency Range:	40 to 70Hz	40 to 70Hz	40 to 70Hz	40 to 70Hz	40 to 70Hz
Rating:	700VA / 630W	1000VA / 900W	1500VA / 1350W	1000VA / 900W	1500VA / 1350W
Input Connection:	5-15P	5-15P	5-15P	5-15P	5-15P
Topology:	Online double conversion with automatic bypass and power factor correction				
Output Voltage:	120V (adjustable to 100/110/127V)				
Output Frequency:	50/60Hz, auto-select or frequency converter mode ²				
Output Receptacle:	(4) 5-15R	(4) 5-15R	(4) 5-15R	(6) 5-15R	(6) 5-15R
Additional Outputs with HotSwap MBP:	(4) NEMA 5-15R	(4) NEMA 5-15R	(4) NEMA 5-15R	(4) NEMA 5-15R	(4) NEMA 5-15R
Additional Outputs with FlexPDU:	NEMA L5-20R	NEMA L5-20R	NEMA L5-20R	NEMA L5-20R	NEMA L5-20R
Mechanical					
Configuration:	Mini Tower	Mini Tower	Mini Tower	Rack	Rack
Dimensions H x W x D (in/mm):	9.5 x 6 x 17.3 / 241.3 x 152.4 x 439.4		9.5 x 6 x 19.3 / 241.3 x 152.4 x 490.2	3.5 x 17.3 x 19 / 88.9 x 439.4 x 482.6	
Weight (lb/kg):	25.7 / 11.7	33 / 15	39.6 / 18	39.6 / 18	45 / 20.4
Communication and Management					
Indicators:	(3) LEDs with adjustable multilingual display				
Display:	Display of measurements, access to control and setup menus				
Communication Ports:	(1) USB port, (1) RS232 serial port and relay contacts ³ , (1) mini terminal block for remote on/off and emergency stop				
Communication Card Slots:	(1) Slot for NMC Mini-Slot 206 card, NMC ModBus/JBux or MC Contacts/Serial				
Environment					
Operating Temperature:	0 to 40°C / 32 to 104°F	0 to 40°C / 32 to 104°F	0 to 40°C / 32 to 104°F	0 to 40°C / 32 to 104°F	0 to 40°C / 32 to 104°F
Noise Level:	45dBA	45dBA	45dBA	45dBA	45dBA
Standards					
Performance/Safety/EMC:	IEC 62 040-3 (VFI-SS-113), IEC 62 040-1-1, IEC 60 950-1 (RD), FCC Subpart B, Class A				
Approvals:	UL, cUL, CE CB report				
Warranty					
2 year factory warranty					

Notes:

¹ Lower limits for <20%, <33%, <66%, >=66% of nominal power (VA); for active output power greater than 0.7 and 0.8 nominal rating, the lower limit is 180V and 190V respectively

² Derated by 15% when used as a frequency converter

³ USB and RS232 serial ports cannot be used simultaneously

EX UPS

- Extended runtime capabilities with multiple, hot swappable battery modules (optional)
- Remote reboot of locked equipment, sequential start-up through individually switchable outlets



EX UPS Rack/Tower 2RU

EX UPS

Models	PULSML2200-XL2U	PULSML2200-XL3U	PULSML3000-XL2U	PULSML3000-XL3U	PULSML3000-XL3U XL
Specifications					
Input Voltage:	50 ¹ - 100 to 142V	50 ¹ - 100 to 142V	50 ¹ - 100 to 142V	50 ¹ - 100 to 142V	50 ¹ - 100 to 142V
Frequency Range:	40 to 70Hz	40 to 70Hz	40 to 70Hz	40 to 70Hz	40 to 70Hz
Rating:	2100/1650	2100/1650	3000/2550	3000/2550	3000/2550
Input Connection:	5-20P	5-20P	L5-30P	L5-30P	L5-30P
Topology:	Online with automatic bypass and power factor correction				
Output Voltage:	120V (adjustable to 100/110/127V)				
Output Frequency:	50/60Hz, auto-select or frequency converter mode ²				
Output Receptacle:	(6) NEMA 5-20R + (1) NEMA L5-20R	(6) NEMA 5-20R + (1) NEMA L5-20R	(6) NEMA 5-20R + (1) NEMA L5-30R	(6) NEMA 5-20R + (1) NEMA L5-30R	(6) NEMA 5-20R + (1) NEMA L5-30R
Additional Outputs with HotSwap MBP:	(5) NEMA 5-15R or (5) NEMA 5-20R				
Additional Outputs with FlexPDU:	(10) NEMA 5-15R or (10) NEMA 5-20R or (8) NEMA L5-20R				
Mechanical					
Configuration:	Rack/Tower 2RU	Rack/Tower 3RU	Rack/Tower 2RU	Rack/Tower 3RU	Rack/Tower 3RU XL
Dimensions H x W x D (in/mm):	3.4 (2RU) x 17.3 x 25.2 / 86.4 x 439.4 x 640.1	5.1 (3RU) x 17.3 x 19.3 / 129.5 x 439.4 x 490.2	3.4 (2RU) x 17.3 x 25.2 / 86.4 x 439.4 x 640.1	5.1 (3RU) x 17.3 x 19.3 / 129.5 x 439.4 x 490.2	5.1 (3RU) x 17.3 x 19.3 / 129.5 x 439.4 x 490.2
Weight (lb/kg):	68.2 / 30.9	68.2 / 30.9	68.2 / 30.9	66 / 29.9	66 / 29.9
Communication and Management					
Indicators:	(3) LEDs with adjustable multilingual display				
Display:	Display of measurements, access to control and setup menus				
Communication Ports:	(1) USB port, (1) RS232 serial port and relay contacts ³ , (1) mini terminal block for remote on/off and emergency stop				
Communication Card Slots:	(1) Slot for NMC Mini-Slot 2006 card, NMC ModBus/JBus or MC Contacts/Serial				
Environment					
Operating Temperature:	0 to 40°C / 32 to 104°F	0 to 40°C / 32 to 104°F	0 to 40°C / 32 to 104°F	0 to 40°C / 32 to 104°F	0 to 40°C / 32 to 104°F
Noise Level:	45dBA	45dBA	45dBA	45dBA	45dBA
Standards					
Performance/Safety/EMC:	IEC/EN 62-040-3 (VFI-SS-113), IEC/EN 62 040-1-1, IEC/EN 60 -50-1 (RD), IEC/EN 62 040-2 C1, FCC Subpart B, Class A				
Approvals:	CE, TÜV, CB Report, UL and CUL (CSA)				

Notes:

¹ Lower limits for reduced load

² Derated by 15% when used as a frequency converter

³ USB and RS232 serial ports cannot be used simultaneously

EX RT UPS



EX RT UPS

- Internal static bypass
- Input/output (I/O) box with manual bypass
- Large input voltage range without using battery power
- 40 to 70Hz input frequency range
- Standalone solution with modular design for industrial needs
- Communications slot compatible with multiple communication card protocols

EX RT UPS

Models	EXRTG5000-XL6UMS	EXRTG7000-XL6UMS	EXRTG11000-XL6UMS
Configuration:	Rack/Tower	Rack/Tower	Rack/Tower
Specifications			
Nominal Input Voltage:	120 to 280V @ 70% rated output	120 to 280V @ 70% rated output	120 to 280V @ 70% rated output
Input Voltage Range:	156 to 280V @ 100% rated output	156 to 280V @ 100% rated output	156 to 280V @ 100% rated output
Input Frequency Range:	40 to 70Hz, frequency converter as a standard	40 to 70Hz, frequency converter as a standard	40 to 70Hz, frequency converter as a standard
Rating:	5000VA/4000W	7000VA/4900W	11000/8000W
Input Connection:	Hardwired	Hardwired	Hardwired
Topology:	Online with automatic bypass	Online with automatic bypass	Online with automatic bypass
Output Voltage:	200/208 ¹ /220/230/240/250; 120V output voltage available with transformer		
Output Frequency:	50/60Hz auto -select		
Output Receptacle:	Hardwired	Hardwired	Hardwired
Overall Efficiency:	90 to 97% (Online mode - ECO mode)	90 to 97% (Online mode - ECO mode)	90 to 97% (Online mode - ECO mode)
Harmonic Current Distortion:	<5%	<5%	<5%
Crest Factor:	3:1	3:1	3:1
Overload Capacity:	2 min if 120%<overload<110%, 1 min if 110%<overload<125%, 30 sec if 125%<overload<150%, 500 msec if overload>150%		
Battery Test:	Weekly without load interruption ²	Weekly without load interruption ²	Weekly without load interruption ²
Operating Temperature:	45°C / 113°F for 8 hr, 0 to 40°C / 32 to 104°F	45°C / 113°F for 8 hr, 0 to 40°C / 32 to 104°F	45°C / 113°F for 8 hr, 0 to 40°C / 32 to 104°F
Block Power Module Input/Output terminal Block:	Hardwired	Hardwired	Hardwired
Maximum Wire Size (Solid or Standard Wire):	5/7kVA: 10mm/6 AWG 11kVA: 13mm/4 AWG	5/7kVA: 10mm/6 AWG 11kVA: 13mm/4 AWG	5/7kVA: 10mm/6 AWG 11kVA: 13mm/4 AWG
Step-Down Transformer:	120/208/240Vac output	120/208/240Vac output	120/208/240Vac output
Output Configuration:	Terminal block, plus (2) NEMA L6-30R (208V), (8) NEMA 5-20R; optional PDUs for additional NEMA or IEC receptacles		
Mechanical			
Configuration:	Rack/Tower	Rack/Tower	Rack/Tower
Dimensions H x W x D (in/mm):	10.3 (6RU) x 17.5 x 26.3 / 261.6 x 444.5 x 668	10.3 (6RU) x 17.5 x 26.3 / 261.6 x 444.5 x 668	10.3 (6RU) x 17.5 x 26.3 / 261.6 x 444.5 x 668
Weight (lb/kg):	192 / 87.1	192 / 87.1	211 / 95.7
Communication			
Communication Ports Type:	(6) Voltage-free dry contacts DB-9 rated at 2A 48Vdc, (1) RS 232, (1) RJ11 for RPO (Remote Power Off)		
Communication Card Slots:	(1) Slot for Mini-Slot communication card [Network Management Card (SNMP/Web), NMC ModBus/JBus, MC Contacts/Serial]		
Standards			
Performance and Safety:	IEC 62040-1/CEI 60950/UL 1778 and CSA 22.2 Standards		
EMC:	IEC 62040-2; EN 50091-2; FCC Class A		
Warranty			
2 years, parts and labor (US and Canada)			

Notes:

¹ Default voltage

² Configurable to daily or monthly

EX RT UPS

- Versatile 6RU rack or tower design
- Multilingual LCD
- Integrated NEMA receptacles included with transformer configuration
- Optional rack mount PDU with NEMA or IEC sockets to facilitate power distribution within the enclosure



EX RT UPS

EX RT UPS

Models	EXRTL5000-XL9UMS	EXRTL7000-XL9UMS	EXRTL11000-XL9UMS
Specifications			
Nominal Input Voltage:	120 to 280V @ 70% rated output	120 to 280V @ 70% rated output	120 to 280V @ 70% rated output
Input Voltage Range:	156 to 280V @ 100% rated output	156 to 280V @ 100% rated output	156 to 280V @ 100% rated output
Input Frequency Range:	40 to 70Hz, frequency converter as a standard	40 to 70Hz, frequency converter as a standard	40 to 70Hz, frequency converter as a standard
Rating:	5000VA/4000W	7000VA/4900W	11000/8000W
Input Connection:	Hardwired	Hardwired	Hardwired
Topology:	Online with automatic bypass	Online with automatic bypass	Online with automatic bypass
Output Voltage:	200/208 ¹ /220/230/240/250; 120V output voltage available with transformer		
Output Frequency:	50/60Hz auto -select		
Output Receptacle:	Hardwired + (2) NEMA L6-30R + (8) NEMA 5-20R		
Overall Efficiency:	90 to 97% (Online mode - ECO mode)	90 to 97% (Online mode - ECO mode)	90 to 97% (Online mode - ECO mode)
Harmonic Current Distortion:	<5%	<5%	<5%
Crest Factor:	3:1	3:1	3:1
Overload Capacity:	2 min if 120%<overload<110%, 1 min if 110%<overload<125%, 30 sec if 125%<overload<150%, 500 msec if overload>150%		
Battery Test:	Weekly without load interruption ²	Weekly without load interruption ²	Weekly without load interruption ²
Operating Temperature:	45°C / 113°F for 8 hr, 0 to 40°C / 32 to 104°F	45°C / 113°F for 8 hr, 0 to 40°C / 32 to 104°F	45°C / 113°F for 8 hr, 0 to 40°C / 32 to 104°F
Block Power Module Input/Output terminal Block:	Hardwired	Hardwired	Hardwired
Maximum Wire Size (Solid or Standard Wire):	5/7kVA: 10mm/6 AWG 11kVA: 13mm/4 AWG	5/7kVA: 10mm/6 AWG 11kVA: 13mm/4 AWG	5/7kVA: 10mm/6 AWG 11kVA: 13mm/4 AWG
Step-Down Transformer:	120/208/240Vac output	120/208/240Vac output	120/208/240Vac output
Output Configuration:	Terminal block, plus (2) NEMA L6-30R (208V), (8) NEMA 5-20R; optional PDUs for additional NEMA or IEC receptacles		
Mechanical			
Configuration:	Rack/Tower	Rack/Tower	Rack/Tower
Dimensions H x W x D (in/mm):	15.5 (9RU) x 17.5 x 26.3 / 393.7 x 444.5 x 668	15.5 (9RU) x 17.5 x 26.3 / 393.7 x 444.5 x 668	15.5 (9RU) x 17.5 x 26.3 / 393.7 x 444.5 x 668
Weight (lb/kg):	365 / 165.6	365 / 165.6	384 / 174.2
Communication			
Communication Ports Type:	(6) Voltage-free dry contacts DB-9 rated at 2A 48Vdc, (1) RS 232, (1) RJ11 for RPO (Remote Power Off)		
Communication Card Slots:	(1) Slot for Mini-Slot communication card [Network Management Card (SNMP/Web), NMC ModBus/JBus, MC Contacts/Serial]		
Standards			
Performance and Safety:	IEC 62040-1/CEI 60950/UL 1778 and CSA 22.2 Standards		
EMC:	IEC 62040-2; EN 50091-2; FCC Class A		
Warranty			
2 years, parts and labor (US and Canada)			

Notes:

¹ Default voltage

² Configurable to daily or monthly

1600 XP Series

Single Phase UPS

- True on-line, double conversion UPS
- Electronic power factor correction for 100% generator compatibility
- User-friendly, programmable touch-screen display
- Internal isolation transformer
- Hot swappable battery packs and cooling fans
- External battery connector
- SNMP/Web-based monitoring



1600 XP Series

1600 XP Series

Power Rating	3.6kVA / 3.1kW	6kVA / 5.1kW	8kVA / 6.8kW	10kVA / 8.5kW	14kVA / 11.9kW	18kVA / 15.3kW	22kVA / 18.7kW
Specifications							
Topology:	True on-line, double conversion; IGBT power factor corrected input; internal isolation transformer						
Certifications:	UL 1778, CUL, CE, FCC Class A, IEEE 587, ANSI/C62.41, ISO 9001, ISO 14001, NEMA/PE1-1993, RoHs						
Input							
Input Voltage:	Single-phase 208/240Vac (Three-wire input/L-L, G); 230Vac (Three-wire input/L, N, G), +10 to 30%						
Input Frequency:	45 to 65Hz (Auto Sensing)						
Input Power Factor:	>0.95 for all loads	>0.95 for all loads	>0.95 for all loads	>0.95 for all loads	>0.95 for all loads	>0.95 for all loads	>0.95 for all loads
Input Current THD:	>5% (Even for 100% non-linear loads)						
AC Input Breaker Rating:	30A	50A	60A	63A	100A	100A	125A
Battery							
Battery Type:	Valve-regulated lead acid; flame retardant (9Amp Hr)						
Backup Time (Fully Charged):	7 minutes	7 minutes	7 minutes	5 minutes	7 minutes	5 minutes	3 minutes
	0.85 Power factor; 25°C / 77°F; Approx. 30% more runtime for output power factor of 0.7 (Triple backup time at 1/2 load)						
Recharge Time:	24 Hours (full), 12 Hours (90%)						
DC Link:	144Vdc	216Vdc	288Vdc	288Vdc	288Vdc	288Vdc	288Vdc
Output							
Output Voltage:	Single-phase 240/208/120Vac (Four-wire output/L-L, N, G); 230Vac (Three-wire Output L, N, G)						
Output Voltage Regulation:	±3%; ±1% typical	±3%; ±1% typical	±3%; ±1% typical	±3%; ±1% typical	±3%; ±1% typical	±3%; ±1% typical	±3%; ±1% typical
Output Frequency:	50/60Hz; ±0.5Hz/1.0Hz/1.5Hz (Factor or authorized service center selectable)						
Output Voltage THD:	<3% for linear load; 1% typical						
Common Mode Noise:	<0.5V RMS	<0.5V RMS	<0.5V RMS	<0.5V RMS	<0.5V RMS	<0.5V RMS	<0.5V RMS
Rated-Load Power Factor:	0.85 (0.6 to 1.0) lag						
Rated Output Current @ 240V:	15A	25A	33.3A	41.6A	58A	75A	91.6A
Max. Peak Output Current:	45A	75A	100A	125A	174A	225A	275A
Overload Capacity:	Inverter mode: 150% for 10 seconds, 125% for 30 seconds; Bypass mode: 125% for 10 minutes, 1000% for one cycle						
Environmental							
Efficiency (AC-DC-AC):	>85%	>85%	>85%	>85%	>85%	>85%	>85%
Temperature Range:	0 to 40°C / 32 to 104°F (Operating); -20 to 40°C / -4 to 104°F (Storage)						
Heat Generation (BTU/hr):	1843	3071	4095	5118	7168	9213	11260
Elevation:	2000m/6600ft max. without derating						
Audible Noise:	<60dBa @ 1 Meter	<60dBa @ 1 Meter	<60dBa @ 1 Meter	<60dBa @ 1 Meter	<60dBa @ 1 Meter	<60dBa @ 1 Meter	<60dBa @ 1 Meter
Mechanical							
Enclosure:	Steel enclosure; Complies with NEMA 1 and UL Type-1 standard						
Dimensions H x W x D (in/mm):	22.1 x 10 x 33 / 561.34 x 254 x 838.2	27.5 x 10 x 33 / 698.5 x 254 x 838.2	28.4 x 13 x 34.9 / 721.36 x 330.2 x 886.46		39.1 x 17.5 x 36.1 / 993.14 x 445.5 x 916.94		
Weight (lb/kg):	280 / 127	346 / 157	476 / 214		784 / 355		835 / 379
Battery Pack Dimensions H x W x D (in/mm):	5 x 7.3 x 19 / 127 x 185.4 x 482.6 (Six batteries of REW 45-12FR per pack)						
Battery Pack Quantity:	Two	Three	Four		Eight		
Features							
Output isolation transformer, RS232 and dry contact interface, Crest factor of 3, Angled terminal blocks for easy installation, Casters for mobility							
Options							
SNMP and WEB-based monitoring, Matching battery cabinet, Internet/external maintenance bypass, Receptacle panel and line cord							
Warranty							
3 years on electronics (UPS); 2 years on battery							

Triniti™ 4200 Series

Three Phase UPS

- 15, 25, 50 and 80kVA power ratings
- 100% front access
- Internal maintenance bypass (except on 80kVA)
- “Active Front End” provides total power factor correction and utility cost savings
- Internal batteries reduce footprint for easy installation (except on 80kVA)



Triniti 15kVA

Triniti 4200 Series

Model	Triniti 15	Triniti 25	Triniti 50	Triniti 80
Output Power Rating:	15kVA/12kW	25kVA/20kW	50kVA/40kW	80kVA/64kW
Input Voltage (-15 to 10%; -30% if derated):	208/120 4 wire + gnd	208/480 3 wire + gnd	208/480 3 wire + gnd	208/480 3 wire + gnd
Output Voltage (±2% regulation balanced load):	208/120 4 wire + gnd	208/120 4 wire + gnd	208/120 4 wire + gnd	208/120 4 wire + gnd
Input Circuit Breaker @ 208V:	60A	90A	175A	300A
Output Current Per Phase @ 208/120V:	41.7A	69.4A	138A	222A
Typical Heat Output (KBTU/Hr):	5.73	7.6	17.73	24.27
Audible Noise at 1 Meter From Front Panel:	<60dBA	<60dBA	<65dBA	<65dBA
Internal Battery Runtime				
Full Load @ 0.7 Power Factor:	10min	5min	5min	External Battery
Half Load @ 0.7 Power Factor:	30min	15min	15min	Pack Options*
Mechanical				
Dimensions H x W x D (in/mm):	59.8 x 36.3 x 20 / 508 x 922 x 1518.9	59.8 x 36.3 x 20 / 508 x 922 x 1518.9	59.8 x 37.6 x 35.6 / 904.2 x 939.8 x 1518.9	74 x 31 x 44 / 1117.6 x 787.4 x 1879.6
Weight (lb/kg):	900 / 408.2	910 / 412.7	2548 / 1155.8	2450 / 111.3

* 4 to 64min runtime options

Power Rating	
Input Power Factor Correction:	>0.95 PF (lagging)
Input Harmonic Currents:	<3% THD (typical)
Input Frequency Range:	60Hz, ±5%
Load Crest Factor:	≤3
Overload Capacity Inverter:	125% for 90sec, 150% for 30sec
Overload Capacity Bypass:	125% for 10ms, 1000% for 1 cycle
Neutral Conductor Size:	1.73 x conductor
Load Inrush Current Protection:	Automatically transfers to bypass then retransfers to inverter
Typical Efficiency AC/AC:	87%
Output Frequency:	60Hz, ±0.1%
Status and Control	
AC Input Present:	Input and output frequency
Inverter Operating:	Operating status menu
UPS on Bypass:	Diagnostic status menu
UPS on Battery:	DB9 dry contact interface
Fault:	RS232 communications
Input and Output Voltage:	Emergency power off switch
Output Current Indicator:	Run/Stop key switch
Battery Voltage Indicator:	Terminal block (input/output power connector) Internal maintenance bypass (except on 80kVA)
Optional Features:	External maintenance bypass, SNMP
Warranty	
3 year parts and labor, 2 years on batteries. See warranty statement for further details, conditions and limitations.	



Triniti 80kVA

Galaxy 3500

Three Phase UPS

- Power ranges 10, 15, 20 and 30kVA
- Double conversion on-line technology
- Compact and robust design
- Best-in-class efficiency (94%)
- Parallel capability
- Network manageability



Galaxy 3500
Wide Enclosure

Galaxy 3500
Narrow Enclosure

Galaxy 3500

Rated Power	10kVA / 8kW	15kVA / 12kW	20kVA / 16kW	30kVA / 24kW	
Normal AC Supply Input					
Input Voltage (V):	208V (Three phase + neutral)	208V (Three phase + neutral)	208V (Three phase + neutral)	208V (Three phase + neutral)	
Frequency (Hz):	40 to 70Hz	40 to 70Hz	40 to 70Hz	40 to 70Hz	
Input Power Factor:	>0.98 at load >50%	>0.98 at load >50%	>0.98 at load >50%	>0.98 at load >50%	
THDI:	<5% at Full load	<5% at Full load	<5% at Full load	<5% at Full load	
Input Voltage Tolerance Utility Operation:	166 to 240V (at Full load) 100 to 240V (at half load) 208V				
Dual Mains Input:	Yes	Yes	Yes	Yes	
Input Voltage Tolerance Bypass:	±10% standard ±4, 6, 8, 10% (programmable)				
Backfeed Protection:	Built-in backfeed contactor	Built-in backfeed contactor	Built-in backfeed contactor	Built-in backfeed contactor	
Output					
Nominal Output Voltage (V):	208V (Three phase + neutral)	208V (Three phase + neutral)	208V (Three phase + neutral)	208V (Three phase + neutral)	
Efficiency (AC-AC):	at Full Load	93.5%	93.0%	94.1%	93.3%
	at 50% Load	92.5%	93.5%	93.8%	94.3%
DC-AC Nominal Battery Voltage:	93.8%	93.8%	93.8%	93.8%	
Load Power Factor:	0.5 leading to 0.5 lagging	0.5 leading to 0.5 lagging	0.5 leading to 0.5 lagging	0.5 leading to 0.5 lagging	
Output Frequency:	Mains synchronized in normal operation 60Hz ± 0.05% free-running				
Overload Capacity Operation:	Utility	125% for 10 minutes, 150% for 60 seconds			
	Battery	150% for 60 seconds	150% for 60 seconds	150% for 60 seconds	150% for 60 seconds
V THD:	<2% From 0 to 100% linear load, <5% full non-linear load				
Output Voltage Tolerance:	±1% Static, ±5% at 100% load step				
Communication and Management					
Communication Interface:	Network management card with environmental monitor				
Control Panel:	Power view multi-function LCD, status and control console				
Mechanical					
Dimensions H x W x D (in/mm):	Narrow Tower	58.70 x 14 x 33 / 1490.98 x 355.6 x 838.2		—	
	Wide Tower	58.70 x 20.60 x 33 / 1490.98 x 508 x 838.2			
Weight (lb/kg):	Narrow Tower	671 / 304 with 1 Battery module	873 / 395 with 1 Battery module	—	—
	Wide Tower	711 / 322 with 2 Battery modules	913 / 414 with 2 Battery modules	979 / 444 with 2 Battery modules	1181 / 535 with 2 Battery modules
Color:	Metallic Gray (RAL 9023)				
Protection					
Surge:	IEC61000-4-5, EN50091-2 ANSI-IEEE C62-41				
Thermal:	Yes				
Short Circuit:	Yes				
Regulatory					
Standards:	UL 1778, EN50091-2, IEC 62040-2 FCC15A, CE				
Environmental					
Temperature Range:	Operating: 0 to 40°C / 32 to 104°F, Storage: -15 to 40°C / 5 to 104°F				
Humidity:	0 to 95% non-condensing				
Elevation:	Operating: 0 to 1000m / 0 to 3280ft, Storage: 0 to 15,000m / 0 to 49,212ft				
Max. Audible Noise:	<43.3dBA at <70% load (at 1m from unit)		<46.2dBA at <70% load (at 1m from unit)		
Protection Class:	IP51/NEMA 12				

Galaxy 4000

Three Phase UPS

- Power ranges 40, 50, 65 and 75kVA
- True online double conversion technology
- Low UPS to generator sizing
- Power surge stabilization system
- Power factor corrected input SNMP and network based power management options



Galaxy 4000

Galaxy 4000

Power Rating	40kVA / 32kW	50kVA / 40kW	65kVA / 52kW	75kVA / 60kW
Input				
Voltage:	208V	208V	208V	208V
Input Frequency:	60Hz (±5%)	60Hz (±5%)	60Hz (±5%)	60Hz (±5%)
Power Factor:	>0.98	>0.98	>0.98	>0.98
Current Distortion (THD):	<3% @ Full load	<3% @ Full load	<3% @ Full load	<3% @ Full load
Current (A @ 208V):	102	127	166	191
Output				
Voltage:	208V	208V	208V	208V
Frequency:	60Hz (±1 to 4% selectable)	60Hz (±1 to 4% selectable)	60Hz (±1 to 4% selectable)	60Hz (±1 to 4% selectable)
Transient Response:	±5% for 0 to 100% to 0%	±5% for 0 to 100% to 0%	±5% for 0 to 100% to 0%	±5% for 0 to 100% to 0%
Voltage Distortion THD:	<1% L-L and L-N	<1% L-L and L-N	<1% L-L and L-N	<1% L-L and L-N
Inverter Overload 130%:	1min	1min	1min	1min
Inverter Overload 145%:	30 sec	30 sec	30 sec	30 sec
Bypass Overload:	10x nominal current - 1 cycle	10x nominal current - 1 cycle	10x nominal current - 1 cycle	10x nominal current - 1 cycle
Output Current (A @ 208V):	111	139	180	208
Heat Rejection (max BTUs):	14900	18700	24200	28000
Runtimes @ 100% Load				
1 x 285W/Cell:	12	9	6	-
1 x 370W/Cell:	20	14	9	8
1 x 500W/Cell:	28	22	15	11
2 x 370W/Cell:	47	36	25	22
2 x 500W/Cell:	67	52	38	31
3 x 500W/Cell:	98	85	60	53
4 x 500W/Cell:	136	115	85	72
Mechanical				
Standard Cabinet Dimensions (in/mm):	33.5 x 35.6 x 72.1 / 1831.3 x 904.2 x 850.9	33.5 x 35.6 x 72.1 / 1831.3 x 904.2 x 850.9	33.5 x 35.6 x 72.1 / 1831.3 x 904.2 x 850.9	33.5 x 35.6 x 72.1 / 1831.3 x 904.2 x 850.9
Weight (lb/kg):	1235 / 560	1235 / 560	1235 / 560	1235 / 560
Battery Cabinet Dimensions (in/mm):	26.5 x 35.5 x 72.1 / 673 x 901 x 1831	26.5 x 35.5 x 72.1 / 673 x 901 x 1831	26.5 x 35.5 x 72.1 / 673 x 901 x 1831	26.5 x 35.5 x 72.1 / 673 x 901 x 1831
Weight (lb/kg):	2045 / 928	2045 / 928	2045 / 928	2045 / 928
Battery Cabinet Dimensions (in/mm):	33.5 x 35.6 x 72.1 / 850 x 901 x 1831	33.5 x 35.6 x 72.1 / 850 x 901 x 1831	33.5 x 35.6 x 72.1 / 850 x 901 x 1831	33.5 x 35.6 x 72.1 / 850 x 901 x 1831
Weight (lb/kg):	2745 / 1245	2745 / 1245	2745 / 1245	2745 / 1245
Standards				
Standards:	ISO 9001, UL 1778, cJUL, FCC Part 15, subpart J, Class A, NEMA PE 1, NEMA 250, NFPA 70, IEC 10000 (801) level 4, OSHA			
Standard Features:	True double conversion online topology, Input power factor correction (IGBT rectifier), Dual input, Input distortion management, Digital power quality management system (PWM/IGBT inverter), Step load voltage stabilization, Intelligent battery management system, Fault tolerant architecture, Casters with stabilizing feet, Network based software for multi-server control, Dry contact I/O card, SNMP manageable, Graphic display with multilingual user interface, Bottom or top entry, Four communications ports			

Galaxy 5000

Three Phase UPS



- IGBT technology supplies clean, stable power to sensitive loads
- Connect up to 6 units in parallel: add redundancy or grow with your power requirements
- Allows connection to two separate input sources for increased availability
- Built in static and maintenance bypass for seamless transfer to utility for maintenance or in the event of heavy overload

Galaxy 5000

Power Rating	40kVA / 36kW	50kVA / 45kW	60kVA / 54kW	80kVA / 72kW	100kVA / 90kW	130kVA / 117kW
Input						
Voltage (V):	480V Core, 3 Wire + G (220V, 208V, 600V w/ Aux Transformer 4 Wire + G)					
Frequency:	60Hz ±5%	60Hz ±5%	60Hz ±5%	60Hz ±5%	60Hz ±5%	60Hz ±5%
Power Factor:	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99
Current Distortion (THDI):	<5%	<5%	<5%	<5%	<5%	<5%
Bypass Overload:	10x nominal current for 1 cycle					
Output						
Output Voltage:	480V Core, 3 Wire + G (220V, 208V, 600V w/ Aux Transformer 4 Wire + G)					
Frequency:	60Hz	60Hz	60Hz	60Hz	60Hz	60Hz
Voltage Regulation:	±-1% balanced load, ±-2.5% unbalanced load					
Voltage Transient Response:	±-5% for 100% step load, ±1% for loss or return of AC input					
Voltage Recovery Time:	Within 1% of nominal within 1 cycle					
Voltage Distortion:	<1% L-L and L-N for non-linear loads (<2% max)					
Inverter Overload:	150% for 1min, 125% for 10min					
Heat Rejection (BTU) @ 480V:	9248	11560	13872	18496	19607	25489
Overall Efficiency						
Double Conversion Mode:	Up to 94%	Up to 94%	Up to 94%	Up to 94%	Up to 94%	Up to 94%
Environment						
Temperature Range:	Operating UPS: 0 to 40°C / 32 to 104°F, Operating battery: 25°C / 77°F, Storage: -20 to 45°C / -4 to 113°F					
Elevation:	1000m / 3281ft	1000m / 3281ft	1000m / 3281ft	1000m / 3281ft	1000m / 3281ft	1000m / 3281ft
Mechanical						
Dimensions H x W x D (in/mm):	75 x 28 x 33.42 / 1905 x 711.2 x 848.86					
Weight (lb/kg):	882 / 400.06	882 / 400.06	882 / 400.06	882 / 400.06	1146 / 519.81	1146 / 519.81
Matching Maintenance Bypass Dimensions H x W x D (in/mm):	75 x 28 x 33.42 / 1905 x 711.2 x 848.86					
Transformer Cabinet Dimensions H x W x D (in/mm):	75 x 28 x 33.42 / 1905 x 711.2 x 848.86					
Distribution Cabinet Dimensions H x W x D (in/mm):	75 x 42 x 33.42 / 1905 x 1066.8 x 848.86					
Top Entry Cabinet Dimensions H x W x D (in/mm):	75 x 14 x 33.42 / 1905 x 355.6 x 484.86					
Battery Cabinet Dimensions H x W x D (in/mm):	75 x 26 x 33.42 / 1905 x 660.4 x 848.86					
Battery Cabinet Dimensions H x W x D (in/mm):	75 x 32 x 33.42 / 1905 x 812.8 x 848.86					
Battery Cabinet Dimensions H x W x D (in/mm):	75 x 48 x 33.42 / 1905 x 1219.2 x 848.86					
Parallel System Bypass Cabinet Dimensions H x W x D (in/mm):	(480V Only): 75 x 28 or 42 x 33.42 / 1905 x 711.2 or 1066.8 x 848.86					

Galaxy PW Series

Three Phase UPS

- Parallel modules for capacity or redundancy
- 0.9 output power factor
- Modular design for easy upgrading or expansion
- Field upgradable power output**
- Generator friendly for low UPS to generator sizing ratios
- Advanced battery management system with automatic self testing

** on 100-200kVA modules only



Galaxy PW

Galaxy PW Series

Power Rating	150kVA / 135kW	180kVA / 162kW	200kVA / 180kW	225kVA / 202.5kW
Input				
Input Voltage (V):	208, 480V Three phases, 3W + G			
Frequency (Hz):	60Hz (±10%)			
Nominal Input Current at 208V:	685A	600A	692A	692A
Input THDI:	<7.5% at 100% load			
Output				
Voltage:	208, 480V Three phases, 3W + G			
Power Factor:	>0.9			
THDV (Linear Loads):	<1.5% Ph/Ph, <2% Ph/n			
THDV (Non-linear Loads):	<2% Ph/Ph, <3% Ph/n			
Voltage Transient Reponse:	±2% at 100% Step load			
Nominal Output Current at 208V:	418A	501A	556A	625A
Inverter Overload Capacity (A):	150% for 1 minute, 125% for 10 minutes			
Bypass				
Bypass Instant Overload:	22 Times nominal current (1 cycle)			
Overall Efficiency				
System Efficiency:	93% at 100% Load		93.5% at 100% Load	
Full Load Heat Rejection:	57,301BTU	68,762BTU	72,477BTU	73,383BTU
Environmental				
Operating Temperature:	UPS: 0 to 40°C / 32 to 104°F			
Storage Temperature:	-20 to 45°C / -4 to 113°F			
Humidity:	0 to 95% non-condensing			
Audible Noise:	68dBA			
Mechanical				
Module Dimensions H x W x D (in/mm):	75 x 48 x 33 / 190 x 1219.2 x 838.2			
UPS Module Weight (lb/kg):	3050/1383			

G9000 Series

Three Phase UPS



G9000 Series

- Next generation IGBT Technology
- True on-line, double-conversion UPS
- Parallel up to eight units
- High efficiency for lower operational cost
- Smallest footprint and highest power density in industry

G9000 Series

Models	T90S3S08K-S6XSN	T90S3S10-S6XSN	T90S3S16-S6XSN	T90S3S22K-S6XSN	T90S3S30K-S6XSN*	T90S3S50K-S6XSN*	T90S3S75K-S6XSN*
Specifications							
Capacity:	80kVA/72kW	100kVA/90kW	160kVA/144kW	225kVA/202.5kW	300kVA/300kW	500kVA/500kW	750kVA/750kW
Topology:	True on-line, Double-conversion, Advanced multi-level IGBT technology						
Input							
Voltage:	480V, Three-phase, Three-wire + Ground/bypass input, 480V, Three-phase, Three-wire + ground						
Voltage Range:	480V, -20% to 15% (384 to 552V without utilizing battery)						
Power Factor:	>0.99	>0.99	>0.99	>0.99	>0.99	>0.99	>0.99
Current THD:	<3% @ 100% Load (no input filter required)						
Frequency:	60Hz (±10%)	60Hz (±10%)	60Hz (±10%)	60Hz (±10%)	60Hz (±10%)	60Hz (±10%)	60Hz (±10%)
Output							
Voltage:	480V, Three-phase, Three-wire + ground						
Frequency:	60Hz, ±0.01% (in free-running mode)						
Voltage Regulation:	±1.0% (0.5% Typical)						
Power Factor:	0.9 Lagging	0.9 Lagging	0.9 Lagging	0.9 Lagging	1.0 (Unity)	1.0 (Unity)	1.0 (Unity)
Power Factor Range:	0.9 Lagging to 0.95 Leading						
Voltage THD:	<2% for linear load, <5% for non-linear load						
Overload (Inverter):	125% for 2 minutes; 150% for 60 seconds				125% for 10 minutes; 150% for 60 seconds		
Overload (Bypass):	1000% for one cycle				500% for one cycle		
Parallel Capability:	4 units max	4 units max	4 units max	4 units max	8 units max	8 units max	8 units max
Battery							
DC Link:	480Vdc	480Vdc	480Vdc	480Vdc	480Vdc	480Vdc	480Vdc
Environment							
Temperature Range:	0 to 40°C / 32 to 104°F						
Humidity:	5 to 95% non-condensing						
Heat Rejection:	10771 BTUs/Hr	13463 BTUs/Hr	17821 BTUs/Hr	25060 BTUs/Hr	30709 BTUs/Hr	51182 BTUs/Hr	79200 BTUs/Hr
Efficiency (Full Load):	95.8%	95.8%	96.5%	96.5%	97%	97%	97%
Efficiency (20% Load):	92.5%	92.5%	94.7%	94.9%	95.8%	95.8%	95.8%
Elevation:	2250m/7380ft max without derating						
Audible Noise:	70dBA @ 1m	70dBA @ 1m	70dBA @ 1m	70dBA @ 1m	73dBA @ 1m	73dBA @ 1m	73dBA @ 1m
Mechanical							
Dimensions H x W x D (in/mm):	80.6 x 27.6 x 32.8 / 2049 x 700 x 832		80.6 x 35.4 x 32.8 / 2047 x 900 x 832		80.7 x 86.7 x 33 / 2050 x 2200 x 838		80.7 x 102.3 x 33 / 2050 x 2600 x 838
Weight (lb/kg):	855 / 388	855 / 388	1160 / 526	1230 / 558	2200 / 1000	3300 / 1500	4255 / 1930
Features							
Digital Signal Processor (DSP) Control, Fully digital IGBT converter and inverter, High efficiency over wide load range, transformer-less design, N+1 and N+N (Up to eight in parallel) capability, Dual-input feed, Electronic battery isolation, RS232 and dry contact interface, small footprint, lightweight design							
Standards							
UL 1778, CUL, ISO9001, ISO14001, ANSI C62.41 (IEEE 587), FCC Class A, Article 47, Part 15.B							
Warranty							
3 year onsite (Optional 2 year extended warranty)							

* Preliminary specifications only; subject to change without notice

Symmetra PX

Three Phase UPS

- Scalable from 10 to 100kW
- Modular components simplify future expansion as your load grows
- N+1 redundant up to 90kW
- Hot swappable power, battery and breaker modules
- Space saving high density design



Symmetra PX

Symmetra PX

Power Rating	100kW
Mains Input (Normal Operation)	
Grid System:	3 Phases + neutral + ground
Voltage Range (full load):	177 to 239V
Frequency Range:	40 to 70Hz
PF:	>0.99% @ >25% Load
I thd (full load):	<5%
Nominal Input Current:	302A @ 208A
Maximum Input Current:	332A (Nominal Vin, 10% charging batteries)
Input Current Limit:	360A
Max. Input Short-Circuit Level:	30kA
Protection:	Backfeed contactor
Bypass Input (Bypass Operation)	
Grid System:	3 Phases + neutral + ground
Nominal Input (V):	208V
Voltage Range:	±10%
Frequency (nominal):	50/60Hz
Frequency (range):	±0.1Hz, ±3Hz, ±10Hz (user selectable)
Nominal Input Current:	278A @ 278V
Max. Overload Input Current:	347A
Output	
Power Rating:	100kW
Grid System:	3 Phases + neutral + ground
Nominal Output (V):	208V L-L
Nominal Output Current:	278A @ 208V
Max. Battery Operation Time:	Unlimited
Frequency Regulation:	50/60Hz Bypass synchronized, 50/60Hz ±0.1% free running
Sync. Slew Rate:	Programmable to 0.25, 0.5, 1, 2, 4, 6Hz/sec
Overload:	150% for 30 seconds (Normal and battery operation)
V thd:	<2% @ 100% Resistive load, <6.5% @ 100% SMPS load
Load PF:	From 0.5 leading to 0.5 lagging without any derating
Mechanical	
Dimensions H x W x D (in/mm)	79.1 x 23.6 x 42.1 / 2011 x 600 x 1070
Net Weight (lb/kg):	716 / 324
Shipping Weight (lb/kg):	789 / 357
UPS Maximum Capacity	
10kW Power Modules:	10
Battery Modules:	9
Power Distribution Modules:	24
Regulatory	
Standards:	UL1778 second edition, FCC Part 15, CE





AlphaTVSS™

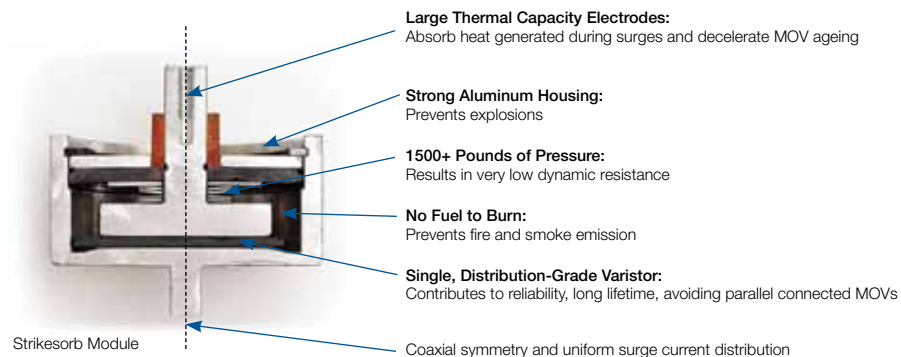
Transient Voltage Surge Suppression

- Safe operation – no explosions, no smoke, no fumes and no flames
- Isolates the load from damaging transients and other abnormal line conditions
- Lifetime of 20+ years
- NEMA 4X rated enclosure
- UL recognized surge suppression component (UL 1449 3rd edition)



The Strikesorb™ surge suppression module incorporates state-of-the-art developments in metal oxide technology to provide superior protection throughout its long service life. It has been designed to withstand repeated surges, providing cost-effective and maintenance-free operation in harsh environments. Strikesorb is the only UL (1449 – 3rd edition) recognized surge protection module rated for safe operation without the use of additional internal fuses. This technology, combined with the capability to be connected directly on the power lines (feed-through connection) make Strikesorb the most reliable surge protection device available.

Models	ATVSS-2-120	ATVSS-3-120/240	ATVSS-4-120/208	ATVSS-2-240	ATVSS-4-220/380
Electrical					
Nominal Operation Voltage:	120V	120V/240V	120V/208V	240V	220V/380V
Maximum Continuous Operating Voltage:	150V	150V	150V	300V	480V
Vref (Peak) @ 5mA AC (Peak):	263V	263V	263V	526V	833V
Operating Frequency Range:	25 to 500Hz	25 to 500Hz	25 to 500Hz	25 to 500Hz	25 to 500Hz
Leakage Current at Vn:	0.30mA	0.30mA	0.30mA	0.35mA	0.45mA
Surge Protection Levels					
Surge Voltage Rating:	500V	500V	500V	800V	1500V
Response Time:	<1ns	<1ns	<1ns	<1ns	<1ns
Maximum Surge Current:	140kA	140kA	140kA	140kA	140kA
Maximum Lightning Current:	7.5kA	7.5kA	7.5kA	7.5kA	7.5kA
Let through Voltage					
For Surge Current 10kA (8/20):	435V	435V	435V	895V	1355V
Enclosure					
	IP65-NEMA4	IP65-NEMA4	IP65-NEMA4	IP65-NEMA4	IP65-NEMA4
Dimensions H x W x D (in/mm):	8 x 6 x 6 / 203 x 152 x 152	12 x 10 x 6 / 305 x 254 x 152	12 x 10 x 6 / 305 x 254 x 152	8 x 6 x 6 / 203 x 152 x 152	12 x 10 x 6 / 305 x 254 x 152
Operating Temperature:	-40 to 85°C / -40 to 185°F				





www.alpha.com





Total Power Solutions

➤ Complete System Solutions

Systems engineered to work together are more efficient and more reliable. Alpha provides you complete systems to serve every point of your cable broadband network, as well as options for integrating renewable energy or Hybrid Power Systems into your operations. From power supplies and batteries to solar modules and turn-key buildings, our powering systems are fully integrated for maximum reliability and carefully engineered to minimize your total cost of ownership.

➤ Installation and Construction Services

With a national network of contractors, project managers and Alpha technicians, we can provide turnkey solutions for outside plant, headend, telecommunications, industrial and renewable energy applications. We work to combine your small-, medium- and large-scale projects with the necessary installation resources. Our complete installation and facility construction services include structure engineering, right-of-way and easement procurement, site preparation, equipment installation, utility hook-up coordination, system turn-up and system testing.

➤ Repairs, Refurbishments and Factory Upgrades

Featuring an on-site CableUPS® inverter module exchange, our goal is to maintain network uptime providing you access to quick and stress-free system repairs and refurbishment options for all of your network equipment. Our repair and development laboratories are designed for product repair, refurbishment and improvement of all Alpha and third-party equipment including cable power supplies, RF line gear, Headend, UPS fiber and test equipment.

➤ On-Site Service

With Alpha Technologies Services repair depots established across North America, we provide convenient pick-up and drop-off services. In addition to our scheduled driving routes, we offer preventive maintenance programs and emergency response capabilities where trained Alpha field technicians can be dispatched 24 hours a day in specially equipped and stocked service vehicles.

➤ Technical Support and Customer Service

Because your networks are operating 24 hours a day, we offer you around-the-clock telephone technical support and web-based tools to generate RMAs and track open repairs, history and billing.

➤ Our ISO 14001:2004 Environmental Management System

Alpha strives to continually improve our Environmental Management System by benchmarking opportunities for improving our performance and demonstrating conformity to system requirements.

We are committed to be industry and community leaders for sustainable business processes by meeting legal/other requirements, communicating with internal/external customers and protecting our environment through the implementation of sustainable business processes and preventing pollution from occurring through our product design and daily practices.

System Solutions

- Fully integrated powering systems to protect your network
- Next generation power solutions for emerging topologies
- Power conditioning and back-up from Headend to home
- Complete line of system accessories to maximize reliability, efficiency and system runtime



We specialize in engineering complete network power systems committed to reliability, OpEx savings and environmental sustainability.

We understand that systems engineered to work together are more efficient and more reliable. As a result, we provide you complete systems serving every point of your cable broadband network, as well as options for integrating renewable energy or hybrid power systems into your operations. From power supplies and batteries to solar modules and turn-key buildings, our powering systems are fully integrated for maximum reliability and carefully engineered to minimize your total cost of ownership.

We are proud to have served the telecommunications industry for more than 35 years, and we invite you to learn how we can strengthen your entire network with Alpha Power.



Our RFOG and GPON Fiber Power Systems provide the same reliability as our HFC systems with added features including outdoor access to batteries and multiple configuration options.



High performance outside plant systems include multiple power supply, enclosure and battery options, as well as a full line of system accessories for climate-specific applications to provide extended runtimes and protect your powering investments.



Heavy-duty reinforced concrete equipment structures can be outfitted to your custom need, including back-up power, power conditioning, climate control, security and communications, as well as on-site calibration and preventive maintenance programs.

Installation and Construction Services

- Complete design, engineering, permitting, construction and commissioning
- Headends, equipment shelters and other critical facilities
- Turnkey installation, turn-up and test services
- Grid-Tied and Off-Grid Renewable Energy Systems



Alpha project managers will complete all site surveys, geological testing, engineering drawings and building permit applications. Our nationwide network of contractors and project managers then coordinate the entire implementation on-site, from concept to commissioning.



Grid-Tied Solar Power can help minimize operating expenses and reduce your carbon footprint. (153kW Grid-Tied system in Phoenix, AZ)



Off-Grid Solar and Hybrid Power Systems can provide the necessary redundancy for critical loads and help extend network signal to remote areas. (1kW Off-Grid Hybrid Power System in Southwest Colorado)

Repairs and Refurbishments

Full Service Repair for All Broadband Equipment

- 40 Years experience in RF Line gear, Headend, Fiber and Test Equipment Repair
- All RF Repairs are certified using a fully loaded Digital QAM Spectrum

Power Supply Refurbishments and Factory Upgrades

- On-site Power Supply Inverter Module Exchange offers zero turn around time
- Refurbishment features include:
 - Replacement of all Capacitors
 - 2 or 3 year warranty of Complete Power Supply
 - Implementation of engineering changes to improve reliability
- Options to upgrade to Embedded DOCSIS status monitoring



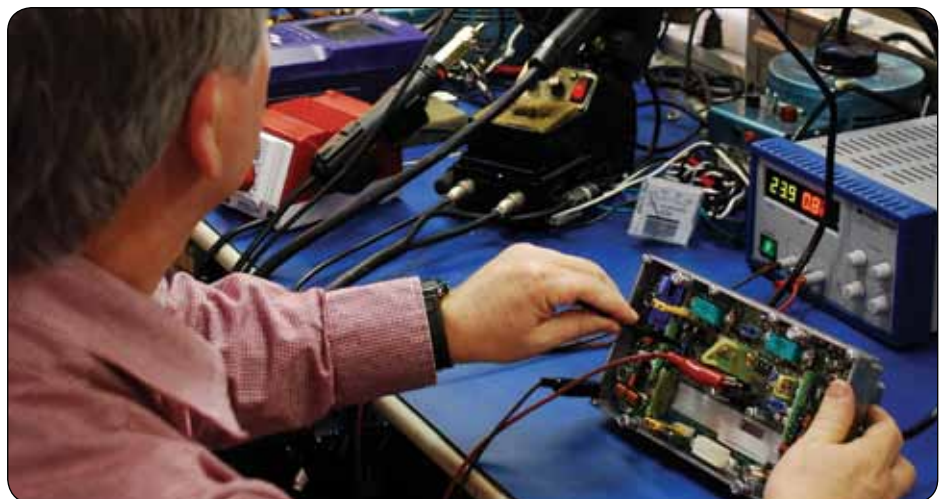
Automated test equipment is used to efficiently verify all functions of refurbished power supplies.



Refurbished equipment is put through a rigorous burn-in cycle to identify marginal components.



Customer-requested and factory-recommended improvements are implemented at time of service.



Extensive experience repairing and refurbishing all telecommunications network equipment including Cable Power Supplies, RF Line gear, Headend, Fiber and Test Equipment.

Customer Service

On-site Personal Service

- Free pick up and delivery on National Route Service
- Reduced freight costs for best cost service

Web Based Online Management Tools

- Create RMA requests
- Track open repairs, repair history and billing history



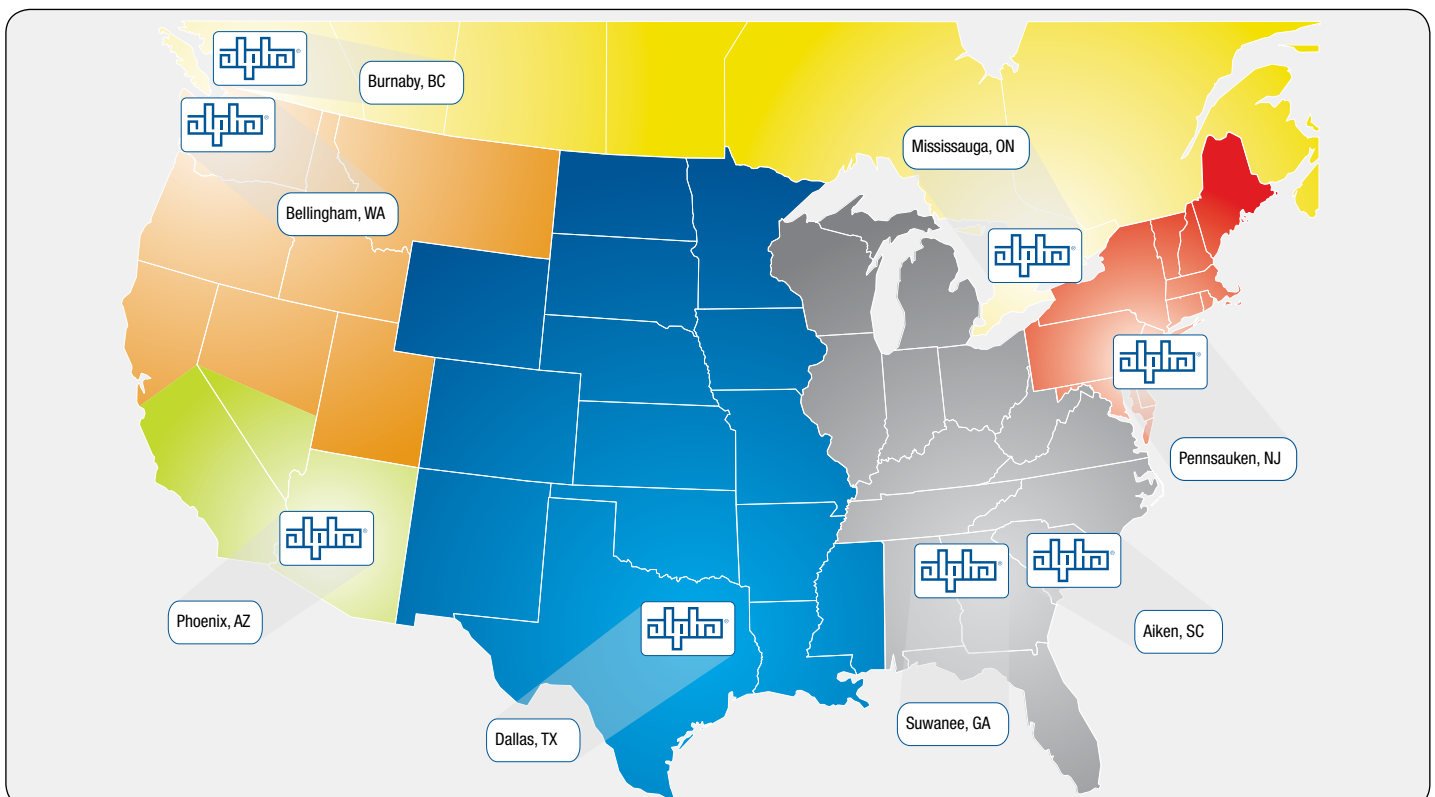
Track all aspects of your repairs online or call one of our customer service representatives.



Routine maintenance programs ensure system reliability.



24/7 phone support available when you need it.



Alpha Technologies Service Depot Locations across North America offer convenient pick-up and drop off services.

Alpha Building Systems

Powering Solutions from Concept to Activation

Solid Building Construction

- Single and multi-story building designs
- Heavy duty reinforced concrete equipment structures meet most stringent wind and seismic requirements
 - Vandal resistant, high security and maintenance-free
 - Durable washed and sealed aggregate exterior
 - Other finishing options available
- Lighter-weight, composite-panel equipment structures are ideal for rooftop applications or temporary installations
 - Versatile shelters for difficult site pavements
 - Can be installed and equipped in hours
 - Durable stucco-embossed white enamel



Alpha project managers will complete all site surveys, geological testing, engineering drawings and building permit application.



Heavy-duty reinforced concrete equipment structures are vandal-resistant, high security and virtually maintenance-free.



Lighter-weight composite-panel equipment structures are also available.



Site completion including landscaping, fencing and security.

Alpha Building Systems

Powering Solutions from Concept to Activation

Turnkey Solution For Any Communications Powering Application

- › Site survey and geological testing
- › Engineering drawings
- › Building permits
- › On-site construction
- › Careful shipping and off-loading
- › Site completion including landscaping, fencing and security

Interior Finishing to Meet Every Requirement

- › Custom wall framing completed at the factory
- › Commercial grade tile flooring
- › White laminated 7/16" panelling
- › Fire rated to necessary specifications
- › Electrical system capabilities up to 1200Amps
- › Environmental controls



Pre-wired and equipment ready.



Electrical system capabilities up to 1200Amps.

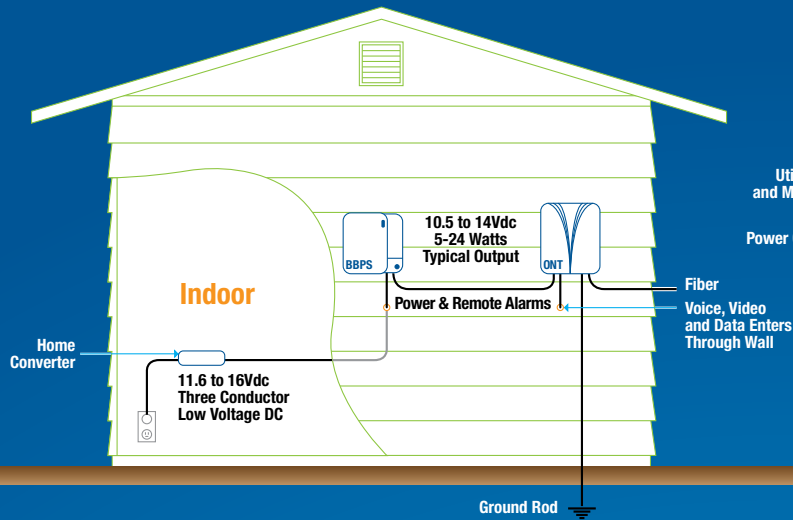


Custom wall framing allows units to be pre-wired and equipment-ready upon arrival.

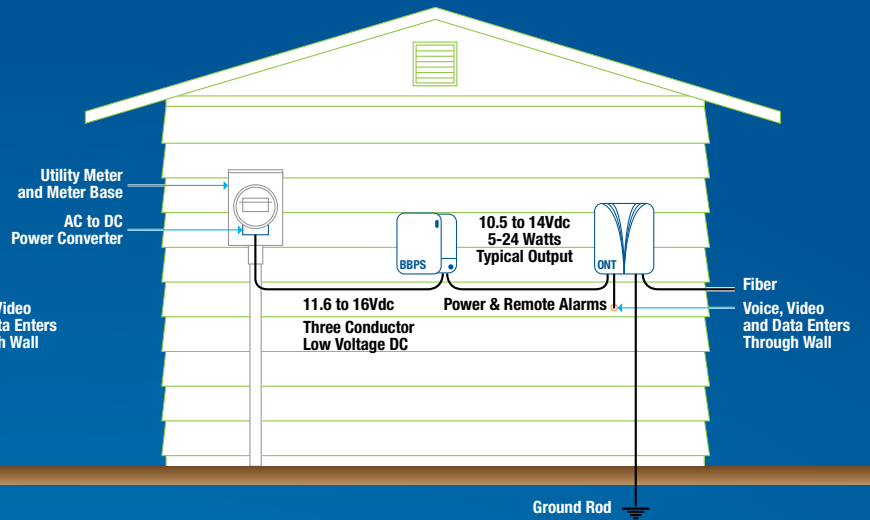


Commercial grade tile flooring and durable white laminated 7/16" wall panelling.

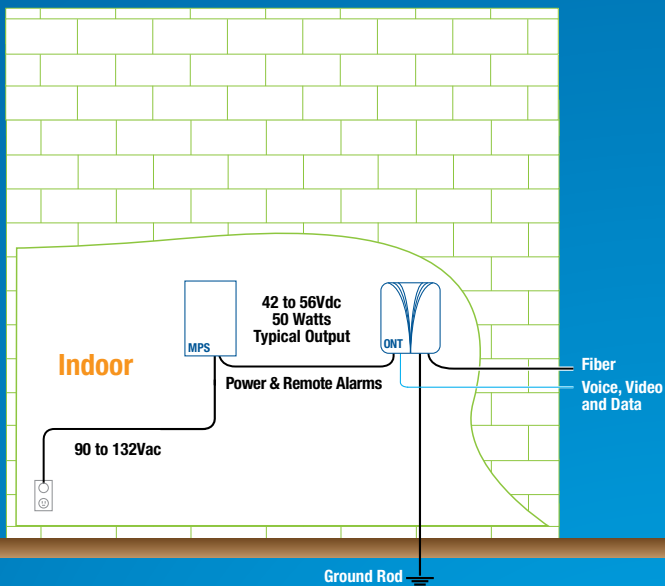
12V FlexPoint AX Series Indoor/Outdoor Hybrid Solution Operator Accessible Battery



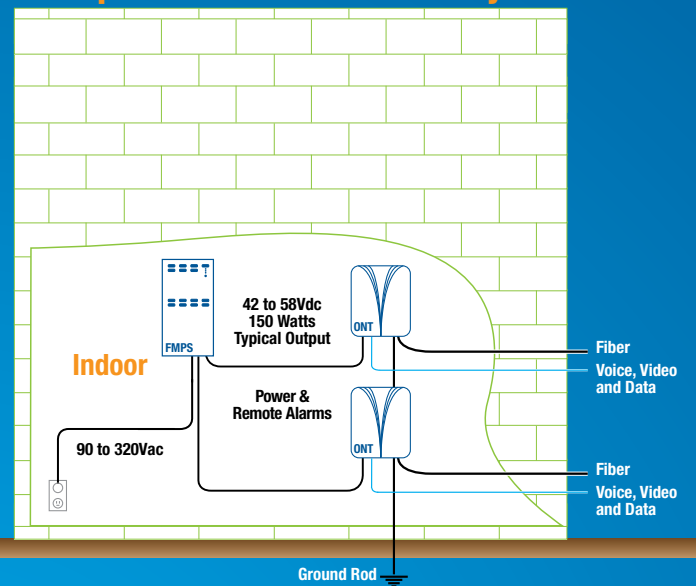
12V FlexPoint AX Series Full Outdoor Solution Operator Accessible



48V FlexNet MPS Series Indoor Solution Operator Accessible Battery



48V FlexNet FMPS Series Indoor Solution Operator Accessible Battery



Fiber Power

Alpha Technologies offers a complete portfolio of fiber-to-the-home powering options with the FlexPoint™ line of 12Vdc single-family unit solutions (SFU) and the FlexNet™ line of 48Vdc multiple dwelling unit (MDU) and small office home office (SOHO) power supplies. All of Alpha's powering solutions are engineered to perform reliably in the most demanding environmental conditions while optimizing battery life and performance.

12Vdc Solutions

➤ FlexPoint 1207-F For RFoG Applications

The indoor FlexPoint 1207, 7 Watt, 12Vdc standby power supply is an environmentally-hardened standby power supply intended to be placed indoor or outdoor in sheltered locations. Its compact size allows placement in the most densely populated structured medial enclosures. The FP1207 includes a unique emergency battery reserve function that provides greater lifeline service availability by preserving 25% of the usable battery capacity for user initiated emergency telephone calls. User interfaces include visual status indicators, audible alarms, silence alarm button and an auxiliary 12Vdc power input port allowing additional battery capacity to be added for longer standby runtimes.

➤ Integrated Fiber Enclosure (IFE)

The FlexPoint IFE-A30-1 Integrated Fiber Enclosure from Alpha Technologies provides a reliable, compact and cost-effective means to simplify RFoG deployment. The enclosure contains a fiber management system, an 8-way coaxial splitter and a FlexPoint power supply with provisions for installing RFoG devices. The door-mounted FlexPoint power supply provides 20 hours of battery backup runtime. The enclosure is lockable, making this system a secure and convenient solution for Micro Node management.

➤ FlexPoint AX Series For EPON/GPON and RFoG

The indoor/outdoor FlexPoint AX Series, 30 Watt, 12Vdc fiber-to-the-premises optical network terminal (ONT) power supply system, provides network operators a highly reliable, scalable set of solutions for full or partial outdoor RFoG and PON installations. This system provides service technicians 24/7 access to the power system. FlexPoint AX home converters and power ring converters provide 12Vdc support for indoor and outdoor applications not requiring standby power. As services expand to include voice or critical data support, 7.2 or 17Ah battery backup power supplies (BBPS) can be easily added.

48Vdc Solutions

➤ FlexNet MPS48-7 Series

Alpha extends its family of FlexNet element powering solutions to include the MPS48-7F and MPS48-7T multipurpose power supplies. The MPS48-7F supports fiber-to-the-home applications including MDU, MTU and SBU ONT products. The MPS48-7T supports critical network communication loads. These units are indoor or outdoor, wall or pole mounted microprocessor controlled UPS system providing 50 Watts of 48Vdc. The input is powered from 120, 240 or higher AC voltages with an optional step-down transformer. A 48Vdc string of standard 7.2Ah maintenance free sealed lead acid batteries provide standby power.

➤ FlexNet FMPS

The FTTx Multipurpose Power Supply (FMPS) is an indoor/outdoor system providing 150W of 48Vdc power to MDU and SOHO optical network terminals. The FlexNet FMPS is an environmentally hardened wall mount enclosure system with dual ONT connections supported with one or two 48Vdc strings of 7.2Ah batteries. The system includes one or two parallel outputs and alarm connections, supporting distances of up to 100ft between the FMPS and ONT, allowing the FMPS to be located close to existing power outlets.

➤ FlexNet FiberUPS®

The FlexNet FiberUPS is a 300 Watts, 48Vdc battery backup power module supporting a variety of indoor and outdoor applications. With pole, wall or ground mount enclosure options, the FlexNet FiberUPS will keep field distributed electronics up and running during power disturbances and outages.

➤ PMR and GMR Series

The PMR and GMR series is comprised of two sizes of pole mount and two sizes of ground mount factory configured and regulatory certified rainproof enclosure systems. PMR and GMR are highly configurable systems including 19" adjustable or pullout swing racks, AC service entrance and distribution, surge suppression, fiber management, power bypass cabling, FiberUPS DC power supply, DC distribution and 50Ah AlphaCell™ batteries.

FlexPoint™ 12Vdc

RFoG Battery Back Up Power Supplies

- Supports expanding services
- Indoor and outdoor applications
- 24-Hour operational access to outdoor solutions
- Safe, low-voltage distribution



AX HC/BBPS-F

1207-F 7W RFoG System with Primary and Standby Power

Specifications		
Input:	85 to 264Vac (45-66Hz)	
Output Voltage:	10.5 to 14.4Vdc	
Output Power:	7 Watts	
Number of Batteries:	One 7.2Ah battery	
Battery Backup Runtime:	Approx. ~ 20hrs w/ 3.5W load, Approx. ~ 12hrs w/ 7W load	
Status Indicators:	Visual and audible	
Dimensions H x W x D (in/mm):	7.75 x 8.75 x 3 / 177 x 224 x 76.2	
Weight (lb/kg):	Unit	1.3 / 0.59
	Battery	5.7 / 2.6

FPR1207-F7.2 – Indoor 12V 7W Power System



Backup Power for Business Service RFoG Deployment

Specifications	
Battery Backup Runtime:	Approx. ~ 20hrs w/ 3.5W load, Approx. ~ 12hrs w/ 7W load
Coaxial Management:	8-Way Coax Splitter
Fiber Management:	Fiber wrap spool 12-fiber splice tray
Features:	Lockable, secure indoor enclosure
Dimensions H x W x D (in/mm):	12 x 12 x 8 / 304.8 x 304.8 x 203.2
Weight (lb/kg):	8 / 3.6

Integrated Fiber Enclosure (IFE) – For RFoG Deployment



AX 30W RFoG System with Primary and Standby Power

Specifications	
Input:	85 to 132Vac
Output Voltage:	10.5 to 14.4 Vdc
Output Power:	30 Watts
Mounting:	Partial outdoor
BBPS-F Dimensions H x W x D (in/mm):	7.75 x 8.75 x 3 / 177 x 224 x 76.2
Weight (lb/kg):	3 / 1.4
Home Converter Dimensions H x W x D (in/mm):	8.5 x 3 x 2 / 21.5 x 7.6 x 5
Home Converter Weight (lb/kg):	1 / .45

AX HC/BBPS-F – Outdoor 12V 30W Power System



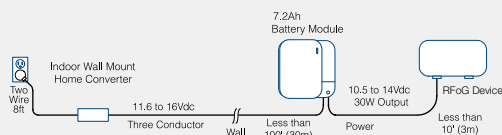
Home Converter

BBPS-F

Application

AX RFoG Indoor Powering - UPS

Operational Temperature Indoor Range: -40 to 113°F (-40 to 45°C)
Operational Temperature Outdoor Range: -40 to 113°F (-40 to 45°C)



FlexPoint™ AX 12Vdc

PON Battery Back Up Power Supplies

- Full or partial outdoor configurations
- Outdoor rated BBPS including battery for 24/7 availability
- Utility meter base provides most reliable source of AC power at home

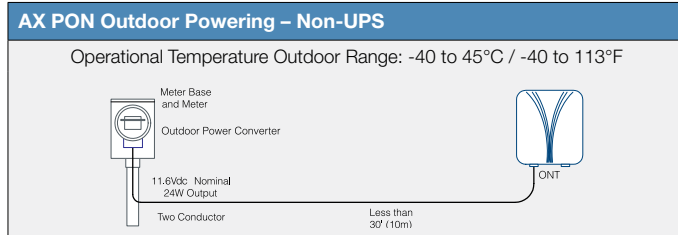


FlexPoint AX Series

AX 30W EPON/GPON System with and without Standby Power

Specifications	
Input:	170 to 264Vac
Output Voltage:	10.5 to 14.4Vdc
Output Power:	30 Watts
Mounting:	Outdoor
BBPS Dimensions H x W x D (in/mm):	7.75 x 8.75 x 3 / 177 x 224 x 76.2
Weight (lb/kg):	3 / 1.4
Power-Ring Dimensions H x Dia (in/mm):	4.75 x 7 / 120 x 178
Power-Ring Weight (lb/kg);	1.5 / 0.68
Power Converter Dimensions H x W x D (in/mm):	8 x 2 x 2 / 209 x 51 x 51
Power Converter Weight (lb/kg):	0.7 / 0.32

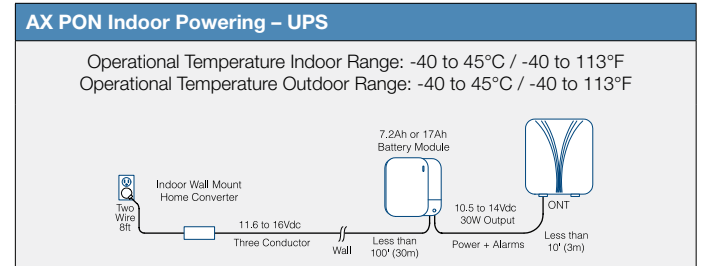
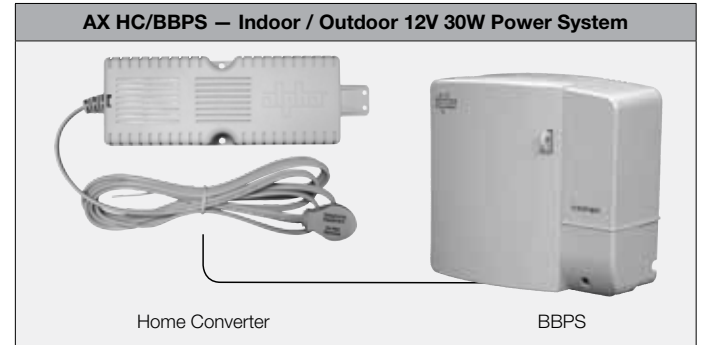
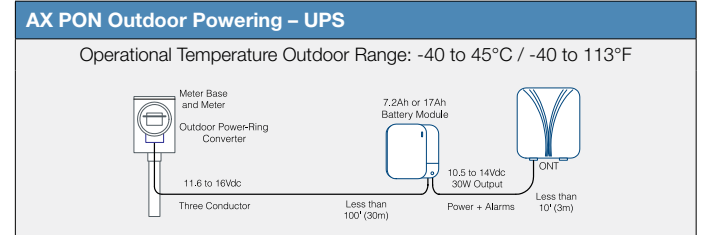
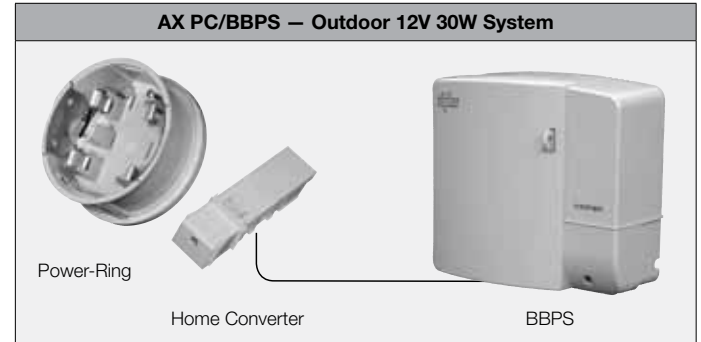
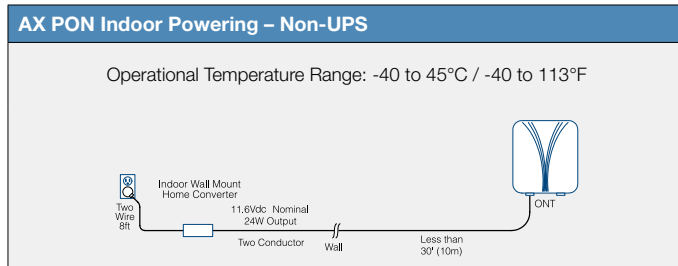
Applications



AX 30W EPON/GPON System with and without Standby Power

Specifications	
Input:	85 to 132Vac
Output Voltage:	10.5 to 14.4Vac
Output Power:	30 Watts
Mounting:	Partial outdoor
BBPS Dimensions H x W x D (in/mm):	7.75 x 8.75 x 3 / 177 x 224 x 76.2
Weight (lb/kg):	3 / 1.4
Home Converter Dimensions H x W x D (in/mm):	8.5 x 3 x 2 / 21.5 x 7.6 x 5
Home Converter Weight (lb/kg):	1 / .45

Applications



FlexNet™ 48Vdc 50W

Battery Back Up Power Supplies

- Rugged outdoor or indoor 48Vdc 50W wall or pole mount UPS
- Aesthetically pleasing, minimizes presence in public locations
- Optional compensated battery charging for optimum battery life
- Local and remote status monitoring and reporting



FlexNet MPS48-7 Series

FlexNet FMPS48-7 Series

Specifications	
Input:	90 to 132 or 180 to 264Vac
Output Voltage:	42 to 56Vdc
Output Power:	50 Watts continuous
Output Interface Module-F:	Packet Cable Alarms
Output Interface Module-T:	Dry Contact Alarms
Unit Dimensions H x W x D (in/mm):	4.18 x 8.75 x 2.12 / 106.17 x 222.25 x 53.84
Weight (lb/kg):	1.5 / 0.68
System Dimensions H x W x D (in/mm):	17.5 x 12.75 x 5.25 / 445 x 324 x 133
Weight (lb/kg):	11 / 4.9, 34.6 / 15.7 w/ batteries
Number of Batteries:	Four 7.2Ah Valve Regulated Lead Acid (VRLA)
Runtime:	18 Hours @ 20W load; 8 Hours @ 40W load

FN50-48-7F – With Output Interface Module-F



FN50-48-7T – With Output Interface Module-T



FlexNet™ 48Vdc 150W

Battery Back Up Power Supplies

- FTTP outdoor UPS for Multiple Dwelling, Multiple Tenant and Small Business Unit applications
- Battery management performs periodic battery capacity testing and status reporting to the ONT and customer
- Battery heater option provides extended runtime for applications in cold weather conditions
- Status indicators and audible alarm provide local reporting



FlexNet FMPS

FlexNet FMPS

Specifications	
Input:	90 to 320Vac
Output Voltage:	42 to 58Vdc
Output Power:	150 Watts continuous
FMPS Dimensions H x W x D (in/mm):	23.75 x 14 x 5.5 / 603.25 x 355.6 x 139.7
Weight (lb/kg):	25 / 11.3
Number of Batteries:	Four or eight 7.2Ah Valve Regulated Lead Acid (VRLA)

FlexNet™ 48Vdc 300W

Battery Back Up Power Supplies

- 300W 48Vdc UPS for outdoor or indoor applications
- Power modules can be used in a variety of Alpha enclosures
- Temperature compensated battery charging for extended battery life
- Flexible cabinet mounting
- Visual and electrical indicators for on-site and remote reporting



FlexNet ELPM-300

FlexNet ELPM-300

Specifications	
Input:	85 to 170 or 132 to 264Vac selectable
Frequency:	50 or 60Hz
Output Voltage:	42 to 54Vdc
Output Power:	300 Watts
Dimensions H x W x D (in/mm):	6 x 10.1 x 3.25 / 152 x 256.5 x 82.6
Weight (lb/kg):	10 / 4.5
Number of Batteries:	Four 12Vdc 50Ah (85GXL)
Approx. Backup Time:	8 Hours @ 275W load

LPE and FlexNet ELPM-300

Specifications	
Enclosure Dimensions H x W x D (in/mm):	26 x 16.5 x 12 / 661 x 420 x 305
Enclosure Weight (lb/kg):	25 / 11.3
Material:	Exterior Powdercoated aluminum
Number of Batteries:	Four 12Vdc 17Ah
Door and Lid Seal:	Poron gasketing
Approx. Backup Time:	4 Hours at 250W load

PMR and GMR Series

Specifications	
PMR-S1 Dimensions H x W x D (in/mm):	32.2 x 26 x 19.25 / 818 x 660 x 489
Weight (lb/kg):	40 / 18
GMR-S1 Dimensions H x W x D (in/mm):	31 x 27.5 x 20 / 787 x 699 x 508
Weight (lb/kg):	49 / 22
PMR-S2 Dimensions H x W x D (in/mm):	37 x 30 x 19.25 / 940 x 762 x 489
Weight (lb/kg):	47 / 21
GMR-S2 Dimensions H x W x D (in/mm):	38 x 31 x 20 / 965 x 787 x 508
Weight (lb/kg):	63 / 29
Number of Batteries:	Four 12Vdc 50Ah (85GXL)
Approx. Backup Time:	8 Hours at 275W load
Enclosure Mounting and Door - PMR Series:	Galvanized steel brackets for wood, and concrete pole mount and wall mount
Enclosure Mounting and Door - GMR Series:	Precast polymer concrete pad or PS-6/PS-6XL pedestal systems
Fiber Strain Relief Tie Bar Optional:	19" mounting provides ability to strain relief fiber cable plugged into the front of communications equipment
Splice Tray:	Splice Tray Kit (12 count), includes Splice tray with Elastomer Splice Block, Felt Tape, Tie Wraps, Cover and Recording Label
Fiber Management Panel:	Provides fiber slack storage and secures a splice tray using a Velcro strap. Tie wrap slots on sides permit securing fiber cables to panel

LPE and ELPM-300 — 300W for MDUs, Dark Spots and Business Parks



PMR and GMR Series — 300W for field deployment of TTx Optical Line Terminal (ONT)



PMR and GMR Series

Pole and Ground Mount Enclosures

- Supports field deployment of FTTx Optical Line Terminals (OLT)
- FlexNet™ 300W UPS provides over 10hrs of runtime
- Thermostatically controlled 48 or 120Vdc fan and heater options
- Adjustable 19" EIA equipment racks
- All aluminum construction, durable powdercoat finish, stainless steel hardware



PMR and GMR Series

Mechanical				
Models:	PMR-S1	GMR-S1	PMR-S2	GMR-S2
Mounting:	Pole	Ground	Pole	Ground
Dimensions HxWxD (in/mm):	32.2x26x19.25 / 818x660x489	31x27.5x20 / 787x699x508	37x30x19.25 / 940x762x489	38x31x20 / 965x787x508
Weight (lb/kg):	40/18	49/22	47/21	63/29
Material:	Powdercoated aluminum			
Vent Screen (in/mm):	Mesh fabric with .005 x .005 / .12 x .12 opening size to minimize snow, water and dust ingress			
Door and Lid Seal:	Poron gasketing			
Color:	Gray or white (Custom colors available)			
Tamper Switch:	Optional			

Grounding	
Internal Ground Bar:	Five usable lugs
Safety Ground:	Adjacent to AC outlets (Optional stainless steel ground stud)
Lid:	Removable (PMR Series includes lanyard)

Door(s)	
PMR Series:	Hinged removable with stainless steel spring latch and door open prop rod
GMR Series:	Removable lift-off front and rear door

Enclosure Mounting	
PMR Series:	Galvanized steel brackets for wood, and concrete pole-mount and wall mount
GMR Series:	Precast polymer concrete pad or PS-6/PS-6XL pedestal systems

Thermal Management	
Cooling:	120Vac and 48Vdc fan options
Heating:	120Vac and 48Vdc heater options

Internal Mounting Rails	
Rack Mounting:	EIA 19" mounting rails using Tinnerman mounting clips
Grounding:	Rails grounded to chassis
Adjustment:	1" increments over 6" when batteries are not installed

Enclosure Environment Rating	
Equipment Mounting Area:	Designed to IP X5 per IEC 529 Dust ingress controlled by screen opening IP X5 applies to the equipment mounting area The service entrance is rated 3R

Fiber Management Options	
Fiber Strain Relief Tie Bar (Optional):	19" mounting provides ability to strain relief fiber cable plugged into the front of communications equipment
Splice Tray (Optional):	Splice Tray Kit (12 count), includes Splice tray with Elastomer Splice Block, Felt Tape, Tie Wraps, Cover and Recording Label
Fiber Management Panel (Optional):	Provides fiber slack storage and secures a splice tray using a Velcro strap. Tie wrap slots on sides permit securing fiber cables to panel
Power Supply and Batteries	
Model:	FlexNet 300 — 300W 48Vdc output with 48V battery bus with 19" reversible mounting bracket options
Batteries:	48Vdc string of 85 GXL (50Ah) positioned on ends (negative terminal side down) with battery retaining bar option
Battery Cable Kit:	Fused
Battery Heater:	Optional
AC Service:	External 70A rainproof SUSE rated breaker box with internal 120Vac 20A receptacles
Regulatory:	CSA

Notes:

1. Additional rack space capacity if batteries are not installed
2. Runtime of 10hrs based on 212W load and new batteries discharged to 1.75VPC at 25°C/77°F



Shown with FTTx actives installed, 19" swing rack, 50Ah AlphaCell batteries, AC and DC distribution, Fiber management and 300W power supply

Radium MiniBay

Environmentally Controlled Enclosures

- Scalable, environmentally controlled enclosure system
- Fully integrated system and agency certified
- Ideal for remote optical transition applications
- High capacity 24 or 48Vdc 3000BTU (879W) DC powered air conditioner
- Natural gas or propane DC generator system supports critical communications
- Reduces operational and recurring costs



Radium MiniBay

The Radium MiniBay is a modular, highly configurable Telecom grade enclosure system including fully scalable power to 4,000W and 1240Ah of battery capacity with ample rack space for communications electronics. The MiniBay system benefits from more than 30 years of Alpha's Outside Plant (OSP) powering experience. The MiniBay integrates Alpha's comprehensive line of power solutions for today's complex Hub and environmentally controlled enclosure requirements including Alpha's AC UPS, Cordex™ rectifiers, and the AlphaGen™ series of telephony grade DC generators. Features for the Radium MiniBay include: front and rear accessible 19" or 23" equipment racks providing up to 46 rack mount spaces, durable powdercoated aluminum construction, battery storage modules isolated from the equipment section each supporting up to four 155Ah batteries for a 19A load for 8hrs. Typical CSA-NRTL marked configurations include integrated AC service entrance, surge protection, AC distribution, DC distribution, standby generator interface, heat exchanger, fan/filter or air conditioner thermal management, rectifiers or AC UPS equipment.

Standards		
Environmental Rating:	NEMA 3R when configured with door mounted fans and filter system. NEMA 4X when configured with heat exchanger or air conditioning system	
Seismic Rating:	Consult factory. A seismic rating is based on a set system configuration with defined mounting locations and equipment types	
Design Standards:	Following NEC and Telcordia Technologies (Bellcore) GR-487, GR-63 and GR-1089 guidelines	
Compliance:	Third party approval from National Recognized Testing Laboratory (NRTL)	
Material:	High strength corrosion resistant aluminum	
Finish:	Almond color powdercoat finish	
Weight and Dimensions		
	Weight (lb/kg):	Dimensions H x W x D (in/mm):
Equipment Enclosure:	195 / 88.5	44 x 30 x 32 / 1117.6 x 762 x 812.8
Battery Storage Module:	130 / 59	14 x 30 x 32 / 355.6 x 762 x 812.8
Riser Module:	102 / 46.3	14 x 30 x 32 / 355.6 x 762 x 812.8
Side Chamber SC1:	100 / 45.4	72 x 32 x 12 / 1828.8 x 812.8 x 304.8
Side Chamber SC2:	89 / 40.4	72 x 32 x 12 / 1828.8 x 812.8 x 304.8

Fans and Filters

The most basic thermal management system supporting the MiniBay utilizes conformal-coated, variable speed and alarm monitored fans with electrostatic air filters providing up to 500W thermal dissipation. This configuration has a NEMA 3R rating

- Variable speed controlled DC fans continue to operate during a utility outage
- Conformal-coated fans
- Electrostatic and washable air filters
- Field replaceable fans

Heat Exchanger

An airtight rear door and a heat exchanger equipped hinged front door providing over 500W thermal dissipation. With a 500W load, the internal ambient temperature will not exceed 9.4 to 2.7°C / 15 to 27°F above external ambient. With a 250W load, the internal ambient temperature will not exceed 7°C / 12.6°F above external ambient. This configuration as a NEMA 4x rating

- Heat exchanger heat pipe technology provides efficient thermal transfer
- Minimizes internal temperature rise above external ambient
- Variable speed controlled DC fans continue to operate during a utility outage
- Field replaceable fans

DC Air Conditioner

For applications requiring the most reliable below cooling and dehumidifying system for supporting seamless performance through extended utility outages. Cooling capacity 878W dissipated at 43°C / 109.4°F outdoor ambient allowing a Maximum* internal ambient of 40°C / 104°F

- Variable speed brushless motor 24/48Vdc compressor system assures optimum efficiency over the full range of thermal loading and ambient temperatures
- 3000BTU @ 43°C / 110°F rating
- Redundant conformal-coated fans have >50000hrs of life and low voltage disconnect circuitry

AC Air Conditioner

Ideal for applications requiring cooling and dehumidifying with little or no standby runtime performance. Cooling capacity 146W dissipated at 43°C / 109.4°F outdoor ambient allowing a Maximum internal ambient of 40°C / 104°F

- 5000BTU @ 43°C / 110°F rating
- Washable electrostatic filters
- 240Vac

* Reducing the internal dissipated heat load reduces internal ambient





Alpha Enclosures

Tempest brings convenience, strength and versatility to outdoor power system enclosures. The fully integrated modular design combines AC, DC and backup battery power into one space. All are designed to serve ASDL, TI and fiber optic transmission system (FOTS) facility applications.

✦ Tempest Te25 Series

The Te25 is designed to meet the requirements for service providers with remote outdoor or secure indoor applications. Welded aluminum construction provides structural integrity that will withstand seismic events and harsh weather conditions.

✦ Tempest Te25xh Series

Tempest brings convenience and versatility to outdoor power system enclosures. In addition to ADSL, TI, and fiber optic transmission system (FOTS) facility applications, the Te25xh is designed to meet the requirements for service providers with many other remote outdoor or secure indoor applications.

Welded aluminum construction provides structural integrity that will withstand seismic events and harsh weather conditions. The Te25xh is designed for remote applications and can be pole or pedestal mounted. It is also available in a secure indoor rack or wall mount configuration.

✦ Tempest Te15

The Tempest Te15's compact footprint is an ideal, economical solution for microwave, fiber and E911 applications. The optional integrated solar shield, heater, and air conditioner protect the batteries and equipment from severe environmental conditions. Fully secure pad-lockable doors and intrusion alarms keep equipment safe and secure.

✦ Tempest Te17

Tempest brings convenience and versatility to outdoor power system enclosures. In addition to ADSL, TI and fiber optic transmission system (FOTS) facility applications, the Te17 is designed to meet the requirements of WiMax service providers.

✦ Tempest Te21

The Tempest Te21's compact footprint is an ideal, economical solution for microwave, fiber and E911 applications. Lower compartment air conditioning protects the batteries and customer equipment from severe environmental conditions. Upper compartment fan cooling provides adequate cooling for 65°C/149°F temperature hardened power systems.

✦ Tempest Te30

The mid-size Te30 enclosure lineup provides up to 27RU of equipment in a 23" rack. A variety of HVAC options maintain a clean internal temperature controlled environment for reliable equipment operation in all kinds of outdoor environmental conditions. The Te30 is designed for installation flexibility. A number of cable entry locations are provided along with a cable management plinth option. Cable entry panels provide access by conduit, multiple cable entry assemblies and water tight fittings. In addition, the Te30 provides options for various AC service entrance and distribution panels adding installation and application flexibility. The Te30 provides an excellent solution for general purpose mid-size enclosure applications.

✦ Tempest Te4(x)

Alpha introduces its newest enclosure line, the GR-487 compliant Te4(x). The Te40 to Te43 provides an 84-inch tall enclosure that is configurable to a range of different requirements. The Te4(x) line-up is third-party agency certified to meet GR-487 requirements. Compliance includes 30-day salt fog, Zone-4 seismic and 70mph wind driven requirements, as well as several other criteria.

✦ Flexible Backhaul Enclosure

Alpha's Flexible Backhaul Enclosure is engineered to house optical fiber equipment to support high speed cellular data backhaul. Built with eleven rack mount spaces, the Alpha FBE is able to house fiber and powering gear including an Ethernet switch, power inverters, rectifiers, fiber splice tray, GMT and additional controls. An optional configuration enabling the addition of Batteries, DC rectifiers and Service Utility Entrance is available. With Telecom-grade, quarter-turn locks and key-operated Demark access, the FBE offers easy maintenance access and complete security.

✦ Wireless Transport Enclosure

The Wireless Transfer Enclosure is ideal for Wireless Backhaul Business Services applications. It offers a self-contained total power solution for a wide range of applications including wireless outdoor base stations, wireless IP access and bulk power. With a compact 24" x 24" footprint, the WTE features a standard 19" rack mount system with has 17RU (front/rear) of rack space, and an internal Breaker Distribution Panel with GFCI and Surge Protection.

Tempest Te25 / Te25xh

Outdoor System Enclosure

- Designed for outdoor or secure indoor applications
- Easily transportable
- Durable aluminum construction
- Pedestal, wall, pole or rack mount
- Compact footprint



Tempest Te25

Tempest Te25 / Te25xh

Specifications	
Material:	High strength corrosion resistant aluminum
Finish:	Powdercoat
Equipment Space:	20RU (Te25xh), 11RU (Te25)
Cable Entrance:	Knockouts located at bottom and back of enclosure
Equipment Rails:	19"
Electrical	
Input Voltage Range N/A:	120/240Vac
Voltage:	-48Vdc
Current:	40A (n+1)
Mechanical	
Te25 Cabinet Dimensions H x W x D (in/mm):	20.3 x 21.4 x 20.4 / 516 x 544 x 518
Te25 Weight (lb/kg):	65 / 29
Te25xh Cabinet Dimensions H x W x D (in/mm):	36 x 21.4 x 20.4 / 914 x 544 x 518
Te25xh Weight (lb/kg):	90 / 41
Hinge Type:	3 Position lift off hinge (Te25xh) 2 Position lift off hinge (Te25)
Handle:	Padlockable (Te25xh)
Door Latch:	3 Point Latch (Te25xh) Padlockable 1/4 turn latch
Equipment Shelves:	Optional (Te25xh)
Battery Trays (Qty):	1
Environment	
Operating Temperature:	-40 to 46°C / -40 to 115°F
Storage Temperature:	-40 to 85°C / -40 to 185°F
Cooling:	Thermostat control filtered and fan cooled
Door Installed Louvers:	Equipped with washable/replacement filter
Audible Noise:	<45dBa

Installation	
Access:	Rear lower can be removed for equipment installation
Maintenance	
Front access after installation filter access on front door	
System Specification (As Shown)	
<ul style="list-style-type: none"> • 48Vdc Cordex rectifier shelf c/w DC distribution • 4 x 92Ahr batteries • External 8 position AC distribution with 30A generator connector and manual transfer switch • 8 position GMT fuse panel (Te25xh) • Fan filtered ambient cooled (Te25xh) • Alarm terminal block • Ground bar 	
System Options:	Consult factory for custom system solutions
Standards	
CSA/UL:	C22.2 No 60950-01-03
Telcordia:	Designed to meet zone 4 requirements (Te25)
NEMA Rating:	Type 3R (CSA C22.2 No 94-M91)



Tempest Te25 (with batteries)



Tempest Te25xh



Tempest Te25xh (open)

Tempest Te15

Modular Enclosure

- Modular design for single or multiple cabinet configurations
- Welded aluminum construction
- 39RU of rack space
- Heating and cooling options
- Compact footprint



Tempest Te15
Side mounted
AC distribution

Tempest Te15

Electrical	
Input Voltage:	120/240Vac 200A 1 120Vac 100A 1
Number of Breakers:	18 maximum
Transfer Switch/Generator Connector:	Optional
TVSS:	Optional
Mechanical	
Top Compartment Dimensions H x W x D (in/mm):	8 x 32 x 32 / 203 x 813 x 813
Main Compartment Dimensions H x W x D (in/mm):	69 x 32 x 32 / 1753 x 813 x 813
Bottom Compartment Dimensions H x W x D (in/mm):	8 x 32 x 32 / 203 x 813 x 813
Solar Shield Dimensions H x W x D (in/mm):	3 x 32 x 32 / 76 x 813 x 813
DC Connections:	Multiple connection
Chassis Ground:	Multiple connection Buss bar located in cabinet
Security:	Lockable front door
Rack Space:	23" rails, 39RU
Alarm	
Connection:	Terminal block
Description:	High/Low Temperature Intrusion

Standards	
CSA:	C22.2 No 60950-01-03 Std. No 60950-01 NEMA Type 3R (CSA C22.2 No 94-M91)
Seismic:	Designed to meet Zone 4 requirements
Related Components	
Heating and Cooling:	600W
Air Conditioning:	Up to 8000BTU
Fan Cooling:	Optional
Heat Exchanger:	Optional



Tempest Te15 (open)

Tempest Te17

Outdoor Enclosure

- Designed for outdoor network applications
- Easily transportable
- Durable welded aluminum construction
- Variety of configurations possible with 23RU of space
- Compact footprint



Tempest Te17
(shown with 5000BTU air conditioner, bottom compartment, and solar shield)

Tempest Te17

Specifications	
Material:	High strength corrosion resistant aluminum
Finish:	Powdercoat
Equipment Space:	23RU
Cable Entrance:	Knockouts located in riser and bottom of enclosure
Equipment Rails:	23"
Electrical	
Input Voltage Range N/A:	120/240Vac
Voltage:	24Vdc
Current:	64A (n+1)
Mechanical	
Dimensions H x W x D (in/mm):	58 x 30 x 28 / 1473 x 762 x 711
Weight (lb/kg):	450 / 204
Hinge Type:	Piano style hinge
Door Latch:	2x padlockable 1/4 turn socket pin-head key
Battery Trays (Qty):	Configuration dependent - 8RU per front terminal battery shelf
Environment	
Operating Temperature:	-40 to 46°C / -40 to 115°F
Storage Temperature:	-40 to 85°C / -40 to 185°F
Cooling:	3500 BTU air condition
Heating:	550W heater option
EVS:	DC fan powered EVS (Emergency Ventilation System) option
Installation	
Access:	Removable enclosure rear panel and removable lower compartment panels
Maintenance	
Front access after installation	

Enclosure Options	
Mounting:	Pad or platform mount
HVAC Options:	Heat exchanger 33W/°C, 3500 BTU air conditioner or fan filtered ambient cooling
System Specifications (As Shown)	
<ul style="list-style-type: none"> • 24Vdc Cordex rectifier shelf c/w DC distribution • Internal 8 position AC panel • Air conditioner and heater • EVS (Emergency ventilation system) • Customer specific equipment layout • Alarm terminal block • Ground bar 	
System Options:	Consult factory for custom system solutions
Standards	
CSA/UL:	C22.2 No. 60950
Telcordia:	Designed to meet zone 4 requirements
NEMA Rating:	Type 3R (CSA C22.2 No 94-M91)



Tempest Te17
(shown configured to customer specification)

Tempest Te21

Modular Enclosure

- Modular design for single or multiple cabinet configurations
- Welded aluminum construction
- Dual compartment system
- Compact footprint
- Up to 39.6kW at 48V
- Multiple point cable access



Tempest Te21

Tempest Te21

Electrical	
Input Voltage:	120/240Vac, connected direct to site AC distribution panel
Mechanical	
Dimensions H x W x D (in/mm):	84 x 30 x 30 / 2137 x 762 x 762
Weight (lb/kg):	863 / 392 (no batteries)
Chassis Ground:	Multiple connection Buss bar located in cabinet
Security:	Lockable front door
DC Distribution:	2 x 1200A 20 position bullet breaker 4 x 600A load shedding capability
Batteries:	2 shelves 4 battery/shelf
Customer Equipment:	8RU available
Alarm	
Connection:	Terminal block
Description:	High/low temperature intrusion

Standards	
CSA:	C22.2 No 60950-01-03 Std. No 60950-01 NEMA Type 3R (CSA C22.2 No 94-M91)
Seismic:	Designed to meet Zone 4 requirements
Related Components	
Heater:	600W
Air Conditioning:	Up to 58000BTU
Fan Cooling:	Optional



Tempest Te21 (open)

Tempest Te30

Multi-functional Enclosure

- Modular enclosure design for mid size applications
- Provides multiple enclosure line-ups including power, battery and radio equipment installations
- Air conditioning, fan cooling and vented options available
- NEMA 3R rating (IP55)
- Multiple cable access points



Tempest Te30

Tempest Te30

Electrical	
Input Voltage:	120/240Vac 100A 1
Generator Switch/ Generator Connector:	Optional
TVSS:	Optional
AC Panels/Breakers:	Configurable - contact factory
Mechanical	
Part Number:	029-016-20
Dimensions H x W x D (in/mm):	58.4 x 30 x 30 / 1483 x 762 x 762 including 10/254 plinth
Weight (lb/kg):	500 / 227 (no batteries, no rectifiers)
Mounting:	Pad or platform
Enclosure:	Aluminum shell 5052-H32
Internal Rack:	23", 26RU
Environment	
Operating Temperature:	-40 to 46°C / -40 to 115°F
Storage Temperature:	-40 to 85°C / -40 to 185°F
Humidity:	0 to 95% non-condensing
Elevation:	3600m / 12000ft, see operating temperature
Weather Tightness:	NEMA Type 3R
Audible Noise:	44dBA @ 7m / 23ft (air conditioned system)

Alarm	
Connection:	Terminal block
Description:	High/Low Temperature Intrusion
Chassis Ground:	Multiple connection
Security:	Pad lockable doors
Standards	
Enclosure Rating:	CSA/UL type 3R IP55 equivalent
Product Safety:	CSA/UL 60950
Seismic:	Designed to meet Zone 4 requirements
Related Components	
Cooling Options:	5000BTU/hr air conditioner on front door DC fan cooling (and/or backup) Vented
Heating:	Up to 550W, 100-120Vac 50/60Hz

Tempest Te45

72" Single Compartment Power Enclosure

- Designed for single or multiple enclosure applications
- Durable welded aluminum construction
- Variety of configurations possible with 39RU of space
- Compact footprint
- GR-487 compliant



Tempest Te45

Tempest Te45 Backhaul Enclosure

Specifications	
Dimensions H x W x D (in/mm):	72 x 30 x 30 / 1829 x 762 x 762
Weight (lb/kg):	600 / 273
Equipment Space:	23" 39RU
Access:	Removable rear panels and front hinged door
Door Latch / Hinge Type:	3 Point latch / 4 Position lift off hinges
Handle:	Padlockable
Battery Trays (Qty):	Configuration dependent - 8RU per front terminal battery shelf
CSA/UL:	C22.2 No. 60950
NEMA Rating:	Type 3R (CSAC22.2 No 94-M91)

System Specifications (As Shown)	
<ul style="list-style-type: none"> • 48Vdc Cordex 1.8kW rectifiers • AC panel c/w generator panel and ATS (Automatic Transfer Switch) • Air conditioner w/heater • EVS (Emergency Ventilation System) • Alarm terminal block • Ground bar 	
System Options:	Consult factory for custom system solutions



Tempest Te45 Battery

72" Front Terminal Battery Enclosure

- 8 Strings at 24Vdc, 4 strings at 48Vdc
- Designed for single or multiple enclosure applications
- Durable welded aluminum construction
- Compact footprint



Tempest Te45 Battery

Tempest Te45 Battery

Specifications	
Material:	High strength corrosion resistant aluminum
Finish:	Powdercoat
Equipment Space:	39RU
Cable Entrance:	Knockouts on sides and bottom
Equipment Rails:	23"
Electrical	
Input Voltage Range N/A:	120/240Vac
Mechanical	
Dimensions H x W x D (in/mm):	72 x 30 x 30 / 1829 x 762 x 762
Weight (lb/kg):	600 / 273
Hinge Type:	4 Position lift off hinges
Handle:	Padlockable
Door Latch:	3 Point latch
Battery Trays (Qty):	4 Front terminal battery shelves
Environment	
Operating Temperature:	-40 to 46°C / -40 to 115°F
Storage Temperature:	-40 to 85°C / -40 to 185°F
Cooling:	4000 BTU air conditioner
Heating:	500W
EVS:	DC Fan powered EVS (Emergency Ventilation System) option
Audible Noise:	<65dBa

Installation	
Access:	Removable rear panels and front hinged door provide full enclosure access
Maintenance	
Front access after installation	
Enclosure Options	
Mounting:	Pad or platform mount
System Specifications (As Shown)	
<ul style="list-style-type: none"> • 4 Battery shelves for GNB 155Ahr front terminal batteries • Air conditioner w/ heater • EVS (Emergency Ventilation System) • Alarm terminal block • Ground bar 	
System Options:	Consult factory for custom system solutions
Standards	
CSA/UL:	C22.2 No. 60952
Telcordia:	GR-487 compliance- contact factory for specific compliances
NEMA Rating:	Type 3R (CSAC22.2. No 94-M91)



Tempest Te40 Battery

84" Front Terminal Battery Enclosure

- 10 Strings at 24Vdc, 5 strings at 48Vdc
- 120Amp buss
- Designed for single or multiple enclosure applications
- Durable welded aluminum construction
- Compact footprint



Tempest Te40 Battery

Tempest Te40 Backhaul Enclosure

Specifications	
Dimensions H x W x D (in/mm):	84 x 30 x 30 / 2134 x 762 x 762
Weight (lb/kg):	1300 / 590
Equipment Space:	23" 44RU
Access:	Removable rear panels and front hinged door
Door Latch / Hinge Type:	3 Point latch / 5 Position lift off hinges
Agency Standards:	C22.2 No. 60954
NEMA Rating:	Type 3R (CSAC22.2 No 94-M91)

System Specifications (As Shown)	
<ul style="list-style-type: none"> • 5 Battery shelves for GNB 155Ahr front terminal batteries • Air conditioner w/heater • Alarm terminal block • Ground bar 	
System Options:	Consult factory for custom system solutions



Tempest Te41 Power

84" Dual Compartment Power Enclosure

- Designed for single or multiple enclosure applications
- Dual compartment system
- Durable welded aluminum construction
- Variety of configurations possible with 23RU of space
- Compact footprint
- Up to 39.6kW at 48Vdc or 34.1kW at 24Vdc
- Multiple point cable access



Tempest Te41 Power

Tempest Te41 Backhual Enclosure

Specifications	
Dimensions H x W x D (in/mm):	84 x 30 x 30 / 2134 x 762 x 762
Weight (lb/kg):	1300 / 590
Equipment Space:	23" 19RU (upper), 26RU (Lower)
Access:	Removable rear panels and front hinged door
Door Latch / Hinge Type:	2 point latch upper and lower compartments / 5 position lift off hinges
Agency Standards:	C22.2 No. 60953
NEMA Rating:	Type 3R (CSAC22.2 No 94-M91)

System Specifications (As Shown)	
<ul style="list-style-type: none"> • 48Vdc Cordex 3.6kW rectifiers (3.1kW Cordex system optional) • Qty 48 DC breaker positions • Qty 4 LVD disconnects for staged shutdown during power outage • AC panel c/w generator panel and ATS (Automated Transfer Switch) • Air conditioner w/ heater • Fan/filter ambient cooled upper compartment • Customer specific equipment layout • Alarm terminal block • Ground bar 	
System Options:	Consult factory for custom system solutions

Tempest Te44

Large Format Battery Enclosure

- Designed for Absolyte GNB 100 C-31 battery stacks
- Durable welded aluminum construction
- Build on-site modularity



Tempest Te44

Tempest Te44

Specifications	
Material:	High strength corrosion resistant aluminum
Finish:	Powdercoat
Cable Entrance:	Bottom and sides
Electrical	
Input Voltage Range N/A:	120Vac for air conditioner
Voltage:	-48 or 24Vdc configurations
Mechanical	
Dimensions H x W x D (in/mm):	41.5 x 52 x 36 / 1054 x 1321 x 914 76 x 52 x 36 / 1928 x 1321 x 914
Weight (lb/kg):	550 / 250 900 / 408
Door Latch:	4 x padlockable 1/4 turn socket pin-head key
Environment	
Operating Temperature:	-40 to 46°C / -40 to 115°F
Storage Temperature:	-40 to 85°C / -40 to 185°F
Cooling:	2000 BTU air conditioner
Heating:	500W
EVS:	EVS (Emergency Ventilation System) with hydrogen control

Installation	
Access:	Modular design - built on site
Maintenance	
Front access after installation	
Enclosure Options	
Mounting Option:	Pad or platform mount
Other Options:	Single or dual stack configurations
System Specifications	
<ul style="list-style-type: none"> • Designed for GNB 100G31 Absolyte battery packs • Single or dual stack configuration • High temp and hydrogen detection controlled EVS • Alarm terminal block • Ground bar 	
System Options:	Consult factory for custom system solutions
Standards	
CSA/UL:	C22.2 No. 60953
Telcordia:	GR-487 compliance- contact factory for specific compliances
NEMA Rating:	3R



Flexible Backhaul Enclosure 2322

- Provides 15RU for 19" horizontal mounted equipment or 10RU for vertical mounted equipment
- Front and side door access with removable lid
- Durable welded aluminum construction
- Wall, H-Frame, pole or ground mount options
- Multiple thermal management options




FBE2322-ENC


FBE2322-ENC


Specifications	
Outer Dimensions H x W x D (in/mm):	29.6 x 27 x 24 / 751.84 x 685.8 x 609.6
Equipment Space:	Front to back adjustable 19" 15RU horizontal or 23" 10RU vertical
Access:	Front hinged door, left and right lift off doors, removable lid
Door Latch / Hinge Type:	1/4 Turn padlockable / reversible 2 position lift off hinge
CSA/UL:	60950-22 ITE electrical enclosure
NEMA Rating:	Type 3R


System Options	
Mounting:	Wall, H-Frame, Ground or Precast Mounting Pad
Thermal:	Air conditioner with heater, heat exchanger, variable speed-controlled fan cooled
Emergency Ventilation System:	Variable speed controlled fan cooled activated with high temp or HVAC fail alarm
DC Power:	48Vdc Cordex HP 1.2kW rectifiers
AC Services Entrances:	70Amp 2 position or 100Amp 8 position
Generator:	External L14-30P generator plug
Alarm:	Alarm terminal block

Enclosure Options

CordexHP 1.2kW	
48Vdc Modular Switched Mode Rectifier	
	Multiple 48V configurations up to 125 Amps for various 48Vdc applications High Efficiency design for increased OpEx savings High Temperature rated fan-cooled design for harsh outdoor installations

Cordex 4R/8D ADIO	
CXC Smart Peripheral	
	Provides additional I/O expansion to existing CXC site controller Seamless expansion of four relay outputs and eight digital inputs Ideal for alternate device monitoring and control such as HVAC and generators

Fuses Panels	
Stand-Alone DC Distribution	
	19" and 23" rack mount models 12, 24 or 48V configurations Designed for flexible and custom DC distribution

AlphaCell™	
HPL-FT Batteries	
	AGM runtimes up to 160 minutes in outdoor applications Absorbent Glass Mat (AGM) technology for efficient gas recombination HPL-FT features front terminal design with protective covers Specifically designed for mission-critical applications

Cooling Options

Fan Cooled	Heat Exchanger	Air Conditioner
		

Flexible Backhaul Enclosure 2319

- Modular enclosure system, allows for easy battery expansion
- Demark access door
- Front access for fan and filter maintenance
- 24 or 48V configurations



FBE2319-ENC with Demark access door and fan cool option

FBE2319-ENC

Specifications		
Models:	FBE2319-ENC	FBE2319-ENC with Battery Enclosure
Outer Dimensions H x W x D (in/mm):	27 x 23 x 22.3 / 686 x 584 x 565	41 x 23 x 22.3 / 1041 x 584 x 565
Weight (lb/kg):	57 / 26	
Equipment Space:	Front to back adjustable 19" 11RU	
Access:	Front hinged door with demark access door	
Door Latch / Hinge Type:	1/4 Turn padlockable / reversible 2 position lift off hinge	
CSA/UL:	60950-22 ITE electrical enclosure	
NEMA Rating:	Type 3R	
System Options		
Mounting:	Wall, H-Frame, Ground or Precast Mounting Pad	
Thermal:	Heat exchanger, variable speed controlled fan cooled	
DC Power:	48Vdc Cordex HP 1.2kW rectifiers	
AC Services Entrances:	70Amp 2 position or 100Amp 8 position	
Generator:	External L14-30P generator plug	
Alarm:	Alarm terminal block	



FBE2319-ENC with Heat Exchanger Door, Battery Expansion and Ground Mount Option

Flexible Backhaul Enclosure 1417V

- Provides 7RU for 19" vertically mounted equipment in smallest foot print possible
- Front and side access to installed equipment
- Wall or H-frame mount options
- Aluminum welded construction with durable powdercoated exterior
- Variable speed controlled fan cooled



FBE1417V-ENC

FBE1417V-ENC

Specifications	
Outer Dimensions H x W x D (in/mm):	24.6 x 18 x 19.5 / 625 x 452 x 495
Weight (lb/kg):	35 / 15.9
Equipment Space:	Vertical 19" 7RU
Access:	Front hinged door, left and right lift off doors
Door Latch / Hinge Type:	1/4 Turn padlockable / reversible 2 position lift off hinge
CSA/UL:	60950-22 ITE electrical enclosure
NEMA Rating:	Type 3R
System Options	
Mounting:	Wall or H-Frame
Thermal:	Variable speed controlled fan cooled
1RU Option Panel:	Alarm terminal block, fiber management



FBE1417V-ENC

Wireless Transport Enclosure

- Equipment mounting area is 17RU
- Equipment rails are front-to-back adjustable, suitable for mounting 19 inch rack mount equipment
- Integrates Heat Exchanger and Thermoelectric Cooling System
- Equipment area is cooled by an Air-to-Air heat exchanger with variable speed blower control
- Internal L14-30P Generator inlet plug with generator cord access through door



Wireless Transport Enclosure

Wireless Transport Enclosure

Specifications	
Outer Dimensions H x W x D (in/mm):	70 x 24 x 29 / 1778 x 610 x 737
Weight (lb/kg):	330 / 150
Equipment Space:	Adjustable 19" 17RU plus 2 battery trays
Access:	Front hinged door and rear lift off door
Door Latch / Hinge Type:	1/ 4 turn padlockable / reversable 4 position lift off hinge
CSA/UL:	60950-22 ITE electrical enclosure
NEMA Rating:	Type 3R

System Specifications (As Shown)	
<ul style="list-style-type: none"> • Dual compartments <ul style="list-style-type: none"> - Upper compartment - heat exchanger - Lower compartment - thermoelectric cooling • Two battery trays (Consult factory for battery specifications) • Front to back adjustable 19" equipment mounting rails • Internal AC panel • Generator plug and transfer switch • Alarm terminal block • Ground bar 	
System Options:	Optional per-formed mounting pad Consult factory for custom system solutions







AlphaGen™ Generators

Adding a generator to any type of power system provides additional peace of mind. A generator serves as assurance that even in severe conditions, you will be able to keep your system up and functioning. All AlphaGen systems are engineered to have significantly reduced noise levels, high power density and status monitoring.

➤ AlphaGen 8kW to 2MW Systems

Critical power applications are part of every industry; protecting them starts with reliable generators, available in diesel, gas and LP configurations. Our EPA-compliant diesel models deliver dependable power to a wide range of output requirements. From small-load hub and small business to large Headend or facility backup, every generator is engineered to provide maximum power, performance, flexibility and fuel efficiency.

➤ AlphaGen Curbside Generator

The AlphaGen curbside generator system is specifically designed for Cable Broadband communications networks. Every AlphaGen system incorporates industry leading power technology, including natural gas or propane powered engine generators, exclusive audible noise baffling, remote status monitoring features and durable weather resistant enclosures.

AlphaGen™ 3.5kW to 2MW Systems Generator Systems

- Design, install and maintain industrial generators
- Custom generator solutions to meet your power supply needs
- Generator solutions to most CRT and Facility Requirements
- Power range from 3.5kW to 2MW or more
- Propane (LP), Natural Gas (NG) or Diesel
- Single phase or Three phase Systems
- Fixed or portable solutions
- Options include Automatic Transfer Switch



AlphaGen System



Alpha has the capability to design, install and maintain industrial generators to meet your power supply needs. Contact an Alpha representative for more details.

AlphaGen™ Telecom Generator Systems



AlphaGen Telecom

- Cost effective extended runtime solution for outdoor powering applications
- > Quiet operation, small size and low profile allow for easier installation in populated areas
- > Eliminates large quantities of batteries otherwise required for extended runtime
- > Telecom grade 48Vdc output

Model	3.5kW	5kW	7.5kW
DC Output Voltage:	39V ±0.5V @ no load 36V configuration 52V ±0.5V @ no load 48V configuration	39V ±0.5V @ no load 36V configuration 52V ±0.5V @ no load 48V configuration	52V ±0.5V @ no load 48V configuration 104V ±0.5V @ no load 96V configuration
DC Output Load Regulation:	0.5V	0.5V	0.5V
Output Current:	39V @ 90A max / 52V @ 67A max	39V @ 128A max / 52V @ 96A max	52V @ 144A max / 104V @ 72A max
Engine:	398cc, Air cooled, Single OHV 10.5hp (using natural gas fuel)		642cc, Air cooled, Twin OHV 15hp (using natural gas fuel)
RPM (Variable Speed):	2800 to 3600RPM	2800 to 3600RPM	2800 to 3600RPM
Acoustical Noise			
dBA 10' @ 100% Rated Load:	68.7	68.5	70.3
dBA 20' @ 100% Rated Load:	63	62.5	64.3
dBA 10' @ 70% Rated Load:	68.3	66.9	66.4
dBA 20' @ 70% Rated Load:	62.6	60.9	60.4

Models:	CE-3x2	CE-9x2	CE-3x2	CE-9x2	PN-6x
Dimensions H x W x D (in/mm):	44 x 26 x 24 / 1117.6 x 660.4 x 609.6	52 x 52 x 24 / 1320.8 x 1320.8 x 609.6	44 x 26 x 24 / 1117.6 x 660.4 x 609.6	52 x 52 x 24 / 1320.8 x 1320.8 x 609.6	39 (57 with optional pedestal) x 39.25 x 24 / 99 (144) x 100 x 61
Weight (lb/kg):	383 / 174	413 / 187	383 / 174	413 / 187	338 / 174 (370 / 168 with optional pedestal)
APU Fuel Consumption					
Natural Gas 1000BTU/ft.³:	60ft ³ /hr		80ft ³ /hr		156ft ³ /hr
Propane Gas 2520BTU/ft.³:	0.82 gal/hr to 30ft ³ /hr to 3.46lb/hr		1.10gal/hr to 40ft ³ /hr to 4.62lb/hr		1.48gal/hr to 54ft ³ /hr to 6.24lb/hr
Exterior Surface Temperature:	Meets requirements of UL/CSA				
Gas Inlet Pressure:	0.5 to 2 PSI Inlet Pressure (Contact Alpha Engineering for additional supply resources)				
Ign Charger Voltage:	13.5Vdc	13.5Vdc	13.5Vdc	13.5Vdc	13.5Vdc
Ign Charger Current:	6A max	6A max	6A max	6A max	6A max
Remote Interface Length*:	75ft max Distance depends upon proper installation, derating and wire gauge		50ft max Distance depends upon proper installation, derating and wire gauge		25ft max Distance depends upon proper installation, derating and wire gauge
Agency Compliance:	UL2200, NFPA 37/54/58 and 70, CSA C22.2 FCC Class A				

* Please contact Alpha Technologies for remote interface length distance

All Models	
Fuel System, Controls and Monitoring:	The controls and fuel system meet applicable sections of NFPA 37, 54 and 58 for automatic unattended operation of remotely located generators. Full System Control and Status Monitoring included.
Sensors:	Gas Hazard, Pad Shear, Water Intrusion and Tamper
Safety Shutdowns:	Low oil pressure, Water intrusion, Over speed, Over temp, Pad Shear, Over crank, Low fuel pressure shutdown (propane only), Gas hazard (propane or natural gas)
Optional Feature:	Cold Start Kit: Provides additional starting capability at temperatures below -18°C / 0°F

Configuration Options:			
 <p>CE-3X3.5 or 5kW</p>	 <p>CE-9x2 3.5 or 5kW</p>	 <p>CE-3/9G Propane Storage for Generator (For 3.5 and 5kW)</p>	 <p>PN-6x 7.5kW (PN-6x is not compatible with CE-3/9G)</p>



Power

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