

Alpha Power Solutions

TOTAL POWER SOLUTIONS BY ALPHA TECHNOLOGIES LTD.

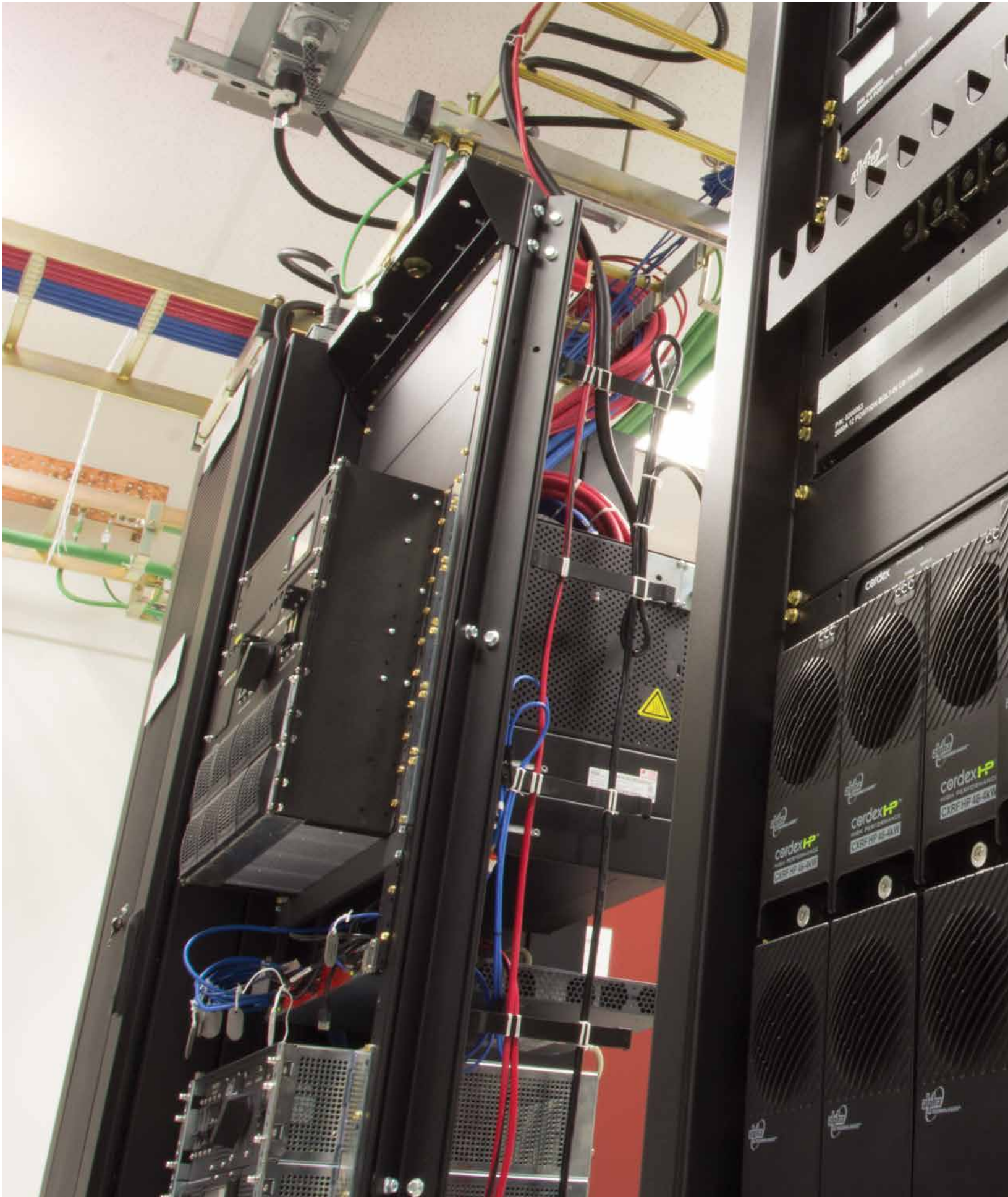


ALPHA TECHNOLOGIES LTD.

With 4 decades of industry leadership in **POWER**, Alpha Technologies has established itself as the preeminent total power solutions provider and one stop source for AC, DC, hybrid and renewable powering solutions for the Telecom, Cable TV, Traffic, ITS, Industrial and Alternative Energy industries. Alpha's products are the trusted power behind large switching and data centers, mobile cell sites, broadband networks, traffic and security systems, DAS networks, and many more. Our intimate knowledge of our customers allows us to understand powering problems better than other providers of power, and to quickly design/deliver solutions specifically tailored to solve your powering challenges. With multiple options for standardized and custom system design, Alpha has the ability to provide the ideal solution for virtually any application.

THE ALPHA GROUP

The Alpha Group represents an alliance of companies who share a common philosophy – to create world class powering solutions. Collectively, Alpha Group members develop and manufacture AC, DC and renewable power conversion, protection and standby products. Applications for these products include Cable TV, Telecom, Commercial, Industrial and Distributed Generation for a worldwide customer base. In addition to these core specialties, Alpha Group companies provide a complete range of installation and maintenance services. Members of The Alpha Group include Alpha Technologies Ltd., Alpha Technologies Inc., Alpha Energy, Alpha Industrial Power, Altair Advanced Industries Inc., Alpha Technologies S.A., OutBack Power Technologies Inc., Alpha Technologies Europe Ltd., Alpha Technologies GmbH, Alpha Innovations Brasil, Alphatec Ltd., Alphatec Baltic, Alpha Mexico Network Power S.A. de C.V., NaviSemi Technologies Pvt. Ltd. and Alpha Technologies Turkey Enerji Ltd. Sti.





MARKET OVERVIEW

In the Telecom sector, Alpha's DC solutions have long been the standard of performance and efficiency, built on superior communications and control functionality inherent in our Cordex™ family of controllers. Much of Alpha's ongoing research and development activity focuses on continually evolving the next generation of our DC power equipment to drive OPEX savings through greater efficiency, power density and reliability. Alpha is a leading provider of power solutions for the Central Office/Critical Facilities and Cell Site market segment. Alpha is also at the forefront of developing powering solutions for DAS, Small Cells and Remote Line Power - a rapidly emerging solution for powering Fiber to the Home, DAS, DSL networks.

In the Traffic market, Alpha is the leader in providing back up power and power conditioning for intersection traffic lights and controllers, as well as highway signage, and cameras used in Intelligent Transportation Systems (ITS). To date, Alpha UPS's supply back up power to over 20,000 intersections, with more than half the States in America standardizing on Alpha's UPS solutions.

In the enterprise market, Alpha powers diverse networks that include Passive Optical LAN (POL), Public Safety, and Security and Surveillance networks. We provide the right mix of power systems and enclosures to ensure steadfast reliability and continuity. Alpha has also supplied the backup power for some of the largest private line networks, protecting borders, utility grids and long-haul fiber networks. In all these markets, Alpha's success lies in our ability to quickly deliver end-to-end power solutions that solve our customers' unique powering challenges, and to provide exceptional customer service and support.



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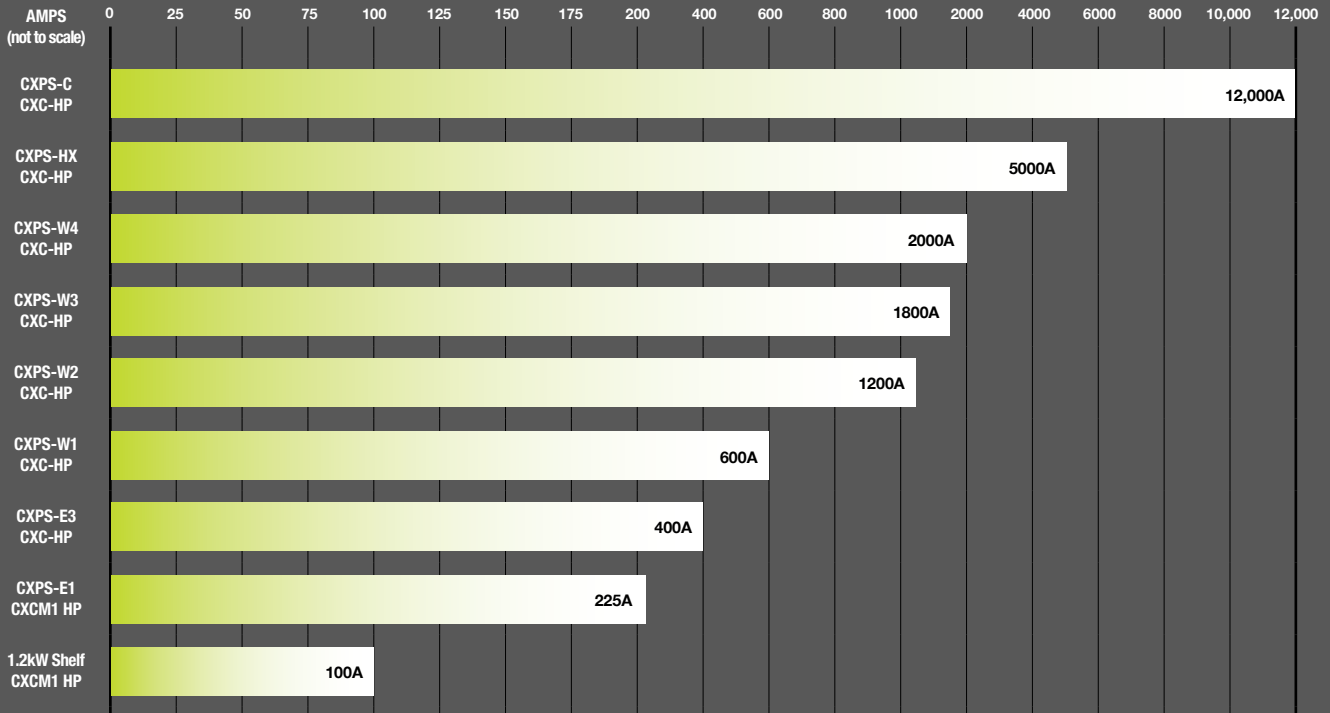
DC POWER SYSTEMS

Alpha's extensive experience in serving the Telecom, Data Center, Cable TV, Enterprise and Traffic markets has resulted in the industry's broadest assortment of DC power solutions. Our products range from multi-bay systems for large switching offices to small shelf systems that can mount on a wall or occupy a single rack space. Alpha's leading-edge, high efficiency power conversion technology and Cordex™ HP controllers are the essential building blocks of our DC power solutions. But our power systems are further distinguished by multiple distribution options and craft-friendly cable management that enable them to serve a broad variety of applications.

Alpha's shelf systems provide a complete power solution in a rack-mount package. Each system incorporates a Cordex controller, rectifiers and distribution options in a compact shelf design. Distribution can be inside the shelf for applications with a few loads, or adjoined in integrated panels for those sites where additional distribution positions are needed. In either case, accessories such as Low Voltage Disconnects (LVD's), shunts and temperature compensation are common options on most integrated solutions.

Alpha offers a complete line of standard rack-mount DC systems for medium to large applications. Designed to maximize space and cost savings, our systems include a variety of relay rack and box bay sizes, custom distribution configurations, multiple voltage output designs and front accessibility. Standard accessories include LVD's, shunts and temperature compensation. On top of this extensive line of standard products, Alpha continues its legacy of designing new solutions to meet market needs. Capitalizing on our experience in multiple markets plus our technical and application know-how, Alpha is ready to earn your business with solutions that meet your unique requirements.

DC POWER SYSTEMS FAMILY



CXPS-C
4000-12000A

CXPS-HX
2500-5000A

CXPS-W
600-2000A

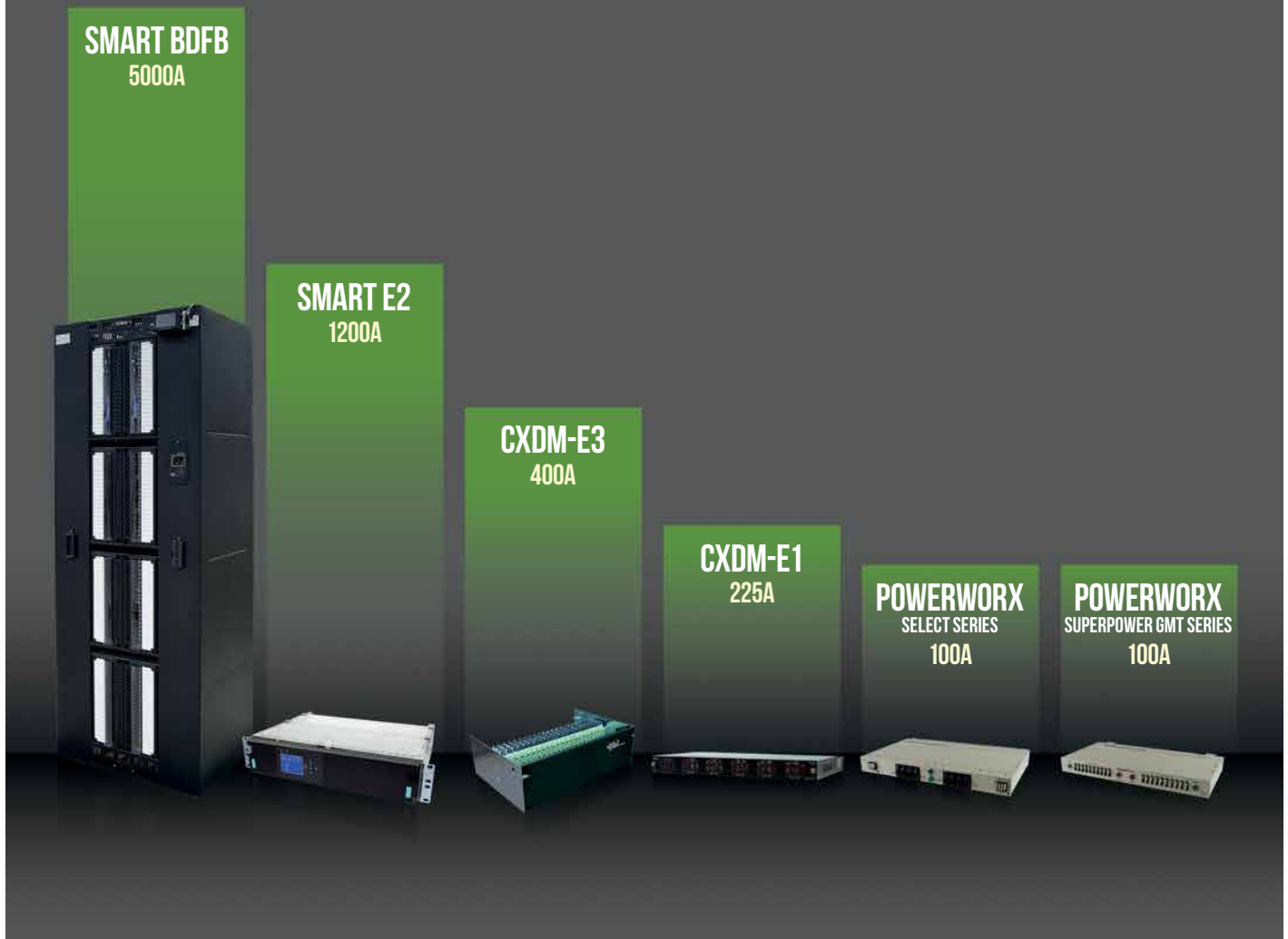
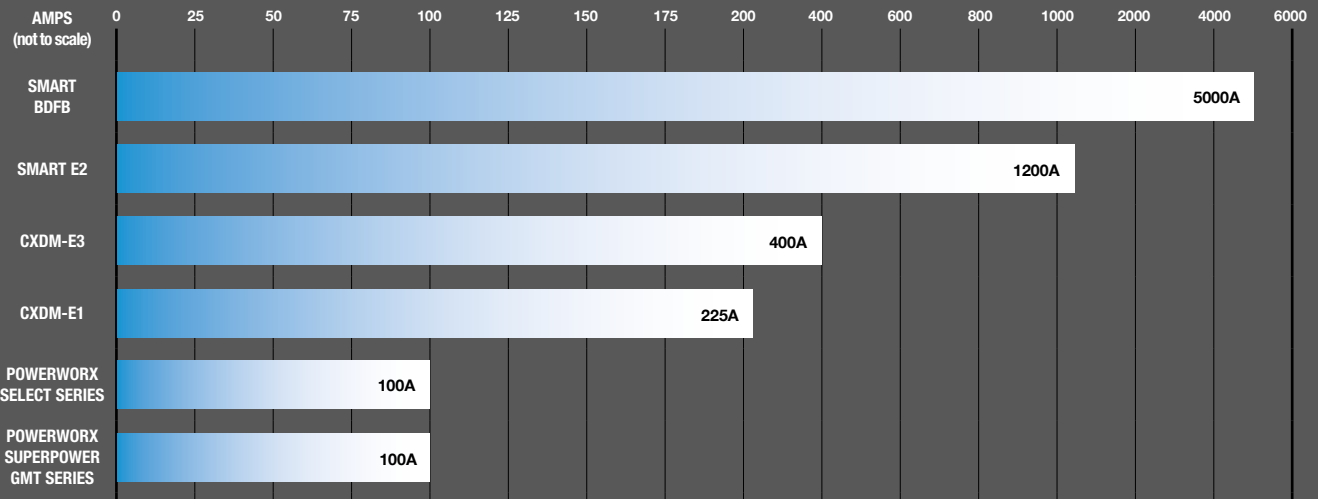
CXPS-E3
400A

CXPS-E1
225A

CORDEX HP
1.2KW
100A



DC DISTRIBUTION SYSTEMS FAMILY





CXPS-C

4000A – 12,000A POWER SYSTEM

- 48V 12,000A centralized power solution for MSC, CO, Data Center and Cable Headend facilities
- High efficiency Cordex modular rectifiers reduce operating costs
- Flexible circuit breaker, TPS and TPL fuse options designed to feed equipment or remote BDFBs
- Compact footprint dramatically reduces floor space requirements
- Internal Bay-to-Bay copper busswork and easy access to connections simplify installation and serviceability
- Expandable power and distribution bays allow for easy and cost effective modular growth

Consult your Alpha representative for P/N configurations

ELECTRICAL

AC Input:

- 208Vac 3 phase, 8 x 100A feeds or 16 x 50A feeds per rectifier bay
- 480Vac 3 phase, 8x 50A feeds or 16 x 30A feeds per rectifier bay

Rectifier Voltage: 208 to 277Vac

Bus Capacity: 4,000A, 8,000A, 12,000A

Rectifier Bay Capacity: 4,000A

Distribution Bay Capacity: 6,000A

DISTRIBUTION BAY

Each distribution bay may be equipped with a variety of different fuse/CB panels.

| TPL Fuses | TPS/TLS Fuses |
|--|---|
| 61-800A 4 fuse holders per panel 6 fuse panels per bay | Up to 125A 18 fuse holders per panel 12 fuse panels per bay |

Bolt-in Breakers

| | | |
|--------------------|----------------------|----------------------------|
| 1 pole up to 250A | 4 pole 650 to 800A | 12 breaker poles per panel |
| 2 pole 275 to 400A | 5 pole 850 to 1000A | |
| 3 pole 450 to 600A | 6 pole 1050 to 1200A | |

Plug-in Bullet Breakers

| | | |
|-------------------|-------------------|----------------------------|
| 1 pole up to 100A | 3 pole up to 300A | 18 breaker poles per panel |
| 2 pole up to 200A | 12 panels per bay | |

MECHANICAL

Enclosure: 1.095mm (14 gauge) steel

Mounting: Standard 23" relay rack (flush rack mount) in box bay

Dimensions:

cm: 213H x 71W x 71D

inches: 84H x 28W x 28D

Weight:

Rectifier bay: Approx. 272kg (600lbs) per bay (no rectifiers)

Distribution bay: Approx. 454kg (1000lbs) per bay

ENVIRONMENTAL

Temperature: 0 to 60°C (32 to 122°F)

Humidity: 0 to 95% RH non-condensing

Elevation: -500 to 2800m (-1640 to 9186ft)

PERFORMANCE / FEATURES

System Level Alarms/Controls

Alarms/control parameters are user-programmable through built-in digital supervisory unit. See Cordex datasheet for detailed information on alarms and controls.

Indicators: LCD with touch screen
System OK (green LED)
System minor alarm (yellow LED)
System major alarm (red LED)

Load Disconnect: Fuse/CB panel mounted option

Alarm:
Connections: 0.34 to 2.5mm² (14 to 22AWG)

RELATED COMPONENTS

Smart Peripheral Modules:

Shunt monitoring: 18 shunt inputs or 36 shunt inputs

Remote Return Bar:

Mounting: 2" Auxiliary framing (customer supplied)

Termination: 124 sets of 2 hole 1/2" dia. on 1 3/4" centers or 3/8" dia. on 1" centers

Unit capacity: 4,000A per bar

Ultimate capacity: 3 bar limit (12,000A)

AGENCY COMPLIANCE

Safety: CSA C22.2 No. 60950-1-03

NEBS: Level 3 compliant

CXPS-HX



2500A-5000A POWER SYSTEM

- 48V distributed power solution for CO's, MSC's, Data Center and Cable Headend facilities (DPCO)
- Each 2500A bay combines rectifiers, battery termination and distribution
- Dual bay kit links two 2500A bays doubling capacity, breakers and termination
- High efficiency modular rectifiers reduce operating costs
- Flexible low voltage load disconnect, circuit breaker, TPS and TPL fuse options

Consult your Alpha representative for P/N configurations

ELECTRICAL

AC Input:

- 208 to 277Vac, Single Phase, 30 x 30A feeds per HX bay
- 208Vac (w/o neutral), 3 Phase, 5 x 100A or 10 x 50A feeds per HX bay
- 480Vac (w/ neutral), 3 Phase, 5 x 50A or 10 x 30A feeds per HX bay
- 480Vac (w/o neutral), 3 Phase, 5 x 50A or 10 x 30A feeds per HX bay

Rectifier Voltage: 208 to 277Vac

Bus Capacity: 3,000A, 6,000A

DISTRIBUTION & TERMINATION

System distribution section consists of up to 3 large distribution tiers.

| TPL Fuses | TPS/TLS Fuses |
|--|--|
| 61-800A 4 fuse holders per panel Max 3 fuse panels per bay | Up to 125A 18 fuse holders per panel Max 6 fuse panels per bay |

Bolt-in Breakers

| | | |
|--------------------|----------------------|---------------------------|
| 1 pole up to 250A | 4 pole 650 to 800A | Max 3 fuse panels per bay |
| 2 pole 275 to 400A | 5 pole 850 to 1000A | |
| 3 pole 450 to 600A | 6 pole 1050 to 1200A | |

Plug-in Bullet Breakers

| | | |
|-------------------|----------------------------|----------------------|
| 1 pole up to 125A | 3 pole up to 300A | Max 6 panels per bay |
| 2 pole up to 200A | 18 breaker poles per panel | |

Output Termination

| | |
|---------------------------------------|---|
| TPL fuse | 2 hole, 3/8" dia. on 1" center & 1/2" dia. on 1 3/4" center |
| TLS/TPS/AM breaker | 1 pole, 2 hole, 1/4" dia. on 5/8" center 2 and 3 pole, 2 hole, 3/8" dia. on 1" center |
| Internal Ground Bar (optional) | 2 hole, 1/4" dia. on 5/8" center, 3/8" dia. on 1" center & 1/2" dia. on 1 3/4" center |
| Battery | 2 hole, 6 sets 3/8" dia. on 1" center & 1/2" dia. on 1 3/4" center |

MECHANICAL

Mounting: Standard 23" relay rack (flush rack mount) in box bay

Dimensions:

cm: 213H x 71W x 71D
inches: 84H x 28W x 28D

ENVIRONMENTAL

Temperature: 0 to 40°C (32 to 104°F)

Humidity: 0 to 95% RH non-condensing

Elevation: -500 to 2800m (-1640 to 9186ft)

RELATED COMPONENTS

Cordex HP 48-4kW rectifier: See page 64

Cordex HP 48-12kW rectifier: See page 65

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)

Load Disconnect: Fuse/CB panel mounted option

Alarm:

Connections: 0.34 to 2.5mm² (14 to 22AWG)

Smart Peripheral Modules:

Shunt monitoring: 18 or 30 shunt inputs

Remote Hot Bar:

Mounting: 2" Auxiliary framing (customer supplied)

Termination: 124 sets of 2 hole 1/2" dia. on 1 3/4" centers or 3/8" dia. on 1" centers

Unit Capacity: 5,000A per bar

Ultimate Capacity: 2 bar limit (10,000A)

Remote Return Bar:

Mounting: 2" Auxiliary framing (customer supplied)

Termination: 124 sets of 2 hole 1/2" dia. on 1 3/4" centers or 3/8" dia. on 1" centers

Unit Capacity: 2,500A per bar

Ultimate Capacity: 4 bar limit (10,000A)

AGENCY COMPLIANCE

Safety: CAN/CSA C22.2 No. 60950-1-07+, AMD 1:2011, ANSI/UL 60950-1:2011

NEBS: Level 3 compliant



CXPS-W

600A – 2000A POWER SYSTEM

- 48V power solution for Cell Site, CO, MSC, Data Center and Cable Headend facilities
- Each bay combines rectifiers, battery termination and distribution, simplifying installation
- Dual voltage options use high efficiency DC to DC converters for legacy cell site applications
- High efficiency modular rectifiers reduce operating costs
- Compact front access design reduces floor space footprint
- Flexible low voltage load or battery disconnect, circuit breaker, TPS and TPL fuse options

Consult your Alpha representative for P/N configurations

ELECTRICAL

Output Voltage:

Primary:-48V
Secondary:+24V

AC Input:

4.0kW Rectifier Shelf:6x 30A, Single Phase, 208 to 277Vac
2x 50A, 3 Phase, 208Vac (w/o neutral)
2x 30A, 3 Phase, 277/480Vac (w/ neutral)
2.4kW Rectifier Shelf:3x 40A, Single Phase, 208 to 277Vac

DISTRIBUTION

System Ampacity Ratings (Continuous)

1 Tier System Bus Capacity: 600A
2 Tier System Bus Capacity: 1200A
3 Tier System Bus Capacity: 1200A (or) 1800A
4 Tier System Bus Capacity: 1200A (or) 2000A

FUSES

GMT:30A, 10 positions (15A max. fuse)
TPL (HC*):Up to 8 positions in a 4T Distribution,
(800A max. fuse)
TPL (LC*):Up to 16 positions in a 4T Distribution,
(400A max. fuse)
TLS/TPS:Up to 96 positions

BREAKERS

Plug-In Bullet:Up to 96 positions in a 4T Distribution
High Capacity Bolt-In:Up to 36 positions in a 4T Distribution

OUTPUT TERMINATION

GMT Fuse:0.34 to 2.5mm² (14 to 22AWG)
TPL (HC*) Fuse:2x 3/8" studs on 1" centers
(Up to 2x 750 MCM Cables)
TPL (LC*) Fuse:1x 3/8" studs on 1" centers
(Up to 1x 750 MCM Cables)
218 Style Bolt-in:1x 3/8" studs on 1" centers
(Up to 1x 750 MCM Cables)

TLS/TPS/

Plug-in Breaker:1 pole are 1/4" studs on 3/8" centers,
2 pole and 3 pole are 3/8" dia. on 1" centers

Internal Ground Bar:1/4" studs on 3/8" centers

(External Ground bar optional)

Battery:5x 3/8" hole on 1" centers per polarity

SYSTEM LEVEL ALARMS & CONTROLS

Alarms/control parameters are user-programmable through built-in digital supervisory unit. See Cordex HP datasheet for detailed information on alarms and controls.

Indicators:LCD with touch screen
System OK (green LED)
System minor alarm (yellow LED)
System major alarm (red LED)

Alarm Connections:>0.34 to 2.5mm² (14 to 22AWG)

MECHANICAL

Mounting:Standard center mount 23" relay rack

23" Dimensions:

mm:2133H x 660W x 560D
inches:84H x 26W x 22D

Weight:

System:227kg (500lbs) approx
4.0kW Rectifier:8.5kg (19lbs) per module
2.4kW Rectifier:1.76kg (3.9lbs) per module

ENVIRONMENTAL

Temperature:0 to 40°C (32 to 104°F)
Humidity:0 to 95% RH non-condensing
Elevation:-500 to 2800m (-1640 to 9186ft)

AGENCY COMPLIANCE

Safety: CSA C22.2 No. 60950-1-03

CXPS-E3



400A POWER SYSTEM

- › Integrated 48V, 400A power system with front access distribution
- › Industry leading power system density
- › 400A, up to 26 distribution positions in 5RU
- › Advanced CXC-HP with touch screen display for full local control
- › High temperature rated design for harsh outdoor applications
- › Wide range AC input for flexible worldwide deployment

Consult your Alpha representative for P/N configurations

ELECTRICAL

System Capacity (max): 400A

Input

- Operating Voltage: 187 to 277Vac (nominal)
 Extended (High): 277 to 310Vac
 Extended (Low): 90 to 187Vac (de-rated O/P power)
 System AC Requirements:
- 19" System: Up to 8 x 20A feeds
 - 23" System: Up to 4 x 40A feeds & 2 x 20A feeds
- Efficiency: >96% Peak efficiency

Output

- Current per module: 50A @ 48Vdc (nominal I/P)
 25A max @ 48Vdc (120Vac)
- Rectifier Positions:
- 19" System: Up to 8 rectifiers
 - 23" System: Up to 10 rectifiers

MECHANICAL

Weight (Rectifier): 1.76kg (3.9lbs) / Module
System Access: Front access after initial installation
Controller: CXC-HP

› 19" System

Mounting: Flush/Center
Dimensions: 8.75"H x 19"W x 17"D
Hot Positions:
 21x Load Breakers (or) 16 Load + 5 Battery Breakers
 21x sets of ¼" Studs on ⅝" Centers
Return Positions: 21x sets of ¼" Studs on ⅝" Centers
Weight (System): 20.4kg (45lbs)

› 23" System

Mounting: Flush/Center
Dimensions: 8.75"H x 23"W x 17"D
Hot Positions:
 26x Load Breakers (or) 21 Load + 5 Battery Breakers
 26x sets of ¼" Studs on ⅝" Centers
Return Positions: 26x sets of ¼" Studs on ⅝" Centers
Weight (System): 25.8kg (57lbs)

ENVIRONMENTAL

Temperature: -40 to 55°C (-40 to 131°F)
 55 to 65°C (-40 to 149°F) de-rated output
Humidity: 0 to 95% RH non-condensing
Elevation: -500 to 2000m (-1640 to 6600ft)
 -500 to 4000m (-1640 to 13100ft)
 with de-rated output

AGENCY COMPLIANCE

Safety: CSA C22.2 No. 60950-1, UL 60950-1



CXPS-E101

STANDARD 48VDC POWER SYSTEM

- › Integrated 48V system packages in 100A or 225A configurations
- › Ultra compact, high density design utilizing standard plug-in circuit breakers
- › High efficiency design for reduced operating expenses
- › High temperature rated, fan-cooled design for harsh outdoor installations
- › Wide range AC input and IEC line cords for multiple AC services

100A System Configuration P/N: 0540569-401
225A System Configuration P/N: 0540570-401

ELECTRICAL

Input:

Voltage:.....176 to 312Vac (nominal)
 90 to 176Vac (de-rated O/P power)

Current:.....7.5A max (176 to 300Vac) per module
 6.0A max (90 to 176Vac) per module

Frequency:.....45 to 66Hz

Efficiency:.....>93% (50-100% load @ nominal voltage)

Power Factor:.....>.99

Output:

Current:

- CXPS-E101 100A
 Capacity System: 100A max @ 48Vdc (nominal I/P)
 50A max @ 48Vdc (115Vac input)
- CXPS-E101 225A
 Capacity System: 225A max @ 48Vdc (nominal I/P)
 112.5A max @ 48Vdc (115Vac input)
- Rectifier:25A max @ 48Vdc (nominal I/P)
 12.5A max @ 48Vdc (115Vac)
 (subject to de-rating below 110Vac)

Power:

- CXPS-E101 100A
 Capacity System: 4800W max @ 48Vdc (nominal input)
 2400W max @ 48Vdc (115Vac input)
- CXPS-E101 225A
 Capacity System: 10800W max @ 48Vdc (nominal input)
 5400W max @ 48Vdc (115Vac input)
- Rectifier:1200W max @ nominal I/P
 600W @ 115Vac
 (subject to de-rating below 110Vac)

FEATURES

CXPS-E101 100A:.....Up to 4x 48V-1.2kW rectifier positions

CXPS-E101 225A:.....Up to 9x 48V-1.2kW rectifier positions

Distribution:10x load breaker positions
 (AM breaker, mid-trip plug-in style)
 2x battery breaker positions
 (AM breaker, series-trip plug-in style)
 225A Low voltage disconnect
 200A Battery shunt

Controller: CXCM1 HP Modular controller (included)

MECHANICAL

CXPS-E101 100A Capacity System Dimensions:

mm:.....90H x 438W x 381D
 inches:3.5H x 17.24W x 15D

Weight:

System: 18.3kg (40.4lbs)
 Rectifier:1.2kg (2.7lbs) each

CXPS-E101 225A Capacity System Dimensions:

mm:.....133H x 438W x 381D
 inches:5.25H x 17.24W x 15D

Weight:

System:21.3kg (47lbs)
 Rectifier:1.2kg (2.7lbs) each

Mounting:.....19/23" universal mount (center or flush)

Connections:

Load breaker:10x sets, 1/4"-20 studs on 5/8" centers
 Battery breaker:2x sets, 1/4"-20 studs on 5/8" centers
 Return bar:12x sets, 10-32 studs on 5/8" centers
 Alarm:Screw terminal 1.31mm² to 0.128mm²
 (#16 to #26 AWG)

Access:Front access for operation and maintenance

ENVIRONMENTAL

Temperature:.....-40 to 65°C (-40 to 149°F)
 -40 to 75°C (-40 to 167°F) de-rated output

Humidity:0 to 95% RH non-condensing

Elevation:-500 to 2800m; to 4000m with temperature
 de-rated to 40°C (-1640ft to 9186ft; to
 13124ft with temperature de-rated to 104°F) with
 de-rated output

RELATED COMPONENTS

5-15P (120V) Line Cord, 2.5M: P/N 877-690-19
 Universal Line Cord, Flying leads, 3.5M: P/N 877-790-19
 Temperature sensor assembly 12ft, 1/4" lug: P/N 747-095-20-072
 Temperature sensor assembly 12ft, 3/8" lug: P/N 747-095-20-075
 Rectifier blank Plate: P/N 747-622-20-000
 Cordex CXRF 48-1.2kW Rectifier Module: See page 62
 Cordex CXCM1 HP: See page 108



CORDEX™ HP 1.2KW

1RU INTEGRATED SHELF SYSTEM WITH GMT DISTRIBUTION

- Single shelf modular rectifier solution provides up to 75A capacity @ -48Vdc for various small power applications
- High efficiency design for reduced operating expenses
- High temperature rated, fan-cooled design for harsh outdoor installations
- Wide range AC input and IEC line cords for multiple AC services
- Front accessible fuse distribution for space restricted enclosures

CORDEX HP 1.2KW RECTIFIER SHELVES



19/23in 1RU shelf system with GMT distribution

P/N:030-851-20
Rectifiers:3 x CXRF HP 48-1.2kW
Controller:1 x CXCM1 HP
Distribution:(8) GMT fuse, battery shunt, optional battery LVD



19/23in 1RU universal mount (Bulk Power with CXC)

P/N:030-835-20
Rectifiers:4 x CXRF HP 48-1.2kW
Controller:1 x CXCM1 HP
Distribution:Bulk power for external distribution



19/23in 1RU universal mount (Bulk Power)

P/N:030-845-20
Rectifiers:5 x CXRF HP 48-1.2kW
Controller:N/A (External)
Distribution:Bulk power for external distribution

MECHANICAL

19/23" Shelf

Dimensions:

mm:44H x 440W x 305D
 inches:1.75H x 17.3W x 12.0D

*Note: Rectifier front handle adds additional 12.5mm/0.49" Depth)

Weight:

Shelf:3.0kg (6.6lbs)
 Rectifier:1.23kg (2.7lbs)

Note: Shelf P/Ns DO NOT include modules or GMT fuses

Dimensions do not include mounting bracket

PERFORMANCE / FEATURES

Communication ports: ...CAN: Interface to control rectifiers and smart peripherals

Ethernet:10/100 Base-T for TCIP/SNMP features (w/ controller)

ENVIRONMENTAL

Temperature:

Standard:-40 to 65°C (-40 to 149°F)
 Extended:-40 to 75°C (-40 to 167°F) de-rated output

Storage:40 to 80°C (-40 to 176°F)

Humidity:0 to 95% RH non-condensing

Elevation:-500 to 2800m (-1640 to 9186ft)

Cooling:Fan cooled (front to rear)

RELATED COMPONENTS

5-15P (120V) line cord, 2.5m: P/N 877-690-19

Rectifier blank plate: P/N 747-622-20-000

Kydex rear cover: P/N 567-837-19

Cordex HP™ 1.2kW 48Vdc rectifier: See page 62

Cordex™ controller CXCM1 HP: See page 108

GMT style fuses: See page 33



CORDEX™ HP 1.2KW

FRONT ACCESS RECTIFIER SHELF SYSTEM

- Up to 100A capacity @ 48Vdc for various small power applications
- High efficiency design for reduced operating expenses
- 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

P/N: 030-834-20

ELECTRICAL

Input:

Voltage:.....176 to 312Vac (nominal)
90 to 176Vac (de-rated O/P power)

Current:.....7.5A max (176 to 300Vac) per module
6.0A max (90 to 176Vac) per module

Efficiency:>93% at 240Vac input and 40-100% load

Power Output

(per module): 1200W (176 to 300Vac input)
600W (110 to 130Vac Input)

*Power de-rated linearly from 1200-600W (176 to 130Vac input)
*Power de-rated linearly from 600-500W (110 to 90Vac input)

Current Output

(per module):25A @ 48Vdc (176 to 300Vac input)
12.5A @ 48Vdc (110 to 130Vac Input)

PERFORMANCE / FEATURES

Rectifiers:Cordex HP 48-1.2kW

Distribution:

Module:.....(10) GMT fuse positions
(4) AM plug-in breakers
Battery low voltage disconnect
Battery shunt

Supervisory:.....CXCM1 HP controller

MECHANICAL

Dimensions:

mm:.....88H x 440W x 305D
inches:3.5H x 17.3W x 12.0D

*Note: Rectifier front handle adds additional 12.5mm/0.49" Depth)

Mounting:..... 19" or 23" rack, 6" offset (center),
EIA rack spacing

Weight:

Shelf:.....4.55kg (10lbs)
Rectifier:.....1.23kg (2.7lbs)

ENVIRONMENTAL

Temperature:

Standard:-40 to 65°C (-40 to 149°F)
Extended:-40 to 75°C (-40 to 167°F) de-rated output

Storage:-40 to 80°C (-40 to 176°F)

Humidity:0 to 95% RH non-condensing

Elevation:-500 to 2800m (-1640 to 9186ft)

Cooling:.....Fan cooled (front to rear)

Heat Dissipation: 1232 BTU hour/system max.

AGENCY COMPLIANCE

Safety: CSA C22.2 No 60950-1-03

CE: EN60950

NEBS: GR-1089-CORE, GR-63-CORE

RELATED COMPONENTS

5-15P (120V) line cord, 2.5m: P/N 877-690-19
120/240Vac Universal line cord, flying leads, 3.5m: P/N 877-790-19
Rectifier blank plate: P/N 747-622-20-000
Cordex HP™1.2kW 48Vdc rectifier: See page 62
Cordex™ controller CXCM1 HP: See page 108
GMT style fuses: See page 33



CORDEX™ 250W

12VDC MODULAR RECTIFIER SHELF SYSTEMS

- › 83A capacity modular system for various 12Vdc applications
- › Convection cooled design for high reliability in harsh industrial environments
- › Wide range AC input for multiple worldwide AC services
- › Integrated system capability with shelf controller and DC distribution

CORDEX 12-250W RECTIFIER SHELVES



19/23in 2RU universal mount

Cordex™ 1000W shelf power system with CXCI HP controller and bullet breaker distribution

P/N:030-770-20

Rectifiers:4 x CXRC 12-250W

Controller:1 x CXCI HP

Distribution:(4) AM bullet type breakers



19/23in 2RU universal mount

Cordex™ 1250W bulk power system with CXCI HP controller

P/N:030-783-20

Rectifiers:5 x CXRC 12-250W

Controller:1 x CXCI HP

Distribution:Bulk power for external distribution

MECHANICAL

19" Shelf

Dimensions:

mm:89H x 435W x 302D

inches:3.5H x 17.1W x 11.9D

Weight:6.9kg (15.5lbs)

Note: Shelf P/Ns DO NOT include modules or distribution breakers

Weights DO NOT include modules

Dimensions DO NOT include mounting bracket

PERFORMANCE / FEATURES

Communication Ports:

CAN:Interface to control rectifiers. Smart peripherals

Ethernet:10/100 Base-T for TCIP/SNMP features

ENVIRONMENTAL

Temperature:

Standard:-40 to 50°C (-40 to 122°F)

Storage:-40 to 85°C (-40 to 185°F)

Humidity:0 to 95% RH non-condensing

Elevation:-500 to 3000m (-1640 to 9840ft)

Cooling:Natural or forced convection, vertical airflow

RELATED COMPONENTS

Cordex™ 250W 12Vdc rectifier: See page 66

Cordex™ controller CXCI HP: See page 107

AM plug-in breakers: See page 32



CORDEX™ 400W

24VDC MODULAR RECTIFIER SHELF SYSTEMS

- › Multiple 24V configurations up to 70A for various 24Vdc applications
- › Convection cooled design for high reliability in harsh industrial environments
- › Wide range AC input for multiple worldwide AC services
- › Integrated system capability with shelf controller and DC distribution

CORDEX 24-400W RECTIFIER SHELVES



19/23in 2RU universal mount

Cordex™ 1.6kW shelf power system with CXCI HP controller and bullet breaker distribution

P/N:030-763-20

Rectifiers:4 x CXRC 24-400W

Controller:1 x CXCI HP

Distribution:(4) AM bullet type breakers



19/23in 2RU universal mount

Cordex™ 2kW bulk power system with CXCI HP controller

P/N:030-773-20

Rectifiers:5 x CXRC 24-400W

Controller:1 x CXCI HP

Distribution:Bulk power for external distribution panel

MECHANICAL

19/23" Shelf

Dimensions:

mm:89H x 435W x 302D

inches:3.5H x 17.1W x 11.9D

Weight:6.9kg (15.5lbs)

Note: Shelf P/Ns DO NOT include modules or distribution breakers

Weights DO NOT include modules

Dimensions DO NOT include mounting bracket

PERFORMANCE / FEATURES

Communication Ports:

CAN:Interface to control rectifiers. Smart peripherals

Ethernet:10/100 Base-T for TCIP/SNMP features

ENVIRONMENTAL

Temperature:

Standard:-40 to 50°C (-40 to 122°F)

Storage:-40 to 85°C (-40 to 185°F)

Humidity:0 to 95% RH non-condensing

Elevation:-500 to 3000m (-1640 to 9840ft)

Cooling:Natural or forced convection, vertical airflow

RELATED COMPONENTS

Cordex™ 400W 24Vdc rectifier: See page 67

Cordex™ controller CXCI HP: See page 107

AM plug-in breakers: See page 32



CORDEX™ 650W

48VDC MODULAR RECTIFIER SHELF SYSTEMS

- › Multiple 48V configurations up to 67A for various 48Vdc applications
- › Convection cooled design for high reliability in harsh industrial environments
- › Front access options for space restricted enclosures
- › Integrated DC system capability with controller and distribution module options

CORDEX 48-650W RECTIFIER SHELVES



19/23in 2RU universal mount

Cordex™ 2.6kW shelf power system

P/N:030-728-20

Rectifiers:4 x CXRC 48-650W

Controller:1 x CXCI HP

Distribution:.....(4) AM bullet type breakers



19/23in 2RU universal mount

Cordex™ 3.2kW bulk power system with CXCI HP controller

Optional BLVD shunt with battery breaker and shunt

P/N:030-782-20

Rectifiers:5 x CXRC 48-650W

Controller:.....1 x CXCI HP

Distribution:.....Bulk power for external distribution

MECHANICAL

19" Shelf

Dimensions:

mm:89H x 435W x 302D

inches:3.5H x 17.1W x 11.9D

Weight:6.9kg (15.5lbs)

Note: Shelf P/Ns DO NOT include modules or distribution breakers

Weights DO NOT include modules

Dimensions DO NOT include mounting bracket

PERFORMANCE / FEATURES

Communication Ports:

CAN:Interface to control rectifiers. Smart peripherals

Ethernet:10/100 Base-T for TCIP/SNMP features

ENVIRONMENTAL

Temperature:

Standard:-40 to 50°C (-40 to 122°F)

Storage:-40 to 85°C (-40 to 185°F)

Humidity:0 to 95% RH non-condensing

Elevation:-500 to 3000m (-1640 to 9840ft)

Cooling:.....Natural or forced convection, vertical airflow

RELATED COMPONENTS

Cordex™ 650W 48Vdc rectifier: See page 69

Cordex™ controller CXCI HP: See page 107

AM plug-in breakers: See page 32



CORDEX™ 1KW

48VDC MODULAR RECTIFIER SHELF SYSTEMS

- › Multiple configurations up to 125A for various 48Vdc applications
- › Convection cooled design for high reliability in harsh industrial environments
- › Wide range AC input for multiple worldwide AC services
- › Integrated system capability with modular controller and DC distribution

CORDEX 48-1KW RECTIFIER SHELVES



19/23in Center Mount

Cordex™ 5kW bulk power system with plug in controller

P/N: **030-706-20**

Rectifiers: 5 x CXRC 48-1kW

Controller: CXCM

Distribution: Bulk power for external distribution panel



19in Flush Mount

Cordex™ 6kW bulk power system

P/N: **030-707-20**

Rectifiers: 6 x CXRC 48-1kW

Controller: Requires CXCR rack mount controller

Distribution: Bulk power for external distribution panel



23in Center Mount

Cordex™ 4kW shelf power system with plug in controller and bullet type breaker distribution

P/N: **030-704-20**

Rectifiers: 4 x CXRC 48-1kW

Controller: 1 x CXCM

Distribution: Integrated plug-in breakers & GMT fuse option

MECHANICAL

19" & 19/23" Shelf

Dimensions:

mm: 177H x 444W x 302D

inches: 6.9H x 17.5W x 11.9D

Weight: 7.5kg (16.5lbs)

23" Shelf

Dimensions:

mm: 177H x 543W x 302D

inches: 6.9H x 21.4W x 11.9D

Weight: 10.2kg (22.5lbs)

Note: Shelf P/Ns DO NOT include rectifier modules or distribution breakers

Weights DO NOT include modules

Dimensions DO NOT include mounting brackets

PERFORMANCE / FEATURES

Communication Ports:

CAN: Interface to control rectifiers

Ethernet: 10/100 Base-T for TCIP/SNMP features

RELATED COMPONENTS

Cordex™ 1kW 48Vdc rectifier: See page 70

AM plug-in breakers: See page 32

GMT style fuses: See page 33

CORDEX™ PSU



WEB ENABLED, DIN RAIL/WALL MOUNT 24V/400W OR 48V/650W POWER SUPPLY

- › Clean and reliable DC power supply for critical loads available in two options: 24V/400W or 48V/650W
- › Internet ready and remotely accessible for complete and cost effective system and site monitoring
- › Advanced battery charging, monitoring and testing to ensure sufficient reserve power availability
- › Configurable platform with I/O's for site monitoring, user-definable alarms, data logging and control
- › Extended temperature range for installation in harsh outdoor environments
- › Wide AC input operating range for world wide installation requirements

24V-400W model P/N: 0100011-002
48V-650W model P/N: 0100012-002

ELECTRICAL

| Model | 48V/650W | 24V/400W |
|------------------------|---|---|
| Input Voltage | | |
| Operating | 176 to 320Vac | 90 to 320Vac |
| Extended | 90 to 176Vac (de-rated power) | |
| Input Frequency | 45 to 70Hz | 45 to 70Hz |
| Current | 5.0A max | 4.9A max |
| Power | 650W | 400W |
| Power Factor | >0.99% | >0.99% |
| THD | <5% | <5% |
| Efficiency | >90% | >88% |
| Output Voltage | 42 to 58Vdc | 20 to 29Vdc |
| Output Current | 13.5A max | 14A max |
| Load Regulation | Static <±0.5% | Static <±0.5% |
| | Dynamic <±1% for 40 to 90% load step | Dynamic <±5% for 40 to 90% load step |
| | 2ms recovery time | 2ms recovery time |
| Line Regulation | Static <±0.1% | Static <±0.1% |
| | Dynamic ±1% for any change within rated | |
| Noise | | |
| Voice band | <32dBrnC | <32dBrnC |
| Wide band | <10mV RMS (to 10MHz) | <10mV RMS (to 10MHz) |
| | <150mV pk to pk (to 100MHz) | <100mV |
| Psophometric | <1mV RMS | <1mV RMS |

MECHANICAL

Dimensions:

mm: 117H x 281W x 101D
 inches: 4.6H x 11.1W x 3.98D

Weight: 3kg (6.6lbs)

Mounting: Panel

DIN rail (standard TS-35/7.5 or 15 Mounting Rail)

Connections:

AC, Load & Battery: Screw terminal 4mm² (#12AWG)
 Alarms & I/O's: Screw terminals 2.5mm² to (#14AWG)

ENVIRONMENTAL

Temperature:

Operation: -40 to 50°C (-40 to 122°F)
 Extended: -40 to 70°C (-40 to 158°F), derated power
 Storage: -40 to 85°C (-40 to 185°F)

Humidity: 0 to 95% RH non-condensing

Altitude: -500 to 3000m (-1640 to 9840ft)

Heat Dissipation: <110 BTU per hour

PERFORMANCE / FEATURES

User Interface:

GUI: Embedded web based GUI accessed
 via Ethernet using internet browser

LED: AC mains OK — (Green)
 Minor alarm — (Yellow)
 Major alarm — (Red)

Distribution: 10A Battery Shunt
 20A Low Voltage Disconnect LVBD
 (may be disabled with jumpers)

Cooling: Natural Convection

Communication Ports:

CAN: Smart Peripherals
 Ethernet: 10/100 Base-T for TCIP/SNMP/Email features

System I/O:

Alarm relays: 3
 Temperature inputs: 2
 Digital inputs: 2
 Voltage input: 1

AGENCY COMPLIANCE

Safety: CSA C22.2 No 60950-1-03, CE Marked

EMC: ETSI 300 386-2

Emissions: CFR47 (FCC) Part 15 Class B, EN 61000-3-2, EN 61000-3-3

Immunity: EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-11, ANSI/IEEE C62.41 CatB3



BATTERY RACK

3000LB SEISMIC BATTERY RACK SYSTEM

- › Zone 4 rated seismic battery rack system
- › NEBS L3 Certification up to 3000lbs
- › Total system capacity of 1000A
- › Small standard two-post power system footprint
- › Pre-wired and ready to install
- › Easy removal of front guard facilitates efficient battery change out
- › Vertical bus bars provide a neat and clean finish (avoiding tie wraps)
- › Built-in 1200A shunt enables users to read total battery current

ELECTRICAL

System Capacity:.....1000A max. per bay
System Voltage:.....48V (or) 24V
Overcurrent Protection: Options for 100A, 125A, 150A, 200A and 250A breakers

MECHANICAL

Mounting:.....Standard 23" relay rack mounting options
23" Dimensions:
 mm:.....2133H x 713W x 561D
 inches:84H x 28.1W x 22.1D
Weight (one bay):
 5 tray:650lbs
 6 tray:700lbs

ENVIRONMENTAL

Temperature:.....0 to 40°C (32 to 122°F)
Humidity:0 to 95% RH non-condensing
Elevation:-500 to 2800m (-1640 to 9186ft)

AGENCY COMPLIANCE

Safety:CAN/CSA C22.2 No. 60950-1-07+
 AMD 1:2011
 ANSI/UL 60950-1:2011
NEBS:Level 3 certification

STANDARD SYSTEMS

Battery Racks (black, 23" Rated at 3000lbs)

| P/N | Voltage | No. of Trays | Breaker Size |
|-------------|-------------|--------------|--------------|
| 0912001-001 | 48V Pos.Gnd | 5 | 100A |
| 0912001-002 | 48V Pos.Gnd | 5 | 125A |
| 0912001-003 | 48V Pos.Gnd | 5 | 150A |
| 0912001-004 | 48V Pos.Gnd | 5 | 200A |
| 0912001-005 | 48V Pos.Gnd | 5 | 250A |
| 0912002-001 | 24V Neg.Gnd | 5 | 100A |
| 0912002-002 | 24V Neg.Gnd | 5 | 125A |
| 0912003-001 | 48V Pos.Gnd | 6 | 100A |
| 0912003-002 | 48V Pos.Gnd | 6 | 125A |
| 0912003-003 | 48V Pos.Gnd | 6 | 150A |
| 0912003-004 | 48V Pos.Gnd | 6 | 200A |
| 0912004-001 | 24V Neg.Gnd | 6 | 100A |

Note: For standalone rack with cable tie brackets, order part# 0300163-001

Accessories (for racks listed above)

| P/N | Width | Description |
|--|-------|----------------|
| 0380042-021 (black) | NA | Mounting Kit |
| Note: Seismic Kit includes seismic anchors and washers | | |
| 0380195-001 | 23" | Insulation Kit |
| Note: Includes insulation pad and bushings | | |
| 5610292-001 | 23" | Top Cover |

SEISMIC RACK



TWO-POST RELAY RACK

- › Two-post seismic relay rack
- › Available in standard 23" or 19" mounting options
- › Up to 2500lbs zone 4 seismic rating
- › Up to 3000lbs static load capacity
- › Bolt together design facilitates flat packing of racks
- › Available in multiple heights
- › Wide variety of termination panels, battery accessories and distribution options are available

STANDALONE RACKS

23" Seismic Rack, black (gray)

| P/N | Height | Dynamic Rating (GR63) | Static Rating |
|--------------------|--------|-----------------------|---------------|
| 0300063-003 (-013) | 3.5' | 500lbs | 1000lbs |
| 0300047-001 (-011) | 7' | 1500lbs | 3000lbs |
| 0300047-002 (-012) | 7' | 1000lbs | 2000lbs |
| 0300047-003 (-013) | 7' | 500lbs | 1000lbs |
| 0300064-001 (-011) | 7'6" | 1500lbs | 3000lbs |
| 0300065-001 (-011) | 8' | 1500lbs | 3000lbs |
| 0300066-001 (-011) | 9' | 1500lbs | 3000lbs |

19" Seismic Rack, black (gray)

| P/N | Height | Dynamic Rating (GR63) | Static Rating |
|--------------------|--------|-----------------------|---------------|
| 0300062-001 (-011) | 7' | 1500lbs | 3000lbs |
| 0300062-002 (-012) | 7' | 1000lbs | 2000lbs |
| 0300062-003 (-013) | 7' | 500lbs | 1000lbs |

23" Seismic Battery Rack, black*

| P/N | Height | Dynamic Rating (GR63) |
|-------------|--------|-----------------------|
| 0300163-001 | 7' | 2500lbs |

*Welded rack cannot be used in 'flat pack' applications

ACCESSORIES

Mounting Kit

| P/N | Width | Description |
|---------------------|-------|--|
| 0380042-021 (black) | NA | Seismic kit includes: - seismic anchors and washers |
| 0380042-022 (gray) | NA | |
| 5900708-001 | NA | Rack joining bracket (require 2 per rack) |
| 5901537-001 | 30" | Extension base (clips to the base front) |

Insulation Kit

| P/N | Width | Description |
|-------------|-------|---|
| 0380063-001 | 23" | Includes insulation pad and bushings |
| 0380108-001 | 19" | Includes insulation pad and bushings |

Seismic Battery Tray (does not include breaker housing)

| P/N | Width | Description |
|---------------------|-------|---|
| 0300061-003 (black) | 23" | Fits most batteries (4 per tray) |
| 0300061-013 (gray) | 23" | |
| 0300077-002 (black) | 19" | Designed for the following batteries (4 per tray): • Exide/GNB Marathon M12V90FT • C&D Technologies TEL 12-115 FNG • East Penn 12AVR100-3ET |
| 0300077-012 (gray) | 19" | |

Breaker Housing, rack mount or left/right mount on battery tray*

| P/N | Width | Description |
|---------------------|-------|-----------------------------|
| 0380128-001 (black) | NA | AM breakers, single-pole GJ |
| 0380129-001 (gray) | NA | |

*AM/GJ breakers are not included

DC DISTRIBUTION

Alpha's DC distribution products are headlined by our industry-leading Smart BDFB, the first Alpha product to include our IoT-based Alpha IQ™ feature that enables remote monitoring and control of the BDFB loads. In addition, we offer a wide assortment of breaker and fuse panels that can be used in standalone applications or as part of a complete power solution. Panels are available in various sizes and output voltages, and use industry-standard breakers and fuses. Alpha's distribution portfolio also includes the PowerWorx™ brand of fuse and alarm panels. The offering includes GMT, KLM, TPA, TPC and TPS Fuse Panels used in telecom, CATV and datacenter environments.

Alpha's DC distribution products are available with several options, including front access, ground bars, integrated shunts and LVD's. Alpha also supplies a variety of universal distribution centers (UDC's) that accommodate system control, distribution and battery connections, all in a single rack mount unit. Further integration with a Cordex™ rectifier system creates a comprehensive power solution in a very compact package that can be easily configured to practically any power distribution requirement.



SMART BDFB



SECONDARY DISTRIBUTION SYSTEM

- › Smart secondary distribution solution for CO, MTSO, Data Center and Cable Headend facilities
- › Monitoring and alarming via IP/SNMP connectivity
- › Centralized monitoring via CAN connection enabling a single IP connection to all BDFB's at a facility
- › Enhanced cable management using the industry's first wider and deeper design
- › Improved primary cable access via Alpha's termination option
- › Flexible 2, 4, 6 or 8 feed options
- › Each panel consists of 20 secondary load positions
- › Flexible circuit breaker and TPS fuse options

Consult your Alpha representative for P/N configurations

ELECTRICAL

System Voltage:-48V
Output Current Per Load/Panel: 640A (continuous rating)
No. of Loads/Panel Per Bay:2,4,6 (or) 8
Secondary Load Positions:20 positions per panel
Over Current Protection:

- TPS/TLS Plug in bullet up to 125A
- Single pole LEL breaker up to 100A
- Double pole LEL breaker up to 200A
- Triple pole LEL breaker up to 300A

DISTRIBUTION & TERMINATION

Input Feeder Cable
Termination Details: $\frac{3}{8}$ " dia. on 1" centers (or) $\frac{1}{2}$ " dia. on 1 $\frac{1}{4}$ " centers
Secondary Load Cable
Termination Details:1 pole are $\frac{1}{4}$ " dia. on $\frac{5}{8}$ " centers,
 2 pole and 3 pole are $\frac{3}{8}$ " dia. on 1" centers
Internal Ground Bar: $\frac{1}{4}$ " dia. on $\frac{5}{8}$ " centers (lug adapters for
 2 pole and 3 pole)
External Ground Bar:21 x $\frac{1}{4}$ " dia. on $\frac{5}{8}$ " centers, 8 x $\frac{3}{8}$ " dia.
 on 1" centers and 7 x $\frac{1}{2}$ " dia. on 1 $\frac{3}{4}$ " centers

MECHANICAL

Mounting:Standard boxbay mounting options
Dimensions:
 Standard width option
 mm:2134H x 610W x 610D
 inches:84H x 24W x 24D
 Extended width option
 mm:2134H x 813W x 610D
 inches:84H x 32W x 24D

ENVIRONMENTAL

Temperature:0 to 40°C (32 to 122°F)
Humidity:0 to 95% RH non-condensing
Elevation:-500 to 2800m (-1640 to 9186ft)

SYSTEM LEVEL ALARM & CONTROL

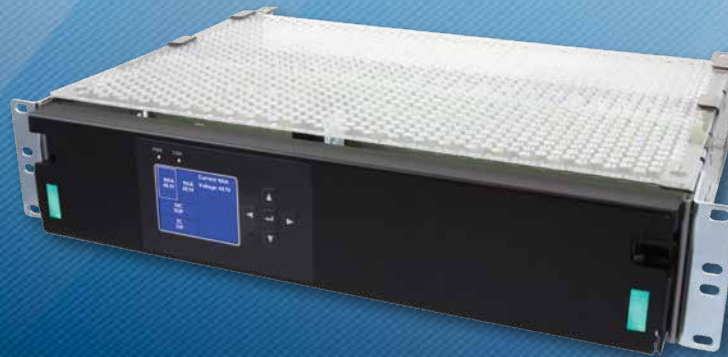
- Remote monitoring of voltage and current via IP/SNMP connection
- Remote monitoring of over current and breaker trip alarm parameters via IP/SNMP connection
- Local monitoring of voltage per panel
- Local monitoring of current for panels with shunts
- Bay level breaker/fuse trip lamp indicator
- Individual panel "Power" indicator
- Individual panel breaker trip indicator
- Alarm Relay (dry contacts)
 - Overcurrent alarm on any panel
 - Loss of input feed alarm
 - Fuse/breaker trip alarm
- Alarm connections: 1.5mm² (16 to 30AWG)

OPTIONS

- 2' and 4 $\frac{1}{2}$ ' cabinet extension
- Cabinet top covers for bottom feed applications
- Seismic anchors and washers kit
- Isolation pad and bushing kit
- SNMP kit

AGENCY COMPLIANCE

Safety: CSA C22.2 No. 60950-1



SMART E2

REMOTE DISTRIBUTION SYSTEM

- › 2RU, 22 position, remote distribution panel for COs, MSCs and critical facilities
- › Local and remote display of voltage and current per bus through an intuitive color display
- › Local and remote display of per position breaker/fuse trip alarm
- › Monitor individual bus currents and set overcurrent alarm thresholds
- › Voltage inputs to monitor voltage drop from upstream distribution
- › Monitor ambient temperature and set over temperature alarm thresholds
- › CAN termination for central monitoring through CXC-HP controller (Automatically acquires panel)

| NOMINAL SPECIFICATIONS | | |
|--------------------------|--|--|
| P/N | 0917001-202 | 0917001-203 |
| ELECTRICAL | | |
| Nominal Voltage | ±24/48Vdc | ±24/48Vdc |
| Bus Capacity | 600A per Bus | 600A per Bus |
| MECHANICAL | | |
| Dimensions | 3.5"H x 19"W x 12"D | 3.5"H x 19"W x 12"D |
| Mounting | Flush/Center | Flush/Center |
| CONNECTIONS | | |
| Input (Hot & Return) | 3/8" Holes on 1" Center | 3/8" Holes on 1" Center |
| Positions | 11x sets load breakers per bus (22 positions per panel) | 11x sets load breakers per bus (22 positions per panel) |
| Output (Hot & Return) | 22x sets of 1/4" studs on 3/8" Centers Double Pole: 3/8" Studs on 1" Centers Triple Pole: 3/8" Studs on 1" Centers | 22x sets of 1/4" studs on 3/8" Centers Double Pole: 3/8" Studs on 1" Centers Triple Pole: 3/8" Studs on 1" Centers |
| Chassis Ground | 1/4" studs on 3/8" Center | 1/4" studs on 3/8" Center |
| CONTROLS | | |
| Alarms | Breaker/Fuse trip: Form C contacts | Breaker/Fuse trip: Form C contacts |
| Monitor | Breaker/fuse trip, bus currents, bus voltages and ambient temperatures via CAN bus to CXC-HP controller | Breaker/fuse trip, bus currents, bus voltages and ambient temperatures via CXC-HP controller (IP/SNMP) |
| LED Indicators | System Ok (Green) Breaker/Fuse Trip (Red) | System Ok (Green) Breaker/Fuse Trip (Red) |
| ENVIRONMENTAL | | |
| Temperature | 0 to 40°C (0 to 104°F) | 0 to 40°C (0 to 104°F) |
| Humidity | 0-95% non-condensing | 0-95% non-condensing |
| AGENCY COMPLIANCE | | |
| Safety | CSA C22.2 No. 60950-1 UL 60950-1 | CSA C22.2 No. 60950-1 UL 60950-1 |



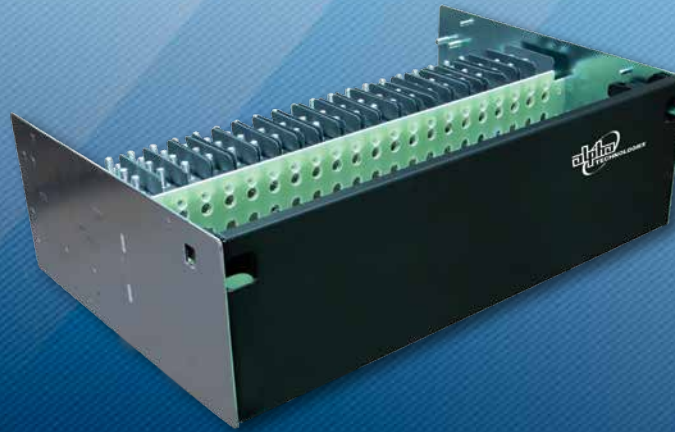
POWERWORX®

POWERWORX® FUSE PANELS

- TPA and KTK/KLM fuse panels used in telecom, CATV and datacenter environments
- 50A TPA fuses and 30A KTK/KLM fuses allow larger transport equipment loads to be connected and powered
- Smaller equipment can be served utilizing the additional GMT positions
- GMT fuse panels used in telecom, CATV and datacenter environments
- Higher ampacity bus allows larger loads to be connected and powered
- Any position accepts up to 20A GMT fuses
- Total Front Access (TFA) panels for space constrained locations

| NOMINAL SPECIFICATIONS | | | |
|--|---|---|--|
| Model | Advantage Series | Select Series Fuse Panels | SuperPower™ GMT Series |
| P/N | 1314124 | 4 TPA/4 GMT P/N: 300001772984 4 TPA/10 GMT P/N: 1283921 4 KTK/KLM/4 GMT P/N: 1201823 | 10 GMT P/N: 300001779526 20 GMT P/N: 300001779527 10 GMT FRONT ACCESS P/N: 300001779528 |
| MECHANICAL | | | |
| Dimensions Dimensions do not include depth of power connectors, alarm lamps or fuses | mm | 133H x 435W x 226D | 44H x 435W x 254D |
| | in | 5.25H x 17.12W x 8.89D | 1.75H x 17.12W x 10D |
| Weight | Approx. 25lbs (w/o breakers or fuses) | Approx. 12.5lbs (5.7kg) | Approx. 10lbs (4.5kg) |
| Rack Mounting Width | Using the universal mounting brackets, the standard front/rear access fuse panel can be flush-or recess-mounted into 19-inch (483mm) and 23-inch (584mm) EIA and WeCo racks | The standard front/rear access fuse panel can be flush (or recess) mounted into 19-inch (483mm) or 23-inch (584mm) EIA and WECO 2 racks. ETSI mounting is also available. | <ul style="list-style-type: none"> • 10/10 GMT Standard Access 19/23" (483/584mm) • Flush or recess-mountable with universal mounting brackets. EIA/WECO or ETSI mounting options available • 20/20 GMT and Total front access: 23" (584mm) flush or recess-mountable into EIA and WECO racks |

| Model | Advantage Series | Select Series Fuse Panels | SuperPower™ GMT Series |
|--|--|--|--|
| POWER | | | |
| Breaker/Fuse Capacity High Current Breakers/Fuses | 1 to 125 Amps carling breaker 0.2 to 20 Amps GMT | 3 to 50 Amps TPA 0.2 to 20 Amps GMT 5 to 30 Amps KLM | 0.2 to 20 Amps GMT |
| Panel Capacity | 300 Amps maximum per bus (600 Amps total, dual bus configuration) | 100 Amps maximum per bus (200 Amps total, dual bus configuration) | 100 Amps maximum per bus (200 Amps total, dual bus configuration) |
| Operating Voltage | -48Vdc (-42 to -56Vdc tolerance) | -24Vdc (-21 to -30Vdc tolerance) or -48Vdc (-42 to -56Vdc tolerance) | ±24Vdc (-21 to -30Vdc tolerance) or ±48Vdc (42 to 56Vdc tolerance) |
| Power Dissipation | 50W max | 100W max | 100W max |
| LED Indicators | Power On (Green) Blown Fuse (Red) | Power On (Green) Blown Fuse (Red) | Power On (Green) Blown Fuse (Red) |
| CONNECTIONS | | | |
| Alarm Contact Connection | Screw-down barrier terminal strip | Wire wrap connections | Wire-wrap connections. |
| Alarm Contact Relay | 1A max | 1A max | 1A max |
| Grounding | Two-post grounding accepts range of wire up to 2 AWG (Flex) or 1 AWG (Stranded) | Two-post grounding accepts range of wire up to #10AWG for single connection; two-hole compression lug (stud-type) accepts wire up to #2AWG | Two-post grounding accepts range of wire up to #10AWG for single connection; two-hole compression lug (stud-type) accepts wire up to #2AWG |
| Input Feed Connection | Two-hole compression lug (stud-type) accepts range of cable up to 350 MCM (stranded) | Two-hole compression lug (stud-type) accepts range of wire up to 2 AWG. | Two-hole compression-lug (stud-type) accepts range of wire up to 2AWG. |
| Output Feed Connection | Two-hole compression lug (stud-type) accepts range of wire up to 2 AWG (flex) or 1AWG (stranded) | Screw-down barrier terminals trip accepts range of bare wire up to 8AWG (TPA), 10AWG (KLM), or 12-16AWG (GMT). | Screw-down barrier terminal strip accepts range of wire up to 12AWG. |
| ENVIRONMENTAL | | | |
| Storage Temperature | -45° to 85°C (-49 to 185°F) | -45° to 85°C (-49 to 185°F) | -45° to 85°C (-49 to 185°F) |
| Operating Temperature | -40° to 65°C (40 to 149°F) | -5° to 55°C (23 to 131°F) | -40° to 65°C (40 to 149°F) |
| Operating Humidity | 0% to 95%, non-condensing | 0% to 95%, non-condensing | 0% to 95%, non-condensing |
| Operating Altitude | Up to 13,000 feet (3.96km) | Up to 13,000 feet (3.96 km) | Up to 13,000 feet (3.96km) |
| STANDARDS | | | |
| Safety | Meets UL, Telcordia (Bellcore), neC 2002, CSA, neBS Level 3, ieC, and Ce Standards | Meets UL, Telcordia (Bellcore), NEC 2002, CSA, NEBS Level 3, IEC, and CE standards KTK fuses are not currently rated for DC voltages by Under writers Laboratories (UL). KTK fuses will fit in the KLM fuse holder. | Meets UL, Telcordia (Bellcore), NEC2002, CSA, 1 (NEBS Level 3, IEC, and CE) Important Note: The fuse manufacturer recommends that fuses be continuously operated at no more than 80% of their nominal current rating. |



CXDM-E3

400A DISTRIBUTION PANEL

- 48V, 400A distribution panel with front access distribution
- High breaker density - 26 breakers in 3RU
- High temperature rated design for harsh outdoor installations

| NOMINAL SPECIFICATIONS | | |
|------------------------------|---|---|
| Model | 19" CXDM-E3 | 23" CXDM-E3 |
| P/N | 0918201-100 | 0918301-300 |
| ELECTRICAL | | |
| Panel Voltage | ±48V (or) ±24V | ±48V (or) ±24V |
| System Capacity (Max) | 400A | 400A |
| ENVIRONMENTAL | | |
| Temperature | -40 to 65°C (-40 to 149°F) | -40 to 65°C (-40 to 149°F) |
| Humidity | 0 to 95% RH non-condensing | 0 to 95% RH non-condensing |
| MECHANICAL | | |
| Mounting | Flush/Center | Flush/Center |
| Dimensions | 5.25"H x 19"W x 11.3"D | 5.25"H x 23"W x 11.3"D |
| Weight (System) | 13.6kg (30lbs) | 15.8kg (35lbs) |
| DC CONNECTIONS | | |
| Input connections | 3/8" Holes on 1" Center* | 3/8" Holes on 1" Center* |
| Hot Positions | 21x Load Brkrs 21x sets of 1/4" Studs on 5/8" Centers | 26x Load Brkrs 26x sets of 1/4" Studs on 5/8" Centers |
| Return Positions | 21x sets of 1/4" Studs on 5/8" Centers | 26x sets of 1/4" Studs on 5/8" Centers |
| System Access | Front Access | Front Access |
| CONTROLS | | |
| Monitor | Monitor via discrete signals to externally mounted Alpha controller | Monitor via discrete signals to externally mounted Alpha controller |
| LED Indicators | System Ok (Green) Breaker/Fuse Trip (Red) | System Ok (Green) Breaker/Fuse Trip (Red) |
| AGENCY COMPLIANCE | | |
| Safety | CSA C22.2 No. 60950 | CSA C22.2 No. 60950 |

CIRCUIT BREAKERS

DC DISTRIBUTION ACCESSORIES

BULLET, MID-TRIP (LOAD BREAKERS)

| P/N | Description | P/N | Description |
|------------|---|------------|--|
| 470-300-10 | CB, 1P, 1A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip | 470-313-10 | CB, 1P, 70A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip |
| 470-301-10 | CB, 1P, 3A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip | 470-314-10 | CB, 1P, 80A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip |
| 470-302-10 | CB, 1P, 5A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip | 470-315-10 | CB, 1P, 90A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip |
| 470-303-10 | CB, 1P, 10A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip | 470-316-10 | CB, 1P, 100A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip |
| 470-304-10 | CB, 1P, 15A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip | 470-317-10 | CB, 2P, 110A, 65Vdc, $\frac{5}{16}$ " Bullet, Mid-trip |
| 470-305-10 | CB, 1P, 20A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip | 470-318-10 | CB, 2P, 125A, 65Vdc, $\frac{5}{16}$ " Bullet, Mid-trip |
| 470-306-10 | CB, 1P, 25A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip | 470-319-10 | CB, 2P, 150A, 65Vdc, $\frac{5}{16}$ " Bullet, Mid-trip |
| 470-307-10 | CB, 1P, 30A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip | 4700236 | CB, 2P, 175A, 65Vdc, $\frac{5}{16}$ " Bullet, Mid-trip |
| 470-308-10 | CB, 1P, 35A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip | 4700154 | CB, 2P, 200A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip |
| 470-309-10 | CB, 1P, 40A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip | 470-357-10 | CB, 3P, 225A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip |
| 470-310-10 | CB, 1P, 45A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip | 470-342-10 | CB, 3P, 250A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip |
| 470-311-10 | CB, 1P, 50A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip | 4700149 | CB, 3P, 300A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip |
| 470-312-10 | CB, 1P, 60A, 80Vdc, $\frac{5}{16}$ " Bullet, Mid-trip | | |

BREAKERS FOR USE WITH ALPHA PANELS

020-588-20, 020-589-20, 020-671-20, 020-675-20, 020-702-20, Vista Series, M Series, D Series, C Series, HX Series, BDFB 8x800
E2 Series, E1 Series, E3 Series, W Series

BULLET, SERIES-TRIP (BATTERY BREAKERS)

| P/N | Description | P/N | Description |
|------------|---|------------|---|
| 470-346-10 | CB, 1P, 60A, 80Vdc, $\frac{5}{16}$ " Bullet, Series-trip | 470-673-19 | CB, 2P, 150A, 80Vdc, $\frac{5}{16}$ " Bullet, Series-trip |
| 470-347-10 | CB, 1P, 100A, 80Vdc, $\frac{5}{16}$ " Bullet, Series-trip | 4700153 | CB, 2P, 200A, 80Vdc, $\frac{5}{16}$ " Bullet, Series-trip |
| 4700187 | CB, 1P, 125A, 80Vdc, $\frac{5}{16}$ " Bullet, Series-trip | 470-674-19 | CB, 3P, 250A, 80Vdc, $\frac{5}{16}$ " Bullet, Series-trip |

BREAKERS FOR USE WITH ALPHA PANELS

020-702-20, 030-770-20, 030-728-20, 030-782-20, 030-706-20, 030-773-20, 030-763-20, E1 Series, E3 Series

BOLT-IN BREAKERS (216 STYLE)

| P/N | Description | P/N | Description |
|------------|--|------------|--|
| 470-120-10 | CB, 1P, 100A, 125Vdc, $\frac{7}{16}$ " Bolt-In | 470-122-10 | CB, 2P, 300A, 160Vdc, $\frac{7}{16}$ " Bolt-In |
| 470-125-10 | CB, 1P, 125A, 125Vdc, $\frac{7}{16}$ " Bolt-In | 470-126-10 | CB, 2P, 400A, 160Vdc, $\frac{7}{16}$ " Bolt-In |
| 470-188-10 | CB, 1P, 150A, 125Vdc, $\frac{7}{16}$ " Bolt-In | 470-210-10 | CB, 3P, 450A, 160Vdc, $\frac{7}{16}$ " Bolt-In |
| 470-171-10 | CB, 1P, 175A, 125Vdc, $\frac{7}{16}$ " Bolt-In | 470-123-10 | CB, 3P, 500A, 160Vdc, $\frac{7}{16}$ " Bolt-In |
| 470-121-10 | CB, 1P, 200A, 125Vdc, $\frac{7}{16}$ " Bolt-In | 470-219-10 | CB, 3P, 600A, 160Vdc, $\frac{7}{16}$ " Bolt-In |
| 470-081-10 | CB, 1P, 225A, 125Vdc, $\frac{7}{16}$ " Bolt-In | 470-208-10 | CB, 3P, 700A, 160Vdc, $\frac{7}{16}$ " Bolt-In |
| 470-228-10 | CB, 1P, 250A, 125Vdc, $\frac{7}{16}$ " Bolt-In | | |

BREAKERS FOR USE WITH ALPHA PANELS

020-534-20, 020-564-20

FUSES

DC DISTRIBUTION ACCESSORIES

GMT FUSES

| P/N | Description | P/N | Description |
|------------|------------------------|------------|-----------------------|
| 4600093 | 180mA, 60Vdc, GMT Fuse | 460-085-10 | 4A, 60Vdc, GMT Fuse |
| 4600094 | 1/4A, 60Vdc, GMT Fuse | 460-084-10 | 5A, 60Vdc, GMT Fuse |
| 460-004-10 | 1/2A, 60Vdc, GMT Fuse | 460-105-10 | 7.5A, 60Vdc, GMT Fuse |
| 4600095 | 3/4A, 60Vdc, GMT Fuse | 460-069-10 | 10A, 60Vdc, GMT Fuse |
| 460-006-10 | 1A, 60Vdc, GMT Fuse | 4600096 | 12A, 60Vdc, GMT Fuse |
| 460-081-10 | 1.3A, 60Vdc, GMT Fuse | 460-150-10 | 15A, 60Vdc, GMT Fuse |
| 460-082-10 | 1.5A, 60Vdc, GMT Fuse | 4600101 | 20A, 60Vdc, GMT Fuse |
| 460-083-10 | 2A, 60Vdc, GMT Fuse | 4600071 | Gray Dummy GMT Fuse |
| 460-013-10 | 3A, 60Vdc, GMT Fuse | 520-046-10 | GMT Fuse Cover |

FUSES FOR USE WITH ALPHA PANELS

020-005-20, 020-103-20, 020-597-20, GMT 10A/10B

TPS/TLS FUSES

| P/N | Description | P/N | Description |
|------------|---------------------------|------------|----------------------------|
| 460-217-10 | TPS/TLS Fuse, 5A, 170Vdc | 460-225-10 | TPS/TLS Fuse, 50A, 170Vdc |
| 460-218-10 | TPS/TLS Fuse, 6A, 170Vdc | 460-226-10 | TPS/TLS Fuse, 60A, 170Vdc |
| 460-219-10 | TPS/TLS Fuse, 10A, 170Vdc | 460-227-10 | TPS/TLS Fuse, 70A, 170Vdc |
| 460-220-10 | TPS/TLS Fuse, 15A, 170Vdc | 460-229-10 | TPS/TLS Fuse, 90A, 170Vdc |
| 460-221-10 | TPS/TLS Fuse, 20A, 170Vdc | 460-230-10 | TPS/TLS Fuse, 100A, 170Vdc |
| 460-222-10 | TPS/TLS Fuse, 25A, 170Vdc | 4600056 | TPS/TLS Fuse, 110A, 170Vdc |
| 460-223-10 | TPS/TLS Fuse, 30A, 170Vdc | 4600057 | TPS/TLS Fuse, 125A, 170Vdc |
| 460-224-10 | TPS/TLS Fuse, 40A, 170Vdc | 520-059-10 | TFD Fuse Holder |

FUSES FOR USE WITH ALPHA PANELS

020-588-20, 020-589-20, 020-671-20, 020-675-20, 020-702-20, Vista Series, M Series, D Series, C Series, HX Series, BDFB 8x800, W Series

TPL FUSE

| P/N | Description | P/N | Description |
|------------|------------------------|------------|-------------------------------|
| 460-140-10 | TPL Fuse, 100A, 170Vdc | 460-145-10 | TPL Fuse, 400A, 170Vdc |
| 460-141-10 | TPL Fuse, 150A, 170Vdc | 460-146-10 | TPL Fuse, 500A, 170Vdc |
| 460-142-10 | TPL Fuse, 200A, 170Vdc | 460-147-10 | TPL Fuse, 600A, 170Vdc |
| 460-139-10 | TPL Fuse, 250A, 170Vdc | 460-148-10 | TPL Fuse, 800A, 170Vdc |
| 460-144-10 | TPL Fuse, 300A, 170Vdc | 5200011 | TPL Fuse holder, 250A or less |

FUSES FOR USE WITH ALPHA PANELS

020-597-20

AC POWER SYSTEMS

INDOOR UPS SYSTEMS

Alpha offers robust and innovative modular power systems to support small to mid-sized critical AC loads in a variety of standard and custom configurations. Alpha's Modular Power System (AMPS HP2) offers telecom-grade AC power for critical loads in Central Offices, Switching Centers, Cable Head Ends and Data Centers. This versatile product can be configured as a UPS or inverter. AMPS HP2 systems offer exceptional reliability, up to 94% power efficiency, and optimal power density through a scalable, modular platform with integrated, intelligent system control. For smaller applications, Alpha's INEX inverter is a fully integrated, single-phase system specifically designed to backup critical AC loads. With proven Alpha reliability and flexibility, the system may be configured to provide N+1 redundancy. A user-friendly interface displays real time information, making the system easy to configure and manage.

OUTDOOR UPS SYSTEMS

Alpha offers a complete line of ruggedized AC powering solutions for outdoor applications. This includes weather hardened outdoor enclosures, uninterruptible power supply (UPS) modules, specialty batteries, accessories, and generators that can be custom integrated to meet your application. Alpha's FXM line is a truly outdoor UPS system, with conformal coated printed circuit boards (PCBs) that protect against exposure to moisture and dust, as well as carefully selected components that operate reliably in extreme temperatures. In addition, Alpha's products and solutions are designed to meet each customer's unique power, runtime and installation requirements. Alpha's UPS solutions also offer superior communication capabilities including remote monitoring via SNMP web-based communication.



AMPS TOPOLOGY

AMPS HP2 is a revolutionary high performance technology that combines the high reliability of a telecom-grade inverter system with a highly efficient UPS with best in class craft access. AMPS is a new tool in the delivery of battery backed AC power. It enables telcos to supply highly reliable video and data delivery as part of triple play service. It offers data centers a more reliable means of powering mission-critical servers and routers. And the same system delivers either single or 3-phase AC power.

The core of the AMPS HP2 system is the Alpha Inverter Module (AIM). Unlike a conventional inverter that transforms a DC input into an AC output, or a traditional UPS that delivers an AC output from an AC input, the AIM accepts both AC and DC inputs. This innovative approach is the key reason the AMPS HP2 system is more reliable than a UPS, more efficient than an inverter.

THE TECHNOLOGY BEHIND THE AMPS HP2 SYSTEM OFFERS TREMENDOUS BENEFITS TO THE USER

AMPS HP2 delivers fully conditioned, line-regulated telecom-grade AC power with up to 94% system efficiency.

In the event of an AC outage, there is zero transfer time with AMPS HP2.

While the same can be said of an online inverter or double conversion UPS, that is not the case with a line interactive UPS.

AMPS HP2 is more reliable than devices that rely on a static transfer switch (STS) for protection.

In both AC UPS and Telecom grade inverter system topologies, the STS becomes the “single point of failure”, because if it fails to bypass DC when there is a battery failure, critical loads might get dropped. With AMPS HP2, commercial AC is normally responsible for powering the load, and the 400Vdc bus is always present, so there is no need for an STS.

AMPS HP2 can include N+1 redundancy.

The modularity of the system lends itself to redundant operation. AMPS HP2 systems can also be configured for N+N redundancy within a single rack system yielding significant floor space savings for revenue generating equipment.

AMPS HP2 is scalable.

Even with traditional modular inverter and UPS systems, a STS must be sized at the time of installation thus limiting future expansion. AMPS HP2 can grow with the addition of AIM modules and/or modular rectifiers.

AMPS HP2 is safe for technicians.

With AMPS HP2, technicians are only exposed to 120Vac and 48Vdc, both prevalent and conventional voltages. On the other hand, UPS systems using elevated voltages to achieve higher system efficiencies expose technicians to unsafe voltages, and even though the AIM modules do produce a 400Vdc bus, that voltage is internal to the inverter module and not accessible by the technician.

AMPS HP2 uses conventional 48Vdc power and batteries.

By using 48Vdc, AMPS HP2 avoids the expense of high voltage batteries and the expensive service contracts needed to maintain them. Indoor 48Vdc batteries in headend often have a 10 to 20 year design life, available spare capacity can be used to support AC loads.

AMPS HP2 only requires enough rectifiers to charge the batteries used during an AC outage.

Unlike conventional Inverters, AMPS HP2 only requires incoming DC to provide the AC output when the utility AC is out of service. So rather than sizing the rectifiers as if the inverter is another DC load, the rectifiers can be sized only for the amount of time prescribed for recharging the batteries.

AMPS HP2 can be configured for either single phase, two pole/split phase or 3-phase AC output power.

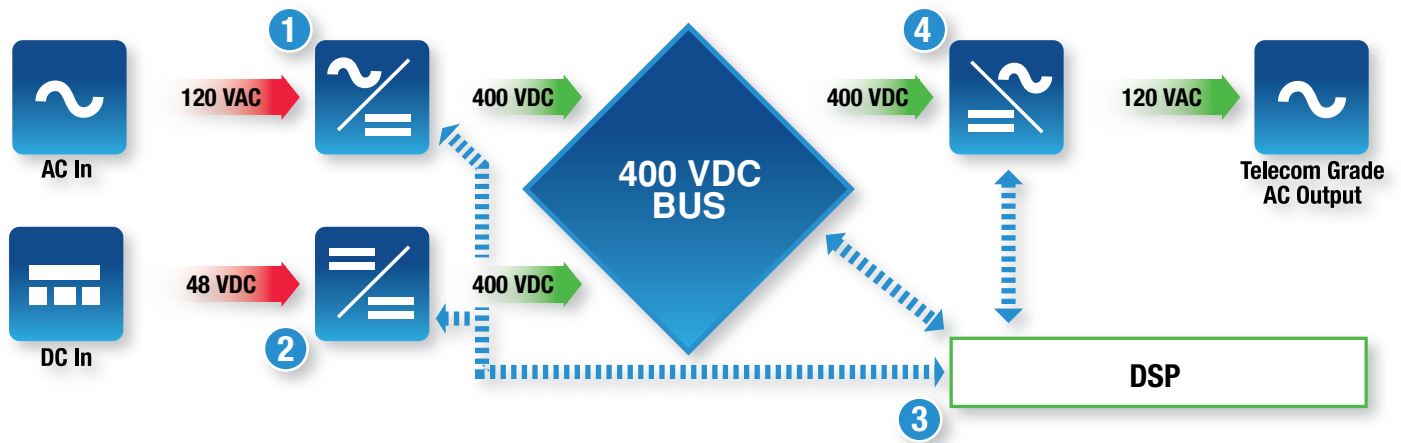
AMPS HP2 is designed to handle dynamic load surges.

AIM modules can operate continuously at 110% of rated output, as well as provide short term overload compatibility of up to 150% capacity for 5 seconds.

AIM INTERNAL POWER ARCHITECTURE

How does it work

- 1 Each AIM accepts an input from an AC source, typically via AC mains (i.e., commercial utility AC) or an AC generator. It rectifies this 120Vac input into a 400Vdc output for delivery to a common bus. The high output DC voltage enables the unit to achieve a very high efficiency.
- 2 Each AIM unit also accepts a DC input, either from external battery plants or other energy storage and generation devices such as fuel cells and DC generators. The 48Vdc input is converted to a 400Vdc output for delivery to the common bus. Again, because of the high voltage DC output, the efficiency of the system is very high.
- 3 An onboard Digital Signal Processor actively monitors both module inputs and controls which one (or how much of each one) is to be delivered to the 400Vdc bus. The selection process is based on the following:
 - If commercial AC is available, the DSP selects the rectified 400Vdc
 - If commercial AC is unavailable, the DSP selects the converted 400Vdc
 - If commercial AC is partially unavailable, as in the case of a brown-out condition, the DSP augments the rectified output with converted output power.
 - DC or AC input priority may also be manually configured, as well as automatically triggered remotely to accommodate advanced energy management such as utility peak shaving.
- 4 The 400Vdc bus is then inverted into 120Vac to power the equipment.



AMPS HP2 COMPARISON VS TRADITIONAL INVERTERS/UPS'S

| Features | Inverter | UPS | AMPS HP2 |
|--|----------|-----|----------|
| Filtered AC output | ● | ● | ★ |
| High efficiency design | ● | ★ | ★ |
| Utilize low voltage, telecom batteries | ★ | ○ | ★ |
| Eliminates need for STS | ● | ● | ★ |
| Additional rectification ONLY for charging | ● | ● | ★ |
| Modularity / Scalability | ★ | ● | ★ |
| Centralized AC & DC control and monitoring | ○ | ★ | ★ |
| Compatibility with existing DC plants | ★ | ○ | ★ |
| ★ = Fully compliant ● = Partially or sometimes compliant ○ = Not compliant | | | |



AMPS HP2

MODULAR INVERTER SYSTEM

- Innovative, inverter system for critical facilities and Telecom applications
- Single, dual and three phase configurations with up to 75kVA/60kW capacity
- 'HP' technology engineered to deliver high efficiency, high system reliability and low total cost of ownership
- 94% efficiency, 15 year design life and module MTBF (Mean Time Between Failures) greater than 200,000 hours results for class-leading TCO (Total Cost of Ownership)
- Intelligent system controller with integrated SNMP for local and remote management of AC power modules, optional rectifier modules, batteries and other peripherals
- Small footprint system in a single 19" box bay rack, freeing up valuable rack and floor space
- Optional 2.4kW rectifier modules convert the AMPS into a modular, standalone, high-reliability UPS

Introducing the AMPS HP2, Alpha's high performance AC power system offering Telecom grade reliability, 94% efficiency and high power density. The AMPS HP2 features hot swappable 2.5kVA/2.0kW inverter modules and optional 2.4kW rectifier modules that are the building blocks of a highly reliable inverter system utilizing -48Vdc battery bus. Each inverter module can utilize either AC or DC sources or both, eliminating the need for a static transfer switch. Transfer between sources is 100% seamless.

Alpha's CXC-HP controller with it's integrated Ethernet/SNMP interface monitors and manages the complete system through a web based GUI and local LCD touch screen. The controller also features email notification via TCP/IP, user definable alarms and data logging, flexible battery management features, and smart peripheral monitoring features.

The AMPS HP2 meets your current and future power needs by allowing you to purchase only the power modules you currently need while having ultimate flexibility to scale up or down, depending on future power needs. Best in class craft access and user friendly connections make the system easy to install, easy to service and easy to upgrade. Furthermore, Alpha's warranty and comprehensive support network for ordering spare modules make AMPS HP2 a smart and dependable investment decision.

STANDARD FEATURES

- System controller with integrated SNMP communications
- AC input & output breaker
- Integrated maintenance bypass switch
- Transient voltage surge suppressor (TVSS)

| Model | AMPS HP2 1-10 | AMPS HP2 2-20 | AMPS HP2 3-30 | AMPS HP2 2-40 | AMPS HP2 3-75 |
|-------------------|--|--|--|---|---|
| System P/N | 0260083-010 w/o Cntrl option (-110) | 0260083-020 w/o Cntrl option (-120) | 0260083-030 w/o Cntrl option (-130) | 0260081-001/003**** (Inverter version) 0260081-002/004**** (UPS version) | 0260080-001/003**** (Inverter version) 0260080-002/004**** (UPS version) |

ELECTRICAL

| | | | | | |
|--------------------------------------|------------------------------------|--|-----------------------------------|--|-----------------------------------|
| Inverter System Max Capacity | 10kVA/8kW | 20kVA/16kW | 30kVA/24kW | 40kVA/32kW | 75kVA/60kW* or 68kVA/54kW (N+1) |
| System AC Input Voltage | 120Vac Single Phase (2 Wire +G) | 120/208Vac 2-Pole (Or) 120/240Vac Split Phase (3 Wire+G) | 120/208Vac 3 Phase (4 Wire+ G) | 120/208Vac 2-Pole (Or) 120/240Vac Split Phase (3 Wire+G) | 120/208Vac 3 Phase (4 Wire+ G) |
| Inverter Input AC Breaker | 100A, 1-Pole | 100A, 2-Pole | 100A, 3-Pole | 200A, 2-Pole | 250A, 3-Pole |
| Inverter Efficiency | 94% | 94% | 94% | 94% | 94% |
| Inverter Module Output | 2.5kVA/2.0kW | 2.5kVA/2.0kW | 2.5kVA/2.0kW | 2.5kVA/2.0kW | 2.5kVA/2.0kW |
| Inverter Positions | Up to 4 modules | Up to 8 modules | Up to 12 modules | Up to 16 modules | Up to 30 modules |
| Rectifier System Max Capacity | | | | 14.4kW | 14.4kW |
| Rectifier Input AC Breaker | | | | 1x 100A Breakers (UPS Version) | 1x 60A Breaker (UPS Version) |
| System DC Input Voltage | -48Vdc | -48Vdc | -48Vdc | -48Vdc | -48Vdc |
| Rectifier Efficiency | | | | +96% | +96% |
| Rectifier Module Output | | | | 2.4kW | 2.4kW |
| Rectifier Positions | | | | Up to 6 modules | Up to 6 modules |

MECHANICAL

| | | | | | |
|--------------------------------|---|---------------------------------------|---------------------------------------|---|---|
| System Dimensions | 15.75H x 19W x 23.6D | 19.25H x 19W x 23.6D | 22.75H x 19W x 23.6D | 83.4H x 24W x 28D | 83.4H x 24W x 28D |
| Mounting Configuration | 19 or 23" Rack Mountable Front or Mid Mount | | | Preinstalled in Box Bay | |
| DC Input Connections | 4x 3/8" on 1" Centers per polarity | 4x 3/8" on 1" Centers per polarity | 4x 3/8" on 1" Centers per polarity | 4x 3/8" on 1" Centers per polarity** | 4x 3/8" on 1" Centers per polarity** |
| System Weight | 112lbs | 128lbs | 144lbs | 600lbs | 700lbs |
| Inverter Module Weight | 11lbs | 11lbs | 11lbs | 11lbs | 11lbs |
| Rectifier Module Weight | | | | 3.9lbs | 3.9lbs |
| Controller | CXC-HP | CXC-HP | CXC-HP | CXC-HP | CXC-HP |

ENVIRONMENTAL

| | |
|--|---|
| Temperature | Operating (full load): -20 to 40°C (-4 to 104°F) Storage: -40 to 70°C (-40 to 158°F) |
| Relative Humidity | Up to 95%, non-condensing |
| Operating Altitude | Up to 1500m (4900ft) above sea level |
| Thermal Dissipation per 2.5kVA/2kW AIM module | 437 BTU/hr in AC to AC mode; 758 BTU/hr in DC to AC mode |

AGENCY COMPLIANCE

| | |
|---------------|---|
| Safety | UL1778 (5th Ed); CSA C22.2 No. 107.3-14 UPS General Safety |
| EMC | FCC CFR47 Part 15 Class A; ICES-003 |

*Consult factory for P/N **8 total with back to back termination ***001/002: Top feed AC/DC ****003/004: Top feed AC, Bottom feed DC

MECHANICAL

Inverter Module

Dimension:

mm:.....270D x 215W x 43.8H
inches: 10.63D x 8.46W x 1.72H

Weight:3.0kg (6.61lbs)

STS Module

50A Dimension:

mm:..... 270D x 215W x 43.8H
inches:.....10.63D x 8.46W x 1.72H

Weight: 2.0kg (4.4lbs)**100A Dimension:**

mm:..... 265D x 215W x 84H
inches:.....10.5D x 8.46W x 3.3H

Weight: 4.2kg (9.2lbs)

Controller Module

Dimensions:

mm:.....277D x 87.9W x 43.5H
inches: 10.9D x 3.46W x 1.71H

Weight: 1.0kg (2.2lbs)

Hot-swap Chassis

19/23" Mounting Brackets

Inverter Chassis Dimension:

mm:.....329.5D x 440W x 44H
inches: 13D x 17.32W x 1.73H

Weight:2.5kg (5.5lbs)**STS & Controller Chassis Dimension:**

mm:.....329.5D x 440W x 44H
inches: 13D x 17.32W x 1.73H

Weight:3.4kg (7.5lbs)

ENVIRONMENTAL

Temperature:

Operating-20 to 70°C (-4 to 158°F)
-5 to 58°C (23 to 122°F) with full performance
Storage:-40 to 85°C (-40 to 185°F)

Humidity:90% RH non-condensing**Audible Noise:**55dB

CONTROLLER MODULE

Input:

Nominal voltage:48Vdc
Operating range:30Vdc ~ 72Vdc
Over current protection: ..2A fuse

Human Interface:

LCD:Resolution (line X array)
4 X 16 character
LED Indicator:3 colored indicators for normal, warning
and fault display
Alarm:Audio alarm when inverter, STS, controller
module operate abnormally

System Parameter:

Baud rate:Setting controller com port baud rate
Keypad tones:Setting keypad tones
Time & date:Setting current time and date
Setting password:Setting system password
Brightness:Setting LCD brightness
Default:.....Change current system parameters
to default value

COMMUNICATION INTERFACE

RS-232x2:Communicate with PC
RS-485x2:Communicate with supervision
Dry contactx5:Communicate with external monitor
USBx1:.....Communicate with PC
Optional SNMP Card:.....Remote Communication

AGENCY COMPLIANCE

Safety: EN 60950-1, UL 60950-1, IEC 60950-1, CSA C22.2 No. 60950-1
EMC: EN 55022:1998
Certifications: UL, CE
RoHS: Compliant



MEDIA SYSTEM

2RU 3KVA INVERTER SYSTEM

- › Revolutionary 'GREEN' technology provides 93% system efficiency
- › Up to 3kVA/2.4kW of highly reliable, Telecom-grade AC power
- › 2RU shelf system provides high power density
- › Flexible mounting options for 19" or 23" box bay or open relay racks
- › Integration with Alpha's CXC controllers via CAN bus
- › Integrated 120 and 120/240V configuration with integrated distribution

Consult your Alpha representative for P/N configurations

NOMINAL SPECIFICATIONS

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 & inductive loads)

Transfer Time:Zero transfer time

Module MTBF:>200,000hrs

Warranty:1 year

INVERTER MODULE AC OUTPUT

Power Rating: 1500VA/1200W

Nominal Voltage: 120Vac

Voltage Accuracy: ±2%

Frequency: 60Hz (same as input frequency)

Inverter Frequency Accuracy: 0.03%

THD (resistive load): <1.5%

Transient Load Recovery Time: 0.4 ms

Soft Start Time: 30s

Maximum Crest Factor (nominal power): 3.1

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%

Synchronization Range: 57-63Hz

Heat Dissipation: 286 BTU per hour in AC-to-AC mode
410 BTU per hour in DC-to-DC mode

INVERTER MODULE INPUT

Nominal AC Voltage: 120Vac

Input Power Factor:>99%

Nominal DC Voltage:48Vdc

Maximum DC:
Voltage range:40-57Vdc (user adjustable)
Voltage ripple:<2mV/Psopho

MONITORING & CONTROL

- T2S Controller may be seamlessly integrated with Cordex CXC controller via CAN bus
- Dry contacts on shelf
- Status LEDs on modules

ENVIRONMENTAL

Temperature:
Operating (full load):-20 to 40°C (-4 to 104°F)
Storage:-40 to +70°C (-40 to 158°F)

Relative Humidity:Up to 95%, non-condensing

Operating Altitude:Up to 1500m (4,900ft) above sea level

MECHANICAL

Dimensions:
mm:89H x 448W x 317.5D
inches:3.5H x 17.65W x 12.5D

Weight: 12.7kg (28lbs) (including 2 x Media modules)

AGENCY COMPLIANCE

Safety: cUL_{US} 1778 Listed

Immunity: IEC 61000-4

Emission: FCC PART 15

UPS SELECTION CONSIDERATIONS

Uninterruptible Power Supply selection guide

To help us design an Uninterruptible Power Supply (UPS) solution for your specific application, please review the following questions prior to contacting your Alpha representative:

What is the type of application and what specific systems/devices will be backed up?

PBX, cell site, server, traffic, parking, security or other.

What are the environmental conditions?

- Indoor: Controlled environment, air conditioned, dust free
- Outdoor: Non-controlled environment: snow, rain, elevation, humidity, dust, etc.
- Minimum ambient temperature surrounding the UPS
- Maximum ambient temperature surrounding the UPS

Where will the UPS be located (country, city/town)?

What are the power requirements?

- Volt-amps (VA) or Watts required by load
- Input voltage to UPS and output voltage(s) to load(s)
- Frequency (Hz) 50 or 60
- Type of loads: Motor loads, inductive loads
- Advise inrush current if any

How much backup time is required?

- The amount of time in hours or minutes the UPS will operate on batteries when the utility power fails
- The expected frequency of utility power failures: eg., once/year, twice/month

How will the UPS be mounted?

- Indoor applications: rack, tower, wall
- Outdoor applications: pole, ground (is a pedestal required?), or wall

What are the input/output configuration requirements?

- Input plug type or terminal block
- Output receptacle type(s) or terminal block

Are any accessories required?

Bypass Switch (auto/manual), Ethernet/SNMP*, Battery Management System, Enclosures, Racks

What are your warranty/service needs?

Is extended warranty required? Periodic or special servicing needs? Installation/commissioning services?

What quantities are needed?

Number of units required and when

*Ethernet/SNMP communication is standard on some products



FXM 350

RUGGED UPS MODULE

- 350W/VA UPS module designed to operate in extreme environments; providing maximum flexibility while ensuring critical loads remain protected and running during power outages and other power disturbances
- Unsurpassed flexibility with dual 120Vac and 24Vac outputs
- Wide range Automatic Voltage Regulation (AVR) lengthens battery life by providing protection without transferring to backup mode during voltage surge or sag
- Local and remote monitoring and control via USB port and Ethernet SNMP interface
- Temperature compensated battery charging protects batteries from overcharging at extreme temperatures, extending the life of the battery
- Independently programmable control and report dry contacts allow monitoring and controlling of key functions

Consult your Alpha representative for P/N configurations

ELECTRICAL

| Model | 120Vac | 230Vac | |
|-------------------------------|--|---|---------------|
| Battery String Voltage | 48Vdc or 24Vdc | 24Vdc | |
| Nominal Voltage | 120Vac | 230Vac | |
| Frequency | 60/50Hz ±5% (auto-detection) | | |
| Input | Voltage range (w/o transferring to battery mode) | 88 to 152Vac | 151 to 282Vac |
| | Current: | FXM350-24: 5.3A FXM350-48: 5.7A | 2.7A |
| | Waveform | Pure sinewave | |
| | Nominal voltage | Dual 120Vac, 24Vac | 230Vac, 24Vac |
| Output | Voltage regulation at nominal input | ±10% on line mode, ±2% on inverter mode | |
| | Power at 55°C | 350W/VA Total | |
| | 24Vac: | 260W/VA (max) | |
| | 120Vac: | 350W/VA (max) | |
| Frequency | Output frequency = Input frequency | | |

MECHANICAL

Mounting:..... 19" or 23" rack with the addition of ears for rack mounting

Dimensions:
 mm:..... 88.14H x 342W x 198D
 inches: 3.5H x 13.46W x 7.8D

Weight: 8.62kg (19lbs)

ENVIRONMENTAL



Operating Temp Range*: -40 to 74°C (-40 to 165°F)
Humidity: Up to 95% (non condensing)
Altitude (m/ft): Up to 3700 (12,000)**
Audible Noise @ 25°C: 45dBa @ 1 meter (39in)
MTBF (hours): 150K + as per Telcordia SR-332, 100% duty cycle, full load
BTU/Hr: Normal mode: 9W/30.7BTU/hr
 Backup mode: 110W/675 BTU/hr

PERFORMANCE

Typical Output Voltage THD: ... <3% (resistive load)
Typical Efficiency: >96% (resistive load)
Typical Transfer Time: <5ms
Load Crest Factor: 3:1 (load dependent)

POWER CONNECTOR OPTIONS

120Vac Model

| | Input | Output |
|-----------------|--|--|
| Standard |  Terminal Block |  Terminal Block |

230Vac Model

| | | |
|-----------------|--|--|
| Standard |  Terminal Block |  Terminal Block |
|-----------------|--|--|

AGENCY COMPLIANCE

Electrical Safety: UL1778, CSA C22.2 No. 107.3, EN60950-1

Marks:  

EMI: CFR47, Part 15 Subpart B, Class A; CES-003, Class A; EN62040-2

*Derates after 55°C (131°F)

**Derates 2°C per 300m (1000ft) above 1400m (4500ft)

***CE applies to 230Vac version only



FXM 650

RUGGED UPS MODULE

- 650W/VA UPS module designed to operate in extreme environments and provide maximum flexibility while ensuring critical loads remain protected and running during outages and other power disturbances
- Wide range Automatic Voltage Regulation (AVR) lengthens battery life by providing protection without transferring to backup mode during voltage surge or sag
- Independently programmable control and report dry contacts allow monitoring and controlling of key functions
- Temperature compensated battery charging protects batteries from overcharging or undercharging at extreme temperatures, extending the life of the battery
- Local and remote monitoring and control via RS232 port and Ethernet SNMP interface

Consult your Alpha representative for P/N configurations

ELECTRICAL

| Model | 120Vac | 230Vac | |
|-------------------------------|--|---|---------------|
| Battery String Voltage | 24Vdc or 48Vdc | 24Vdc | |
| Nominal Voltage | 120Vac | 230Vac | |
| Frequency | 60/50Hz ±5% (auto-detection) | | |
| Input | Voltage range | 85 to 175Vac | 150 to 328Vac |
| | Current (@ nominal voltage and max battery charging current) | 8.7A | 4.5A |
| | Waveform | Pure sinewave | |
| Output | Nominal voltage | 120Vac | 230Vac |
| | Voltage regulation at nominal input | ±10% on line mode, ±2% on inverter mode | |
| | Power at 55°C | 650W/VA | |
| | Charge current | 10A max | |
| Frequency | Output frequency = Input frequency | | |

MECHANICAL

Dimensions:

mm:88H x 432W x 229D

inches:3.47H x 17W x 9D

Weight:11kg (25lbs)

ENVIRONMENTAL

Operating Temp Range*: -40 to 74°C (-40 to 165°F)

Humidity:Up to 95% (non condensing)

Altitude(m/ft):Up to 3700 (12,000)**

Audible Noise @ 25°C:45dBa @ 1 meter (39in)

MTBF (hours):150K + as per Telcordia

SR-332, 100% duty cycle, full load

BTU/Hr:Normal mode: 9W/30.71 BTU/hr

Backup mode FXM 650-48: 143W/488 BTU/hr

Backup mode FXM 650-24: 217W/740 BTU/hr

PERFORMANCE

Typical Output Voltage THD: ... <3% (resistive load)



Typical Efficiency:>98% (resistive load)

Typical Transfer Time:<5ms

Load Crest Factor:3:1 (load dependent)

POWER CONNECTOR OPTIONS

120Vac Model

| | Input | Output |
|----------|--|--|
| Standard |  Terminal Block |  Terminal Block |

230Vac Model

| | | |
|----------|--|--|
| Standard |  Terminal Block |  Terminal Block |
|----------|--|--|

AGENCY COMPLIANCE

Electrical Safety: UL1778, CSA 22.2 No 107.3-03, EN62040-1

Marks:  

EMI: CFR47, Part 15 Subpart B, Class A; CES-003 Class A; EN62040-2

*Derates after 55°C

**Derates 2°C per 300m (1000ft) above 1400m (4500ft)

**CE applies to 230Vac version only



FXM 1100

RUGGED UPS MODULE

- 1100W/VA UPS module designed to operate in extreme environments and provide maximum flexibility while ensuring critical loads remain protected and running during outages and other power disturbances
- Wide range Automatic Voltage Regulation (AVR) lengthens battery life by providing protection without transferring to backup mode during voltage surge or sag
- Independently programmable control and report dry contacts allow monitoring and controlling of key functions
- Temperature compensated battery charging protects batteries from overcharging or undercharging at extreme temperatures, extending the life of the battery
- Local and remote monitoring and control via RS232 port and Ethernet SNMP interface
- UPS panels can be rotated, improving usability and viewing convenience

Consult your Alpha representative for P/N

ELECTRICAL

| Model | 120Vac | 230Vac | |
|-------------------------------|--|---|---------------|
| Battery String Voltage | 48Vdc | 48Vdc | |
| Nominal Voltage | 120Vac | 230Vac | |
| Frequency | 60/50Hz ±5% (auto-detection) | | |
| Input | Voltage range | 85 to 175Vac | 150 to 328Vac |
| | Current (@ nominal voltage and max battery charging current) | 15.5A | 8A |
| | Waveform | Pure sinewave | |
| Output | Nominal voltage | 120Vac | 230Vac |
| | Voltage regulation at nominal input | ±10% on line mode, ±2% on inverter mode | |
| | Power at 55°C | 1100W/VA | |
| Frequency | Output frequency = Input frequency | | |

MECHANICAL

Dimensions:

mm:.....133H x 394W x 222D
 inches:5.22H x 15.5W x 8.75D
Weight:16kg (35lbs)

ENVIRONMENTAL

Operating Temp Range*: -40 to 74°C (-40 to 165°F)
Humidity:Up to 95% (non condensing)
Altitude(m/ft):.....Up to 3700 (12,000)**
Audible Noise @ 25°C:45dBa @ 1 meter (39in)
MTBF (hours):.....150K + as per Telcordia SR-332, 100% duty cycle, full load
BTU/Hr:Normal mode: 22W/75 BTU/hr
 Backup mode: 242W/825.75 BTU/hr

PERFORMANCE

Typical Output Voltage THD:... <3% (resistive load)
Typical Efficiency:..... >98% (resistive load)
Typical Transfer Time:..... <5ms
Load Crest Factor:..... 3:1 (load dependent)

POWER CONNECTOR OPTIONS

120Vac Model

| | Input | Output |
|-----------------|----------------|-----------------------------|
| Standard | Terminal Block | Terminal Block |
| Optional | Terminal Block | Terminal Block + Dual 5-15R |
| | IEC** | IEC** |

230Vac Model

| | | |
|-----------------|----------------|----------------|
| Standard | Terminal Block | Terminal Block |
|-----------------|----------------|----------------|

**FXM models with IEC connectors come with 4 lines LCD display instead of the traditional 2 lines display. Only available in Kit 0380009-003

AGENCY COMPLIANCE***

Electrical Safety: UL1778, CSA 22.2 No 107.3; EN62040-1

Marks: CE****

EMC: CFR47, Part 15 Subpart B, Class A; CES-003 Class A; EN62040-2

*Derates after 55°C

**Derates 2°C per 300m (1000ft) above 1400m (4500ft)

***Compliance only applies to units with standard input and output connectors.

Contact us for compliance information on models with optional power connectors

****CE applies to 230Vac version only

FXM 2000



RUGGED UPS MODULE

- 2000W/VA UPS module designed to operate in extreme environments and provide maximum flexibility while ensuring critical loads remain protected and running during outages and other power disturbances
- Wide range Automatic Voltage Regulation (AVR) lengthens battery life by providing protection without transferring to backup mode during voltage surge or sag
- Independently programmable control and report dry contacts allow monitoring and controlling of key functions
- Temperature compensated battery charging protects batteries from overcharging or undercharging at extreme temperatures, extending the life of the battery
- Local and remote monitoring and control via RS232 port and Ethernet SNMP interface
- UPS panels can be rotated, improving usability and viewing convenience

Consult your Alpha representative for P/N configurations

ELECTRICAL

| Model | 120Vac | 230Vac |
|------------------------|--|---|
| Battery String Voltage | 48Vdc | 48Vdc |
| Nominal Voltage | 120Vac | 230Vac |
| Frequency | 60/50Hz ±5% (auto-detection) | |
| Input | Voltage range | 85 to 152Vac |
| | Current (@ nominal voltage and max battery charging current) | 20A |
| | Waveform | Pure sinewave |
| Output | Nominal voltage | 120Vac |
| | Voltage regulation at nominal input | ±10% on line mode, ±2% on inverter mode |
| | Power at 50°C | 2000W/VA |
| Frequency | Output frequency = Input frequency | |

MECHANICAL

Dimensions:

mm: 133H x 394W x 222D
 inches: 5.22H x 15.5W x 8.75D

Weight: 16kg (35lbs)

ENVIRONMENTAL



Operating Temp Range*: -40 to 74°C (-40 to 165°F)
Humidity: Up to 95% (non condensing)
Altitude(m/ft): Up to 3700 (12,000)**
Audible Noise @ 25°C: 45dBa @ 1 meter (39in)
MTBF (hours): 150K + as per Telcordia SR-332, 100% duty cycle ,full load
BTU/Hr: Normal mode: 41W/140 BTU/hr
 Backup mode: 439W/1498 BTU/hr

PERFORMANCE

Typical Output Voltage THD: ... <3% (resistive load)
Typical Efficiency: >98% (resistive load)
Typical Transfer Time: <5ms
Load Crest Factor: 3:1 (load dependent)

POWER CONNECTOR OPTIONS

120Vac Model

| | Input | Output |
|----------|--|--|
| Standard |  Terminal Block |  Terminal Block |

230Vac Model

| | | |
|----------|--|--|
| Standard |  Terminal Block |  Terminal Block |
|----------|--|--|

AGENCY COMPLIANCE

Electrical Safety: UL1778, CSA 22.2 No 107.3; EN62040-1

Marks:   ***

EMC: CFR47, Part 15 Subpart B, Class A; CES-003 Class A; EN62040-2

*120Vac module derates after 50°C (122°F). 230Vac module derates after 55°C (131°F)

**Derates 2°C per 300m (1000ft) above 1400m (4500ft)

***CE applies to 230Vac version only

MICRO 100



RUGGED UPS SYSTEM

- › Integrated, compact rugged UPS featuring all weather protection with durable outdoor NEMA 3R rated plastic enclosure
- › Enhanced battery life with wide-range Automatic Voltage Regulation
- › Local monitoring and control through USB port or remotely via SNMP Ethernet interface*
- › Independently programmable relays allow monitoring and controlling of key functions
- › Simplified troubleshooting through event and alarm logging with time and date stamping
- › Maximum mounting flexibility for accommodation of space requirements**
- › Magnetic circuit breakers at input and battery for additional protection

Consult your Alpha representative for P/N configurations

ELECTRICAL

North America

Battery String Voltage: ..24Vdc

Input:

Nominal voltage: 120Vac
 Nominal frequency: 60Hz
 Current: 2.0A (@ nominal voltage and max battery charging current)
 Voltage range: 85 to 150Vac

Output:

Voltage: 120Vac
 Current: 0.83A @ 120Vac

Power at 50°C: 100 W/VA Total

International

Battery String Voltage: ..24Vdc

Input:

Nominal voltage: 230Vac
 Nominal frequency: 50Hz
 Current: 1.0A (@ nominal voltage and max battery charging current)
 Voltage range: 154 to 323Vac

Output:

Voltage: 230Vac
 Current: 0.43A @ 230Vac

Power at 50°C: 100 W/VA Total

COMMUNICATION INTERFACE

Ports: USB-B Female: Local Communication
 Optional RJ45: Remote Communication

Indicators: Green & Red LED's

Solid Green: Line Mode
 Flashing Green: Inverter Mode
 Flashing Red: Alarm Solid Red: Fault

Dry Contacts: 2 x Programmable NO/NC (250Vac, 1A)

Factory Default:

C1: On Battery
 C2: Low Battery

MECHANICAL

Dimensions:

mm: 292H x 381W x 152D
 inches: 11.5H x 15W x 6D

Weight (4 x 9Ah Batteries): 20.4kg (45lbs)

ENVIRONMENTAL

Temperature*: -40 to 50°C (-40 to 122°F)

ROHS Compliance: Yes excluding batteries**

Enclosure Rating: NEMA 3R

PERFORMANCE

Typical Output Voltage THD: <3% (resistive load)

Typical Transfer Time: <5ms

Run Time***:

- 20W - 6 hrs
- 50W - 3 hrs 30 min
- 70W - 2 hrs 40 min
- 100W - 2 hrs

AGENCY COMPLIANCE

Electrical Safety: UL1778, CSA C22.2 No. 107.3; EN62040-1

Marks:  

EMC: CFR47, Part 15 Subpart B, Class A; CES-003 Class A; EN62040-2

*Requires heater mat at lower temperatures

**Batteries exempt as per Directive 2006/66/EC

***Using 4 x 9AH batteries @ 25°C. Actual runtime may vary based on ambient temperature and age of the batteries

****CE applies to 230Vac version only

MICRO 1000



RUGGED UPS SYSTEM

- Compact, integrated UPS system provides clean, uninterruptable backup power
- Wide range Automatic Voltage Regulation without going to batteries extends battery life, even during periods of surge or sag in voltage from utility power
- External communications via RS-232 port or (optional) Ethernet SNMP interface provides local or remote monitoring control
- Independently programmable control and report relays allow tracking and controlling of key functions
- Event and alarm logging with time and date stamping simplifies and accelerates troubleshooting
- A wide operating temperature range of -40 to 74°C (-40 to 165°F)* is suitable for the most extreme operating environments
- Temperature compensated battery charging protects batteries from over charging at extreme temperatures

Consult your Alpha representative for P/N configurations

ELECTRICAL

| Model | 120Vac | 230Vac |
|--|--|---|
| Battery String Voltage | 48Vdc | |
| Nominal Voltage | 120Vac | 230Vac |
| Frequency | 60Hz | 50Hz |
| Input | | |
| Voltage range | 85 to 152Vac | 150 to 328Vac |
| Current (@ nominal voltage and max battery charging current) | Micro: 14.46A MicroXL: 14.92A MicroXL3: 15.84A | Micro: 7.44A MicroXL: 7.68A MicroXL3: 8.16A |
| Output | | |
| Voltage regulation at nominal input | ±10% on line mode, ±2% on inverter mode | |
| Power at 50°C | 1000W/VA | |




ENVIRONMENTAL

Temperature Range:..... -40 to 74°C (-40 to 165°F)*
Humidity: 15% to 95% RH non condensing
Audible Noise@25°C:..... <45dBa @ 1 meter (39in)
Enclosure Rating:..... NEMA 3R

PERFORMANCE / FEATURES

Typical Output Voltage THD: <3% (resistive load)
Typical Efficiency:..... >98% (resistive load)
Typical Transfer Time:..... <5ms
Run Time @25°C:**..... 4 x 55Ah batteries - 1 hrs 15 mins (Micro XL)

MECHANICAL

| Alpha Micro | | |
|---|-------------------------------|------------------------------|
|  | Dimensions | mm 500H x 358W x 294D |
| | | inches 19.7H x 14.1W x 11.6D |
| | Weight (w/o batteries) | 19.7kg (43.4lbs) |
| Alpha Micro XL | | |
|  | Dimensions | mm 776H x 358W x 294D |
| | | inches 30.6H x 14.1W x 11.6D |
| | Weight (w/o batteries) | 19.7kg (49.8lbs) |
| Alpha Micro XL3 | | |
|  | Dimensions | mm 1330H x 358W x 294D |
| | | inches 52.4H x 14.1W x 11.6D |
| | Weight (w/o batteries) | 22.6kg (69.2lbs) |

AGENCY COMPLIANCE

Electrical Safety: UL1778, CSA C22.2 No. 107.3; EN62040-1

Marks:  

EMC: CFR47, Part 15 Subpart B, Class A; CES-003 Class A; EN62040-2

* This applies to the UPS module only. Batteries may require a heater mat at lower temperatures. Output power derates after 50°C

**Run time on battery power can vary based on loads, temperature and battery. Other battery options are available.

***CE applies to 230Vac version only

ALPHA MICRO 300-12



UPS AND ENCLOSURE

- › Compact, integrated UPS system designed to operate in extreme environments
- › Provides maximum flexibility while ensuring critical loads remain protected and running during power outages
- › Wide range Automatic Voltage Regulation (AVR) lengthens battery life by providing protection without transferring to backup mode during voltage surge or sag
- › Local and remote monitoring and control via RS232 port and optional Ethernet SNMP interface
- › A wide operating temperature range of -40 to 60°C (-40 to 140°F) is suitable for most OSP operating environments¹
- › Can power up to four (4) loads, up to 50W each while occupying a small 20" x 14" footprint
- › Temperature compensated battery charging protects batteries from overcharging at extreme temperatures, extending the life of the battery

P/N: 017-237-27***

ELECTRICAL

Battery String Voltage: ...24Vdc

Input:

Nominal voltage: 120Vac
 Nominal frequency: 60Hz
 Current: 3.6A nominal, 5.4A max
 Voltage range: 85 to 152Vac

Output:

Voltage: 12Vdc
 Current: 16Adc (4 x 4A)
 Voltage regulation: ±1.5%
 Power @ 50°C: 200W (4 x 50W)

COMMUNICATION INTERFACE

Display: 2 x 20 backlit alpha-numeric LCD
Ports: DE-9 Female: Local RS232 Communication
 RJ45: Remote Communication
 RJ11: Battery Temperature Compensation

Indicators:

Solid Green: Line Mode
 Flashing Green: Inverter Mode
 Flashing Red: Alarm
 Solid Red: Fault

Dry Contacts: 2x Programmable NO/NC (250Vac, 1A),
 3x User inputs, ATS

Factory Default:

- C1: On Battery
- C2, C3: Low Battery
- C4: Load Shed Timer 1
- C5: Alarm
- C6*: 24Vdc @ 500mA
- C7: User Inputs
- S1: Self test
- S2: User Input
- S3: Shutdown(EPO)
- C8: ATS

PERFORMANCE / FEATURES

Run Time:** 2 x AlphaCell 100XTV (55Ah) >2 hrs @ 25°C

MECHANICAL

Alpha Micro



| | | |
|-------------------|--------|-----------------------|
| Dimensions | mm | 500H x 358W x 294D |
| | inches | 19.7H x 14.1W x 11.6D |

Weight (w/o batteries) 19.7kg (43.4lbs)

Alpha Micro XL



| | | |
|-------------------|--------|-----------------------|
| Dimensions | mm | 776H x 358W x 294D |
| | inches | 30.6H x 14.1W x 11.6D |

Weight (w/o batteries) 19.7kg (49.8lbs)

Alpha Micro XL3



| | | |
|-------------------|--------|-----------------------|
| Dimensions | mm | 1330H x 358W x 294D |
| | inches | 52.4H x 14.1W x 11.6D |

Weight (w/o batteries) 22.6kg (69.2lbs)

AGENCY COMPLIANCE

Electrical Safety: UL1778, CSA 22.2 No. 107.3

Marks: 

NEMA: 3R

*C6 is factory configurable only

**Runtime is contingent upon load profile, battery age and ambient temperature.

***Batteries not included. For XL and XL3 configurations, consult your Alpha representative.

1. This applies to the UPS module only. Batteries may require a heater mat at lower temperatures. Output power derates after 60°C.


ALPHA TRAFFIC MINI BBS



MINI BATTERY BACKUP SYSTEMS

- Consolidated battery backup system (BBS) designed to power ATC, NEMA M, P & 336 (or similar style) traffic controller cabinets
- Ideal solution for space constraint applications providing >4 hours of battery runtime*
- Self-contained UPS, factory wired, tested and ready to install, reducing installation time and cost**
- Alpha's "No Worries" 5 Year Warranty full replacement with AlphaCell™ 100XTV batteries
- Compact, integrated 350W or 1000W battery backup system, utilizing the same design and similar features of the highly successful and reliable FXM series UPS

| NOMINAL SPECIFICATIONS | | |
|--|--|--|
| Model | Traffic Mini 350 BBS | |
| P/N | 0170021-040 | |
| | Traffic Mini 1000 BBS | |
| | 0170021-010 | |
| ELECTRICAL | | |
| System Input Voltage | 120Vac | 120Vac |
| Input Current Rating*** | 5.3A | 14A |
| Input Frequency | 50/60Hz ±5% (Autosense) | 50/60Hz ±5% (Autosense) |
| AVR Range | 88-152Vac | 85-169Vac |
| System DC Voltage | 24Vdc | 48Vdc |
| Max Charge Current | 6A DC | 10A DC |
| System Output Voltage | 120Vac | 120Vac |
| Output Power@ 50°C | 350W | 1000W |
| Output Frequency (Hz) | Output frequency = Input frequency | Output frequency = Input frequency |
| Output Voltage Regulation at nominal input | ±10% Line Mode ±2% Inverter Mode | ±10% Line Mode ±2% Inverter Mode |
| Output Waveform | Pure Sine Wave | Pure Sine Wave |
| MECHANICAL | | |
| Dimensions | in | 34H x 16W x 12D |
| | mm | 864H x 406W x 305D |
| Weight (w/o batteries) | 65lbs (29.5kg) | 55lbs (25kg) |
| Construction | Aluminum, 5052-H32 (High strength corrosion resistance) | |
| Finish | Natural Aluminum | Natural Aluminum |
| Cable Entrance | Bottom or Rear | Bottom or Rear |
| Mounting | Side mount, Optional - wall, pole or pedestal kit available | |
| Access | Removable bottom shelf for easy wiring access | |
| AC Input Connections AWG | Terminal blocks #14 to #6 AWG (2.08 to 13.3mm ²) | Terminal blocks #14 to #6 AWG (2.08 to 13.3mm ²) |
| AC Output Connections AWG | Terminal blocks #14 to #6 AWG (2.08 to 13.3mm ²) | Terminal blocks #14 to #6 AWG (2.08 to 13.3mm ²) |
| Dry Contact AWG | Terminal blocks #26 to #12 AWG (0.2 to 2.5mm ²) | Terminal blocks #26 to #12 AWG (0.2 to 2.5mm ²) |

| Model | Traffic Mini 350 BBS | Traffic Mini 1000 BBS |
|--------------------------------|--|--|
| P/N | 0170021-040 | 0170021-010 |
| COMMUNICATION INTERFACE | | |
| Display | 2 x 20 backlit alpha-numeric LCD | 2 x 20 backlit alpha-numeric LCD |
| Ports | USB-B: Local Communication RJ45: Remote Communication RJ11: Battery Temperature Compensation | RS232: Local Communication RJ45: Remote Communication RJ11: Battery Temperature Compensation |
| Indicators | Green & Red LED's Solid Green: Line Mode Flashing Green: Inverter Mode Flashing Red: Alarm Solid Red: Fault | Green & Red LED's Solid Green: Line Mode Flashing Green: Inverter Mode Flashing Red: Alarm Solid Red: Fault |
| Dry Contact | 2 x Programmable NO/NC (250Vac, 1A), 2 x user inputs | 5 x Programmable NO/NC (250Vac, 1A), 1 x 48Vdc/500mA, 3 x user inputs, 1 x ATS |
| ENVIRONMENTAL | | |
| Temperature | Operating | -40 to 74°C (-4 to 165°F)**** |
| | Storage | -40 to 75°C (-40 to 167°F) |
| Relative Humidity | Up to 95%, non-condensing | Up to 95%, non-condensing |
| Altitude | Operating: Up to 2000m (6562ft) above sea level | Operating: Up to 2000m (6562ft) above sea level |
| PERFORMANCE | | |
| Typical Output Voltage THD | <3% (resistive load) | <3% (resistive load) |
| Typical Efficiency***** | 96% | 92% |
| Load Crest Factor | 3:1 (load dependent) | 3:1 (load dependent) |
| AGENCY COMPLIANCE | | |
| Electrical Safety | UL1778, CSA 22.2 No 107.3, UL 60950-1, CSA-C22.2 60950-1 | |
| Marks |  | |
| EMC | CFR47, Part 15 Subpart B, Class A; CES-003 Class A | |
| NEMA | 3R | 3R |

STANDARD SYSTEM CONFIGURATION

- 0.125" Thick Natural Aluminum Enclosure
- 350 or 1000W UPS Module
- Universal Automatic Transfer Switch
- Battery Cable Kit - ¼" Ring Lug
- Document Holder
- Door Filter
- Tamper Switch
- ADD AlphaCell Batteries - 4 x 100 XTV (Mini 1000 BBS) or 2 x 220 GXL (Mini 350 BBS)

OPTIONAL ACCESSORIES

- Remote Battery Monitoring System
- Battery Heater Mats
- Mounting Brackets - Pole or Wall
- Pedestal Mounting Kit

*Runtime calculated with 450W resistive load with 4 x AlphaCell 100XTV at 25°C

**Excluding batteries

***@ nominal input voltage and maximum battery charging current

****Power module only. Output power derates above 50°C

*****Efficiency is measured at an ambient temperature of 25°C, full resistive condition and nominal line and battery voltage



CONTINUITY 1000-3000

CONVERTIBLE INDOOR ON-LINE UPS SERIES

- › Feature rich on-line UPS series with rack/tower convertible design and rotating LCD panel enabling easy integration into a wide variety of applications and locations
- › Wide input power frequency and voltage window accommodates broad operating range for different working requirements
- › Advanced digital control technology achieves higher reliability and greater immunity from utility power problems
- › Emergency shutdown control through EPO complies with national safety regulations and local code
- › Programmable receptacles enable flexible power backup
- › Powerful built-in charger shortens battery charging time and extends runtime
- › Hot swappable battery allows replacement without interruption to critical loads

| NOMINAL SPECIFICATIONS | | | |
|---|--|--|--|
| Model | Continuity 1000 | Continuity 2000 | Continuity 3000 |
| 120Vac P/Ns* | 0170009 | 0170010 | 0170011 |
| INPUT | | | |
| Voltage Window | 60~144Vac for 120V system | 60~144Vac for 120V system | 60~144Vac for 120V system |
| Frequency | 50/60 ±5% (Auto Sensing) | 50/60 ±5% (Auto Sensing) | 50/60 ±5% (Auto Sensing) |
| Phase/Wire | Single, Line + Neutral + Ground | Single, Line + Neutral + Ground | Single, Line + Neutral + Ground |
| Power Factor | >0.99 (Full Load) | >0.99 (Full Load) | >0.99 (Full Load) |
| OUTPUT | | | |
| Voltage | 100/110/115/120/127Vac | 100/110/115/120/127Vac | 100/110/115/120/127Vac |
| Voltage Regulation | <±1% until low battery warning | <±1% until low battery warning | <±1% until low battery warning |
| Capacity | 1000VA/800W | 2000VA/1600W | 3000/2400W |
| Power Factor | 0.8* Lagging | 0.8* Lagging | 0.8* Lagging |
| Wave Form | Sine Wave, THD<3% (no load to full load) | Sine Wave, THD<3% (no load to full load) | Sine Wave, THD<3% (no load to full load) |
| Frequency Stability | ±0.1% unless synchronized to line | ±0.1% unless synchronized to line | ±0.1% unless synchronized to line |
| Frequency Regulation | 3Hz or 1Hz (Setting by software) | 3Hz or 1Hz (Setting by software) | 3Hz or 1Hz (Setting by software) |
| Transfer Time | 0 m sec | 0 m sec | 0 m sec |
| Crest Factor | 3:1 | 3:1 | 3:1 |
| Efficiency (AC to AC) | >85% | >85% | >88% |
| Autonomy (80% load) | 7.9 mins | 7.9 mins | 6.5 mins |
| DC Start | Yes | Yes | Yes |
| BATTERY | | | |
| Type | Sealed Lead Acid Maintenance Free | Sealed Lead Acid Maintenance Free | Sealed Lead Acid Maintenance Free |
| Capacity | 7Ah | 7Ah | 9Ah |
| Quantity | 3 | 6 | 6 |
| Voltage | 36Vdc | 72Vdc | 72Vdc |
| Recharge Time | 4 hours to 90% | 4 hours to 90% | 4 hours to 90% |
| Built-in Charger (max. charging current) | 1.8A | 2.1A | 2.7A |

*Consult your Alpha representative for 230Vac P/Ns

| Model | Continuity 1000 | Continuity 2000 | Continuity 3000 | |
|--|---|---|--------------------------------|----------------------------------|
| DISPLAY | | | | |
| LCD | Normal, Battery, Bypass, Programmable Outlet 1, Programmable Outlet 2, Self-Test, Battery Weak & Bad, Site Wiring Fault, Fault Overload, and Load/Battery Level conditions. | | | |
| Key | On button/Off button (Test / Alarm silence button) | | | |
| Self-Diagnostics | Upon Power On and Software Control | | | |
| Communication Slots | Relay contact board or SNMP card | | | |
| PROTECTION | | | | |
| Overload AC Mode & Backup Mode (delay before switching to bypass) | <105% continuously. >106%~120% for 30 seconds transfer to bypass >121%~150% for 10 seconds transfer to bypass | >150% Buzzer continuously alarms • AC mode: immediately transfer to bypass • Backup mode: immediately shutdown | | |
| Bypass Mode | <105% continuously. >106%~120% for 250 seconds shut down >121%~130% for 125 seconds shut down >131%~135% for 50 seconds shut down >136%~145% for 20 seconds shut down >146%~148% for 5 seconds shut down | >149%~157% for 2 seconds shut down >158%~176% for 1 seconds shut down >177%~187% for 0.32 seconds shut down >188% for 0.16 seconds shut down Buzzer continuously alarms | | |
| Overheat | AC Mode: Switch to Bypass; Backup Mode: UPS shuts down immediately | | | |
| Battery Low | Alarm and Switch Off | Alarm and Switch Off | Alarm and Switch Off | |
| EPO | UPS shuts down immediately | UPS shuts down immediately | UPS shuts down immediately | |
| Battery | Advanced Battery Discharge Management (ABDM) | | | |
| Noise Suppression | 115V System | 400 Joules | 400 Joules | |
| | 230V System | 300 Joules | 300 Joules | |
| ALARMS | | | | |
| Audible & Visual | Line Failure, Battery Low, Overload, System Fault Conditions | | | |
| MECHANICAL | | | | |
| Dimensions | mm | 440W x 88H x 405D | 440W x 88H x 650D | 440W x 88H x 650D |
| | inches | 17.3W x 3.5H x 16D | 17.3W x 3.5H x 25.6D | 17.3W x 3.5H x 25.6D |
| Input Connector | 5-15P | | 5-20P | L5-30P |
| Outlets 120Vac | 6 x NEMA 5-15R | | 2x5-15R + 2 x 5-20R | 4x5-15R + 1xL5-30R |
| Outlets 230Vac | 6 x IEC320-C13 | | 6 x IEC320-C13 | 4 x IEC320-C13 1 x IEC320-C19 |
| Net Weight | 15.1kg (33.3lbs) | | 27.9kg (61.5lbs) | 29.7kg (65.4lbs) |
| ENVIRONMENT | | | | |
| Operating Temperature | 0-40°C (32-104°F)** | | 0-40°C (32-104°F)** | 0-40°C (32-104°F)** |
| Altitude | 0~1000m/3300ft without deriding | | | |
| Humidity | 90% RH Maximum, Non-Condensing | | 90% RH Maximum, Non-Condensing | 90% RH Maximum, Non-Condensing |
| Noise | <50dB (at 1m/3.3ft) | | <50dB (at 1m/3.3ft) | <50dB (at 1m/3.3ft) |
| BTU/hr | 124 | | 247 | 371 |
| COMPUTER INTERFACE | | | | |
| Interface Type | Standard RS232 and USB | | Standard RS232 and USB | Standard RS232 and USB |
| Communication Slot | Dry Contact Card or SNMP card | | Dry Contact Card or SNMP card | Dry Contact Card or SNMP card |
| AGENCY COMPLIANCE | | | | |
| Safety Standard | EN62040-1 complied | | EN62040-1 complied | EN62040-1 complied |
| Performance | EN62040-3 complied | | EN62040-3 complied | EN62040-3 complied |
| EMC Standard | EN62040-2, EN61000-3-2, EN61000-3-3, FCC Class A | | | |
| Marks | CE***, UL, cUL, FCC | | | |
| BATTERY PACK | | | | |
| Model | BP Continuity 1000 | BP Continuity 2000 | BP Continuity 3000 | |
| P/Ns | 0320004-001 | 0320005-001 | 0320006-001 | |
| Battery Type | 7Ah | | 9Ah | |
| Output Voltage | 36Vdc | | 72Vdc | |
| Battery Quantity | 12pcs | | 12pcs | |
| Unit Weight | 38kg (83.8lbs) | | 44.6kg (83.8lbs) | |
| Dimensions | mm | 88H x 440W x 650D | 88H x 440W x 650D | 88H x 440W x 650D |
| | inches | 3.5H x 17.3W x 25.6D | 3.5H x 17.3W x 25.6D | 3.5H x 17.3W x 25.6D |

*Based on load (%) - 0~33/33~66/66~100% respectively.

**Operation 0~3°C (54°F) if the power factor is at 0.8.

***CE applies to 230Vac units only. Specifications are subject to change without prior notice.



CONTINUITY 6000-10,000

INDOOR ON-LINE UPS SERIES

- › Feature rich on-line UPS series with superior output power factor, enabling energy efficient system performance
- › Smart ECO mode allows automatic transfer to inverter supply, maximizing efficiency
- › LCD / LED display panel provides user-friendly interface to UPS
- › Emergency shutdown control through EPO complies with national safety regulations and local code
- › Hot swappable battery allows replacement without interruption to critical loads

| NOMINAL SPECIFICATIONS | | |
|--|--|--|
| Models | Continuity 6K | Continuity 10K |
| P/N | 0170012 | 0170013 |
| INPUT | | |
| Voltage Window | 160~280Vac | 160~280Vac |
| Frequency | 45-65Hz | 45-65Hz |
| Phase/Wire | Single, Line + Ground | Single, Line + Ground |
| Power Factor | Up to 0.99 at 100% Linear Load | Up to 0.99 at 100% Linear Load |
| Current THD (100% linear load) | <7% | <7% |
| OUTPUT | | |
| Voltage Window | 200/208/220/240Vac Selectable (208/120Vac* optional) | 200/208/220/240Vac Selectable (208/120Vac* optional) |
| Voltage Adjustment | Nominal +1%, +2%, +3%, -1%, -2% or -3% | Nominal +1%, +2%, +3%, -1%, -2% or -3% |
| Voltage Regulation | ±1% | ±2% |
| Capacity | 6000VA/5400W | 10000VA/9000W |
| Rated Power Factor | 0.9 Lagging | 0.9 Lagging |
| Wave Form | Sine Wave, THD<3% (no load to full load) | Sine Wave, THD<3% (no load to full load) |
| Frequency Stability | ±0.2% (Free Running) | ±0.2% (Free Running) |
| Frequency Regulation | ±1Hz; ±3Hz | ±1Hz; ±3Hz |
| Transfer Time | 0ms | 0ms |
| Crest Factor | 3:1 | 3:1 |
| Efficiency (AC to AC, normal) | Up to 90% | Up to 90% |
| Efficiency (AC to AC, ECO) | Up to 95% | Up to 95% |
| Autonomy (80% load with 1 external battery pack) | 7.1 mins (no internal batteries in UPS) | 4.8 mins (no internal batteries in UPS) |
| DC Start | Yes | Yes |

*120Vac output requires optional transformer module

| Model | Continuity 6K | Continuity 10K |
|--|---|---|
| DISPLAY | | |
| Status On LED + LCD | Line Mode, Backup Mode, ECO Mode, Bypass Supply, Battery Low, Battery Bad/Disconnect, Overload, Transferring with interruption & UPS Fault. | |
| Readings on LCD | Input Voltage, Input Frequency, Output Voltage, Output Frequency, Load Percentage, Battery Voltage & Inner Temperature. | |
| Self-diagnostics | Upon Power-on, Front Panel Setting & Software Control, 24-hour routine checking | |
| ALARMS | | |
| Audible & Visual | Line Failure, Battery Low, Transfer to Bypass, System Fault Conditions | |
| PROTECTION | | |
| Overload (w/simulated thermal tripping I-T Curve) | Inverter Supply: 105%~150% for 160 seconds ~ 2 cycles before switching bypass. Bypass Supply: 105%~200% for 500 seconds ~8 cycles before stopping supply load. | |
| Short Circuit | Switch off Immediately | Switch off Immediately |
| Overheat | AC Mode | Switch to Bypass |
| | Backup Mode | Switch off the UPS |
| Battery Low | Alarm and Switch Off | Alarm and Switch Off |
| Noise Suppression | Complies with EN62040-2 | Complies with EN62040-2 |
| Spike Suppression | Complies with EN61000-4-5 | Complies with EN61000-4-5 |
| Heat dissipation (at full linear load) | w/o Isolated Transformer Module | <467W |
| | w/ Isolated Transformer Module | <715W |
| Leakage Current | <3mA at Full Load | <3mA at Full Load |
| MECHANICAL | | |
| Dimensions | mm | 88H x 440W x 680D |
| | inches | 3.46H x 17.3W x 26.8D |
| Input/Output Connection | Hardwire | Hardwire |
| External Battery Connection | Plug-in & Play | Plug-in & Play |
| Net Weight | 24kg (52.9lbs) | 26.0kg (57.3lbs) |
| ENVIRONMENT | | |
| Operating Temperature | 0-40°C (32-104°F) | 0-40°C (32-104°F) |
| Temperature Warning | The battery design life is based on a temperature of 25°C (77°F), Ambient temperature above this range will affect battery life | |
| Altitude | 0~1000M/3300ft without deriding | |
| Humidity | 90% RH Maximum, Non-Condensing | 90% RH Maximum, Non-Condensing |
| Noise | <50dB (at 1M/3.3ft) | <60dB (at 1M/3.3ft) |
| COMPUTER INTERFACE | | |
| Interface Type | Standard RS232 | Standard RS232 |
| Communication Slot | 2nd RS232, USB, RS485, Dry Contact Card or SNMP Card | |
| AGENCY COMPLIANCE | | |
| Safety Standard | EN62040-1-1, UL1778 | |
| EMC Standard | EN62040-2, EN61000-3-2, EN61000-3-3, FCC Class A | |
| Marks | cUL, UL | |
| BATTERY PACK | | |
| Model | BP Continuity 6K | BP Continuity 10K |
| P/Ns | 0320007-001 | 0320008-001 |
| Battery Type | 7Ah | 9Ah |
| Battery Quantity | 20pcs | 20pcs |
| Output Voltage | 240Vdc | 240Vdc |
| Unit Weight | 54.2kg (119.49lbs) | 65.2kg (143.74lbs) |
| Dimensions | mm | 132H x 440W x 680D |
| | inches | 5.2H x 17.3W x 26.8D |
| STEP-DOWN TRANSFORMER | | |
| Model | Continuity 6K Transformer | Continuity 10K Transformer |
| P/Ns | 7400117 | 7400118 |
| Input Voltage | 208Vac | 208Vac |
| Output Voltage | Configurable 120Vac or 120/208Vac or 120/240Vac | Configurable 120Vac or 120/208Vac or 120/240Vac |
| Unit Weight | 42kg (92.6lbs) | 53kg (116.84lbs) |
| Dimensions | mm | 88H x 440W x 680D |
| | inches | 3.46H x 17.3W x 26.8D |

BYPASS SWITCH WITH ELECTRICAL INTERLOCK



WALL MOUNT EXTERNAL MAINTENANCE BYPASS SWITCH

- › Simple, safe and reliable means for bypassing UPS while maintaining continuity of power to critical AC loads
- › Electrical interlock (with lock out) prevents accidental operation with non synchronized input and output; protecting downstream equipment
- › Padlock safety feature to lock the switch in bypass mode during UPS service
- › Electromechanical manual override feature, with key switch for emergency situations
- › Auxiliary contacts for remote monitoring
- › Seamless integration with Alpha AMPS HP2 systems

| NOMINAL SPECIFICATIONS | | | | | |
|--|--|-------------------------------|-------------------------------|--|-------------------------|
| P/N | 0200220-INT | | 0200221-INT | 0200222-INT | 0200223-INT |
| ELECTRICAL | | | | | |
| System Input Voltage | 120 Single Phase (or) 120/208Vac 2-Pole (or) 120/240Vac Split-Phase | | 120/208Vac 3-Phase | 120/208Vac 2-Pole (or) 120/240Vac Split-Phase | 120/208Vac 3-Phase |
| Current Rating | 100A | | 100A | 200A | 250A |
| Short Circuit Current Rating (Utility Feed kAIC) | 5 | | 5 | 10 | 10 |
| Switches* | L1 & L2 | | L1, L2 & L3 | L1 & L2 | L1, L2 & L3 |
| Internal Fuse (Utility Feed) | None | | None | 2 x 400A | 3 x 400A |
| MONITORING | | | | | |
| UPS/Utility lamps, Dry Contacts, UPS in Bypass Indicator | | | | | |
| MECHANICAL | | | | | |
| Dimensions | in | 20H x 20W x 11D | 24H x 20W x 14D | 36H x 30W x 14D | 42H x 30W x 14D |
| | mm | 508H x 508W x 279.4D | 609.6H x 508W x 355.6D | 914.4H x 762W x 355.6D | 1066.8H x 762W x 355.6D |
| Weight with Pallet | 86 lbs | | 109 lbs | 237 lbs | 288 lbs |
| AC Connections | #2 to 4/0 AWG | | #2 to 4/0 AWG | #2 to 250mcm (dual) AWG | #1 to 500mcm (dual) AWG |
| Aux Connections | #10-20 AWG | | #10-20 AWG | #10-20 AWG | #10-20 AWG |
| ENVIRONMENTAL | | | | | |
| Temperature | Operating: -25 to 50°C (-13 to 122°F) Storage: -40 to 75°C (-40 to 167°F) | | | | |
| Relative Humidity | Up to 95%, non-condensing | | | | |
| Altitude | Operating: Up to 3,858m (12,000ft) above sea level Storage: Up to 4,572m (15,000ft) above sea level | | | | |
| AGENCY COMPLIANCE | | | | | |
| Safety | UL/UL 508A | | | | |
| SELECTION GUIDE | | | | | |
| P/N | 0200220-INT (100A, 2-Pole) | 0200221-INT (100A, 3-Pole) | 0200222-INT (200A, 2-Pole) | 0200223-INT (250A, 3-Pole) | |
| AMPS HP2 Medium 10 kVA | X | | | | |
| AMPS HP2 Medium 20 kVA | X | | | | |
| AMPS HP2 Medium 30 kVA | | X | | | |
| AMPS HP2 Large 40 kVA | | | X | | |
| AMPS HP2 Large 68kVA N+1 | | | | | X |

*Neutral is not switched

ALPHA TRANSFER SWITCHES

OUTDOOR SOLUTIONS



Automatic Transfer Switch

UATS

- 120V/30A
- 230V/16A

Alpha's Universal Automatic Transfer Switch is designed as a three stage bypass switch that allows for the UPS to be bypassed and still maintain the ability to keep batteries fully charged.

It acts as a fail-safe device by switching the critical load to the utility line should a fault occur in the UPS. The UATS ensures that clean power is always provided to the critical load, ensuring that your mission-critical equipment always remains running in the event of an outage. This transfer switch also includes a standard manual bypass switch which eliminates costly equipment downtime while servicing the UPS or replacing the batteries.

Dimensions: mm: 81H x 135W x 152D
inches: 3.25H x 5.3W x 6.0D

Mounting options: Wall, shelf or single side rack mount



Automatic Generator Transfer Switch

UGTS

- 120V/30A
- 230V/16A

Alpha's Universal Automatic Generator Transfer Switch automatically transfers the input to the UPS from the utility line to a portable AC generator.

The UGTS allows the generator to recharge the batteries and ensure your mission - critical equipment remains in operation during extended power outages. For manually connecting or disconnecting a generator, a standard switch is included.

Dimensions: mm: 81H x 135W x 152D
inches: 3.25H x 5.3W x 6.0D

Mounting options: Wall, shelf or single side rack mount



Alpha Maintenance Bypass Switch

ALPHA MAINTENANCE BYPASS SWITCH

- 120V
- 230V OPTION NOT AVAILABLE

Alpha's Maintenance Bypass Switch allows the user to manually bypass the UPS system to safely perform service or routine maintenance.

When working in conjunction with the Alpha U-ATS, the manual-only maintenance bypass switch can be installed into the traffic controller cabinet, allowing for the complete UPS system to be bypassed for safe emergency replacement.

Dimensions: mm: 117H x 120.6W x 165D
inches: 4.6H x 4.75W x 6.5D

Mounting options: Wall, 4 point shelf mount or single side rack mount



Rack Mount Options

OTHER MOUNTING OPTIONS

- RACK MOUNT KIT 2RU - 19 OR 23"

Can be configured with U-ATS, U-GTS, surge option and/or receptacle plate for heating mats.





POWER CONVERSION MODULES

Alpha's power modules are the engines of our power solutions. Our modules convert AC to DC (rectifiers), DC to DC (converters) and DC to AC (inverters). Featuring high power density, efficiency, and reliability, Alpha's power conversion modules come in various form factors and power ranges to match the unique needs of our customers. Many of the modules are designed to operate in high temperatures, making them ideal for harsh environments including outdoor enclosures. Rectifiers, DC-DC converters and inverter modules are designed to operate seamlessly with the advanced Cordex™ High Performance controllers, providing local and remote access to system control and monitoring.

RECTIFIERS

Cordex rectifiers range from 250W to 12,000W per module, and come in various DC output and AC input voltages to provide the utmost flexibility in power system design. The hot-swappable, modular rectifiers are controlled and monitored by the Cordex family of controllers, ensuring customer access and remote management of the modules and the system.

A unique blend of advanced features enables Cordex rectifiers to offer significant operational and capital savings. High power density modules provide users with greater rack space for additional revenue generating equipment in space restricted environments. High efficiency rectifiers reduce power consumption. Fan cooled rectifier options are industry leading in terms of high temperature operation, and the inherent high reliability of the Alpha design ensures a long service life.



CORDEX™ HP 1.2KW

48VDC MODULAR SWITCHED MODE RECTIFIER

- High performance compact 25A rectifier for 48Vdc telecom application
- 94% efficiency for reduced OPEX and carbon footprint
- Extended temperature range (-40 to 80°C) enabling to deliver full rated output power up to 65°C for installation in harsh outdoor and indoor environments
- 1RU x 2RU footprint for flexible and multiple mounting options
- High power density (21.8W/in³) yields more space for revenue generating equipment

P/N: 010-619-20

ELECTRICAL

Input Voltage:

Nominal:.....176 to 276Vac
 Extended (high):.....277 to 300Vac (de-rated power factor)
 Extended (low):90 to 175Vac (de-rated output power)

Input Current:

Nominal:.....7.4A max
 90 to 132Vac:6A max

Input Frequency:.....45 to 70Hz

Power Factor:.....>99%

THD:.....<5% @ nominal input voltage

Efficiency:94%

Output Voltage:.....42 to 58Vdc

Output Power:

Nominal AC input:1200W
 110 to 132Vac:.....600W (de-rated linearly to 491W @ 90Vac)

Output Current:

Nominal AC input:22.2A @ 54V (25A max @ 48V)
 110 to 132Vac:.....12.5A max (de-rated 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

Wide Band Noise:.....<30mVrms

<150mVp-p

Psophometric Noise:.....<2mV

PERFORMANCE / FEATURES

Indicators:AC mains OK — green LED
 DC output OK — green LED
 Module alarm — red LED

Cooling:.....Fan cooled

Adjustments (via CXC HP Controller):

- Float and equalize voltage
- High and low voltage alarms
- Current limit
- Slope %
- Battery test voltage
- High voltage shutdown
- Start delay timers

Protection:

- Current limit/short circuit
- Input/output fuses
- Output power limiting
- Input transient
- AC high voltage shutdown
- Start delay
- Output high voltage shutdown
- Thermal foldback/shutdown
- AC low line foldback/shutdown

MECHANICAL

Dimensions:

mm:.....41.4H x 84.8W x 256.8D
 inches:1.63H x 3.34W x 10.11D

Weight:1.23kg (2.7lbs)

ENVIRONMENTAL

Temperature:

Operating:-40 to 80°C (-40 to 176°F); full rated output up
 to 65°C(149°F)

Storage:-40 to 85°C (-40 to 185°F)

Humidity:0 to 95% RH non-condensing

Elevation:-500 to 3000m (-1640 to 9840ft)

Heat Dissipation:<308 BTU per hour

AGENCY COMPLIANCE

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, 3-3

Immunity: EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-11, ANSI/IEEE C62.41 Cat B3

NEBS / Telcordia: GR-1089-CORE, GR-63-CORE



CORDEX™ HP 2.4KW

MODULAR SWITCHED MODE RECTIFIER

- › High performance compact 50A rectifier for 48Vdc telecom application
- › High efficiency (96.2%) for reduced OPEX and carbon footprint
- › High temperature operating range for installation in non-controlled environments
- › Multiple configurations delivering up to 12kW in a compact 23" 1RU shelf
- › High power density (28W/in³) yields more space for revenue generating equipment
- › Wide AC input operating range for global installation requirements

P/N: 0100003-001

ELECTRICAL

Input Voltage:

Nominal: 187 to 277Vac
 Extended (high): 277 to 310Vac (de-rated power factor)
 Extended (low): 90 to 187Vac (de-rated power)

Input Frequency: 44 to 66Hz

Power: 2400W continuous
 (1200W output @ 120Vac Input)

Power Factor: >0.99 (50 to 100% load)

THD: <5%

Efficiency: 96.2%

Output Voltage: 44 to 58Vdc

Output Current: 44.5A @ 54Vdc (50A max. @ 48Vdc)
 (25A @ 48Vdc at 120Vac Input)

Load Regulation: <±0.7% (static)

Line Regulation: <±0.1% (static)

Transient Response: ±3% for 40 to 90% load step

Noise:

Voice band: <38dBmC
 Wide band: <20mV RMS (10kHz to 10MHz)
 <150mV pk to pk (10kHz to 100MHz)

Psophometric Noise: <2mV RMS

Acoustic: <60dBa @ 1m (3ft), 30°C

MECHANICAL

Dimensions:

mm: 41H x 104x 333D
 inches: 1.6H x 4.1W x 13.1D

Weight: 1.76kg (3.9lbs)

ENVIRONMENTAL

Temperature:

Operating: -40 to 75°C (-40 to 176°F); full rated output up
 to 55°C (131°F); >2000W @ 65°C (149°F)

Storage: -40 to 85°C (-40 to 185°F)

Humidity: 0 to 95% RH non-condensing

Heat Dissipation: <500 BTU per hour (worst case)

CORDEX 48-2.4KW RECTIFIER SHELVES



23in 1RU Universal Mount 12,000W

P/N: 0300057-001

Rectifiers: 5 x CXRF HP 48-2.4kW

Distribution: Bulk power for external distribution

Dimensions:

mm: 44H x 537W x 420D
 inches: 1.75H x 21.1W x 16.5D

Weight: 5.7kg (12.6lbs)



19in 1RU Universal Mount 9,600W

P/N: 0300040-001

Rectifiers: 4 x CXRF HP 48-2.4kW

Distribution: Bulk power for external distribution

Dimensions:

mm: 44H x 438W x 420D
 inches: 1.75H x 17.3W x 16.6D

Weight: 4.5kg (9.9lbs)

Communications Ports: CAN: interface to control rectifiers & smart peripherals

AGENCY COMPLIANCE

Safety: CSA/UL/IEC/EN 60950-1, CE Marked

EMC: ETSI 300 386

Emissions: CFR47 (FCC) Part 15 Class B, EN 61000-3-2, 3-3

Immunity: EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-11, ANSI/IEEE C62.41 CatB3

NEBS: GR-1089-CORE, GR-63-CORE, GR-3108-CORE

CORDEX™ HP 4.0KW



MODULAR SWITCHED MODE RECTIFIER

- High performance 83.3A rectifier for 48V telecom applications
- 95.3% efficiency for increased OPEX savings and reduced carbon footprint
- High power density delivering up to 24kW per 23" shelf
- Power limiting and wide range AC input for global installation requirements
- Extended operating temperature range up to 75°C for deployment in the harshest outdoor environments

P/N: 010-623-20-040

ELECTRICAL

Input Voltage:

Nominal: 208 to 277Vac
 Operating: 187 to 312Vac
 Extended: 90 to 157Vac (de-rated power)

Input Frequency: 45 to 66Hz

Power Factor: >0.99 (50 to 100% load)

THD: <5% (@ 208Vac)

Efficiency: 95.3%

Output Voltage: 42 to 60Vdc

Output Power: 4000W continuous

Float Voltage: 48 to 58Vdc

Output Current: 74A @ 54Vdc (83.3A max 48V)

Load Regulation: <±0.5% (static)

Line Regulation: <±0.1% (static)

Transient Response: ±3% for 40 to 90% load step,

Noise:

Voice band: <38dBmC
 Wide band: <30mV RMS (10kHz to 10MHz)
 <150mV pk to pk (10kHz to 100MHz)

Psophometric: <2mV

Acoustic: <60dBa @ 1m (3ft)

PERFORMANCE / FEATURES

Indicators: AC mains OK — green LED
 Module OK — green LED
 Module fail — red LED

Controls: CAN interface to Cordex controllers

Adjustments (via CXC HP Controller):

- Float voltage
- High/low voltage alarm
- Current limit
- Start delay
- Equalize voltage
- High voltage shutdown
- Slope

Protection:

- Current limit/short circuit
- Input/output fuses
- Power limiting
- Input transient
- Start delay
- Output high voltage shutdown
- Thermal foldback/shutdown
- AC low line foldback shutdown

MECHANICAL

Dimensions:

mm: 160H x 87W x 300D
 inches: 6.3H x 3.4W x 11.8D

Weight: 3.9kg (8.6lbs)

ENVIRONMENTAL

Temperature:

Operating: -40 to 75°C (-40 to 176°F); full rated output up to 55°C (131°F); >3600W @ 65°C (149°F)
 Storage: -40 to 85°C (-40 to 185°F)

Humidity: 0 to 95% RH non-condensing

Elevation: -500 to 4000m (-1640 to 13120ft)

Heat Dissipation: <1150 BTU per hour

SHELVES

19"/23" Shelf (5 Modules) Dimensions:

mm: 177H x 442W x 389D
 inches: 6.9H x 17.4W x 15.3D

Weight: 8.5kg (19lbs)

Mounting: Fits 19" rack flush/center mount
 Fits 23" rack center mount only

23" Shelf (6 Modules) Dimensions:

mm: 177H x 530W x 389D
 inches: 6.9H x 20.8W x 15.3D

Weight: 9.5kg (21lbs)

Mounting: Fits 23" racks only flush/center mount

Connections

Input: Box type terminal block
 6 to 16mm² (10 to 6AWG)
 Output: Bus adapters with 3/8" studs on 1" centers
 Chassis ground: Compression lug
 6 to 16mm² (10 to 6AWG)
 CAN communication: RJ 12 offset

AGENCY COMPLIANCE

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, C-Tick (Australia), EN 61000-3-2, 3-3

Immunity: EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-11, ANSI/IEEE C62.41 Cat B3

NEBS: GR-1089 CORE, GR-63 CORE, GR-3108-CORE



CORDEX™ HP 12KW

MODULAR SWITCHED MODE THREE-PHASE RECTIFIER

- -48V high capacity rectifier for CO, MSC, Data Center and Cable Headend facilities
- Legacy power system upgrade ready, with Cordex controller
- 95% efficiency for decreased OPEX and reduced carbon footprint

P/N: 0100002-002

ELECTRICAL

Input Voltage:

Nominal: 480Vac (3Ø – 3 Wire + PE) Nominal
Range: 410 to 530Vac

Input Frequency: 47 to 63Hz

Current: 17A max

Power: 12,000W

Power Factor: >0.96% from 50 to 100% load

THD: <5% from 70 to 100% load

Efficiency: 94.7%

Output Voltage: 42 to 58Vdc

Output Current: 220A max

Load Regulation:

Static: <±0.5%

Dynamic: <±4% for 40% - 90% load step

Line Regulation: Static <±0.1%

Noise:

Voice band: <42dBmC

Wide band: <20mV RMS (to 10MHz)

..... <150mV pk to pk (to 100MHz)

Psophometric: <4mV RMS

Acoustic: <65dBa @ 1m (3ft), 30°C (86°F)

PERFORMANCE / FEATURES

Indicators: AC mains OK — green LED
DC output OK — green LED
Module fail — red LED

Controls: CAN interface to CXC-HP
Controller

Adjustments (via CXC HP Controller):

- Float voltage
- High voltage alarm
- High voltage shutdown
- Slope
- Equalize voltage
- Low voltage alarm
- Current limit
- Start delay timers

Protection:

- Current limit/short circuit
- Input/output fuses
- Power limiting
- Start delay
- Output high voltage shutdown

MECHANICAL

Dimensions:

mm: 160H x 261W x 326D

incl. front panel & handle: 175H x 261W x 364D

inches: 6.3H x 10.3W x 11.8D

incl. front panel & handle: 7H x 10.3W x 14.4D

Weight: 12.8kg (28lbs)

ENVIRONMENTAL

Temperature:

Operation: -10 to 65°C (14 to 149°F)

full rated power output from 0 to 40°C (32 to 104°F)

Storage: 40 to 70°C (-40 to 185°F)

Humidity: 0 to 90% RH non-condensing

Altitude: -100 to 2000m (-330 to 6560ft)

Heat Dissipation: <2800 BTU per hour @ 480Vac

SHELVES

P/N: 0300167-001

23" (2 Modules) Dimensions:

mm: 177H x 530W x 388D

inches: 7H x 21.8W x 15.3D

Weight: 11.3kg (25lbs)

Mounting: Fits 23" racks only flush/center mount

Connections:

Input: Box type terminal block
3 to 16mm² (14 to 6AWG)

Output: Bus adapters with 3/8" studs on 1" centers

Chassis ground Compression lug
6 to 16mm² (10 to 6AWG)

CAN communication RJ 12 offset

AGENCY COMPLIANCE

Safety: CSA C22.2 No 60950-1, UL 60950-1, CE marked, IEC/EN 60950-1

EMC: ETSI 300 386

Emissions: CFR47 (FCC) Part 15 Class A, EN 55022 (CISPR 22) Class A

Immunity: EN 61000-4-2, 4-3, 4-5, 4-6, 4-11, ANSI/IEEE C62.41 CatB3

NEBS Level 3: GR-1089 CORE, GR-63 CORE

CORDEX™ 400W



24VDC MODULAR SWITCHED MODE RECTIFIER

- Available in 14A @ 24Vdc
- Universal 120/208 to 240Vac input
- High efficiency and power factor correction
- Convection cooled
- Hot swappable, 2RU ultra compact design

P/N 010-582-20-040

ELECTRICAL

| | |
|----------------------------|--|
| Input Voltage: | 90 to 320Vac |
| Input Frequency: | 45 to 70Hz |
| Power Factor: | >99% |
| THD: | <5% |
| Efficiency: | >88% |
| Power Output: | 400W (max) |
| Output Voltage: | 20 to 29Vdc |
| Output Current: | 14A @ 27Vdc (16A max) |
| Load Regulation: | Static <±0.5% Dynamic <±2% for 40 to 90% load step 2ms recovery time |
| Line Regulation: | Static <±0.1% Dynamic <±1% for any change within rated limits |
| Wide Band Noise: | <10mVrms <100mVp-p |
| Psophometric Noise: | <1mV RMS |

PERFORMANCE / FEATURES

| | |
|---|--|
| Indicators: | AC mains OK — green LED Module alarm — red LED |
| Cooling: | Natural convection |
| Adjustments (via CXC HP controller): | <ul style="list-style-type: none"> • Float voltage • High/low voltage alarm • Current limit • Start delay <ul style="list-style-type: none"> • Equalize voltage • High voltage shutdown • Slope |
| Protection: | <ul style="list-style-type: none"> • Current limit/short circuit • Input/output fuses • Power limiting • Input transient <ul style="list-style-type: none"> • Start delay • Output high voltage shutdown • Thermal foldback/shutdown • AC low line foldback shutdown |

MECHANICAL

| | |
|--------------------|--|
| Dimensions: | mm: 88.4H x 71.6W x 242D inches: 3.4H x 2.8W x 9.5D |
| Weight: | 1.4kg (3lbs) |

ENVIRONMENTAL

| | |
|--------------------------|---|
| Temperature: | Operation: -40 to 50°C (-40 to 122°F) (power de-rated up to 70°C/158°F) Storage: -40 to 85°C (-40 to 185°F) |
| Humidity: | 0 to 95% RH non-condensing |
| Elevation: | -500 to 3000m (-1640 to 9840ft) |
| Heat Dissipation: | <94 BTU per hour |

SHELVES

| | |
|------------------------------|---|
| 19" Shelf Dimensions: | mm: 88.9H x 444W x 279.4D inches: 3.5H x 17.5W x 11D |
| Weight: | 8.5kg (18.7lbs) |
| Mounting: | Fits 19" rack flush mount |

| | |
|------------------------------|---|
| 23" Shelf Dimensions: | mm: 133H x 533W x 279.4D inches: 5.25H x 21W x 11D |
| Weight: | 12.7kg (28lbs) |
| Mounting: | Fits 23" rack center mount |

| | |
|--------------------|---|
| Connections | Input: Dual feed terminal blocks 4 to 6mm ² (12 to 10AWG) Output: ¼" studs on ½" centers Chassis ground: ¼" stud CAN communication: RJ 12 offset |
|--------------------|---|

AGENCY COMPLIANCE

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, 3-3
Immunity: EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-11, ANSI/IEEE C62.41 Cat B3



CORDEX™ 3.1KW

24VDC MODULAR SWITCHED MODE RECTIFIER

- › Available in 130A @ 24Vdc
- › High power density, over 18.6kW per 23" shelf
- › Power limiting and wide range AC input
- › Compliant with the stringent EMI immunity requirements for power station and substation environments
- › High efficiency and power factor correction
- › Hot swappable, 4RU compact design

P/N: 010-572-20-040

ELECTRICAL

Input Voltage:

Nominal: 208 to 277Vac
 Operating: 176 to 312Vac
 Extended: 90 to 176Vac (de-rated power)

Input Frequency: 45 to 70Hz

Power Factor: >0.99 (50 to 100% load)

THD: <5%

Efficiency: >90%

Output Voltage: 21 to 29Vdc

Output Power: 3100W continuous/module

Output Current: 115A @ 27Vdc (130A max. 24V)

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: <30mV RMS (10kHz to 10MHz)
 <150mV pk to pk (10kHz to 100MHz)

Psophometric: <1.0mV

Acoustic: <60dBa @ 1m (3ft)

PERFORMANCE / FEATURES

Indicators: AC mains OK — green LED
 Module OK — green LED
 Module fail — red LED

Controls: CAN interface to CXC

Adjustments (via CXC HP Controller):

- Float voltage
- High/low voltage alarm
- Current limit
- Start delay
- Equalize voltage
- High voltage shutdown
- Slope

Protection:

- Current limit/short circuit
- Input/output fuses
- Power limiting
- Input transient
- Start delay
- Output high voltage shutdown
- Thermal foldback/shutdown
- AC low line foldback shutdown

MECHANICAL

Dimensions:

mm: 160H x 87W x 300D
 inches: 6.3H x 3.4W x 11.8D

Weight: 4.6kg (10lbs)

ENVIRONMENTAL

Temperature:

Standard: -40 to 65°C (-40 to 149°F)
 Storage: -40 to 85°C (-40 to 185°F)

Humidity: 0 to 95% RH non-condensing

Elevation: -500 to 4000m (-1640 to 13120ft)

Heat Dissipation: <1176 per hour

SHELVES

19" P/N: 030-737-20-040

23" P/N: 030-736-20-040

AGENCY COMPLIANCE

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, 3-3

Immunity: EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-1, ANSI/IEEE C62.41 Cat B3, IEC TS 61000-6-5:2001 Electromagnetic compatibility (EMC) Part 6-5_Generic Standards Immunity for power station and substation environments

NEBS: GR-1089 CORE, GR-63 CORE

CORDEX™ 650W



48VDC MODULAR SWITCHED MODE RECTIFIER

- Available in 13.5A @ 48Vdc (208 - 240Vac)
- Universal 120V/208 to 240V single phase AC input
- Power limiting and wide range AC input
- 91% efficiency and power factor correction
- Convection cooled
- Hot swappable, 2RU ultra compact design

Universal 120/240 model P/N: 010-570-20-040

ELECTRICAL

Input Voltage (Universal 100 to 240Vac Model):

Operating: 176 to 320Vac (output power 650W)
 Extended: 176 to 90Vac (de-rated output power)
 Operating: 100 to 140Vac (output power 500W)
 Power output: 650W at nominal 208 to 240Vac
 & 500W at nominal 120Vac

Input Frequency: 45 to 70Hz

Power Factor: >99%

THD: <5%

Efficiency: >91%

Output Voltage: 42 to 58Vdc

Output Current: 12A @ 54Vdc (13.5A max)

Load Regulation: Static <±0.5%

Dynamic <±2% for 50 to 100% load step
 2ms recovery time

Line Regulation: Static <±0.1%

Dynamic <±1% for any change within rated limits

Wide Band Noise: <30mVrms

<150mVp-p

Psophometric Noise: <1mV

PERFORMANCE / FEATURES

Indicators: AC mains OK — green LED
 Module alarm — red LED

Cooling: Natural convection

Adjustments (via CXCI HP controller):

- Float and equalize voltage
- High and low voltage alarms
- Current limit
- Slope
- Battery test voltage
- High voltage shutdown
- Start delay time

Protection:

- Current limit/short circuit
- Output high voltage shutdown
- Thermal foldback/shutdown
- AC low line foldback/shutdown
- Input/output fuses
- Output power limiting
- Input transient
- AC high voltage shutdown

MECHANICAL

Dimensions:

mm: 88.4H x 71.6W x 242D
 inches: 3.4H x 2.8W x 9.5D

Weight: 1.4kg (3lbs)

ENVIRONMENTAL

Temperature:

Operation: -40 to 50°C (-40 to 122°F)
 (power de-rated up to 70°C/158°F)

Storage: -40 to 85°C (-40 to 185°F)

Humidity: 0 to 95% RH non-condensing

Elevation: -500 to 3000m (-1640 to 9840ft)

Heat Dissipation: <94 BTU per hour

AGENCY COMPLIANCE

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™ 1KW



48VDC MODULAR SWITCHED MODE RECTIFIER

- Available in 20.8A @ 48Vdc
- Power limiting and wide range AC input
- 92% efficiency and power factor correction
- Convection cooled
- Hot swappable, 4RU compact design

P/N: 010-566-20

ELECTRICAL

Input Voltage:

Nominal: 208 to 277Vac
 Operating: 150 to 320Vac
 Extended: 90 to 150Vac (de-rated power)

Input Frequency: 45 to 66Hz

Power Factor: >0.99

Efficiency: >92%

Power Output: 1000W continuous/module

Output:

Voltage: 42 to 60Vdc
 Current: 18.5A @ 54Vdc (20.8A max)

Load Regulation: <±0.5% (static)

Line Regulation: <±0.1% (static)

Transient Response: ±1% for 50 to 100% load step,
 2ms recovery time

Noise:

Voice band: <32dBmC
 Wide band: <5mVrms
 <100mVpk to pk

Psophometric: <1mV

PERFORMANCE / FEATURES

Indicators: AC mains OK — green LED
 Module OK — green LED
 Module alarm — red LED

Cooling: Natural convection

Adjustments (via CXC HP controller):

- Float and equalize voltage
- High and low voltage alarms
- Current limit
- Slope %
- Battery test voltage
- High voltage shutdown
- Start delay timers

Protection:

- Current limit/short circuit
- Input/output fuses
- Output power limiting
- Input transient
- AC high voltage shutdown
- Start delay
- Output high voltage shutdown
- Thermal foldback/shutdown
- AC low line foldback/shutdown

MECHANICAL

Dimensions:

mm: 177H x 71W x 250D
 inches: 6.9H x 2.8W x 9.8D

Weight: 2.9kg (6.4lbs)

ENVIRONMENTAL

Temperature:

Operation: -40 to 50°C (-40 to 122°F)
 (with short periods up to 70°C/158°F)

Storage: -40 to 85°C (-40 to 185°F)

Humidity: 0 to 95% RH non-condensing

Elevation: -500 to 4000m (-1640 to 13120ft)

Heat Dissipation: <295 BTU per hour

SHELVES

19"/23" Shelf Dimensions:

mm: 177H x 544W x 303D
 inches: 6.9H x 21.4W x 11.9D

Weight: 10.2kg (22.5lb)

Mounting: Fits 19" or 23" rack center mount

19" Shelf Dimensions:

mm: 177H x 444W x 303D
 inches: 6.9H x 17.5W x 11.9D

Weight: 7.3kg (16lb)

Mounting: Fits 19" rack flush mount

Connections:

Input: Dual feed terminal blocks
 4 to 6mm² (12 to 10AWG)
 Output: ¼" studs on ½" centers
 Chassis ground: ¼" stud
 CAN communication: RJ 12 offset

AGENCY COMPLIANCE

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, 3-3

Immunity: EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-11, ANSI/IEEE C62.41 Cat B3

CORDEX™ 1.1KW



125VDC MODULAR SWITCHED MODE RECTIFIER

- 8.8A output @ 125Vdc
- Power limiting and wide range AC input
- 93% efficiency with power factor correction
- Convection cooled
- Hot swappable, 4RU compact design

P/N: 010-579-20

ELECTRICAL

Input Voltage:

Nominal: 208 to 277Vac
 Operating: 176 to 320Vac
 Extended: 150 to 176Vac (de-rated to 75%)

Input Frequency: 45 to 66Hz

Power Output: 1100W continuous/module

Power Factor: >0.99 (input current)

THD: <5%

Efficiency: >93%

Output Voltage: 90 to 180Vdc

Output Current: 8.8A @ 125Vdc (11A max)

Load Regulation: Static <±0.5%

Line Regulation: Static <±0.1%

Transient Response: <±2% for 50 to 100% load step,
 10ms recovery time

Wide band Noise: <30mVrms

<150mVp-p

Insulation: 2.5kVac input-earth

3kVac input-output

2kVac output-earth

0.5kVac signals-earth

PERFORMANCE / FEATURES

Indicators: AC mains OK — green LED

Module OK — green LED

Module alarm — red LED

Cooling: Natural convection

MECHANICAL

Dimensions:

mm: 177H x 71W x 250D

inches: 6.9H x 2.8W x 9.8D

Weight: 2.9kg (6.4lbs)

ENVIRONMENTAL

Temperature:

Operation: -40 to 50°C (-40 to 122°F)
 (up to 70°C/158°F power de-rated)

Storage: -50 to 85°C (-58 to 185°F)

Humidity: 0 to 95% RH non-condensing

Elevation: -500 to 4000m (-1640 to 13120ft)

Heat Dissipation: <282 BTU per hour (max)

SHELVES

P/N: 030-740-20

19" Shelf (6 Module) Dimensions:

mm: 177H x 444W x 303D

inches: 6.9H x 17.5W x 11.9D

Weight: 7.3kg (16lbs)

Mounting: Fits 19" rack flush mount

Fits 19" or 23" center mount

Connections:

Input: Terminal blocks for 3 feeds

4–6mm² (12–10AWG)

Output: ¼" studs on ½" centers

Chassis ground: ¼" stud

CAN communication: RJ12 offset

AGENCY COMPLIANCE

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 A, ICES-03 Class A

EN55022 (CISPR 22) Class A, C-Tick (Australia), EN 61000-3-2, 3-3

Immunity: EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-11, ANSI/IEEE C62.41 Cat B3



CORDEX™ 1.1KW

220VDC MODULAR SWITCHED MODE RECTIFIER

- Available 5A output @ 220Vdc
- Power limiting and wide range AC input
- 93% efficiency with power factor correction
- Compliant with the stringent EMI immunity requirements for power station and substation environments
- Hot swappable, convection cooled

P/N: 010-569-20

ELECTRICAL

Input Voltage:

Nominal: 208 to 277Vac
 Operating: 176 to 320Vac
 Extended: 150 to 176Vac (de-rated to 75%)

Input Frequency: 45 to 66Hz

Power Output: 1100W continuous/module

Power Factor: >0.99 (input current)

THD: <5%

Efficiency: >93%

Output Voltage: 180 to 320Vdc

Output Current: 5A @ 220Vdc (5.5A max)

Load Regulation: Static <±0.5%

Line Regulation: Static <±0.1%

Transient Response: <±2% for 50 to 100% load step,
 10ms recovery time

Wide Band Noise: <30mVrms

<150mVp-p

Insulation: 2.5kVac input-earth

3kVac input-output

2kVac output-earth

0.5kVac signals-earth

PERFORMANCE / FEATURES

Indicators: AC mains OK — green LED

Module OK — green LED

Module alarm — red LED

Cooling: Natural convection

MECHANICAL

Dimensions:

mm: 177H x 71W x 250D

inches: 6.9H x 2.8W x 9.8D

Weight: 2.9kg (6.4lbs)

ENVIRONMENTAL

Temperature:

Operation: -40 to 50°C (-40 to 122°F)
 (up to 70°C/158°F power de-rated)

Storage: -50 to 85°C (-58 to 185°F)

Humidity: 0 to 95% RH non-condensing

Elevation: -500 to 4000m (-1640 to 13120ft)

Heat Dissipation: <282 BTU per hour (max)

SHELVES

P/N: 030-718-20

19" Shelf (6 Module) Dimensions:

mm: 177H x 444W x 303D

inches: 6.9H x 17.5W x 11.9D

Weight: 7.3kg (16lbs)

Mounting: Fits 19" rack flush mount

Fits 19" or 23" center mount

Connections:

Input: Terminal blocks for 3 feeds

4–6mm² (12–10AWG)

Output: ¼" studs on ½" centers

Chassis ground: ¼" stud

CAN communication: RJ12 offset

AGENCY COMPLIANCE

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 A, ICES-03 Class A,

EN55022 (CISPR 22) Class A, C-Tick (Australia), EN 61000-3-2, 3-3

Immunity: EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-11, ANSI/IEEE C62.41 Cat B3,

IEC TS 61000-6-5:2001 Electromagnetic compatibility (EMC) Part 6-5_

Generic Standards Immunity for power station and substation environments

CORDEX™ 4.4KW



MODULAR SWITCHED MODE RECTIFIER

- Available in 35A @ 125Vdc or 20A @ 220Vdc
- High power density, 22kW per 19" shelf
- Compliant with the stringent EMI immunity requirements for power station and substation environments
- 92% efficiency and power factor correction
- Hot swappable, power limiting and wide range AC input

125V P/N: 010-589-20, 220V P/N: 010-588-20

ELECTRICAL

Input Voltage:

Nominal: 208 to 240Vac
 Operating: 187 to 312Vac
 Extended: 90 to 187Vac (de-rated)

Input Frequency: 45 to 70Hz

Power: 4400W continuous/module

Power Factor: >0.99 (50 to 100% load)

THD: <5%

Efficiency: >92%

Output Voltage:

125V module: 90 to 160Vdc
 220V module: 180 to 320Vdc

Output Current:

125Vdc module: 35A @ 125Vdc (40A @ 110Vdc max)
 220Vdc module: 20A @ 220Vdc

Load Regulation: Static $\pm 0.5\%$

Line Regulation: Static $\pm 0.1\%$

Transient Response: $\pm 5\%$ for 40 to 90% load step, 30ms recovery time

Wide Band Noise:

220Vdc module: <30mVrms
 <300mVp-p

125Vdc module: <90mVrms
 <700mVp-p

Insulation: 2.5kVac input-earth

3kVac input-output
 2kVac output-earth
 0.5kVac signals-earth

Acoustic: <60dBa @ 1m (3ft)

PERFORMANCE / FEATURES

Indicators: AC mains OK — green LED

Module OK — green LED

Module fail — red LED

Controls: CAN interface to CXC

MECHANICAL

Dimensions:

mm: 160H x 87W x 300D

inches: 6.3H x 3.4W x 11.8D

Weight: 4.65kg (10.57lbs)

ENVIRONMENTAL

Temperature:

Standard: -40 to 50°C (-40 to 130°F)

Extended: -40 to 75°C (-40 to 167°F)

Storage: -40 to 85°C (-40 to 185°F)

Humidity: 0 to 95% RH non-condensing

Elevation: -500 to 2800m (-1640 to 9186ft)

Heat Dissipation: <1080 BTU per hour

SHELVES

125V 19" 5-module P/N: 030-769-20

220V 19" 5-module P/N: 030-768-20

Dimensions:

mm: 177H x 442W x 389D

inches: 6.9H x 17.4W x 15.3D

Weight: 8.5kg (19lbs)

Mounting: Fits 19" rack flush/center mount (5 modules)

Fits 23" rack center mount only

Connections:

Input: Box type terminal block

6 to 16mm² (10 to 6AWG)

Output: Bus adapters with $\frac{3}{8}$ " studs on 1" centers

Chassis ground: Compression lug

6 to 16mm² (10 to 6AWG)

CAN communication: RJ12 offset

AGENCY COMPLIANCE

Safety: CSA C22.2 No 60950-1-03, UL 60950-1 1st edition, CE marked

EMC: IEC/EN 60950-1

Emissions: CFR47 (FCC) Part 15 Class A, ICES-03 Class A

EN55022 (CISPR 22) Class A, C-Tick (Australia), EN 61000-3-2, 3-3

Immunity: EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-11, ANSI/IEEE C62.41 Cat B3,

IEC TS 61000-6-5:2001 Electromagnetic compatibility (EMC) Part 6-5_

Generic Standards Immunity for power station and substation environments

CXDF 24-48/2KW

CXDF 48-24/2KW



CORDEX™ SERIES DC-DC CONVERTERS

- › Support small to medium loads with legacy 24V power systems
- › High power density modular design, up to 2kW output per module
- › Advanced monitoring and control capability including remote accessibility
- › Internal low voltage shutdown for cost effective integration into existing systems

ELECTRICAL

| Model | CXDF 24-48/2kW | CXDF 48-24/2kW |
|-----------------------|--|--|
| P/N | 012-526-20-040 | 012-527-20-040 |
| Input Voltage | 21 to 30Vdc | -42 to -60Vdc |
| Input Current | Up to 94A @ 24V | <48A @ 48V (55A max) |
| Efficiency | >88% | >88% |
| Input Noise | | |
| Voice band | <32dBmC | <32dBmC |
| Wide band | <10mV RMS to 10MHz <150mVp-p to 100MHz | <10mV RMS to 10MHz <150mVp-p to 100MHz |
| Output Power | 2000W max @ -54V | 2000W max @ 27Vdc |
| Output Voltage | -54Vdc nominal | 27Vdc nominal |
| Output Current | 37A max | 74A max |
| Regulation | -1% ±0.1% load (static) ±0.1% line (static) | -1% ±0.1% load (static) ±0.1% line (static) |
| Output Noise | | |
| Voice Band | <38dBmC | <38dBmC |
| Wide Band | <10mV RMS to 10MHz <150mVp-p to 100MHz | <20mV RMS to 10MHz <150mVp-p to 100MHz |
| Acoustic Noise | <60dBa @ 1m (3ft) | <60dBa @ 1m (3ft) |

MECHANICAL

Dimensions:

mm:84H x 100W x 235D
 inches:3.3H x 3.94W x 9.25D
Weight:2.8kg (6.2lbs)

ENVIRONMENTAL

Temperature:-40 to 55°C (de-rated power up to 75°C)
Humidity:0 to 95% NC

SHELVES

24-48V 5-Mod 23" shelf (single input) P/N: 030-900-20-040

Dimensions:

mm:89H x 584W x 304D
 inches:3.5H x 23.0W x 12.0D

Weight:10.4kg (23.0lbs)

24-48V 4-Mod 19" shelf (dual input) P/N: 030-839-20-041

Dimensions:

mm:89H x 438W x 310D
 inches:3.5H x 17.2W x 12.2D

Weight:85kg (19lbs)

48-24V 4-Mod 19/23" shelf P/N: 030-840-20-040

Dimensions:

mm:88.4H x 438W x 332D
 inches:3.48H x 17.2W x 13.1D

Weight:8.6kg (18.9lbs)

Performance / Features

CAN bus communication to remote CXC HP controllers/peripherals
 Optional integrated CXCI HP controller

AGENCY COMPLIANCE

Safety: CSA/UL C22.2 60950 (NRTL), CE IEC/EN 60950, CE marked
EMI: Class A radiated, Class A conducted, EN 6100-4-2, -3, -4, -6
 GR-1089 (where applicable), GR-63

ALPHA INVERTER MODULE 2500



FOR INSTALLATION IN AMPS80 HP2 SYSTEMS

- Offers 94% efficiency and Telecom-grade reliability
- Hot swappable 2.5kVA/2kW AC power module allows optimal scalability and flexibility
- No single point of failure due to system static switch, as each module has DSP controlled static switch functionality
- Up to 4 high power density modules per inverter shelf
- Up to 30 modules per 75kVA AMPS80 HP2 system

P/N: 014-201-20

ELECTRICAL

AC Output

| | |
|---|------------------------------------|
| Power Rating: | 2500VA/2000W |
| Waveform: | Pure sine wave |
| Efficiency: | 94% AC-to-AC mode |
| Power Factor: | 0.8 |
| Transfer Time: | Zero transfer time |
| Nominal Voltage: | 120Vac |
| Voltage Accuracy: | ±2% |
| Frequency: | 60Hz (same as input frequency) |
| Frequency Accuracy: | 0.03% |
| THD (Resistive Load): | <1.5% |
| Transient Load Recovery Time: | 0.4 ms |
| Soft Start Time: | 20s |
| Max Crest Factor at Nominal Power: | 3.5 |
| Short Circuit Overload Capacity: | 10 x In for 20msec (AC-to-AC mode) |
| Short Term Overload Capacity: | 150% for 5 seconds |
| Permanent Overload Capacity: | 110% |
| MTBF: | >230,000hrs |

AC Input

| | |
|-------------------------------|-------------|
| Nominal AC Voltage: | 120Vac |
| AC Voltage Range: | 90 - 140Vac |
| Input Power Factor: | >99% |
| Synchronization Range: | 57 - 63Hz |

DC Input

| | |
|--|------------------------------|
| Nominal DC Voltage: | 48Vdc |
| Maximum DC Voltage Range (max): | 40 - 60Vdc (user adjustable) |
| Voltage Ripple: | <2mV/<38 dbmrc |

MECHANICAL

Dimensions:

| | |
|---------|---------------------|
| mm: | 88.9H x 102W x 435D |
| inches: | 3.5H x 4W x 17.13D |

Weight: 5kg (11lbs)

ENVIRONMENTAL

Temperature:

| | |
|------------|----------------------------|
| Operating: | -20 to 40°C (-4 to 104°F) |
| Storage: | -40 to 70°C (-40 to 158°F) |

Relative Humidity: Up to 95%, non-condensing

Operating Altitude: Up to 1500m (4900ft) above sea level

Heat Dissipation: 437BTU per hour in AC-to-AC mode;
758BTU per hour in DC-to-AC mode

AGENCY COMPLIANCE

Safety: UL 60950

Immunity: EN 61000-4

Emissions: EN 55022 (Class A)

RoHS: Compliant



INVERTER 2000

STAND-ALONE TELECOM INVERTER

- › Powerful 2000VA/2000W stand-alone module
- › High quality pure sine wave output
- › Remarkable overload capability: 120% overload continuously, 200% overload for up to 5 seconds
- › Operating efficiency up to 91%
- › Built-in auto transfer switch (ATS) for increased reliability
- › LCD display for real time status monitoring and setting module parameters

120Vac (NEMA outlets) P/N: 014-142-10
230Vac (IEC outlets) P/N: 014-143-10

ELECTRICAL

AC Input

Voltage Range:..... 120Vac: 89 to 138Vac
230 Vac (L-N): 176 to 276Vac

Over Voltage Threshold:..... 138/276Vac

Under Voltage Threshold: 89/176Vac

Frequency Range: 50/60Hz, $\pm 2.5\%$

Transfer Time:..... Inverter to bypass: 8ms

AC Output

Power Capacity: 2000VA/2000W

Waveform: Pure sine wave

Power Factor:..... 1.0

Nominal Output Voltage: 110/115/120Vac or 208/220/230/240Vac

Voltage Regulation:..... Max $\pm 2\%$

Output Frequency: 50/60Hz

Crest Factor: 3:1

THD:..... <3% for linear load, <5% for non-linear load

Efficiency: >90.5% @ full load and nominal DC input
>91.5% max

Overload Protection:

- 1.2 x Inom permanent overload capacity @ 30°C
- 1.5 x Inom ≥ 10 s
- 2.0 x Inom ≥ 5 s

DC Input

Nominal Voltage: 48Vdc

Operating Range: 40 to 58Vdc

Psophometric Noise Voltage: ≤ 1.0 mV ITU-T O.41 (16.66~6000Hz)

MECHANICAL

Dimensions:

mm:..... 43.8H x 440W x 360D

inches: 1.72H x 17.3W x 14.2D

Weight: 7.1kg (15.7lbs)

ENVIRONMENTAL

Temperature:

Operation: -20 to 50°C full performance,
operating -20 to 59°C*

Storage: -30 to 80°C

Humidity: 95% relative humidity (non-condensing)

Altitude:..... 1500m (4920ft)

Heat Dissipation: Forced cooling with smart control

Audible noise:..... 55dB ETS 300 753, class 3.1

COMMUNICATION INTERFACE

Signals/Controls:

Control: Keypad to setting all output values
and parameters

Display: LCD and 3-LED's display alarms
and system parameters

General alarm signal: Dry relay contact

Remote On/Off: Remote On/Off switch

PC communications: USB port

AGENCY COMPLIANCE

EMC: EN300 386:2001. Class B compliance

Safety Compliance: Comply with EN 60950-1/UL 60950-1

Certification: CE/UL/C-Tick

RoHS: Compliant

MTBF: >200,000 hrs as per Telcordia SR-232

*Above 50°C, output power derates by 10% per °C use up to 59°C



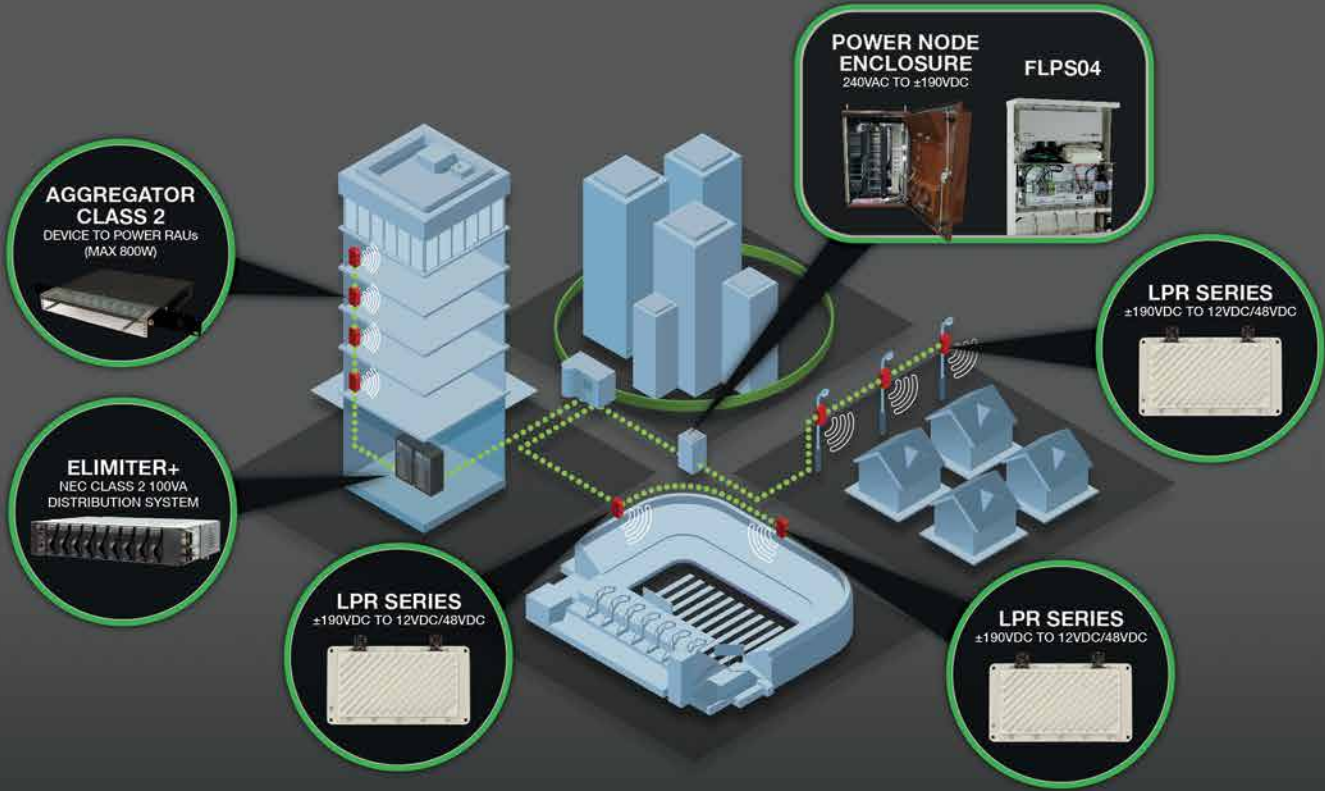


REMOTE LINE POWERING SOLUTIONS

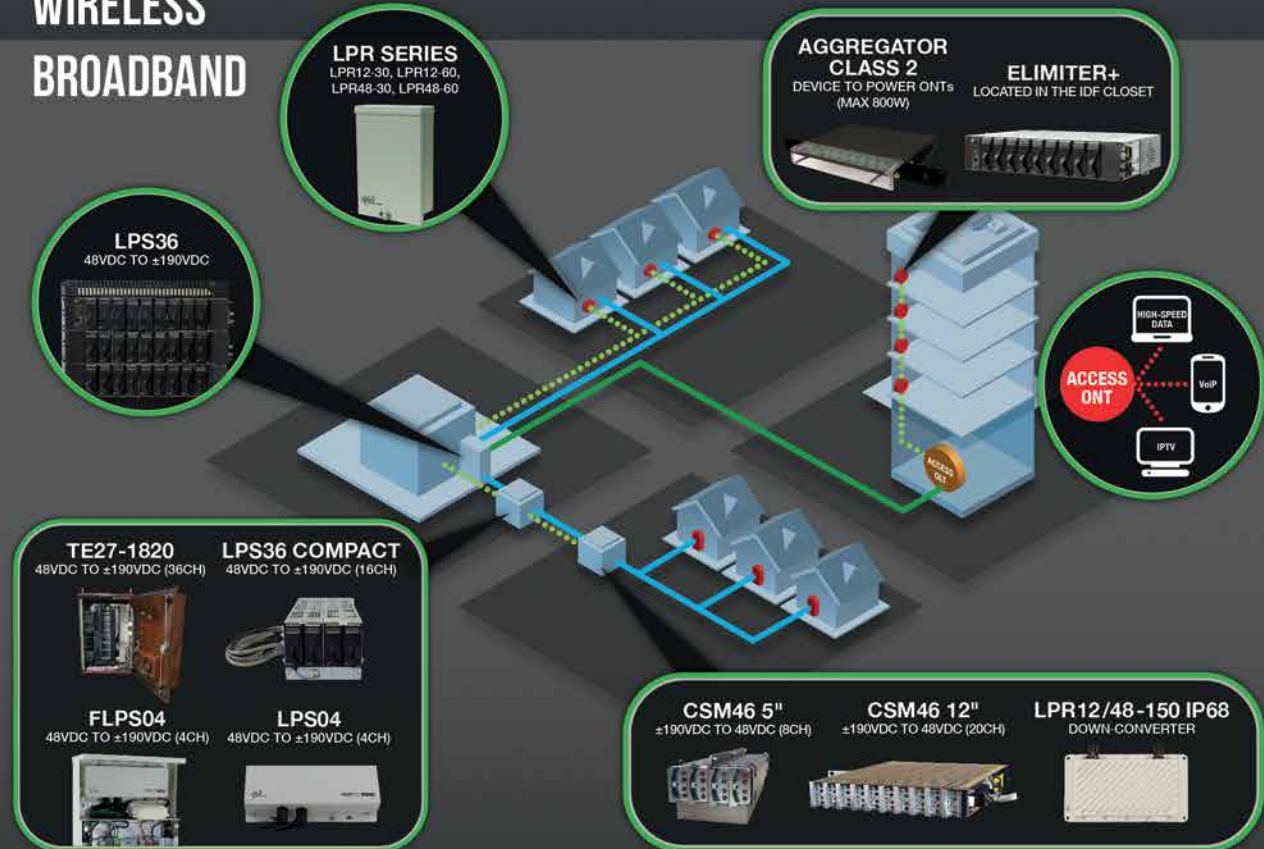
Remote Line Power is rapidly emerging as an alternative to using local power as means of powering Fiber-to-the-Home (FTTH), DAS, Small Cell and DSL networks. Service providers are using remote line power to ensure the subscribers receive the same high level of quality and reliability to which they are accustomed, even during extended commercial power outages. By using centralized power and battery backup, service providers distribute the power across normal copper pairs to power the ONT, DSLAM, DAS, or Small Cell device, eliminating the need for AC power and batteries at the remote end, thus improving network reliability and customer satisfaction. Alpha Technologies' next generation of outdoor remote line power solutions is headlined by our Cordex HP LPS36 Up-converter System. The LPS36 can power all of Alpha's standalone down-converters as well as DSLAMs and Small Cell devices with built-in down-converter technology.

For indoor applications, Alpha's eLimiter+ is a NEC® Class 2 power distribution unit that is ideal for powering indoor DAS and Small Cell networks as well as Passive Optical LANs (POL). When more power is required for larger DAS and Small Cell devices, the eLimiter+ can be paired with Alpha's Aggregator to deliver Class 2 power to the remote devices.

REMOTE POWERING SOLUTIONS



WIRELESS BROADBAND



FLPS04



QUAD ±190VDC LINE POWER UP-CONVERTER OUTDOOR SYSTEM

- › Provides four (4) ±190Vdc line powering RFT-V channels with current limiting and ground fault protection
- › Wide AC input range (90-307V) for worldwide deployments
- › High efficiency for reduced OPEX and carbon footprint
- › Optional integrated battery backup for continuous power during power outages
- › NEMA 3R enclosure for superior reliability in outdoor applications
- › Multiple mounting options to accommodate space limitations

P/N: 0100031-002 FLPS04 System with Battery Charging Option (space for 4 batteries)
 P/N: 0100031-003 FLPS04 Battery expansion cabinet with space for 8 x 7.2Ah & heater mats
 P/N: 0380452-001 Pole Mount Kit

ELECTRICAL

Input Voltage Range:.....90 to 307Vac
AC Input Frequency:.....47 to 63Hz
Output Voltage:.....±190Vdc (RFT-V)
Output Power:
 96W nominal per output, >92W for worst case conditions
 (4 outputs per system)

PERFORMANCE / FEATURES

Power Backup (optional):
 • Four 7Ah to 9Ah valve regulated lead acid (VRLA) (sold separately)
Battery Runtime:
 • A string of four 7.2AH batteries provides approximately 1 hour of power backup for two 75W remote load, placed 10kft away, each powered through two 22AWG twisted pairs
 • Adding two strings of four 7.2AH batteries in the FLPS04 Battery Expansion Cabinet provides >4 hours power backup for the same application.
Alarm:.....Form C relay (activated if there is any fault on the output channels)

MECHANICAL

Dimensions:
 mm:.....603H x 356W x 140D
 inches:23.8H x 14W x 5.5D
Weight:
 • 16kg (35lbs) FLPS04 System w/battery charging option
 • 10kg (22lbs) FLPS04 Battery Expansion Enclosure
Mounting:.....Pole and wall
Connections:
 AC Input:Terminal block (2 wire + GND)
 Output:.....110 IDC type termination

ENVIRONMENTAL

Temperature:
 Operation:-40 to 46°C (-40 to 115°F) plus solar loading
 Storage:-40 to 85°C (-40 to 185°F)
Enclosure Rating:.....NEMA 3R
Surge Protection:.....UL 497 Listed protectors for the outputs
Humidity:5 to 95% RH
Elevation:-500 to 2800m (-1640 to 9186ft)

AGENCY COMPLIANCE

Safety: IEC/CSA/UL 60950-1, IEC/CSA/UL 60950-21
EMC: CFR47 (FCC) Part 15 Class A, EN 55022 class A
Immunity: EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-11



Battery Expansion Cabinet
 P/N: 0100031-003

MPS12-100



OUTDOOR MULTIPURPOSE BATTERY BACKUP SYSTEM 12VDC, 100W

- Compact, integrated UPS system designed to operate in extreme environments
- NEMA 3R rated enclosure for superior reliability in outdoor applications
- Wide AC input voltage range (90-264V) for worldwide deployments
- Multiple mounting options to accommodate space limitations

P/N: 0100036-001 MPS 12-100 8 hour backup
P/N: 0380452-001 Pole Mount Kit

ELECTRICAL

Input Voltage Range:.....90 to 264Vac
AC Input Frequency:.....47 to 63Hz
Output Voltage:.....12-15Vdc
Rated Output Current: ...7.6A
Ripple:<150mV p-p
Line Regulation:.....±0.5%
Load Regulation:±0.5%

PERFORMANCE / FEATURES

Batteries:

- 7Ah to 9Ah valve regulated lead acid (VRLA)
- P/N 0100036-001 houses 8 batteries (sold separately)

Battery Runtime:

P/N 0100036-001:> 8 hours for an 80W load

Alarm Two relay: AC OK, Battery Low

MECHANICAL

P/N 0100036-001

Dimensions:

mm:.....603H x 356W x 140D
 inches:23.8H x 14W x 5.5D

Weight: 10.4kg (23lbs) (w/o batteries)

Mounting:..... Pole and wall

Connections:..... Terminal blocks

ENVIRONMENTAL

Temperature:

Operation:-20 to 46°C (-4 to 115°F) plus solar loading
 Storage:-20 to 85°C (-4 to 185°F)

Enclosure Rating: NEMA 3R

Humidity:20 to 90% RH

Elevation:-500 to 2800m (-1640 to 9186ft)

AGENCY COMPLIANCE

Safety: CSA/UL 60950-1

EMC: FCC Part 15 Class A, EN 55022 Class B

Immunity: EN 61000-3-2, 3-3, 4-2, 4-3, 4-4, 4-5, 4-6, 4-8, 4-11



Picture shown above is representative of P/N 0100036-001

TE20-2120 OUTDOOR DOWN CONVERTER SYSTEM



RFT-V LINE POWER DOWN-CONVERTER SYSTEM

- › Provides 48Vdc output from ±190Vdc RFT-V input
- › Maximum output power available is 3000W at 48VDC
- › Front-access 1RU distribution panel offers up to 20 GMT fuse positions
- › 50-pair protector panel provided for input surge protection to each RFT-V circuit
- › NEMA 3R outdoor cabinet supports various mounting options

ELECTRICAL

Input Voltage Range:..... 195 to 380Vdc (± 97.5 to ± 190 Vdc)
Input Current:.....240mA $\pm 2\%$
Efficiency:.....>85%
Output Voltage:.....-50 to -55Vdc
Output Power:
 • Up to 75W per channel/circuit (1) CSM46 10-module shelf can deliver up to 1500W @ 48Vdc
 • Up to (2) CSM46 10-module shelf can be installed in the TE20-2120
Distribution:20 position GMT fuse panel
Protection:.....50-pair protector panel
Electrical Noise:.....<500mV p-p to 20MHz
 <250mV rms to 20MHz

PERFORMANCE / FEATURES

Alarm:.....Form C relay (Minor/Major)

MECHANICAL

Dimensions:
 mm:.....516H x 544W x 518D
 inches:20.3H x 21.4W x 20.4D
Weight:29kg (65lbs)
Mounting:..... Pole/Wall/Ground
Connections:
 Input:.....25-pair 3M 4005-GBM/TR connector
 Output:.....20-position GMT Fuse Panel

ENVIRONMENTAL

Temperature:
 Operation:.....-40 to 46°C (-40 to 115°F) plus solar loading
 Storage:-40 to 85°C (-40 to 185°F)
Enclosure Rating:.....NEMA 3R
Surge Protection:UL 497 Listed protectors for the inputs
Humidity:5 to 95% RH
Elevation:.....-500 to 2800m (-1640 to 9186ft)

AGENCY COMPLIANCE

Safety: IEC/CSA/UL 60950-1, IEC/CSA/UL 60950-21
EMC: CFR47 (FCC) Part 15 Class A, EN 55022 class A

RELATED COMPONENTS

CSM46 DC/DC Converter ± 190 to 48V, RoHS: P/N 012-554-20
 Prot Mod, GDT, 5-Pin, 280-420V, Red: P/N 1620018



SE41-2722 REMOTE POWER NODE CABINET



RFT-V LINE POWER UP-CONVERTER SYSTEM

- NEMA 3R/4 Outdoor cabinet engineered to support 48VDC power system and LPS36 Up-Converter system
- Provides up to one hundred forty-four (144) ±190Vdc line powering RFT-V channels with current limiting and ground fault protection
- Wide AC input range (90 – 300Vac) for worldwide deployment
- High efficiency for reduced OPEX and carbon footprint
- Optional battery backup for continuous power during power outages
- Up to (3) 50-pair protector panels provided for output surge protection to each RFT-V circuit
- Flexible thermal management solutions enable convenient matching to load and environmental parameters

ELECTRICAL

Input Voltage Range:90 to 300Vac
Output Voltage:±190Vdc (RFT-V)
Output Power:
 96W nominal per circuit/channel (4 outputs per LPS36 module)
 (Qty 1) LPS36 23" shelf = 48 CH
 (Qty 2) LPS36 23" shelf = 96 CH
 (Qty 3) LPS36 23" shelf = 144 CH
Protection:
 Up to (3) 50-pair protector panel with 5-pin gas tube modules
 (sold separately)
Efficiency:>92%
Regulation:<2% no load to full load

PERFORMANCE / FEATURES

Alarm:

- High/Low Temp
- Intrusion
- Power system minor/major
- LPS36 minor/major

MECHANICAL

Dimensions:
 mm: 1041H x 686W x 559D
 inches: 41H x 27W x 22D
Weight:
 145kg (320lbs) Based on SE41-2722 with heat exchanger, Cordex 48Vdc power system and (1) LPS36 shelf
Mounting: Pole/Ground
Connections:
 Input: Load center with main disconnect
 Output: 25-pair 3M 4005-GBM/TR connector

ENVIRONMENTAL

Temperature:
 Operation: -40 to 46°C (-40 to 115°F) plus solar loading
 Storage: -40 to 85°C (-40 to 185°F)
Enclosure Rating: NEMA 3R/4
Surge Protection: UL 497 Listed protectors for RFT-V circuits
Humidity: 5 to 95% RH
Elevation: -500 to 2800m (-1640 to 9186ft)

AGENCY COMPLIANCE

Safety: IEC/CSA/UL 60950-1, IEC/CSA/UL 60950-21
EMC: CFR47 (FCC) Part 15 Class A, EN 55022 class A

RELATED COMPONENTS

DC-DC Converter, Pwr Mdl, CX-HP LPS36: P/N 0120011-001
 Prot Mod, GDT, 5-Pin, 280-420V, Red: P/N 1620018
 Pwr Mdl, CXRF-HP 48-2.4kW, RoHS6: P/N 0100003-001



LPR12-30, LPR12-60 LPR48-30, LPR48-60



±190VDC TO 12VDC OR 48VDC LINE POWER REMOTE SUPPLY UNIT

- ±190V to 12V or 48V DC-DC Downconverter for remote/line powering single family, multi-dwelling unit home (FTTH), premises (FTTP) or muni WiFi networks
- Utilize existing copper pair networks for distributing power
- Reduce truck rolls and operating expenses with no batteries at remote sites
- Compact, self-enclosed design ideal for mounting on the side of house, or aerial strands
- Built-in power holdup ensures remote equipment rides through line surges

LPR12-30 P/N: 0120040-001
LPR48-30 P/N: 0120042-001
LPR12-60 P/N: 0120041-001
LPR48-60 P/N: 0120043-001

ELECTRICAL

Input Voltage:200 to 380Vdc (±100 to ±190Vdc)
Output Voltage:
 LPR 12-30: 12.0 - 12.5Vdc
 LPR 12-60: 12 - 14Vdc
 LPR 48-30: 47 - 50Vdc
 LPR 48-60: 54 - 56Vdc
Power:30W (LPR 12-30/48-30)
 60W (LPR 12-60/48-60)
Efficiency:>86% (12V) - 89% (48V)

PERFORMANCE / FEATURES

LED: Presence of network line power providing output voltage
Connections: 8 pin molex connectors
Wall Mounting: Three #8 x 1½" pan head screws with RTV sealing compound

MECHANICAL

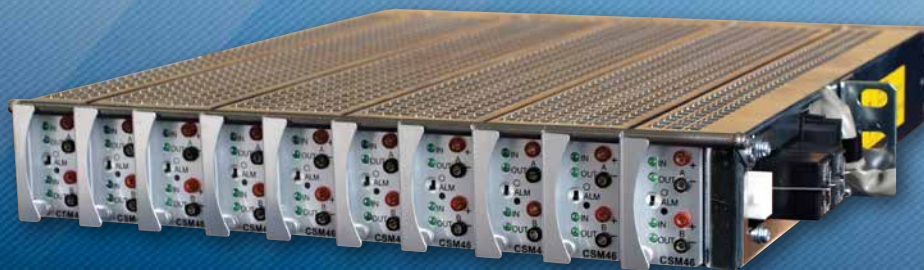
Dimensions:
 mm:202H x 138W x 52D
 inches: 7.9H x 5.4W x 2.0D
Weight:0.78kg (1.7lbs)

ENVIRONMENTAL

Temperature:-40 to 65°C (-40 to 149°F)
Humidity:5 to 95% RH non-condensing

AGENCY COMPLIANCE

Enclosure: NEMA 3R
Safety: UL 60950-1, CSA/UL 60950-21 (RFT-V circuit compatible), CSA/UL 60950-22, UL50E
Emissions: CFR47 (FCC) Part 15 Class A, EN 300 386 V1.6.1



CSM46

±190VDC TO -48VDC CONVERTER

- ±190V to 48V DC-DC Down Converter for remote/line powering applications (RFT-V)
- Utilize existing copper pair network for distributing power
- Reduce truck rolls and operating expenses with no batteries at remote site
- High reliability convection-cooled design and compact 1RU footprint

P/N: 012-554-20-041

ELECTRICAL

Input Voltage: 195 to 380Vdc (± 97.5 to ± 190 Vdc)
Input Current: 240mA $\pm 2\%$
Efficiency: >85%
Output Power: Up to 75W per channel or 150W per module
 (de-rates linearly with input voltage)
Output Voltage: -50 to -55Vdc
Output Current: 1.5A max (de-rates linearly with input voltage)
Noise: <500mv p-p to 20MHz
 <250mVrms to 20MHz

PERFORMANCE / FEATURES

Indicators:

Converter A: I/P OK (green LED)
 Converter A: O/P OK (green LED)
 Converter B: I/P OK (green LED)
 Converter B: O/P OK (green LED)

Test points:

Converter A: I/P voltage
 Converter B: I/P voltage

Protection:

Input fuses
 Input current limit
 Input transient portection
 Input high and low voltage shutdown
 Thermal shutdown
 Output parallel diodes
 Output OVP
 Reverse polarity protection

Miscellaneous:

Alarm masking switch for disabling shelf level alarming

MECHANICAL

Dimensions:

mm: 42H x 23W x 280D
 in: 1.65H x .9W x 11D

Weight: 0.67kg (1.5lbs)

ENVIRONMENTAL

Temperature: -40 to 75°C (-40 to 167°F) with external airflow
Humidity: 0 to 95% NC

SHELVES

10-Module shelf P/N: 030-831-20-040

4-Module shelf P/N: 030-903-20-040

Mechanical

Dimensions:

mm: 45H x 273W x 311D
 in: 1.75H x 10.75W x 12.25D
 (excludes connectors and mounting brackets)

Weight: 4.87kg (10.8lbs)

Performance/Features

Access: Front access

Connections:

Input: 50-pin amp-champ style connector
 and wireharness
 Output: Anderson SBS50 and molex style options
 and wireharness
 Alarm: Flying leads or molex style connector
 and wireharness
 Chassis gnd: 1/4" studs on 5/8" C

Alarms:

Major form C relay
 Minor form C relay
 Note: Relays are field replaceable

AGENCY COMPLIANCE

Safety: CSA/UL 60950-1, CSA/UL 60950-21 (RFT-V circuit), CE IEC/EN 60950
EMI: Class A radiated, GR-1089 issue 3 (applicable sections)



AGGREGATOR

CLASS 2 CIRCUIT AGGREGATION DEVICE

- › Aggregates up to eight (8) NEC Class 2 inputs into a single, 48Vdc bulk output
- › When deployed in conjunction with Alpha's eLimiter™ product family, meets the requirements for Class 2 circuits, even for remote devices that consume more than 100W of power
- › Enables remote powering of iDAS, indoor small cells and WiFi networks
- › Dramatically reduces CAPEX by eliminating the need for conduit and certified electrical technicians
- › Results in lower OPEX by eliminating the requirements for batteries at the remote sites

P/N: 0120046-001

ELECTRICAL

Input Voltage: 48Vdc Nominal Range: 35 to 60Vdc
(x 8 Class 2 Inputs)

Input Power: 8x 100VA Class 2 inputs: total 800VA max

Output Voltage: 48Vdc Nominal

Output Power: ≤800W

Efficiency: >98.5%

Voltage Drop Input/Output: 200mV/A nominal

Insertion Line Loss Per Channel:

- 2 channels active: 1.8W/channel
- 4 channels active: 1.6W/channel
- 8 channels active: 1.5W/channel

Connections:

Input: 8X 2 pos. plug-in TB, AWG #12-30

Output: 2 pos. plug-in TB, AWG #10-30

Alarm: 3 pos. plug-in TB, AWG #16-28

Chassis Ground: Accept ¼" - 5/8" center to center, dual hole terminal lug, maximum width 0.7" (18mm)

PERFORMANCE / FEATURES

MTBF: >400,000 @ 30°C (86°F) ambient; test model
Telcordia SR-332, Issue 2 (2006)

Alarm Relays: Form C contact
Triggered if any channel opens

Alarm Indicating LEDs: ..System OK (green)
Minor Alarm (yellow)
Major Alarm (red)

MECHANICAL

Dimensions:

mm: 43.6H x 275W x 224.8D
inches: 1.72H x 10.83W x 8.85D

Weight: 2.7kg (6lbs)

ENVIRONMENTAL

Storage: -40 to 85°C (-40 to 185°F)

Humidity: 0 to 95% RH non-condensing

Elevation: -500 to 2800m (-1640 to 9186ft)

Heat Dissipation: <37.5 BTU per hour

AGENCY COMPLIANCE

Safety: CSA/UL 60950-1

EMC: ETSI 300 386

Emissions: CFR47 (FCC) Part 15 Class A

Immunity: EN 61000-4-2, 4-3, 4-4, 4-5, 4-6

NEBS/Telcordia: GR-1089-CORE, GR-63-CORE

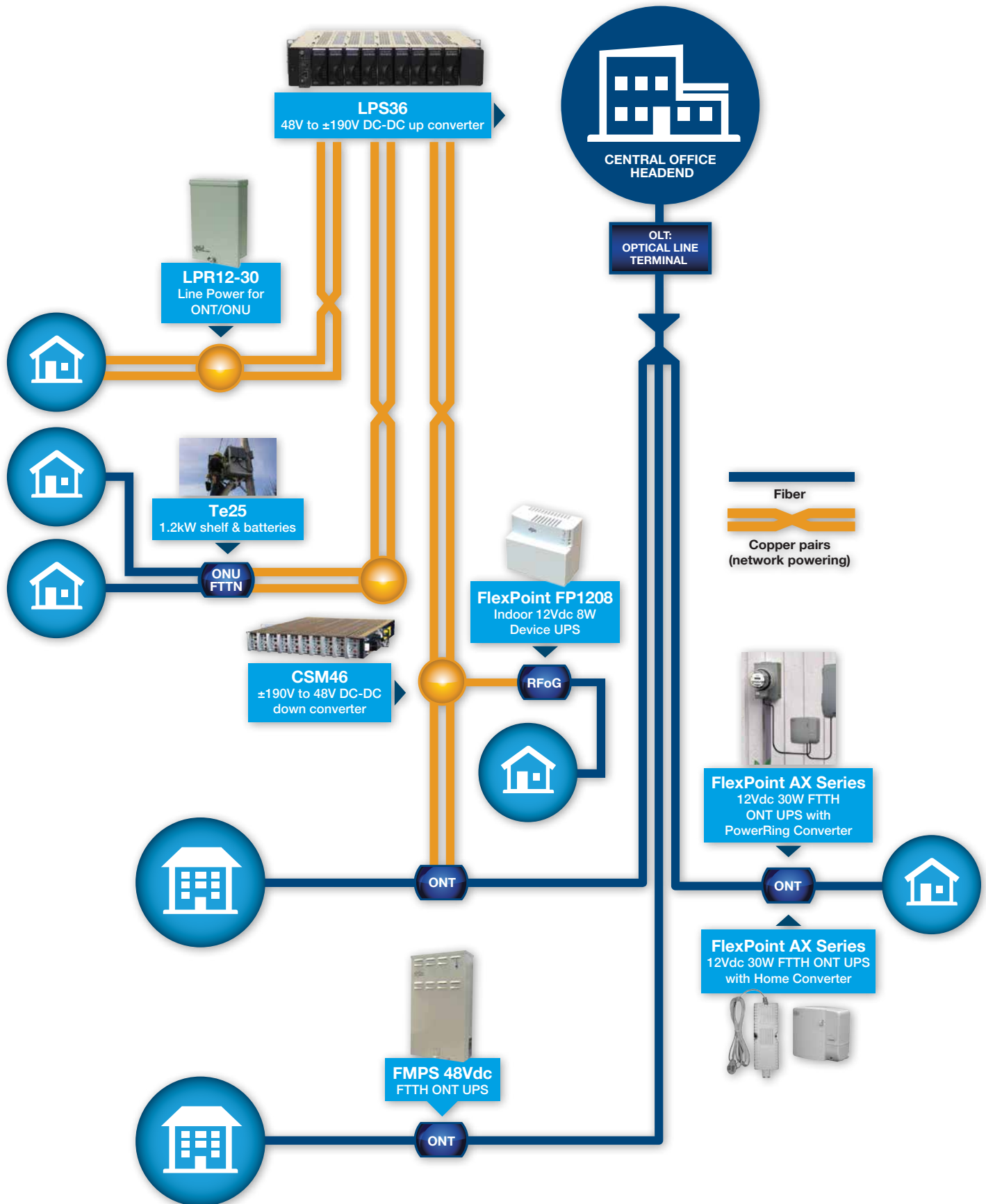
NEC: Input circuits need to be compliant to NEC article 725 (CEC article 16-200) requirements for class 2 power limited circuits and need to be supplied from the eLimiter™ product family

Isolation: 2250Vdc electrical isolation between output and earth/chassis (compliant with IEEE 802.3 at standard to meet PoE+ isolation requirement)



OUTDOOR LOCAL POWER SOLUTIONS

Now available to over 30 million North American households, fiber is fast becoming the technology of choice for next-generation, highspeed access to the Internet, content streaming, video and emerging applications. Alpha offers a complete portfolio of fiber powering options with the FlexPoint™ line of 12Vdc single-family solutions (SFU) and the FlexNet™ line of 48Vdc multiple dwelling unit (MDU) and small office home office (SOHO) power supplies. Alpha's powering solutions are engineered to excel in the most demanding environmental conditions while optimizing battery life and performance.



FLEXPPOINT™ 1208F, 1215, 1232 & 1250



FTTH UPS POWER SERIES

- › Telecommunications grade power system provides 8W, 15W, 32W & 50W of 12Vdc UPS power for FTTH and radio frequency over glass (RFoG) applications
- › Replaceable, 5Ah to 8Ah battery
- › Battery management system provides optimum service life and runtime
- › Local visual and audible status indicators and remote alarm interface
- › Packet Cable™ interface options
- › Enhanced surge protection of 6kV

INPUT OPS

AC Input Voltage: 110Vac or 240Vac
AC Input Frequency: 50/60Hz
Surge Protection:
 Standard: Telecordia GR-1089 ANS/IEEE C62.41 IEC 61000-4-5
 Level: 1.2x50µs combination wave, 2KV

MECHANICAL

| Model | FP1208F | FP1215 | FP1232 | FP1250 |
|--------------------------------------|--------------------------|----------------|----------------|----------------|
| Dimensions in | 6.6L x 7.5W x 3.28D | | | |
| 5, 6.5, 7.2 or 8Ah Battery mm | 167.64L x 190.5W x 83.3D | | | |
| Weight w/o Battery | 1.2lb (0.54kg) | 1.2lb (0.54kg) | 1.3lb (0.58kg) | 1.4lb (0.63kg) |
| 5.0Ah | 3.9lb (1.8kg) | | | |
| 7.2Ah | 5.7lb (2.6kg) | | | |
| 8.0Ah | 5.73lb (2.7kg) | | | |

INDICATORS

Visual Indicators:
 AC Power Green LED On: AC power present and powering the ONT
 Battery Green LED On: Battery powering ONT during AC loss
 Green Flashing: Battery powering ONT during AC loss and running low
 Replace Battery: Red LED Off: Battery present and working correctly
 Red LED On: Replace battery/battery missing
 Muted Indicator: Green LED Light: Audible alarm is muted

Audible Status Indicators:

Loss of input power: Single, one second chirp
 Low battery: Single chirp every 15 seconds at 25% SOC
 Replace battery: Double chirp spaced fifteen minutes apart

Push Buttons:

DC start: Press and hold when unit is off to start up on battery without AC present
 Silence alarm: When any audible alarm is on, press this key at least 1 second and release to silence the audible alarm until power is cycled

INTERFACE

DC Output: Removable screw terminal plug accepts (2) 16AWG and (5) 24AWG wires or F-Type Coaxial (1208F)
AC Input: IEC 320/C6 inlet
Line Cord: NEMA 5-15 to IEC 320 C5 (other power cords available upon request)

SUPPORTING OPTIONS

AX-STDBAT-5: Battery 5.1Ah AGM, 1 year warranty
 AX-LONGBAT-5: Battery 5.1Ah AGM, 3 year warranty
 AX-STDBAT-6.5: Battery 6.5Ah AGM, 1 year warranty
 AX-STDBAT-7: Battery 7.2Ah AGM, 1 year warranty
 AX-LONGBAT-7: Battery 7.2Ah AGM, 3 year warranty
 AX-LONGBAT-8: Battery 8.0Ah AGM, 3 year warranty
 AX-STDBAT-12: Battery 12Ah AGM, 1 year warranty
 FTTH-CBL: ONT hook-up cable, 2x16AWG and 5x24AWG, CMX UL listed
 12Ah cover: 12Ah battery cover and velcro strap

WARRANTY

FlexPoint 1208F, 1215, 1232 & 1250: 1 year repair or replace
Batteries Available: 1 year or 3 year

AGENCY COMPLIANCE

System: FCC part 15 Class B, C-NRTL/C (60950-1), CE C-Tick/RCM, RoHS to EU 2011_65_EC

| Model | FP1208F | FP1215 | FP1232 | FP1250 | | |
|---|--|--------------------------|--------------------------|--------------------------|-----------------|-----------------|
| P/N | 010-353-20 | 010-354-20 | 010-355-20 | 010-356-20 | | |
| OUTPUT | | | | | | |
| Operational Output Power (ONT load) | 8W max continuous | 15W max continuous | 32W max. continuous | 50W max. continuous | | |
| Output Voltage | 12Vdc nominal (battery voltage upon loss of AC) | | | | | |
| MECHANICAL | | | | | | |
| Dimensions 5, 6.5, 7.2 or 8Ah battery | mm | 167.6H x 190.5W x 83.3D | 167.6H x 190.5W x 83.3D | — | — | |
| | inches | 6.6H x 7.5W x 3.2D | 6.6H x 7.5W x 3.2D | — | — | |
| Weight w/o Battery | 0.54 (1.2lbs) | 0.54 (1.2lbs) | 0.58 (1.3lbs) | 0.63 (1.4lbs) | | |
| BATTERY WEIGHT | | | | | | |
| 5.0Ah Battery Weight | 1.8 (3.9lbs) | 1.8 (3.9lbs) | 1.8 (3.9lbs) | 1.8 (3.9lbs) | | |
| 6.5Ah Battery Weight | 1.97 (4.3lbs) | 1.97 (4.3lbs) | 1.97 (4.3lbs) | 1.97 (4.3lbs) | | |
| 7.2Ah Battery Weight | 2.6 (5.7lbs) | 2.6 (5.7lbs) | 2.6 (5.7lbs) | 2.6 (5.7lbs) | | |
| 8.0Ah Battery Weight | 2.7 (5.73lbs) | 2.7 (5.73lbs) | 2.7 (5.73lbs) | 2.7 (5.73lbs) | | |
| ENVIRONMENT | | | | | | |
| Storage Temperature | -20 to 45°C (4 to 113°F) | -20 to 45°C (4 to 113°F) | -20 to 45°C (4 to 113°F) | -20 to 45°C (4 to 113°F) | | |
| Operating Temperature | -20 to 45°C (4 to 113°F) | -20 to 45°C (4 to 113°F) | -20 to 45°C (4 to 113°F) | -20 to 45°C (4 to 113°F) | | |
| Humidity | 5 to 95% non condensing | 5 to 95% non condensing | 5 to 95% non condensing | 5 to 95% non condensing | | |
| Elevation Operation Maximum | 3,000m (10,000ft) derate at 2°C (35.6°F) per 304.8m (1,000ft) above 1,828.8m (6,000ft) | | | | | |
| Elevation Storage Maximum | 15,000m (50,000ft) | 15,000m (50,000ft) | 15,000m (50,000ft) | 15,000m (50,000ft) | | |
| MODELS & INPUT POWER LINE CORDS | | | | | | |
| 120VAC 3-conductor NEMA 5-15 | FP-1208F-5A | FP-1215-5A | FP-1232-8A | FP-1250-12A | | |
| 230VAC 3-conductor Schuko | FP-1208F-5B | FP-1215-5B | FP-1232-8B | FP-1250-12B | | |
| 230VAC 3-conductor UK | FP-1208F-5C | FP-1215-5C | FP-1232-8C | FP-1250-12C | | |
| 240VAC 3-conductor Australia/New Zealand | FP-1208F-5D | FP-1215-5D | FP-1232-8D | FP-1250-12D | | |
| 120VAC 3-conductor NEMA 5-15 power cord with BC cable | — | — | FP-1232-8-6C | FP-1250-12-6C | | |
| BATTERY RUNTIMES | | | | | | |
| | 7.5W Load | 15W Load | 16W Load | 32W Load | 36W Load | 50W Load |
| 5.1Ah battery (hrs) | 6.3 hrs | 2.8 hrs | 2.5 hrs | 1.1 hrs | 0.9 hrs | 0.7 hrs |
| 7.2Ah battery (hrs) | 9.9 hrs | 4.2 hrs | 3.9 hrs | 1.6 hrs | 1.4 hrs | 1.0 hrs |
| 8.0Ah battery (hrs) | 11.2 hrs | 5.0 hrs | 4.7 hrs | 2.0 hrs | 1.7 hrs | 1.1 hrs |
| Battery type | Maintenance free, leak-proof, sealed valve regulated lead acid (VRLA) | | | | | |

*Battery Runtime @ 25°C

FLEXNET™ AX SERIES



FTTP ONT UPS SYSTEM

- › Scalable FTTP/FTTX power supply systems with or without standby
- › Full or partial outdoor configurations
- › Outdoor rated including battery for 24/7 availability
- › Utility meter base provides most reliable source of AC power at home
- › Safe, low-voltage distribution
- › 30W with battery module, 24W without battery module

Consult your Alpha representative for P/N configurations

ELECTRICAL

AC Input Voltage:

- AX30-12D-HC: 85 to 132Vac (120Vac nominal)
- AX30-12D-SFPC: 216 to 254VAC (240Vac nominal)
- AC input frequency: 50 to 60Hz for AX30-12D-HC
60Hz for AX30-12D-SFPC

Note: International AC selections and line cords available.

DC Output Voltage:

- SFPC/HC + BBPS (UPS system): 10.5 to 14.4Vdc
- SFPC/HC (non UPS): 11.6Vdc

Continuous Output Power:

- SFPC/HC + BBPS (UPS system): 30W at nominal battery float voltage
- SFPC/HC (non UPS): 24W
- SFPC (non UPS): 30W @ -40 to 55°C
20W @ 65°C
- Current limit: 2.4A current limit (HC),
3.2A current limit (SFPC)
- Short circuit protection: Electronic
- DC ripple: 150mV

PERFORMANCE / FEATURES

Type: Maintenance-free, leak-proof, sealed
VRLA (valve regulated lead acid)

Typical Recharge Time:

- AX-12D-BBPS-7.2: <16hrs with 24W
- AX-12D-BBPS-17 load: <36hrs with 24W load

ENVIRONMENTAL

Operating Temperature Range:

- AX-30-12D-SFPC + BBPS: -40 to 45°C (-40 to 113°F)
- AX-30-12D-HC + BBPS: -40 to 45°C (-40 to 113°F)
- AX30-12D-HC: -40 to 45°C (-40 to 113°F)
- AX30-12D-SFPC: -40 to 65°C (-40 to 149°F) unit derates
above 55°C (131°F)

Humidity:

- 0 to 95%

Battery Storage:

- -15 to 65°C (5 to 149°F)
- 0 to 95% humidity

Elevation:

- Operation max: 10,000ft (3000m)
- Storage max: 50,000ft (15000m)

USER INTERFACE

Status Alarms

Local (LED indicators):

- Green Steady: Output OK
- Green Blinking: Standby operation
- Red Steady: Replace battery
- Red Blinking: Battery missing/battery low

Remote (Status Alarms – PacketCable Compliant):

- AC Fail: Output power drawn from battery
- Replace Battery: Battery has failed periodic self-test
- Battery Missing: Battery is disconnected
- Battery Low: Battery has 20% remaining runtime

AGENCY COMPLIANCE

- Home Converter:** NRTL/C LPS, FCC Part 15 Class B, UL/CSA UR UL 60950-1
- Power Ring:** UR UL414
- Power Ring Converter:** UR UL60950-1, UL SU2745
- BBPS Modules:** NRTL/C

FLEXPOINT UPS RUNTIMES (MINS) OVER TEMPERATURE

| 7.2Ah | | | |
|------------|-------------|------------|------------|
| Load/Temp | -40°C/-40°F | -20°C/-4°F | 25°C/ 77°F |
| 7W | 360 | 560 | 800 |
| 10W | 160 | 360 | 500 |
| 15W | 110 | 195 | 320 |
| 18W | 80 | 156 | 240 |
| 20W | 60 | 130 | 210 |
| 25W | 50 | 100 | 170 |
| 30W | 30 | 80 | 130 |
| 17Ah | | | |
| Load/Temp. | -40°C/-40°F | 20°C/-4°F | 25°C/ 77°F |
| 10W | 750 | 1080 | 1240 |
| 15W | 400 | 680 | 940 |
| 20W | 260 | 440 | 680 |
| 25W | 160 | 340 | 480 |
| 30W | 140 | 232 | 400 |



POWER-RING

175A continuous, 240A rated
AX-POWER-RING-A (power tap after meter)
— P/N: 021-053-10-021
AX-POWER-RING-B (power tap before meter)
— P/N: 021-053-10-020

Compatible with ring and ringless style meter sockets and provides a receiving socket for the FlexPoint AC to DC Power-Ring converter module. Depending on the model, the Power-Ring can tap the AC power before or after the meter and comes supplied with a blanking plate.

Dimensions:

mm: 120H x 178Dia
in: 4.75H x 7.0Dia

Weight: 0.68kg (1.5lbs)



HOME CONVERTER

AX30-12D-HC — P/N: 010-318-10-039

Contains highly-reliable environmentally-hardened 120Vac to 12Vdc converter circuitry in a wall mount housing. Comes with a two-conductor AC line cord and should be mounted in locations sheltered from rain or snow. Outputs 24W and 11.6Vdc as a stand-alone module or supports 30W and 11.6 to 16Vdc battery backup power supply (BBPS) module output.

Dimensions:

mm: 209H x 70W x 38D
in: 8.25H x 2.75W x 1.5D

Weight: 0.32kg (0.7lbs)



THE UPS MODULES

AX-12D-7.2Ah (for 7.2Ah battery)
— P/N: 745-816-10-021
AX-12D-17Ah (for 17Ah battery)
— P/N: 745-816-10-020



Provides the network operator the capability to place the battery management element inside other enclosures located at the subscriber's home. UPS modules contain the same electronics used in the AX-12D-BBPS products without the battery heater and are to be used with FlexPoint Home converter and Power-Ring converter.



BATTERY MODULES

AX-12D-BBPS-7.2 — P/N: 031-264-10-022
AX-12D-BBPS-17 — P/N: 031-192-10-032

The Battery Backup Power Supply (BBPS) module outputs 30W of continuous power and includes a microprocessor-based battery charge management system providing the correct charge voltage to the battery over a wide temperature range, while performing periodic battery capacity testing and status reporting to the ONT and customer. The onboard battery heater provides extended standby runtimes in cold conditions to -40°C (-40°F). The 7.2Ah battery model provides standard runtimes and the 17Ah model provides extended runtimes.



Dimensions:

mm: 203H x 230W x 102D
in: 8.0H x 9.0W x 4.0D

Weight: 0.68kg (1.5lbs)

Dimensions:

mm: 355H x 241W x 127D
in: 14H x 9.5W x 5.0D

Weight: 2.04kg (4.5lbs)



POWER-RING CONVERTER

AX30-12D-SFPC — P/N: 010-318-50

Contains highly-reliable environmentally-hardened 240Vac to 12Vdc converter circuitry in a pluggable housing. Outputs 30W and 11.6Vdc as a stand-alone module, or supports 30W and 11.4 to 16Vdc battery backup power supply (BBPS) module output.

Dimensions:

mm: 233H x 152.4W x 44.5D
in: 9.2H x 6.0W x 1.75D

Weight: 0.52kg (1.14lbs)



BATTERIES

7Ah Long-life battery with wide temperature range, 3-year warranty, P/N: 1810063

The FlexPoint AX battery modules use valve regulated lead acid (VRLA) AGM batteries.



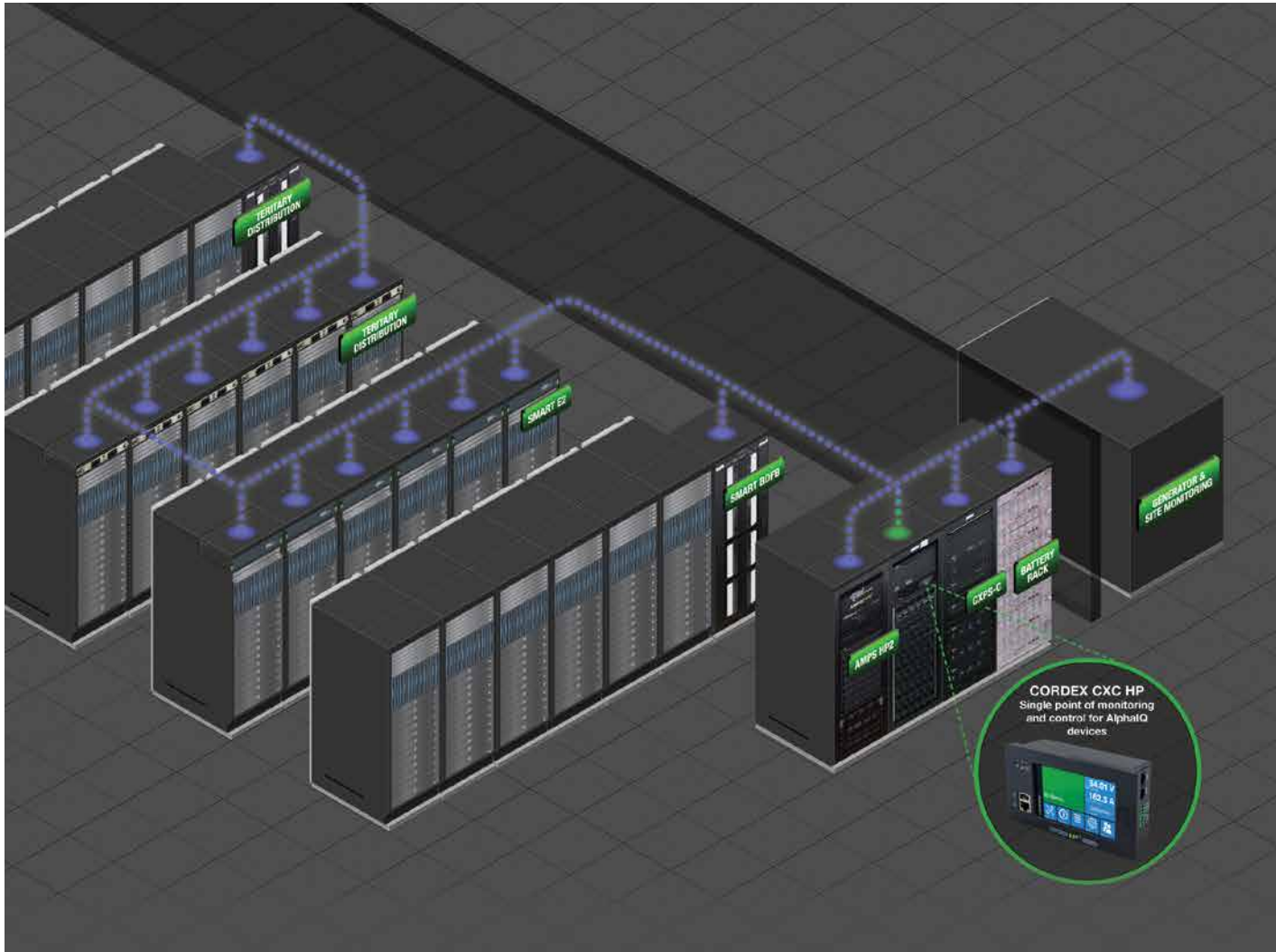
Weight: 2.6kg (5.7lbs)

CONTROLLERS & COMMUNICATIONS

Rapidly evolving technology is changing the design of telecommunications networks. The networks must keep pace with users who want always-on, bandwidth on demand, whether in the office, at home, or in transit. These changes are driving new deployment architectures for backup power equipment as well. Not only must the power equipment meet today's requirements, it must also provide a path to the future. The CXC HP series is Alpha's latest generation of control and software platforms that are designed to meet the robust needs of critical backup solutions, provide the flexibility for advanced applications, and manage the power infrastructure of the future.

The CXC HP platform also enables a new, holistic control and management software solution called Alpha IQ™. With Alpha IQ technology, the CXC HP platform provides solutions, intelligence, and interconnectivity to provide users with the right information when it is needed. CXC HP offers centralized monitoring and control to provide a single point of access for all the activity within a site. Imagine having the ability to have all aspects of the power flow within one single interface. From energy sources and power conversion elements, to distribution and remote loads, Alpha IQ technology provides useful knowledge and the power to make efficient and informed decisions. CXC HP and Alpha IQ technology help the user manage energy consumption, by providing users assurance that critical equipment is operating reliably and efficiently to minimize total cost of ownership. The platform has been designed from the ground up to meet the needs of today's networks, while providing a clear path for meeting the evolving architectures of the future.





Alpha products with smarts to grow with your business

The next generation of monitoring to help you make informed decisions

Alpha IQ™ technology provides smart, reliable monitoring and control of IQ-integrated products using a robust internal Controller Area Network (CAN) connection. With the Cordex CXC HP controller, operators can receive notifications based on both data and events, even generated from systems external to the power system itself. Thanks to a variety of controller designs which all utilize modular peripherals, Cordex controllers offer easy integration with all Alpha power systems.

Additionally, the CXC HP offers advanced equation support for various customization and automation capabilities to satisfy complex application requirements and reduce overall OPEX. By leveraging power flow information, operators can make predictive decisions on the operations of their power plants and backup capacity management.

CXC HP Controller

The flagship Cordex™ HP Controller is a site-level monitoring and control for all Alpha systems, allowing connectivity to Alpha power modules and I/O peripherals. With a robust internal communications protocol, the Alpha ecosystem enables user to consolidate site monitoring hardware, improve site data gathering, and provide advance energy management and automation. The Cordex™ HP is a single gateway for both local and remote connectivity requirements to all power devices and environmental monitors.

Advanced Features

In the areas of logging, equations for calculations and custom event responses provide high level of intelligence for all power flow operational requirements.

Web Interface

A web interface is the primary window to the CXC HP's vast information set. Simple web design following industry standards provide a clean and intuitive look of the information available.



GENERAL

Customizable web GUI interface: Web browser access for control and monitoring of power systems with configurable multi-system dashboard view

Enhanced external communications: SNMP v2c, v3, MODBUS and secured email

USB port: Management of controller upgrades, configuration or log files can be done easily with a USB thumb drive

SNMP v2 and v3 support: Secured network management service support for managing multiple systems in a single network

Email notifications: Supports secured TLS access

Single IP: Entire site data collecting for information and fault management

Performance logs: Graphical charts providing overlay of all monitored data

Configuration file import/export: Supports partial configuration management to get only the desired configuration items for transfer between controllers or for safe keeping as backup

Controller backup: Backup the entire controller application structure for safe keeping

Multi language support

BATTERY MANAGEMENT

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 estimate: Based on current battery capacity and system loads, and predicted loads

Battery logging: Records of battery charge/discharge statistics and events

Dynamic charge current control: Limits battery recharge current to a fixed value, helps to prevent thermal runaway

Temperature compensated float voltage: Increases voltage with 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

SYSTEMS

Multiple system monitoring: Control and monitor multiple systems to provide power flow information

System modelling: Build the virtual power system in the controller to represent the physical inventory by adding modules, loads, disconnects, shunts

Smart Distribution System: Enhanced data source for smart panels which communicate to a single controller

Commissioning wizards: Guides the commissioning process and the configurations needed to get systems up and running quickly

Graphical layout: Location accurate graphical view of power modules within the physical rack and shelves to support monitoring and maintenance work

Predictive load monitoring: Anticipate potential DC load current on a complete AC outage of Amps inverter/ups solutions for accurate battery runtime predictions

Auxiliary System: New system addition to monitor environmental entities

Cordex™ HP peripheral support: Optional add-on's for individual cell and temperature monitoring and for expanding controller I/O

Power save function: Improves operational efficiency by running minimum number of rectifier modules required depending on system load

Fail safe system operation: In the event of CXC failure, power modules continue to run with default settings, fail alarm generated, and LVD's (if equipped) remain energized

System start delay: Allows delay for other AC powered equipment to start before rectifiers

CUSTOMIZATION

User programmable logic statements: Create an event or alarm based on criteria you define

Automation: Sophisticated features such as peak shaving, load shedding and genset control

Data logs: Customizable to track the most important data points to the user

Web dashboard: Multiple system summaries for information at a glance

Multiple preset alarms: Ability to configure almost any amount of customized alarms

CORDEX™ CXCI HP



SYSTEM CONTROLLER

- Modular, hot swappable controller for use with Alpha's Cordex 2U rectifier, converter, and line powering platforms
- Advanced next-generation control and monitoring platform for Alpha's Cordex product family
- Integrated USB host for local firmware upgrades, configuration updates and system backup/restoration
- Seamless integration of multiple energy systems allowing comprehensive management, monitoring & control
- Integrated OLED display with numerous features including local software upgrades and system backup/restore

P/N: 0180053
P/N: 0180056

ELECTRICAL

Input Voltage: 10 to 60Vdc

PERFORMANCE / FEATURES

User Interface:

- **Display:** Integrated OLED display with selection and navigation buttons. Features: ALCO, backup, restore, s/w and OS upgrade, display rotate, reset, IPv4/6 address view, system(s) status display
- **Web UI:** Embedded web based UI accessed via Ethernet using internet browser (Firefox, Chrome, IE)
- **Audio:** Built in multi-tone speaker
- **LED Indicators:**
 - System OK: Green
 - Minor: Amber
 - Major/Critical: Red

Battery:

- Automatic battery test
- Battery runtime and capacity indication
- Charge current control
- Temperature compensation
- Equalize
- Absorption charge settings with entry/exit criteria

System:

- User management – Admin + 5 users with configurable access rights
- Advanced inventory management with custom inventory items
- User configurable alarms and custom data
- Advanced equation editing with timers and counters
- Software, firmware, and configuration file upgrade management
- CAN Bus interface to Cordex power electronics and peripherals
 - Custom data logging and performance monitoring
 - Powersave feature for optimizing system efficiency

Communication:

SNMP:.....SNMP v2 + v3 via Ethernet. Compatible with subscription and discovery services
TCP/IP:.....IPv4 or IPv6
Email:SMTP TLS via Ethernet

Communication Ports:

CAN:Port accessible on 1.2kW shelf system for connection to CXC HP ADIO peripherals
Ethernet:1x Port (front); 10/100 Base T with full/half duplex; Auto MDI/MDI-X
USB:1x USB 2.0 Port (front)

System I/O:

Alarm relays:4 (3 + 1 internal on some models)*
Voltage inputs:1 + 1 internal
Temp inputs:2
Current inputs:1 (0 + 1 internal on some models)
Digital inputs:2 (1 + 1 internal on some models)

MECHANICAL

Mounting:.....Integrated controller for 2U power solutions including: 250W, 400W, 650W, 1.8/2.0kW, CXDF converters, LPS36, and eLimiter+.

Dimensions:

mm:.....26H x 88W x 280D
inches:1.0H x 3.5W x 11D

Weight:0.45kg (1.0 lb)

ENVIRONMENTAL

Temperature:.....-40 to 65°C (-40 to 149°F)

Humidity:0 to 95% RH non-condensing

AGENCY COMPLIANCE

Safety: CSA C22.2 No 60950-1, CE Marked

EMC: ETSI 300 386

Emissions: CFR47 (FCC) Part 15 Class B EN55022 (CISPR 22) Class B C-Tick

Immunity: EN 61000-4-2/3/4/5/6

NEBS: NEBS Level 3 (In Process)



CORDEX™ CXCM1 HP

SYSTEM CONTROLLER

- Modular, hot swappable controller for use with Alpha's HP 1.2kW rectifier platform
- Advanced next-generation control and monitoring platform for Alpha's Cordex product family
- Integrated USB host for local firmware upgrades, configuration updates and system backup/restoration
- Seamless integration of multiple energy systems allowing comprehensive management, monitoring & control
- Integrated OLED display with numerous features including local monitoring and configuration management

P/N: 0180054

ELECTRICAL

Input Voltage: 10 to 60Vdc

PERFORMANCE / FEATURES

User Interface:

- **Display:** Integrated OLED display with selection and navigation buttons.
Features: ALCO, backup, restore, s/w and OS upgrade, display rotate, reset, IPv4/6 address view, system(s) status display
- **Web UI:** Embedded web based UI accessed via Ethernet using internet browser (Firefox, Chrome, IE)
- **Audio:** Built in multi-tone speaker
- **LED Indicators:**
 - System OK: Green
 - Minor: Amber
 - Major/Critical: Red

Battery:

- Automatic battery test
- Battery runtime and capacity indication
- Charge current control
- Temperature compensation
- Equalize
- Absorption charge settings with entry/exit criteria

System:

- User management – Admin + 5 users with configurable access rights
- Advanced inventory management with custom inventory items
- User configurable alarms and custom data
- Advanced equation editing with timers and counters
- Software, firmware, and configuration file upgrade management
- CAN Bus interface to Cordex power electronics and peripherals
 - Custom data logging and performance monitoring
 - Powersave feature for optimizing system efficiency

Communication:

SNMP:.....SNMP v3 via Ethernet. Compatible with subscription and discovery services
 TCP/IP:.....IPv4 or IPv6
 Email:SMTP via Ethernet

Communication Ports:

CAN:Port accessible on 1.2kW shelf system for connection to CXC HP ADIO peripherals
 Ethernet:1x Port (front); 10/100 Base T with full/half duplex; Auto MDI/MDI-X
 USB:1x USB 2.0 Port (front)

System I/O:

Alarm relays:4 (3 + 1 internal on some models)*
 Voltage inputs:1 + 1 internal
 Temp inputs:2
 Current inputs:1 (0 + 1 internal on some models)
 Digital inputs:2 (1 + 1 internal on some models)

MECHANICAL

Mounting:.....Modular controller for 1.2kW series shelf systems

Dimensions:

mm:.....44H x 88W x 318D
 inches:1.73H x 3.5W x 12.5D

Weight:0.45kg (1.0 lb)

ENVIRONMENTAL

Temperature:.....-40 to 65°C (-40 to 149°F)

Humidity:0 to 95% RH non-condensing

AGENCY COMPLIANCE

Safety: CSA C22.2 No 60950-1, CE Marked

EMC: ETSI 300 386

Emissions: CFR47 (FCC) Part 15 Class B EN55022 (CISPR 22) Class B C-Tick

Immunity: EN 61000-4-2/3/4/5/6

NEBS: NEBS Level 3 (In Process)

CXC HP L-ADIO



CXC HP SMART PERIPHERAL

- CXC HP series ADIO peripheral with flexible rack, panel, and DIN mounting options
- For low voltage (<60Vdc) system support using the advanced CXC HP control platform
- I/O expansion via CAN bus for advanced site monitoring applications, including support for future growth
- Provides accurate monitoring for temperature, voltage, and current measurements

P/N: 0180039

ELECTRICAL

Input Voltage: 10 to 60Vdc

Input Power: 5W

PERFORMANCE / FEATURES

Local Alarms: Power ON (Blue) Communications OK (Green)

Communication Ports: ... CAN In/Out (RJ12 Offset)

Controller I/O:

Voltage inputs: 4 BiV (-60 to +60Vdc)

Current shunt inputs: 2 (25 to 200mV)

Temperature inputs: 4

Digital inputs: 8 (60Vdc rated)

Relay outputs: 12 (Form C, 60Vdc rated)

MECHANICAL

Mounting: CXC HP 3U rack panel mount (0180046) or
DIN/Panel mounting (0370196)

Dimensions:

mm: 200H x 84W x 30D

inches: 7.9H x 3.3W x 1.2D

Weight: 27kg (0.6lbs)

ENVIRONMENTAL

Temperature:

Extended: -40 to 65°C (-40 to 149°F)

Humidity: 0 to 95% RH non-condensing

Elevation: -500 to +4000m (-1640 to 13124ft)

AGENCY COMPLIANCE

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

Immunity: EN 61000-4-2, 4-3, 4-4, 4-5, 4-6

NEBS: NEBS L3 Certified



CXC HP HV-ADIO

CXC HP SMART PERIPHERAL

- CXC HP series ADIO peripheral with flexible rack, panel, and DIN mounting options
- Enables High Voltage (125/220Vdc) system support using the advanced CXC HP Control platform
- I/O expansion via CAN bus for advanced site monitoring applications, including support for future growth
- Integrated Ground Fault Detection (GFD) to alarm system fault conditions
- On board DC-DC converter permits use with standard CXC HP low voltage controllers

P/N: 0180057

ELECTRICAL

Input Voltage:90 to 300Vdc
Input Power:50W (125Vdc 0.4A; 220Vdc 0.2A)
Output Power:30Vdc; Max 1A, 30W (For feeding low voltage CXC HP controller)
DCCT Power:±15Vdc

PERFORMANCE / FEATURES

Local Alarms:Power ON (Blue)
Communications OK (Green)
Communication Ports:...CAN In/Out (RJ12 Offset)
Ground Fault Detection: 1 user configurable (Adjustable up to 15mA) on V2 input channel
Controller I/O:
 Voltage inputs:2 (±300Vdc)
 Current shunt inputs:1 (25 to 200mV)
 DCCT current inputs:2 (±10Vdc signal)
 Temperature inputs:2
 Digital inputs:4 (Contact closure detect – 5Vdc Max)
 Relay outputs:6 (Form C, 220Vdc 50W max)

MECHANICAL

Mounting:.....CXC HP 3U rack panel mount (0180046) or DIN/Panel mounting
Dimensions:
 mm:.....198H x 84W x 38D
 inches:7.8H x 3.3W x 1.5D
Weight:1kg (2lbs)

ENVIRONMENTAL

Temperature:
 Extended:-40 to 65°C (-40 to 149°F)
 Humidity:.....0 to 95% RH non-condensing
Elevation:-500 to +4000m (-1640 to 13124ft)

AGENCY COMPLIANCE

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
Immunity: EN 61000-4-2, 4-3, 4-4, 4-5, 4-6



SD08

BATTERY MID-POINT MONITOR

- › Simple and cost effective battery status monitoring solution
- › 24 or 48Vdc universal input
- › Flexible rack and wall mount installation options
- › Local and remote indication of pass/fail status

P/N: 747-109-20-040

ELECTRICAL

Input Voltage:±20 to 60Vdc

PERFORMANCE / FEATURES

LED Indicators:

- Battery condition OK: Green
- Battery condition Fail: Red

Front Panel Reset

Rear Output Form C Relay:.. Battery fail

Front Panel Switch:Adjust volt deviation to max 1.6V in 0.1V increments

MECHANICAL

Dimensions:

- mm:.....38.1H x 114.3W x 25.4D
- inches: 1.5H x 4.5W x 1D

Mounting:.....

- 19" rack mount (4 modules)
- 23" rack mount (5 modules)
- Wall mount (1 modules)

ENVIRONMENTAL

Temperature:.....-40 to +50°C

Humidity:0 to 95% RH non-condensing

FXM/MICRO COMMUNICATION CARD

- › For greater effectiveness, control and communication with your UPS system
- › The card allows for communication with the Alpha UPS remotely through a web based interface
- › The card is powered by the UPS batteries eliminating the need for an external power source
- › Capable of providing notifications to different email addresses
- › Outgoing notifications can be customized with selectable severity levels and triggered by events, faults and/or alarms
- › Firmware updates for the UPS or the card itself can be downloaded from our website and uploaded to the device remotely*

FXM COMMUNICATION MODULE

Remote UPS Monitoring and Management

HTTP: Hyper Text Transfer Protocol allows remote UPS monitoring and management through a web browser. The following browsers are supported: Microsoft Internet Explorer 7, 8 and 9.

SNMP: Simple Network Management Protocol allows centralized UPS monitoring and management through a network management system such as HP Open View or SNMPC.

Proactive UPS Event Handling

Event Log: Automatically records and displays UPS events, warnings and time stamps.

UPS Status Notification: SNMP notifies host UPS status and warning messages.

Email Notification: Power events can be sent through email.

Intelligent UPS Management

User Scheduling: Allows configuration of scheduled settings for shutdown, startup and self-test functions.

SPECIFICATIONS

CPU:.....32-bit micro controller
RAM:.....8MB
Flash ROM:4MB
LAN Interface:.....Auto-sense 10/100Mbps Fast Ethernet
Network Protocol:TCP/IP, UDP, SNMP, SNTTP, HTTP, SMTP
LED:LAN 10/100 Link
Power Consumption:.....3W max.
Miscellaneous:.....IP and hardware reset buttons
Language:.....English (default); supports all unicode-based languages
Firmware Upgrading:.....Network upgrade; fail-safe network upgrade
System Security:.....Password protection for system operation and administration
Approvals:.....CE, FCC Class B



Remote Status and Monitoring

FXM input/output and battery parameters can be viewed as well various setting can be updated remotely. Dry contact configuration can be viewed or changed based on site or user requirements.



Firmware Updates

Both FXM firmware and SNMP card software can be upgraded remotely via web page*. Costly truck rolls can be avoided and new feature can be implemented with ease.



Email Notification

User can set up automatic email notification for status change, events or faults to remotely manage sites and to respond in a timely manner proactively.

*Units with blue LCD. Older units has to be upgraded locally once to implement this feature.

ENCLOSURES

The Alpha enclosure product line provides a full range of rugged cabinets for any application, including secure indoor and outdoor uses. Designed, tested and compliant with the highest industry operating standards, Alpha outdoor enclosures are equipped with control systems that maintain temperatures within the specified operating ranges of internally mounted equipment. Each enclosure offers flexible thermal management solutions based on open and/or closed loop design to enable convenient matching to load and environmental factors. Alpha enclosures provide application flexibility with a variety of adjustable components including moveable equipment mounting racks, different types of mounting hardware, swing racks, slide out equipment rails, different styles of cable entry ports and many other options and features.

Combine your Alpha Enclosure with Alpha power and you have an optionally integrated, reliable and efficient power plant.

ENCLOSURE NAMING CONVENTION

Alpha outdoor enclosures are divided into 3 categories: Standard Enclosure (SE), Premium Enclosure (PE), and Tailored Enclosure (TE)

SE – Standard off-the-shelf product with high degree of configurability both in power & cooling options.

PE – Premium enclosure solutions share the same qualities as SE but with greater focus towards aesthetics and environmental protection as governed by the GR-487 standard.

TE – Tailored solutions are custom engineered to meet the requirements of specific customers.

| TE 27 - 22 18 | | | | Character Representation |
|---------------|---|---|---|--------------------------|
| ↑ | ↑ | ↑ | ↑ | 1. Tailored Enclosure |
| 1 | 2 | 3 | 4 | 2. Height (in) |
| | | | | 3. Width (in) |
| | | | | 4. Depth (in) |



ENCLOSURE SELECTION CONSIDERATIONS

What are the requirements for the base enclosure?

| Dimensions (in/mm) | Mounting | Accessibility | Cable entry/exit | Security |
|--------------------|---|--------------------------------|--|--|
| Height: | <input type="checkbox"/> Pad <input type="checkbox"/> Rack | <input type="checkbox"/> Front | <input type="checkbox"/> Rear <input type="checkbox"/> Top | <input type="checkbox"/> Padlock-able |
| Width: | <input type="checkbox"/> Pole <input type="checkbox"/> Pedestal | <input type="checkbox"/> Rear | <input type="checkbox"/> Bottom <input type="checkbox"/> Front | <input type="checkbox"/> Special "keyed" |
| Depth: | <input type="checkbox"/> Wall | <input type="checkbox"/> Top | <input type="checkbox"/> Sides | Other: |

What are the environmental conditions?

| Temperature (°C/°F) | Wind Driven | Seismic zone |
|---------------------|---|---|
| Minimum: | <input type="checkbox"/> Rain <input type="checkbox"/> Dust | <input type="checkbox"/> 1 <input type="checkbox"/> 3 |
| Maximum: | <input type="checkbox"/> Snow Other: | <input type="checkbox"/> 2 <input type="checkbox"/> 4 |

What is the electrical service available at the location?

| AC Voltage | Main breaker rating |
|---|---|
| <input type="checkbox"/> 120Vac <input type="checkbox"/> 120/240Vac <input type="checkbox"/> 277/480Vac | <input type="checkbox"/> 15A <input type="checkbox"/> 30A <input type="checkbox"/> 100A |
| <input type="checkbox"/> 120/208Vac <input type="checkbox"/> 347/600Vac Other: _____ | <input type="checkbox"/> 20A <input type="checkbox"/> 50A Other: |

What are the operating parameters of your equipment?

| AC Voltage | DC Voltage | Total load current (A) | Mounting |
|---|------------|------------------------|-----------------------------------|
| <input type="checkbox"/> 24Vac <input type="checkbox"/> 208Vac <input type="checkbox"/> 12Vdc <input type="checkbox"/> 125Vdc | Minimum: | | <input type="checkbox"/> 19" rack |
| <input type="checkbox"/> 120Vac <input type="checkbox"/> 240Vac <input type="checkbox"/> 24Vdc <input type="checkbox"/> 48Vdc | | | |
| Other: | Other: | Maximum: | <input type="checkbox"/> 23" rack |

| Equipment space (RU) | Operating temperature range | Equipment heat dissipation (Btu/hr or W) |
|----------------------|-----------------------------|--|
| Item 1: | Min: Max: | |
| Item 2: | Min: Max: | |
| Item 3: | Min: Max: | |

Which climate control option is preferable with the enclosure?

| Cooling/Heating | Thermal Management Selection Guide |
|--|---|
| <input type="checkbox"/> Fan(s) <input type="checkbox"/> Heat exchanger | <ul style="list-style-type: none"> • Fan(s) - open loop system utilizing filtered outside ambient air to cool the electronics • Air conditioner - closed loop system where electronics require an environment cooler than ambient • Heat exchanger - closed loop system that keeps ambient air contaminants out of the enclosure but temperature inside is slightly above ambient |
| <input type="checkbox"/> Air conditioner <input type="checkbox"/> Heater | |

What are the battery requirements?

| Application | Battery chemistry | Discharge time | Recharge time |
|--------------------------------|--|----------------|---------------|
| <input type="checkbox"/> Cycle | <input type="checkbox"/> Lead-acid <input type="checkbox"/> Li-Ion | Hour(s): | Hour(s): |
| <input type="checkbox"/> Float | <input type="checkbox"/> Ni-Cad Other: | Minute: | Minute: |

How is the power distributed to the critical loads?

| |
|--|
| <input type="checkbox"/> Fuse (Specify size and quantity if known): |
| <input type="checkbox"/> Breaker (Specify size and quantity if known): |

Have you considered these system options?

| | | |
|--|---|--|
| <input type="checkbox"/> Load center | <input type="checkbox"/> Surge suppression | <input type="checkbox"/> Fiber winding box |
| <input type="checkbox"/> Generator inlet | <input type="checkbox"/> Meter base | <input type="checkbox"/> Convenience outlet(s) |
| <input type="checkbox"/> Transfer switch | <input type="checkbox"/> Battery heater mat | Specify other options required: |

Are there any requirements for agency compliance?

| GR standard | NEBS | Safety compliance |
|----------------|----------------------------------|---------------------------------------|
| GR487: GR1089: | <input type="checkbox"/> Level 1 | <input type="checkbox"/> CSA/UL 60950 |
| GR13: GR63: | <input type="checkbox"/> Level 2 | <input type="checkbox"/> CE |
| Other: | <input type="checkbox"/> Level 3 | Other: |

TE27-2218



27" GENERAL PURPOSE OUTDOOR TRAFFIC ENCLOSURE

- › Traffic grade aluminum enclosure protects battery backup power systems from outdoor elements
- › Various mounting options (including pole-mount) provide a flexible solution for space constrained traffic applications
- › Large sun shield reduces solar heat load inside cabinet
- › Thermostat controlled fan and louvered vents ensure reliable operation in high temperatures
- › 180° stainless steel piano-hinged door makes installation and maintenance easy and convenient
- › Three-point latching mechanism with Corbin Type 2 lock for maximum security

Consult your Alpha representative for P/N configurations

MECHANICAL

Dimensions:

mm: 687H x 559W x 457D
 inches: 27H x 22W x 18D

Weight: 27.2kg (60lbs)

Construction: High strength corrosion resistant 0.125" thick aluminum

Finish: Natural aluminum or painted gray

Equipment Space: 7RU space with one battery shelf

Equipment Rails: EIA standard 19"

Cable Entrance:

Bottom of enclosure: 1 x 3" diameter knock-out (2½" trade size)
 4 x 1.125" diameter knock-out (¾" trade size)
 Rear of enclosure: 4 x 1.125" diameter knock-out (¾" trade size)

HARDWARE

Hinge Type: Stainless steel piano hinge

Door Prop: Aluminum rod, 2 locking open positions

Door Latch: 3 point latch with integrated Corbin Type 2 lock

HVAC

Cooling: Thermostat controlled 48Vdc fan, 100 cfm or better, ON at 49°C (120°F) Off at 32°C (89°F)

Ventilation: Door installed louvers

ENVIRONMENTAL

Temperature:

Operating: -40 to 46°C (-40 to 115°F) plus solar loading
 Storage: -40 to 85°C (-40 to 185°F)

INSTALLATION

Access: Front hinged door provides full front access

MAINTENANCE

Door Installed Louver: ...Equipped with washable filter

ENCLOSURE OPTIONS

Mounting: Pole, host, wall, or pedestal

SYSTEM SPECIFICATIONS (AS SHOWN)



- Battery shelf with 4x AlphaCell™ 100XTV batteries
- FXM2000 UPS
- Universal automatic transfer switch

System Options

- Universal generator transfer switch
- AlphaGuard battery balancer
- Battery heater mats
- Transient voltage surge suppression device

AGENCY COMPLIANCE

NEMA Rating: 3R

SE41-2722/2730



41" GENERAL PURPOSE OUTDOOR ENCLOSURE

- › Configurable-to-order outdoor enclosure designed for mobile broadband applications
- › 23" mounting rails with adjustable front to back rack angles (23" to 19" adapter plates available as an option)
- › 20RU of available equipment space for power, batteries, accessory panel and customer equipment
- › Rear access gland plate provides greater flexibility to access customer installed equipments
- › Flexible thermal management solutions (including fan, heat exchanger and air conditioning variants) enable convenient matching to load and environmental parameters
- › Various mounting options available: wall, pole and ground

Consult your Alpha representative for P/N configurations

MECHANICAL

SE41-2722 Dimensions:

mm: 1051H x 701W x 559D
 inches: 41.4H x 27.6W x 22D

SE41-2730 Dimensions:

mm: 1051H x 701W x 762D
 inches: 41.4H x 27.6W x 30D

Weight: 52kg (115lbs)

Construction: High strength corrosion resistant aluminum

Finish: Powdercoat

Equipment Rails: 23" (23" to 19" adapter plates available as option)

Equipment Space: 20RU

Cable Entrance: Knockouts located on sides, bottom and rear of enclosure

HARDWARE

Hinge Type: 3-position lift-off hinge

Door Prop: Wind-stop with automatic lock

Door Latch: 3 point latch with padlockable L-handle



HVAC

Cooling: Thermostat controlled filtered fan cooling
 Air Conditioner (120VAC, 2000 BTU/hr)
 Heat Exchanger (48Vdc, 50W/C)

Heating: Integrated with Air Conditioner (500W)

ENVIRONMENTAL

Temperature:

Operating: -40 to 46°C (-40 to 115°F) plus solar loading

Storage: -40 to 85°C (-40 to 185°F)

INSTALLATION

Access: Full front access as well as rear access with a removable gland plate

ENCLOSURE OPTIONS

Mounting: Wall, pole and ground

AGENCY COMPLIANCE

NEMA Rating: 3R

CSA: C22.2 No. 60950

SE48-1616



48" OUTDOOR TRAFFIC BBS ENCLOSURE

- › Traffic grade aluminum enclosure protects battery backup power systems (BBS) from outdoor elements
- › Various mounting options (including pole-mount) provide a flexible solution for traffic applications
- › Large sun shield reduces solar heat load inside the cabinet
- › Thermostat controlled fan and louvered vents ensure reliable operation in high temperatures
- › 180° stainless steel piano hinged door with two locking open positions makes internal component installation and maintenance easy and convenient
- › Three-point latching mechanism with Corbin Type 2 lock (or optional Best lock) for maximum security

Consult your Alpha representative for P/N configurations

MECHANICAL

Dimensions:

mm: 1220H x 419W x 419D

inches: 48H x 16.5W x 16.5D

Weight: 34kg (75lbs)

Construction: High strength corrosion resistant aluminum

Finish: Natural aluminum

Equipment Space: 8RU space (without generator inlet) with two (2) battery shelves

Equipment Rails: EIA standard 19" (vertical)

Cable Entrance: Bottom of enclosure: 1 x 76mm (3") dia. knock-out

HARDWARE

Hinge Type: Stainless steel piano hinge

Door Prop: Aluminum rod, 2 locking open positions

Handle: Stainless steel handle with padlock fitting for extended life and improved look

Door Latch: 3 point latch with integrated Corbin Type 2 lock (or optional Best lock) for maximum security

HVAC

Cooling: Thermostat controlled 48Vdc fan, 100 cfm or better, ON at 49°C (120°F) Off at 32°C (89°F)

Ventilation: Door installed louvers

ENVIRONMENTAL

Temperature:

Operating: -40 to 46°C (-40 to 115°F)

Storage: -40 to 85°C (-40 to 185°F)

INSTALLATION

Access: Removable bottom shelf for easy wiring access

MAINTENANCE

Door Installed Louver: ... Equipped with washable filter

Other: Bug screen protected top vent

ENCLOSURE OPTIONS

Mounting: Side mount (standard) - designed to mount to the side of most traffic enclosure cabinets
Ground mount kit (optional)
Pole mount kit (optional)

SYSTEM SPECIFICATIONS (AS SHOWN)

- 2 Battery shelf with 4x AlphaCell 220GXL batteries
- FXM1100 UPS
- Universal automatic transfer switch
- Universal generator transfer switch

System Options

- Generator support: locking generator access door and L5-30 F1 plug
- Tamper switch
- Tilt switch
- AlphaGuard™ battery balancer
- Door activated interior light
- Battery heater mats
- "On Battery" indicator light

AGENCY COMPLIANCE

CSA/UL, CE: UL50E/C22.2 No.94

NEMA Rating: 3R

SE48-2216



48" GENERAL PURPOSE OUTDOOR TRAFFIC ENCLOSURE

- › Traffic grade aluminum enclosure protects battery backup power systems (BBS) from outdoor elements
- › Various mounting options (including pole-mount) provide a flexible solution for traffic applications
- › Large sun shield reduces solar heat load inside the cabinet
- › Thermostat controlled fan and louvered vents ensure reliable operation in high temperatures
- › 180° stainless steel piano hinged door with two locking open positions makes internal component installation and maintenance easy and convenient
- › Three-point latching mechanism with Corbin Type 2 lock (or optional Best lock) for maximum security

Consult your Alpha representative for P/N configurations

MECHANICAL

Dimensions:

mm: 1220H x 559W x 419D

inches: 48H x 22W x 16.5D

Weight: 41kg (90.3lbs)

Construction: High strength corrosion resistant aluminum

Finish: Natural aluminum

Equipment Space: 11RU space (without generator inlet) with two (2) battery shelves
Slide out tray option

Equipment Rails: EIA standard 19" (vertical)

Cable Entrance: Bottom of enclosure: 1 x 76mm (3") dia. knock-out

HARDWARE

Hinge Type: Stainless steel piano hinge

Door Prop: Aluminum rod, 2 locking open positions

Handle: Stainless steel handle with padlock fitting for extended life and improved look

Door Latch: 3 point latch with integrated Corbin Type 2 lock (or optional Best lock) for maximum security

HVAC

Cooling: Thermostat controlled 48Vdc fan, 100 cfm or better, ON at 49°C (120°F) Off at 32°C (89°F)

Ventilation: Door installed louvers

ENVIRONMENTAL

Temperature:

Operating: -40 to 46°C (-40 to 115°F)

Storage: -40 to 85°C (-40 to 185°F)

INSTALLATION

Access: Removable bottom shelf for easy wiring access

MAINTENANCE

Door Installed Louver: ...Equipped with washable filter

Other: Bug screen protected top vent

ENCLOSURE OPTIONS

Mounting: Side mount (standard) - designed to mount to the side of most traffic enclosure cabinets
Ground mount kit (optional)
Pole mount kit (optional)

AGENCY COMPLIANCE

NEMA Rating: 3R

TE72-3030

(SINGLE COMPARTMENT)



72" GR-487 SINGLE COMPARTMENT ENCLOSURE

- 39RU power enclosure offering full height equipment installation flexibility
- Battery enclosure designed to hold 5 strings of front terminal batteries configured @ -48Vdc
- Pad-lockable door and durable powder coated aluminum construction allow for secure outdoor or indoor applications
- Multiple knockouts provide cable interface locations for flush or remote installation of enclosures
- Certified to GR-487 requirements, the enclosure is designed for high reliability and long operating life in extreme environments

Consult your Alpha representative for P/N configurations

ELECTRICAL

Voltage: 120/240Vac, 60Hz single phase

MECHANICAL

Dimensions:

mm: 1829H x 762W x 762D
inches: 72H x 30W x 30D

Weight (empty): 250kg (550lbs)

Construction: High strength corrosion resistant aluminum

Finish: Powder coat

Equipment Space: 39RU (23" rack mount) in power enclosure
5 battery trays in battery enclosure

Cable Entrance: Knockouts on sides and bottom

HARDWARE

Hinge Type: 4 position lift off hinges

Handle: Padlockable

Door Latch: 3 point latch

Battery Trays (qty): Configurable based on application requirements

HVAC

Cooling: Power enclosure
(4K BTU air conditioner with EVS or fan cooled)
Battery enclosure (fan cooled)

Heating: Power enclosure
(500W heater integrated with air conditioner)
Battery enclosure (battery heater mats)

Audible Noise: <65 dBA

ENVIRONMENTAL

Temperature:

Operating: -40 to 46°C (-40 to 115°F)

Storage: -40 to 85°C (-40 to 185°F)

INSTALLATION

Access: Removable rear panels and front hinged door provide full enclosure access

ENCLOSURE OPTIONS

AC Distribution: AC load center

TVSS: 120/240Vac surge arrester

Mounting: Pad or platform mount

Consult factory for other options

SYSTEM SPECIFICATIONS (AS SHOWN)



Power Enclosure

- Cordex rectifiers
- Air conditioner with EVS
- AC load center
- 2 battery trays

Battery Enclosure

- 5 battery trays for GNB 155Ah or larger FT batteries

AGENCY COMPLIANCE

CSA/UL: C22.2 No. 60954

Telcordia: GR-487 compliance – contact factory for specific compliances

NEMA Rating: Type 3R (CSA C22.2 No. 94-M91)

TE84-3030



84" GR-487 SINGLE COMPARTMENT ENCLOSURE

- › 44RU single compartment enclosure offering full rack height equipment installation flexibility
- › Adjustable front to back rails provide for mid or flush mount equipment installation
- › Multiple knockouts provide cable interface locations for flush or remote installation of enclosures
- › Pad-lockable door and durable powder coated aluminum construction allow for secure outdoor or indoor applications
- › Heating, ventilation and cooling options maintain equipment operating temperatures for various loads in all climate conditions
- › Certified to GR-487 requirements, the enclosure is designed for high reliability and long operating life in extreme environments

Consult your Alpha representative for P/N configurations

ELECTRICAL

Voltage: 120/240Vac, 60Hz single phase

MECHANICAL

Dimensions:

mm: 2134H x 762W x 762D
 inches 84H x 30W x 30D

Weight (empty): 300kg (660lbs)

Construction: High strength corrosion resistant aluminum

Finish: Powder coat

Equipment Space: 44RU (23" rack mount)

Cable Entrance: Knockouts on sides and bottom

HARDWARE

Hinge Type: 5 position lift off hinges

Handle: Padlockable

Door Latch: 3 point latch

HVAC

Cooling: 4K BTU air conditioner, heat exchanger or fan cooled

Heating: 500W heater integrated with air conditioner and battery heater mats

Audible Noise: <65 dBA

ENVIRONMENTAL

Temperature:

Operating: -40 to 46°C (-40 to 115°F) plus solar loading
 Storage: -40 to 85°C (-40 to 185°F)

INSTALLATION

Access: Removable rear panels and front hinged door provide full enclosure access

ENCLOSURE OPTIONS

AC Distribution: AC load center

TVSS: 120/240Vac surge arrestor

Mounting: Pad or platform mount

Battery Trays (qty): Configurable as battery only enclosure for up to 5 battery trays

Consult factory for other options

SYSTEM SPECIFICATIONS (AS SHOWN)



Power Enclosure

- Cordex rectifiers
- Heat exchanger
- 3 battery trays

AGENCY COMPLIANCE

CSA/UL: C22.2 No. 60954

Telcordia: GR-487 compliance – contact factory for specific compliances

NEMA Rating: Type 3R (CSA C22.2 No. 94-M91)

PUBLIC SAFETY BACKUP POWER ENCLOSURES



PUBLIC SAFETY APPLICATIONS SOLUTIONS FOR AC & DC LOADS

- › Aluminum, NEMA 4 rated enclosures for indoor environments
- › Meets NFPA 1221 requirements for backup power systems
- › Safely vents hydrogen gas from batteries
- › Temperature compensation to charge batteries and guard against thermal runaway
- › Event logs and battery testing help technicians to quickly identify power issues
- › Robust, wide range power input provides continuous operation through surge and sags

Consult your Alpha representative for P/N configurations

NOMINAL SPECIFICATIONS

Color:.....Standard: Quartz Gray
Optional: Red

ENVIRONMENTAL

Temperature:
Operating:5 to 35°C (41 to 95°F)

ALARMS & CONTROLS

AC Fail; Low Battery; Charger Fail; High/Low: Temperature Alarm

AGENCY COMPLIANCE

NEMA Rating: Type 4 Enclosure
CSA/UL: C22.2 No.60950

AC Load Solutions for NEMA 4 Public Safety Power & Battery Cabinets

| Cabinet Type | TE27-2218 FXM | SE41-2730 FXM |
|---------------------------------------|-----------------------|-----------------------|
| Max AC Load for *12hr run time | 330 Watt | 1100 Watt |
| Max AC Load for *24hr run time | 170 Watt | 1300 Watt |
| ELECTRICAL | | |
| Input | 120Vac | 120Vac |
| Output | 120Vac | 120Vac |
| MECHANICAL | | |
| Access | Front door/Rear Panel | Front door/Rear Panel |
| Dimensions | 27H x 22W x 18D | 41H x 27W x 30D |
| Mounting | Floor/Wall | Floor |

DC Load Solutions for NEMA 4 Public Safety Power & Battery Cabinets

| Cabinet Type | TE27-2218 CX24V | TE27-2218 CX48V | SE41-2730 CX48V |
|---------------------------------------|---------------------------|---------------------------|---------------------------|
| Max DC Load for 12hr run time | 280 Watt | 400 Watt | 3400 Watt |
| Max AC Load for *24hr run time | 200 Watt | 200 Watt | 1700 Watt |
| ELECTRICAL | | | |
| Input | 120Vac | 120Vac | 120Vac |
| Output | +24Vdc | -48Vdc | -48Vdc |
| MECHANICAL | | | |
| Access | Front door/ Rear panel | Front door/ Rear panel | Front door/ Rear panel |
| Dimensions | 27H x 22W x 18D | 27H x 22W x 18D | 41H x 27W x 30D |
| Mounting | Floor/Wall | Floor/Wall | Floor |

*Maximum capacity with expansion battery cabinet

CXPS-48-500-IWM



INDOOR POWER SYSTEM ENCLOSURE

- › Wall-mountable indoor enclosure provides a flexible solution for space constrained applications
- › Light weight powder coated aluminum enclosure is easy to install and offers superior corrosion properties
- › Cordex-based DC power system offers modularity and scalability in power up to 500W
- › Battery shelf can accommodate up to two 48Vdc strings of 12.7AH batteries
- › Low maintenance and high efficiency reduces overall cost of ownership for the user

Consult your Alpha representative for P/N configurations

MECHANICAL

Dimensions:

mm: 356H x 615W x 381D
 inches: 14H x 24.2W x 15D

Weight: 18.2kg (40lbs)

Construction: High strength corrosion resistant aluminum

Finish: Powdercoat

Equipment Rails: 19"

Equipment Space: 2RU for Cordex 650W shelf

Cable Entrance:

Top of enclosure: 1 x 3" diameter knock-out; 4 x 3/4" knock-out
 Bottom of enclosure: 1 x 3" diameter knock-out; 4 x 3/4" knock-out
 Sides of enclosure: 2 x 3" diameter knock-out; 4 x 3/4" knock-out

HARDWARE

Door Latch: Removable front door

Door Lock: Panel fastener

HVAC

Cooling: Passive

Ventilation: Louvers installed on side of enclosure

ENVIRONMENTAL

Temperature:

Operating: 0 to 40°C (0 to 104°F)

INSTALLATION

Access: Full front access

MAINTENANCE

No filters used

Bug screen protected on vent openings

ENCLOSURE OPTIONS

Mounting: Wall mount only

SYSTEM SPECIFICATIONS

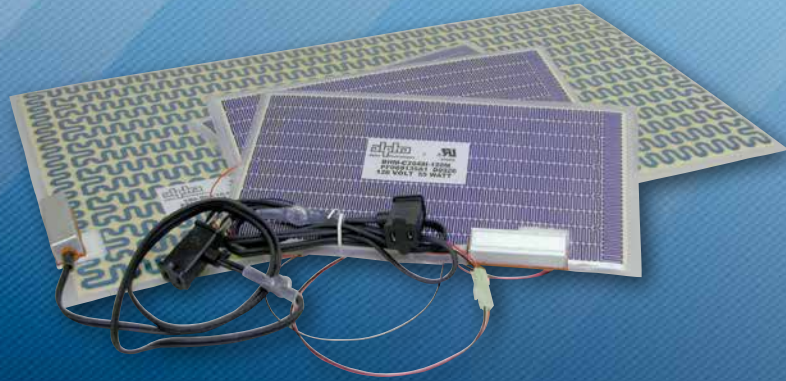
- 48Vdc Cordex rectifier shelf with DC distribution
- Maximum available power is 500W
- Customer interface to all alarms available on the front

AGENCY COMPLIANCE

NEMA Rating: 3R

CSA: C22.2 No. 60950-01-03

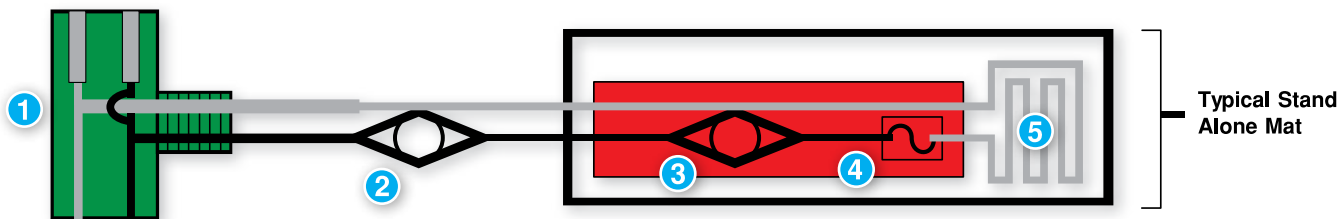
BATTERY HEATER MATS



EXTEND BATTERY RUNTIME IN COLD WEATHER

- › Durable polyester or silicone construction
- › Sealed on-mat electronics for maximum protection
- › On-mat thermal switch and thermal fuse for redundant safety
- › Insulated design directs heat to the batteries not the enclosure for a 30% reduction in power consumption
- › Piggyback plug standard on 120V models

ALL MATS



The main power connector (1) on the heater mat is plugged into an AC source. In low temperature conditions the main control thermistor (2) will allow power to flow to the heater mat coil (5). The thermistor is mounted on the power cord so that it reacts to the battery temperatures and not the mat surface temperature. A secondary thermistor (3) is mounted on the mat with significantly higher temperature settings than the main thermistor (2). This thermistor keeps the mat from overheating during extended run periods. A thermal fuse (4) is a final fail safe device. The power connector (1) has an AC receptacle so that additional mats can be plugged in. Its parallel wiring keeps the failure of the first mat from affecting the operation of others in the string.

Battery heater mats are an integral component in outdoor power solutions and need to be carefully integrated with the other system elements to ensure effective operation.

Please contact your Alpha representative to determine the proper battery heater mat required for your outdoor power system.

Line Cord Thermostat:

Turn on Temperature: 5°C (41°F)
Turn off Temperature: 15°C (59°F)

Mat Mounted Thermostat:

Over Temperature Off: 50°C (122°F)
Turn Back on: 40°C (104°F)
Thermal Fuse Rating: 85°C (185°F)

TECHNICAL SHELTERS



With the escalating demands for greater coverage and bandwidth, today's communication networks are placing equipment closer and closer to the end user, often involving remote installations.

Wireless network radios and the systems that keep them powered are often deployed into sites that feature little or no existing infrastructure to house and protect equipment, hence creating a need for a suitable, robust shelter.

"Technical Shelters" are structures designed for housing and protecting electronics and power equipment, commonly used in telecommunication base stations and remote switching centers. Typically designed to be discreet, shelters are built to withstand extreme weather conditions and protect the critical internal communication equipment from vandalism and theft.

Alpha Technologies has the network knowledge, engineering experience and resources to satisfy all of your power and electronic shelter requirements. Whether your next project involves a complex deployment at a remote site, a site upgrade due to expansion or improving protection of the existing electronic equipment, Alpha can work with your requirements, and turn them into a fully working powering site, when and where it's needed. We offer a broad selection of turnkey services for technical shelter projects:

- Full lifecycle project management
- Site survey and geological testing
- System design and engineering drawings
- Building permits, on-site construction, installation and commissioning
- Shipping and off-loading
- Site completion including landscaping, fencing and security

CHOOSING THE MOST CRITICAL ELEMENT - POWER

Being a recognized leader in power conversion, protection and standby products, Alpha offers complete AC, DC and renewable energy powering solutions to reliably power your application, including complete power plants, distribution and system controllers, batteries, supporting systems/hardware and much more.

- DC Power Systems
- AC Power Systems
- Batteries
- Generators
- Cable Racks
- Climate Control Systems
- Safety and Security
- Solar Systems

At the heart of our technical shelters are Alpha's industry renowned Cordex® controllers, acting as the central management brain that tightly integrates and monitors performance of power, batteries, alarms, HVAC and other critical elements. Every Alpha controller is designed to be easily accessed through a common website browser.



Contact us with your specific requirements at 1-800-667-8743 or email shelters@alpha.ca

Visit Alpha online at www.alpha.ca/shelters for more information.



BACKUP POWER SOLUTIONS

Alpha offers a comprehensive line of AlphaCell™ batteries in many formats specifically designed for demanding indoor and outdoor Telecom, Cable, Traffic, Enterprise and Renewable Energy applications. In addition, we provide remote battery monitoring systems to help extend the life of the battery string and minimize maintenance costs.

AlphaCell batteries come in gel, AGM, and pure lead varieties, in front and top terminal formats to support multiple applications. Excellent heat displacement characteristics have shown Alpha's GEL cell batteries to exhibit superior working life and reliability. AlphaCell™ GXL, HP and XTV batteries come with a full replacement, non-prorated warranty and provide years of expected life and trouble-free performance. Choosing Alpha battery technology means 100% out-of-box capacity, reliable performance in harsh operating conditions, longer service life, and reduced maintenance.

GENERATORS

Alpha's line of portable AC and DC generators provide extended runtime for critical loads and disaster recovery scenarios, while minimizing the amount of battery backup required at the site. Every generator system incorporates efficient, effective and reliable power technology, including: natural gas or propane powered generators, exclusive audible noise baffling, remote status monitoring features and multiple built-in safeguards to protect the system, operators, and the public.

AlphaGen™ DC generator systems are specifically designed for outside plant communication networks requiring -48Vdc power. They offer quiet operation and low profile for a discreet presence in populated areas.



BATTERY SELECTION CONSIDERATIONS

Alpha offers batteries for virtually every backup power application. However, not all batteries are listed in the catalog. To help configure the optimal battery solution for your specific application, please review the following questions prior to contacting your Alpha representative.

What is the nature of the application?

- **Cycle:** batteries will be drained and recharged frequently.
- **Float:** batteries will only be drained and recharged when the primary power source fails.
- What is the battery backup time requirement?

What are the environmental conditions?

- Will the batteries be installed in a controlled, non-controlled, or partially controlled environment?
- Minimum/maximum ambient temperatures surrounding the batteries?
- Humidity/Precipitation: Will the batteries be exposed to snow, rain, etc?
- Is there adequate ventilation?

Where will the batteries be installed (i.e. what country, city/town)?

- Our battery warranties vary by country of installation; contact Alpha for details.
- What is the expected frequency of utility power failures, e.g. once a year, once a month, etc.?
- How long does the average utility power failure last?
- Is there any government legislation stipulating backup power requirements?

What is the DC voltage requirement?

- 12, 24, 36, 48, 125Vdc or other?

Are there any space restrictions?

- Depending on type of battery, how many, and where the batteries & backup equipment will be installed.
- How convenient is battery replacement?
- Consider total cost of ownership.

Is there an existing battery string?

- When replacing batteries on the same string, ensure date codes, voltage and conductance are matched. AlphaGuard™ is highly recommended to spread the charge voltage equally across all batteries in the string, which optimizes battery life and runtime.

Is fire retardant case a requirement?

- Non FR or UL94-VO.

Are any accessories required?

- E.g. AlphaGuard™ Battery Charge Management System, Battery Heater Mats, Battery Testing Equipment, Battery Spacers, Poweragent, Remote Battery Monitoring System etc.

Note: Battery heater mats are specific to the enclosure and application.

What warranty/service needs are required?

- Is extended warranty required?
- Special servicing needs?

Note: Replaced batteries require environmentally safe disposal.

ADVANCED BATTERY TECHNOLOGIES

Alpha is continuously exploring new, innovative specialty energy storage technologies that help our customers lower their Total Cost of Ownership (TCO). Nickel Cadmium (NiCad) and Lithium Ion (Li-ion) batteries are designed for safety, high reliability, high power density and long design life. NiCad batteries offer a versatile and reliable power source in the most extreme conditions. Li-ion solutions offer optimum power density and low self-discharge rates and are available in a wide range of electrochemical technologies. Contact your Alpha sales representative for advice on which battery technology will best satisfy your requirements.

COMPARISON OF LI-ION BATTERY CHEMISTRIES

| Li-ion Battery Chemistry | Lithium Cobalt Dioxide (LiCoO ₂ or LCO) | Lithium Nickel Cobalt Aluminum Oxide (LiNiCoAlO ₂) | Lithium Nickel Manganese Cobalt Oxide (LiNiMnCoO ₂ or NMC) | Lithium Manganese Oxide (LiMn ₂ O ₄ or LMO) | Lithium Iron Phosphate (LiFePO ₄ or LFP) |
|--------------------------|--|--|---|---|---|
| Energy Wh/kg or L | Good | Good | Good | Average | Average |
| Power | Good | Excellent | Good | Good | Good |
| Low Temperature | Good | Good | Good | Excellent | Average |
| Calendar Life | Average | Excellent | Good | Poor | Poor |
| Cycle Life | Average | Excellent | Good | Excellent | Excellent |
| Safety (cathode only) | Poor | Poor | Poor | Average | Excellent |
| Safety (cathode & anode) | Poorer | Poorer | Poorer | Average | Good |
| Cost/kWh | Higher | High | High | Lowest | High |



ALPHACELL™ GXL

GEL TOP-TERMINAL BATTERIES

- › High-performance silver alloy for maximum life expectancy
- › Longer runtime for demanding outdoor environments
- › 100% runtime capacity out-of-box – No cycling required
- › Maintenance-free threaded inserts – No periodic retorquing
- › Available with 4 and 5 year full warranties*
- › Wide operating temperature range

| NOMINAL SPECIFICATIONS FOR GOLD-HP | | | | | | | | | | | | | |
|---|--|----------------------------|----------------------------|------|------|------|------|-----|------|-----|-----|-----|-----|
| Model | 220GXL | 195GXL | 165GXL | | | | | | | | | | |
| P/N | 181-231-10 | 181-230-10 | 1810015 | | | | | | | | | | |
| Warranty | 4 to 5 years full replacement* | | | | | | | | | | | | |
| Service Life | Extended | Extended | Extended | | | | | | | | | | |
| Battery Type | True gel cell and silver alloy grid battery technologies | | | | | | | | | | | | |
| Heat Resistant | Extreme | Extreme | Extreme | | | | | | | | | | |
| Hydrogen Emission | Low | Low | Low | | | | | | | | | | |
| Capacity at 20hrs (to 1.75VPC) | 109Ah | 100Ah | 86Ah | | | | | | | | | | |
| Typical Runtime** | 221 mins | 196 mins | 165 mins | | | | | | | | | | |
| BCI Group Size | 31 | 31 | 27 | | | | | | | | | | |
| Terminals | Threaded insert ¼"- 20 UNC | | | | | | | | | | | | |
| Cells Per Unit | 6 | 6 | 6 | | | | | | | | | | |
| Voltage Per Unit | 12.8V | 12.8V | 12.8V | | | | | | | | | | |
| Conductance Value @ 25°C | 960-1400 | 880-1320 | 800-1200 | | | | | | | | | | |
| Impedance @ 60Hz | 0.005 Ohms | 0.005 Ohms | 0.0055 Ohms | | | | | | | | | | |
| Max. Discharge Current | 900A | 900A | 800A | | | | | | | | | | |
| Short Circuit Current | 2800A | 2600A | 2500A | | | | | | | | | | |
| 10 Second Volts @ 100A | 11.4 | 11.3 | 11.2 | | | | | | | | | | |
| MECHANICAL | | | | | | | | | | | | | |
| Dimensions w/ Terminals | mm | 215.4H x 340.9W x 172.7D | 215.4H x 340.9W x 172.7D | | | | | | | | | | |
| | inches | 8.48H x 13.42W x 6.8D | 8.48H x 13.42W x 6.8D | | | | | | | | | | |
| Weight | | 33.2kg (73lbs) | 28.6kg (63lbs) | | | | | | | | | | |
| | | | 30.5kg (67lbs) | | | | | | | | | | |
| ENVIRONMENTAL | | | | | | | | | | | | | |
| Discharge | -40 to 71°C (-40 to 160°F) | -40 to 71°C (-40 to 160°F) | -40 to 71°C (-40 to 160°F) | | | | | | | | | | |
| Charge (w/ temperature compensation) | -23 to 60°C (-9.4 to 140°F) (charge temperature compensation @ ±5mV/C per °C) | | | | | | | | | | | | |
| Float Charging Voltage | 13.5 to 13.8Vdc average per 12Vdc unit at 25°C (77°F) | | | | | | | | | | | | |
| AC Ripple Charger | 0.5% RMS or 1.5% of float charge voltage recommended for best results. Max. allowed = 4%V pk to pk | | | | | | | | | | | | |
| CURRENT DISCHARGE RATINGS TABLE IN AMPS (END VOLTAGE 1.75VPC @ 25°C/77°F) | | | | | | | | | | | | | |
| Hours | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 12 | 20 | 24 | 48 | 72 | 100 |
| 220GXL | 67.7 | 40.4 | 29.1 | 22.9 | 16.1 | 12.6 | 10.2 | 8.7 | 5.45 | 4.6 | 2.4 | 1.6 | 1.2 |
| 195GXL | 65.1 | 37.4 | 26.8 | 21 | 14.8 | 11.5 | 9.5 | 8 | 5 | 4.3 | 2.2 | 1.5 | 1.1 |
| 165GXL | 55.9 | 32.8 | 23.5 | 18.4 | 12.9 | 10 | 8.2 | 6.9 | 4.3 | 3.7 | 1.9 | 1.3 | 0.9 |

* Warranty varies by country and region. Warranty valid only when used with Alpha approved power supplies, chargers and enclosures in US/Canada. 5 years warranty when purchased in conjunction with AlphaGuard. Consult your salesperson or manual for details. ** Runtime calculated using a 25A DC constant current load

ALPHACELL™ GOLD HP



GOLD-HP GELCELL BATTERIES

- › High-performance Silver Alloy for maximum life expectancy
- › Longer runtime for demanding outdoor environments
- › 100% runtime capacity out-of-box – No cycling required
- › Maintenance-free threaded inserts – No periodic retorquing
- › Available with 5 and 6 year full warranties*
- › Wide operating temperature range

| NOMINAL SPECIFICATIONS | | | | | | | | | | | | | |
|---|--|--------------------------|------|------|------|------|--------------------------------|--------------------------|------|-----|-----|-----|-----|
| Model | 220 GOLD-HP | | | | | | 195 GOLD-HP | | | | | | |
| P/N | 181-233-10 | | | | | | 181-232-10 | | | | | | |
| Warranty | 5 to 6 years full replacement* | | | | | | 5 to 6 years full replacement* | | | | | | |
| Service Life | Extended | | | | | | Extended | | | | | | |
| Battery Type | True gel cell and silver alloy grid battery technologies | | | | | | | | | | | | |
| Heat Resistant | Extreme | | | | | | Extreme | | | | | | |
| Hydrogen Emission | Low | | | | | | Low | | | | | | |
| Capacity at 20hrs (to 1.75VPC) | 109Ah | | | | | | 100Ah | | | | | | |
| Typical Runtime** | 221 mins | | | | | | 196 mins | | | | | | |
| BCI Group Size | 31 | | | | | | 31 | | | | | | |
| Terminals | Threaded insert ¼ to 20 UNC | | | | | | | | | | | | |
| Cells Per Unit | 6 | | | | | | 6 | | | | | | |
| Voltage Per Unit | 12.8V | | | | | | 12.8V | | | | | | |
| Conductance Value | 960-1400 | | | | | | 880-1320 | | | | | | |
| Impedance @ 60Hz | 0.005 Ohms | | | | | | 0.005 Ohms | | | | | | |
| Max. Discharge Current | 900A | | | | | | 900A | | | | | | |
| Short Circuit Current | 2800A | | | | | | 2600A | | | | | | |
| 10 Second Volts @ 100A | 11.4 | | | | | | 11.3 | | | | | | |
| MECHANICAL | | | | | | | | | | | | | |
| Dimensions w/ Terminals | mm | 215.4H x 340.9W x 172.7D | | | | | | 215.4H x 340.9W x 172.7D | | | | | |
| | inches | 8.48H x 13.42W x 6.80D | | | | | | 8.48H x 13.42W x 6.80D | | | | | |
| Weight | 33.2kg (73lbs) | | | | | | 30.5kg (67lbs) | | | | | | |
| ENVIRONMENTAL | | | | | | | | | | | | | |
| Discharge | -40 to 71°C (-40 to 160°F) | | | | | | -40 to 71°C (-40 to 160°F) | | | | | | |
| Charge (w/ temperature compensation) | -23 to 60°C (-9.4 to 140°F) (Charger temp comp @ ±5mV/C per °C) | | | | | | | | | | | | |
| Float Charging Voltage | 13.5 to 13.8Vdc average per 12V unit at 25°C (77°F) | | | | | | | | | | | | |
| AC Ripple Charger | 0.5% RMS or 1.5% of float charge voltage recommended for best results. Max. allowed = 4%V pk to pk | | | | | | | | | | | | |
| CURRENT DISCHARGE RATINGS TABLE IN AMPS (END VOLTAGE 1.75VPC @ 25°C/77°F) | | | | | | | | | | | | | |
| Hours | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 12 | 20 | 24 | 48 | 72 | 100 |
| 220GXL | 67.7 | 40.4 | 29.1 | 22.9 | 16.1 | 12.6 | 10.2 | 8.7 | 5.45 | 4.6 | 2.4 | 1.6 | 1.2 |
| 195GXL | 65.1 | 37.4 | 26.8 | 21 | 14.8 | 11.5 | 9.5 | 8 | 5 | 4.3 | 2.2 | 1.5 | 1.1 |

*Warranty varies by country and region. Warranty valid only when used with Alpha approved power supplies, chargers and enclosures in US/Canada. 6 years warranty when purchased in conjunction with AlphaGuard. Consult your salesperson or manual for details. **Runtime calculated using a 25A DC constant current load.



ALPHACELL™ XTV

AGM TOP-TERMINAL BATTERY

- › Extreme temperature Absorbed Glass Mat (AGM) technology
- › Significant improvement in cold temperature performance over GEL
- › Longer runtimes help increase network availability
- › Multiple models provide options for all network architectures
- › Power density gains allow more runtime from smaller sized battery
- › Extended service life for non-temperature controlled outdoor enclosures
- › Full 5-year replacement warranty*

| NOMINAL SPECIFICATIONS | | | | | | |
|--|---|---------------------------|---|---------------------------|------------------------|--|
| Model | 100XTV | 150XTV | 195XTV | 240XTV | | |
| P/N | 1810226 | 1810227 | 1810228 | 1810229 | | |
| Warranty | 5-year full replacement* | 5-year full replacement* | 5-year full replacement* | 5-year full replacement* | | |
| Operating Temperature Range (w/ Temperature Compensation) | -40 to 60°C (-40 to 140°F) (charger temperature compensation @ ±3.3mVpc per °C) | | | | | |
| Storage Temperature | -10 to 40°C (14 to 104°F) | -10 to 40°C (14 to 104°F) | -10 to 40°C (14 to 104°F) | -10 to 40°C (14 to 104°F) | | |
| Self Discharge | Battery can be stored up to 12 months at 25°C (77°F). Higher temperatures during storage will require more frequent recharge. | | | | | |
| Voltage Per Unit | 12V | 12V | 12V | 12V | | |
| Float Charge Voltage | 13.5 to 13.8Vdc average per 12V unit at 25°C (77°F) | | | | | |
| Refresh/Boost Charging Voltage | 14.4 to 15.0Vdc average per 12V unit at 25°C (77°F) | | | | | |
| Maximum AC Ripple (Charger) | 0.5% RMS or 1.5% of float recommended for best results. Maximum voltage allowed = 4% P/P | | | | | |
| Terminal Type | Threaded alloy insert terminal to accept M6 x 12mm bolt | | Threaded alloy insert terminal to accept M6 x 20mm bolt | | | |
| Terminal Hardware Torque | 13.6NM / 120in-lbs | 13.6NM / 120in-lbs | 13.6NM / 120in-lbs | 13.6NM / 120in-lbs | | |
| Case Sizes | 22NF | 24 | 27 | 31 | | |
| MECHANICAL | | | | | | |
| Dimensions w/ Terminals | mm | 207H x 228L x 138W | 214H x 275L x 168W | 214H x 322L x 169W | 217H x 343L x 170W | |
| | inches | 8.17H x 9.01L x 5.46W | 8.44H x 10.85L x 6.65W | 8.43H x 12.71L x 6.67W | 8.57H x 13.50L x 6.71W | |
| Weight | 17.7kg (39lbs) | | 25.4kg (56lbs) | 30.5kg (67lbs) | 32kg (75lbs) | |
| BATTERY | | | | | | |
| Runtime Rating 25A (@ 25°C/77°F to 1.75Vpc) | 100 minutes | 150 minutes | 195 minutes | 240 minutes | | |
| Amp Hour Capacity 20Hr Rate (@ 25°C/77°F to 1.75Vpc) | 56Ah | 80Ah | 100Ah | 112Ah | | |
| Conductance Range Fully Charged New Battery (@ 25°C/77°F) | 700 - 800 | 900 - 1100 | 1050 - 1250 | 1250 - 1550 | | |

| CURRENT DISCHARGE RATINGS TABLE IN AMPS (END VOLTAGE 1.75VPC @ 25°C/77°F) | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|-----|-----|
| Hours | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 20 |
| 100XTV | 39.4 | 22.1 | 15.8 | 12.4 | 10.3 | 8.7 | 6.7 | 5.4 | 4.6 | 2.8 |
| 150XTV | 53.0 | 30.6 | 21.6 | 16.8 | 13.9 | 11.9 | 9.3 | 7.7 | 6.5 | 4.0 |
| 195XTV | 65.5 | 37.6 | 26.9 | 21.0 | 17.3 | 14.7 | 11.3 | 9.4 | 7.9 | 5.0 |
| 230XTV | 81.7 | 45.5 | 32.1 | 25 | 19.8 | 16.6 | 13 | 10.5 | 9 | 5.6 |

*Warranty varies by country and region. Warranty valid only when used with Alpha approved power supplies, chargers and enclosures in US/Canada. Consult your salesperson or manual for details.



ALPHACELL™ 3.5 & 4.0 HP

PURE LEAD TOP-TERMINAL BATTERIES

- › Pure lead technology provides up to 20% increased life expectancy
- › 3 to 5 times longer shelf life versus standard VRLA batteries
- › Up to 50% increased runtime in cold climates
- › Non-spillable UN2800 rating for ease of transportation
- › Higher runtime allows string count reduction
- › 5-year full, hassle-free warranty

NOMINAL SPECIFICATIONS

| Model | 3.5HP | 4.0HP |
|---------------------------------------|-------------------------------|-------------------------------|
| P/N | 1810077 | 1810078 |
| Warranty | 5-year full replacement* | 5-year full replacement* |
| Service Life | Extended | Extended |
| Battery Type | Pure lead AGM | Pure lead AGM |
| Heat Resistant | Extreme | Extreme |
| Hydrogen Emission | Low | Low |
| Capacity at 20hrs (to 1.75VPC) | 104Ah | 114Ah |
| Typical Runtime** | 210 mins | 240 mins |
| BCI Group Size | 31 | 31 |
| Terminals | Threaded insert 1/4 - 20 UNC" | Threaded insert 1/4 - 20 UNC" |
| Cells Per Unit | 6 | 6 |
| Voltage Per Unit | 12.8 | 12.8 |
| Conductance Value | 1400-1850 | 1700-2500 |
| Max. Discharge Current | 800A | 900A |
| Short Circuit Current | 2800A | 3200A |
| 10 Second Volts @ 100A | 11.7 | 11.8 |
| Impedance @ 60Hz | 2.7 Ohms | 2.2 Ohms |

MECHANICAL

| Dimensions w/ Terminals | mm | 223.5H x 337.8W x 172.7D | 223.5H x 337.8W x 172.7D |
|-------------------------|--------|--------------------------|--------------------------|
| | inches | 8.5H x 13.4W x 6.8D | 8.5H x 13.4W x 6.8D |
| Weight | | 30.8kg (68lbs) | 35.6kg (74lbs) |

ENVIRONMENTAL

| | | |
|---|--|----------------------------|
| Discharge | -40 to 60°C (-40 to 140°F) | -40 to 60°C (-40 to 140°F) |
| Charge (w/ Temperature compensation) | -40 to 60°C (-9.4 to 140°F) (Charger temp comp @ ±4mV/C per °C) | |
| Float Charging Voltage | 13.5 to 13.8Vdc average per 12V unit at 25°C (77°F) | |
| AC Ripple Charger | 0.5% RMS or 1.5% of float charge voltage recommended for best results. Max. allowed = 4%V pk to pk | |

CURRENT DISCHARGE RATINGS TABLE IN AMPS (END VOLTAGE 1.75VPC @ 25°C/77°F)

| Hours | | 1 | 2 | 3 | 4 | 8 | 10 | 20 |
|--------------|----------------------|------|------|------|------|------|------|-----|
| 3.5HP | End voltage 1.75VPC: | 70.2 | 40.3 | 28.6 | 22.3 | 12.1 | 9.9 | 5.2 |
| | End voltage 1.70VPC: | 72.0 | 41.1 | 29.2 | 22.7 | 12.3 | 10.0 | 5.3 |
| 4.0HP | End voltage 1.75VPC: | 81.9 | 45.8 | 32.2 | 25.0 | 13.1 | 10.6 | 5.7 |
| | End voltage 1.70VPC: | 83.7 | 46.7 | 32.8 | 25.4 | 13.3 | 10.7 | 5.8 |

*Warranty varies by country and region. Warranty valid only when used with Alpha approved power supplies, chargers and enclosures in US/Canada. Consult your salesperson or manual for details. **Runtimes calculated using a 25A DC constant current load to 1.75Vdc @ 25°C

ALPHACELL™ 195 GXL-FT



GEL FRONT-TERMINAL BATTERIES

- True gel technology and high performance separator for extended battery cycle life
- Front access design with protective covers for ease of installation and maintenance
- Ideal for demanding outdoor telecom, Wi-Fi and broadband applications
- High power volume ratio maintenance for gel battery

| NOMINAL SPECIFICATIONS | | | | | | | | | | | | | |
|---|--|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| Model | 195 GXL-FT | | | | | | | | | | | | |
| P/N | 1810029 | | | | | | | | | | | | |
| Warranty | Extended warranty - 3 year full replacement* | | | | | | | | | | | | |
| Sealed VRLA | Valve regulated lead acid | | | | | | | | | | | | |
| Heat Resistant | Extreme | | | | | | | | | | | | |
| Hydrogen Emission | Low | | | | | | | | | | | | |
| Terminals | 16mm insert M6 thread | | | | | | | | | | | | |
| Typical Runtime | 195 mins | | | | | | | | | | | | |
| Cells Per Unit | 6 | | | | | | | | | | | | |
| Voltage Per Unit | 12.8V | | | | | | | | | | | | |
| Conductance Value | 800-1200 | | | | | | | | | | | | |
| Max. Discharge Current | 400A | | | | | | | | | | | | |
| Short Circuit Current | 3000A | | | | | | | | | | | | |
| 10 Second Volts @ 100A | 10.8 | | | | | | | | | | | | |
| Impedance @ 60Hz | 0.0041 Ohms | | | | | | | | | | | | |
| Capacity at 20hrs (to 1.75VPC) | 110Ah | | | | | | | | | | | | |
| MECHANICAL | | | | | | | | | | | | | |
| Dimensions | mm 285H x 110W x 395D | | | | | | | | | | | | |
| w/ Terminals** | inches 11.22H x 4.33W x 15.55D | | | | | | | | | | | | |
| Weight | 34.5kg (76.3lbs) | | | | | | | | | | | | |
| ENVIRONMENTAL | | | | | | | | | | | | | |
| Discharge | -40 to 71°C (-40 to 160°F) | | | | | | | | | | | | |
| Charge (w/ Temp compensation) | -20 to 50°C (-4 to 122°F) (Charger temp comp @ ±4mV/C per °C) | | | | | | | | | | | | |
| Float Charging Voltage (Vdc) | Float 2.27 to 2.30VPC @ 25°C cycling 2.35VPC @ 25°C | | | | | | | | | | | | |
| AC Ripple Charger | 0.5% RMS or 1.5% of float charge voltage recommended for best results. Max. allowed = 4% P-P | | | | | | | | | | | | |
| CURRENT DISCHARGE RATINGS TABLE IN AMPS (END VOLTAGE 1.75VPC) | | | | | | | | | | | | | |
| Hours | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 12 | 20 | 24 | 48 | 72 | 100 |
| 195 GXL-FT | 69.2 | 38.0 | 26.8 | 21.1 | 15.2 | 12.0 | 9.92 | 8.48 | 5.50 | 4.60 | 2.31 | 1.56 | 1.13 |

*Warranty varies by country and region. **Dimensions at top of battery. Consult your salesperson or manual for details.



ALPHACELL™ BT

BROADBAND/TELECOM VLRA BATTERY SERIES

- › Front access terminal battery for Broadband/Telecom applications
- › 10 year float service design life
- › Reduced headspace requirement provides higher energy density in cabinet or rack applications
- › Thermally welded case-to-cover bond to ensure a leak-proof seal
- › UL90 V-O flame retardant polypropylene case and cover
- › Certified non-spillable for transportation

| NOMINAL SPECIFICATIONS | | | | | | | | | | | | |
|--|---|-------------------------|-------------------------|------|------|------|------|------|------|------|------|-----|
| Model | AlphaCell 160 BT | AlphaCell 180 BT | AlphaCell 210 BT | | | | | | | | | |
| P/N | 1810119 | 1810120 | 1810154 | | | | | | | | | |
| Warranty | 4 years full replacement then 6 years prorated* | | | | | | | | | | | |
| Voltage | 12V | 12V | 12V | | | | | | | | | |
| Ampere Hour Capacity 8hr Rate @ 25°C (77°F) to 1.75 V/c | 157Ah | 181Ah | 202Ah | | | | | | | | | |
| Ampere Hour Capacity 10hr Rate @ 25°C (77°F) to 1.75 V/c | 161Ah | 186Ah | 209Ah | | | | | | | | | |
| Maximum Discharge Current | 800A | 800A | 800A | | | | | | | | | |
| Short Circuit Current | 4,700A | 4,500A | 4,500A | | | | | | | | | |
| Ohms Impedance 60Hz (Ω) | 0.0031 Ohms | 0.0037 Ohms | 0.0040 Ohms | | | | | | | | | |
| Self Discharge | Battery can be stored up to 6 months at 25°C (77°F) before a freshening charge is required. Batteries stored at temperatures greater than 25°C (77°F) will require recharge sooner than batteries stored at lower temperatures. | | | | | | | | | | | |
| Equalize Charge and Cycle Service Voltage | 14.40 to 14.80Vdc average per 12V unit @ 25°C (77°F) | | | | | | | | | | | |
| Terminal: Inserted Interunit Connector Provided | Threaded copper alloy insert terminal to accept 1/4-20 UNC bolt | | | | | | | | | | | |
| Terminal Hardware Initial Torque | 110 in. lbs. (12.4 Nm) | 110 in. lbs. (12.4 Nm) | 110 in. lbs. (12.4 Nm) | | | | | | | | | |
| MECHANICAL | | | | | | | | | | | | |
| Dimensions | mm | 283H x 559D x 126W | 320H x 559D x 126W | | | | | | | | | |
| | inches | 11H x 22D x 5W | 13H x 22D x 5W | | | | | | | | | |
| Weight | | 52.2kg (115lbs) | 59.4kg (131lbs) | | | | | | | | | |
| | | | 63.51kg (142lbs) | | | | | | | | | |
| ENVIRONMENTAL | | | | | | | | | | | | |
| Operating Temperature Range (w/Temp compensation) | Discharge: -40 to 71°C (-40 to 160°F) Charge: -23 to 60°C (-10 to 140°F) | | | | | | | | | | | |
| Nominal Operating Temperature Range | 23 to 27°C (74 to 80°F) | 23 to 27°C (74 to 80°F) | 23 to 27°C (74 to 80°F) | | | | | | | | | |
| Recommended Max Charging Current Limit | C/5 amperes (20hr rate) | C/5 amperes (20hr rate) | C/5 amperes (20hr rate) | | | | | | | | | |
| Float Charging Voltage | 13.5 to 13.8Vdc average per 12V unit charger temp comp @ ±5mV/C per °C @ 25°C (77°F) | | | | | | | | | | | |
| Maximum AC Ripple (charger) | 0.5% RMS or 1.5% of float charge voltage recommended for best results. Max voltage allowed = 1.4% RMS (4% P-P) | | | | | | | | | | | |
| CURRENT DISCHARGE RATINGS TABLE IN AMPS (END VOLTAGE 1.75VPC @ 25°C/77°) | | | | | | | | | | | | |
| Hours | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 12 | 20 | 24 |
| AlphaCell 160 BT | 107.1 | 62.2 | 44.9 | 35.4 | 29.3 | 25.1 | 22.0 | 19.7 | 16.1 | 13.7 | 8.6 | 7.3 |
| AlphaCell 180 BT | 123.1 | 71.1 | 51.7 | 40.8 | 33.8 | 29.0 | 25.4 | 22.6 | 18.6 | 15.9 | 10.0 | 8.5 |
| AlphaCell 210 BT | 138.0 | 82.7 | 58.4 | 45.8 | 37.9 | 32.3 | 28.4 | 25.3 | 20.9 | 17.8 | 11.5 | 9.8 |

*Warranty in US/Canada only for other regions consult your salesperson for details.



ALPHACELL HR

VRLA BATTERY FOR HIGH RATE UPS STANDBY POWER APPLICATIONS

- › Front access threaded copper alloy inserts for reduced maintenance and increased safety
- › Front terminal design maximizes energy density, with direct connect (extrusion fusion) weld technology
- › Reduced headspace creates higher energy density in cabinet or rack applications
- › Removable handles for ease of installation
- › Thermally welded case-to-cover bond ensures a leak-proof seal

| NOMINAL SPECIFICATIONS | |
|--|---|
| P/N | 1810118 |
| Warranty | 3 Years* |
| Voltage | 12V |
| Nominal 20hr rate to 1.75 VPC in Ampere-Hours | 206Ah |
| Cells Per Unit | 6 |
| Maximum Terminal Discharge Current Rating | 800A |
| Self Discharge | Battery can be stored up to 6 months at 77°F (25°C) before a freshening charge is required. Batteries stored at temperatures greater than 77°F (25°C) will require recharge sooner than batteries stored at lower temperatures. |
| Equalize Charge & Cycle Service Voltage | 14.40 to 14.80 Vdc average per 12V unit @ 77°F (25°C) |
| Terminal: Inserted - Interunit Connector Provided | Threaded copper alloy insert terminal to accept 1/4-20 UNC bolt |
| Terminal Hardware Initial Torque | 110 in.-lbs. (12.4 N-m) |
| MECHANICAL | |
| Dimensions | mm 320.04H x 559.05D x 125.73W inches 12.60H x 22.01D x 4.95W |
| Weight | 131lbs (60kg) |
| ENVIRONMENTAL | |
| Operating Temperature Range (w/ Temperature compensation) | Discharge: -40°F (-40°C) to +160°F (71°C) Charge: -10°F (-23°C) to +140°F (60°C) (Charger temp comp @ ±5mV/C per °C) |
| Nominal Operating Temperature Range | +74°F (23°C) to +80°F (27°C) |
| Recommended Maximum Charging Current Limit | C/5 amperes @ 20 Hr rate |
| Float Charging Voltage | 13.5 to 13.8 Vdc average per 12V unit @ 77°F (25°C) |
| Maximum AC Ripple (charger) | 0.5% RMS or 1.5% P-P of float charge voltage recommended for best results. Max voltage allowed = 1.4% RMS (4% P-P) Max current allowed = C/20 |
| CONSTANT POWER DISCHARGE RATINGS - WATTS PER CELL @ 77°F (25°C) | |
| Operating Time to End Point Voltage (in minutes) | |
| End Point Volts/Cell | 5 10 15 20 30 40 45 50 60 90 |
| 1.75 | 821.1 700.8 596.0 512.5 398.3 326.9 300.6 278.5 243.2 177.7 |
| 1.70 | 961.5 804.0 665.6 559.0 422.4 341.9 312.9 288.7 250.8 181.5 |
| 1.67 | 1058.8 853.6 700.0 575.3 432.5 349.0 319.0 294.0 254.6 182.9 |
| 1.65 | 1075.6 866.0 699.2 581.1 436.1 351.8 321.5 296.3 256.7 184.5 |
| 1.60 | 1097.4 881.5 712.2 592.2 444.1 357.5 326.4 300.5 259.8 186.0 |
| CONSTANT CURRENT DISCHARGE RATINGS - AMPERES @ 77°F (25°F) | |
| Operating Time to End Point Voltage (in hours) | |
| End Point Volts/Cell | 1 2 3 5 8 10 12 20 24 72 |
| 1.85 | 105 66.1 48.8 32.5 21.9 18.1 15.4 9.67 8.16 2.60 |
| 1.80 | 116 70.4 51.7 34.4 23.1 19.0 16.2 10.1 8.54 2.70 |
| 1.75 | 124 74.0 53.8 35.5 23.7 19.5 16.5 10.3 8.70 2.80 |

*Warranty in US/Canada only for other regions consult your salesperson for details.

ENERGYCELL RE TOP-TERMINAL



TOP TERMINAL RENEWABLE ENERGY APPLICATIONS

- Deep cycle battery designed for renewable energy applications
- Robust lead alloy plates for extended cycle life and low calcium grid alloy for reduced gas emissions and ease of recycling
- Flame-arresting, one-way pressure-relief vent for safety and long life
- UL-recognized component

| NOMINAL SPECIFICATIONS | | | | | | | | | | | | | | | |
|---|---|-----------------------|-------|----------------------|-----------------------|-------|---|-----------------------|------|------------------------|-----------------------|------------------------|-----------------------|------|--|
| Model | AlphaCell 34 RE | | | AlphaCell 52 RE | | | AlphaCell 78 RE | | | AlphaCell 95 RE | | AlphaCell 106 RE | | | |
| P/N | 1810252 | | | 1810248 | | | 1810253 | | | 1810254 | | 1810164 | | | |
| Warranty* | 2 years | | | 2 years | | | 2 years | | | 2 years | | 2 years | | | |
| Voltage Per Unit | 12.84 | | | 12.84 | | | 12.84 | | | 12.84 | | 12.84 | | | |
| Electrolyte | Absorbed H2SO4' SG=1.300 | | | | | | | | | | | | | | |
| Self Discharge | Battery can be stored up to 6 months at 25°C (77°F) before a freshening charge is required. Batteries stored at temperatures greater than 25°C (77°F) will require a recharge sooner than batteries stored at lower temperatures. | | | | | | | | | | | | | | |
| Terminal | Inserted Terminal (Copper Alloy) 10-32 UNF bolt | | | | | | Inserted Terminal (Copper Alloy) ¼-20 UNC bolt | | | | | | | | |
| Terminal Hardware Initial Torque | 30 in.-lbs (3.4 N-m) | | | 30 in.-lbs (3.4 N-m) | | | 110 in.-lbs (12.4 N-m) | | | 110 in.-lbs (12.4 N-m) | | 110 in.-lbs (12.4 N-m) | | | |
| MECHANICAL | | | | | | | | | | | | | | | |
| Dimensions (H x W x D) | mm | 172.7 x 131.9 x 197.1 | | | 205.1 x 139.2 x 228.6 | | | 203.5 x 173.4 x 273.2 | | | 204.8 x 173.4 x 317.8 | | 216.4 x 172.7 x 340.9 | | |
| | inches | 6.80 x 5.19 x 7.76 | | | 8.07 x 5.48 x 9.0 | | | 8.01 x 6.83 x 10.76 | | | 8.06 x 6.83 x 12.51 | | 8.52 x 6.80 x 13.42 | | |
| Weight | 12kg (27lbs) | | | 18kg (40lbs) | | | 25kg (54lbs) | | | 30kg (64lbs) | | 31kg (69lbs) | | | |
| ENVIRONMENTAL | | | | | | | | | | | | | | | |
| Operating Temperature Range (w/ temperature compensation) | Discharge: -40 to 71°C (-40 to 160°F) Charge: -23 to 60°C (-10 to 140°F) | | | | | | | | | | | | | | |
| Normal Operating Temperature Range | 23 to 27°C (74 to 80°F) | | | | | | | | | | | | | | |
| Recommended Maximum Charge Current Limit | C/5 amperes @ 20hr rate | | | | | | | | | | | | | | |
| Float Charge Voltage | 13.5 to 13.8Vdc/unit Average at 25°C (77°F) (Charger temp comp @ ±5mV/C per °C) | | | | | | | | | | | | | | |
| Equalization & Cycle Service Charging & Current Limits | 14.4 to 14.8Vdc/unit Average at 25°C (77°F) | | | | | | | | | | | | | | |
| CURRENT DISCHARGE RATINGS TABLE IN AMPS (END VOLTAGE 1.75VPC @ 25°C/77°F) | | | | | | | | | | | | | | | |
| Hours | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 12 | 20 | 24 | 72 | 100 | |
| AlphaCell 34 RE | 19.70 | 11.80 | 8.70 | 7.00 | 5.80 | 4.93 | 4.30 | 3.80 | 3.11 | 2.64 | 1.65 | 1.38 | 0.47 | 0.34 | |
| AlphaCell 52 RE | 29.60 | 17.55 | 12.97 | 10.35 | 8.66 | 7.43 | 6.49 | 5.75 | 4.72 | 4.00 | 2.50 | 2.10 | 0.72 | 0.52 | |
| AlphaCell 78 RE | 43.50 | 26.60 | 19.50 | 15.50 | 12.90 | 11.10 | 9.80 | 8.70 | 7.10 | 6.00 | 3.75 | 3.15 | 1.08 | 0.78 | |
| AlphaCell 95 RE | 47.00 | 29.00 | 22.00 | 17.70 | 14.80 | 12.70 | 11.14 | 9.90 | 8.17 | 6.97 | 4.40 | 3.70 | 1.29 | 0.95 | |
| AlphaCell 106 RE | 49.20 | 30.75 | 23.33 | 19.00 | 16.12 | 14.00 | 12.40 | 11.13 | 9.20 | 7.85 | 5.00 | 4.21 | 1.44 | 1.06 | |

*Warranty in US/Canada only for other regions consult your salesperson for details.

ENERGYCELL RE FRONT-TERMINAL



FRONT TERMINAL RENEWABLE ENERGY BATTERIES

- › Front terminal access design for ease of maintenance and installation
- › High-density pasted plates for high cycle life
- › Lead-calcium-tin alloy plates for long life in both cycling and float applications
- › High recharge efficiency
- › Compact footprint for higher density energy requirements
- › Thermally welded case-to-cover eliminates leakage
- › UL-recognized component

| NOMINAL SPECIFICATIONS | | | | | | | | | | |
|--|--|-------------------------|-------|-------|-------|---|------|------|------|-----|
| Model | EnergyCell 170RE | | | | | EnergyCell 200RE | | | | |
| P/N | 1810255 | | | | | 1810137 | | | | |
| Warranty* | 2 years | | | | | 2 years | | | | |
| Voltage Per Unit | 12Vdc | | | | | 12Vdc | | | | |
| Self Discharge | Battery can be stored up to 18 months at 25°C (77°F) before a freshening charge is required. Batteries stored at temperatures greater than 25°C (77°F) will require recharge sooner than batteries stored at lower temperatures. | | | | | | | | | |
| Temp Compensation Factor (charging) | ±5mV per °C per cell (2V) | | | | | ±5mV per °C per cell (2V) | | | | |
| Terminal | Threaded copper alloy insert terminal to accept 1/4"-20 UNC bolt | | | | | | | | | |
| Terminal Hardware Initial Torque | 110 in-lbs (12.4 Nm) | | | | | 110 in-lbs (12.4 Nm) | | | | |
| MECHANICAL | | | | | | | | | | |
| Dimensions** | mm | 283H x 559D x 126W | | | | 320H x 559D x 126W | | | | |
| | inches | 11.14H x 22.01D x 4.95W | | | | 12.60H x 22.01D x 4.95W | | | | |
| Weight | 52kg (115lbs) | | | | | 60kg (131lbs) | | | | |
| **Batteries to be installed with 0.5in (12.7mm) spacing minimum and free air ventilation | | | | | | | | | | |
| ENVIRONMENTAL | | | | | | | | | | |
| Operating Temperature Range (w/ Temperature compensation) | Discharge: -40 to 71°C (-40 to 160°F) Charge: -23 to 60°C (-10 to 140°F) | | | | | Discharge: -40 to 71°C (-40 to 160°F) Charge: -23 to 60°C (-10 to 140°F) | | | | |
| Optimal Operating Temp Range | 23 to 27°C (74 to 80°F) | | | | | 23 to 27°C (74 to 80°F) | | | | |
| Maximum Charge Current Limit Per String | 46.9A | | | | | 53.4A | | | | |
| Float Charging Voltage | 13.62Vdc/unit average at 25°C (77°F) | | | | | 13.62Vdc/unit average at 25°C (77°F) | | | | |
| Equalization & Cycle Service Charging Limits | 14.4Vdc/unit average at 25°C (77°F) | | | | | 14.4Vdc/unit average at 25°C (77°F) | | | | |
| CURRENT DISCHARGE RATINGS TABLE IN AMPS (END VOLTAGE 1.75VPC @ 25°C/77°F) | | | | | | | | | | |
| Hours | 1 | 3 | 4 | 5 | 8 | 12 | 20 | 24 | 48 | 100 |
| EnergyCell 170RE | 89.1 | 38 | 30.15 | 25.18 | 17.12 | 12.10 | 7.69 | 6.54 | 3.41 | 1.7 |
| EnergyCell 200RE | 103 | 44 | 34.9 | 29.1 | 19.8 | 14 | 8.9 | 7.55 | 3.95 | 2 |

*Warranty in US/Canada only for other regions consult your salesperson for details.



UPS BATTERIES

FRONT TERMINAL BATTERIES

- › High rate and general purpose VRLA Batteries
- › 12V batteries with capacities from 7Ah to 34Ah at 20 hrs
- › Optimized grid for high power density
- › Upright, side or end mounting
- › Thermally welded case to cover bond eliminates leakage
- › Optional flame retardant ABS casing to UL94-VO

| NOMINAL SPECIFICATIONS | |
|---|---|
| Consult your Alpha representative for P/N configurations | |
| ELECTRICAL | |
| Type | Valve regulated lead acid |
| Range of Capacity | 7 to 34Ah |
| Recommended Float Voltage | 13.5Vdc @ 20°C (68°F) |
| Terminal Type | Threaded copper insert or fast on (vary by battery Ah) |
| Optional | UL 94 VO flame retardants casing |
| ENVIROMENTAL | |
| Operating Temperature Nominal | 25°C (77°F) note: can operate at higher temperature up to 74°C (165°F) but degrades life of battery |
| Operating Temperature Range (extended temperature batteries) | Discharge -20 to 50°C (-4 to 122°F) |
| | Charge -20 to 50°C (-4 to 122°F) |
| | Storage -20 to 50°C (-4 to 122°F) |

*For information on warranties please contact your sales rep.

REMOTE BATTERY MONITORING SYSTEM PLUS



REAL-TIME MEASUREMENT AND CONTROL

- › Compact, intelligent and cost effective system for determining battery condition remotely
- › Monitors each individual 12V battery via a user programmable schedule, from hourly to monthly
- › Intelligent battery balancing extends the life of the battery string and reduces maintenance costs
- › Automatic data logging function records individual battery voltage, temperature and admittance
- › Enables the scheduling and budgeting of battery replacements
- › Built-in web server allows for convenient read-only monitoring from any internet-connected computer

48Vdc 1 String: 0370260-002
48Vdc 2 Strings: 0370260-003

ELECTRICAL

Site Controller Unit:

Voltage:21– 59Vdc
 Power consumption:7W
 NOTE: Power is supplied from the battery bank

Sensors:

Voltage: 12V: 8.0 – 16Vdc
 Power consumption: 12V: <10mA nominal, 0.5/6A during admittance test

MECHANICAL

Site Controller Unit:

Dimensions:
 mm:32H x 104.15W x 120.15D
 inches:..... 1.26H x 4.1W x 4.73D
 Weight:.....0.242kg (0.53lbs)

Sensors (12V)

- Two-wire connection with max bolt size for terminals of 5/16 inch
- Mounted to the top of the battery with self-adhesive industrial Velcro strip
- CAT5 cable used to daisy chain from sensor to sensor
- Last sensor in the daisy chain connects to String 1 for the first battery string
- Last sensor in the daisy chain connects to String 2 for the second battery string

Power Harness Cable Connection

- Connects to the 48Vdc battery string + (Red) and – (Black) terminals

ENVIRONMENTAL

Operating Temperature: -40 to 80°C (-40 to 176°F)

COMMUNICATIONS

Site Controller Unit

- SNMP via TCP/IP & built-in web server and SMTP mail client

Site Controller Software

- Optional Lookout software provides a convenient way to monitor multiple site controllers on the network

OPTIONAL ACCESSORIES

| | |
|--|--------------|
| AC Output Current Sensor | P/N: 7400583 |
| Moisture Sensor | P/N: 7400162 |
| 120V AC wall transformer, for monitoring utility power voltage | P/N: 0180059 |
| Two wire sensor, High Current* | P/N: 0180055 |
| Battery cable to power RBMS Controller* | P/N: 8701040 |

*Included with 0370260-002/003 kit



POWERAGENT

REMOTE BATTERY MONITORING

- › Intelligent site controller monitors up to 6 strings of 40 batteries (2V or 12V cells)
- › Monitors string and cell voltage, admittance, cell temperature, ripple current and float current
- › Expand site monitoring capabilities via external analog and digital inputs and alarm relay outputs
- › Predictive measurements and sophisticated data logging for comprehensive battery health indication
- › Advanced local and remote monitoring options including SNMP over TCP/IP

ELECTRICAL

Site controller unit:

Sensors:.....20-60Vdc
 Power Consumption:5W @ 20-60Vdc plus 5W
 (If 12V source used at max load)

Sensors

Voltage:

- 2V: 1.65-3.0Vdc
- 12V:8.0-16Vdc

Power Consumption:

- 2V:<15ma nominal, 2/5A during admittance test
- 12V:<15ma nominal, 5/7A during admittance test

Rim Modules:

AC Line Measurement:.....90 to 140Vac, RMS, Sine, 50/60Hz

MECHANICAL

Sensors (2V)

Battery Interface:

- Battery Positive:Ring terminal with 12" wire
- Battery Negative:.....Bracket or ring terminal with 12" wire

Rim Modules

Dimensions:

mm:68.6H x 81.3W x 25D
 inches:2.7H x 3.2W x 1D

Weight:0.11kg (0.25lbs)

ENVIRONMENTAL

Site Controller Unit:

Operation:-45 to 65°C

Sensors

Operating Range:

- 2V:-40 to 80°C
- 12V:-40 to 80°C

Heat Dissipation:<94 BTU per hour

COMMUNICATIONS

Site Controller Unit:.....SNMP via TCP/IP
 USB (X4)

Sensors

Communications Interface:

- 2V:Optically isolated RJ-45 (1200V)
- 12V:Optically isolated RJ-45 (1200V)



WHAT PIECES MAKE UP THE SYSTEM

1. Intelligent Site Controller

The site controller communicates with each of the sensors and collects the most recent measurement data. It checks each measurement against locally stored alarm thresholds and alerts the user's monitoring software if an abnormality occurs. The site controller is fully Ethernet TCP/IP compatible, and has a built-in web server and SNMP interface.

2. Battery Sensors

Battery sensors are connected to the terminal posts of each battery cell or block in the system. The sensors measure the battery's admittance (internal resistance), voltage, and post temperature.

3. Current Sensors

Float current sensors are available for monitoring charging currents as low as 20mA and also provide ripple current measurements. A discharge monitoring sensor is also available for DC currents up to 500A with a 1A resolution

4. RIM/ROM Modules

RIM/ROM modules expand the system capabilities beyond just battery monitoring to integrate complete facilities, HVAC, and security monitoring. RIM modules provide up to six analog or digital inputs. ROM modules provide four remotely controllable output relay contacts.



KEY SYSTEM FEATURES

- Enterprise Class system designed to manage thousands of batteries from a single console using open standard interfaces
- Automated, consistent, continuous measurement data thereby dramatically increasing the reliability of measurements and making historic trending simple
- Intelligent equalization which balances float charging across battery cells reducing or eliminating gassing or sulphation caused by unequal charge on batteries
- Holistic approach to monitoring including voltages, ohmic measurements, individual cell temperatures, ripple current, float current, etc.
- Facilities and environmental monitoring options
- Data logging of parameter data and discharge events (number, depth, duration, and cell performance)

SOFTWARE & MONITORING OPTIONS

1. Integrated Site Controller Access

The site controller's internal web interface provides information for all components connected to the Site Controller.

2. Lookout™ Software

Lookout™ Software provides a global view of multiple installations with the ability to "drill in" to details. Lookout™ is provided at no charge.

3. Continuity SBL

Continuity SBL enterprise-class battery system monitoring and analysis package provides predictive trending information and can manage thousands of battery sites.

4. 3rd Party NMS/EMS Systems

Any software that supports an SNMP interface.

BATTERY ACCESSORIES



AlphaGuard™ Battery Charge Management System

ALPHAGUARD™ BATTERY CHARGE MANAGEMENT SYSTEM

AG-CMT-4 AlphaGuard™ Charge Management SC, 48V String – including Battery interface cable

The AlphaGuard is a battery charge management system that monitors and protects your batteries for runtime optimization and longer battery life. CSA and UL approved, AlphaGuard allows you to replace single batteries rather than the whole string. It spreads charge voltage equally across batteries to maximize battery life and compensates for battery differences as they age.

Note: For some applications, Alpha offers an extended battery warranty when AlphaGuard is used.

Contact your Alpha representative for complete details.



Celltron Essential Battery Testing Equipment

BATTERY TESTING EQUIPMENT

Alpha's battery testing equipment provides accurate information about the status of installed standby batteries allowing you to budget for early detection of failed or degraded batteries and for replacements with confidence.

A fast, reliable and affordable testing process.

Conductance testing, coupled with a simple utility load test, arms the operator with the quality of data necessary to know the status of installed standby batteries, allowing for detection and replacement before failure occurs and puts backup during an outage at risk.



BATTERY SPACER CLIP

- Designed for use with most group 27 (165GXL) or 31 (3.5HP, 4.0HP, 195GXL, 220GXL) VRLA batteries
- Easy to install - clips to the top of the battery
- Increases battery life expectancy by providing critical battery spacing required for proper ventilation
- Accurately positions and secures the Remote Temperature Sensor (RTS)
- Strongly recommended for hot climates
- Designed to last over 30 years or lifetime of the equipment



ALPHAGEN™ PORTABLE

3.0KW PORTABLE 36/48VDC GENERATOR SYSTEM

- › DC technology requires no UATS (Universal Automatic Transfer Switch)
- › No need to disconnect or reconnect power supply to utility power
- › Selectable output for 36 or 48Vdc operation up to 3000W
- › Quiet operation only 65dBA @ 7m (22ft)
- › Completely enclosed, water resistant for safe operation in the field
- › Oversized metal gas tank with level gauge for extended runtimes of up to 20 hrs

P/N: 041-028-10

PERFORMANCE / FEATURES

Engine: Honda GX 200 6.5hp, air-cooled, OHV, single cylinder, manual recoil starting, manual choke

Rated Power: 2800W continuous, 3000W max

Alternator: Permanent magnet, brushless, bearingless

Dual Range Selector:

36V: 39.5Vdc nominal at generator output connector

48V: 52.5Vdc nominal at generator output connector

Output Regulation: 1Vdc

Control Features: Automatic voltage regulation
Electronic governor
Over current protection
Analog voltmeter with back light

Cable Interface: Anderson type SBE-80 connector

Fuel Tank: 3.4 gallon metal tank with level gauge

Runtime:

@ 25% load: 20hrs

@ 80% load: 10hrs

@ 100% load: 7.2hrs

Audible Noise: Approx. 65dBA @ 7m under full load

Frame: Fully enclosed

MECHANICAL

Dimensions:

mm: 569H x 480W x 655D

inches: 22.4H x 18.9W x 25.8D

Dry Weight: Less than 53.5kg (118lbs)

3.0KW PORTABLE GENERATOR SOUND LEVELS





Ambient background noise level at 45dBA
All readings are 8 point averages

AGENCY COMPLIANCE

CSA C22.2 No. 100-95, 107.1-01, 107.2-M89, 0.4 FCC part 15B Class A

ACCESSORIES

Required Accessories

| | | |
|---|---|--|
| Output Interface Cable: Available in 10', 30' or 50' lengths |  | 30' Output interface 10' P/N 877-567-10-022 30' P/N 877-567-10-020 50' P/N 877-567-10-021 |
| |  | Ring lug battery interface P/N: 874-946-10-021 |
| Battery Interface Cable: Choose ring lug, heavy-duty alligator clamp, or Y-adaptor* |  | Alligator clamp battery interface P/N: 874-946-20 |
| |  | Y-Adaptor battery P/N: 874-946-22 |

* Connects the power supply's battery input directly to the generator

Optional Accessories

| | |
|--|-----------------|
| DCX-PG-WK: Portable generator wheel kit | P/N: 745-793-20 |
| AG-PG-TOOL: Punch tool kit for enclosures | P/N: 45-131-20 |
| AG-PG-UK: Enclosure upgrade kit | P/N: 745-131-21 |
| DCX-PG-HANDLE: Locking handle | P/N: 745-792-20 |
| AG-CAB-KIT: Cable bag with cable and key lanyard | P/N: 745-764-21 |



AlphaGen
front view



AlphaGen
portable trailer



AlphaGen
with wheel kit

ALPHAGEN™ DCX 2000



PORTABLE 36VDC GENERATOR SYSTEM FOR EMERGENCY BACKUP

- › Lightweight portable DC generator for emergency deployment
- › Large 1.7 gallon (6.5L) fuel tank for longer runtimes
- › DC technology requires no Automatic Transfer Switch (ATS) and lowers risk of theft
- › No need to disconnect or reconnect power supply to utility power
- › Quiet operation, less than 71dBA at 7m (22ft)
- › Optional remote monitor cable
- › Capable of parallel operation with other DCX2000 units

P/N: 041-135-10

NOMINAL SPECIFICATIONS

Engine:.....4-stroke, OHV, single cylinder, air cooled, manual choke
Rated Power:.....2,000W continuous, 2,200W maximum
Rated Current:.....50A
Alternator:Permanent magnet, brushless
36V:39.5Vdc nominal at generator output connector
Output Regulation:±1Vdc
Control Features:
 • Automatic voltage regulation • Electronic governor
 • Over current protection • Digital voltmeter/ammeter
 • Hour meter • Reverse battery protection
Cable Interface:Anderson type SBE-80 connector
Fuel Tank:1.7 gallon (6.5L) metal tank
Altitude:5000ft/1500m

MECHANICAL

Dimensions:
 mm:545L x 290W x 500H
 inches:21L x 11.4W x 19.7H
Dry Weight:28kg (62lbs)
Weight w/ Fuel:36.2kg (80lbs)

RUNTIME

@ 25% load:20.2hrs
 @ 80% load:6.3hrs
 @ 100% load:5.0hrs
 Audible noise:60 to 70dBA @ 7m

AGENCY COMPLIANCE

Agency: CSA C22.2 No. 100-04, CSA B376, FCC part 15B Class A, CARB, US forestry approved spark arrestor




ACCESSORIES

Required Accessories

| | | |
|--------------------------------------|---|---|
| Output Interface Cable |  | 10' P/N: 876-011-22 30' P/N: 876-011-20 50' P/N: 876-011-21 |
| Battery Interface Cable (choose one) |  | Ring lug battery interface P/N: 874-946-21 |
| |  | Alligator clamp battery interface P/N: 874-946-20 |
| |  | Y-Adaptor* P/N: 874-946-22 |

* Connects the power supply's battery input directly to the generator

Optional Accessories

| | |
|--|---|
|  | AG-CAB-SM, a generator status monitoring cable, is available at 10, 30 and 50' lengths and used with a DPM, DSM3x, IDH4x, IDH4L to indicate if a generator is connected and running. 10' P/N: 746-278-21 30' P/N: 746-278-20 50' P/N: 746-278-22 |
|  | Cable Management Harness provides a convenient way to carry the cable and allows you to attached the cable to the generator when not in use. P/N: 042-324-10 |
|  | The security bar allows a generator to be attached to a utility pole or other solid object with a cable and padlock. P/N: 746-558-20 |

ALPHAGEN™ ACX 2000I



INVERTER GENERATOR

- › Lightweight Portable AC generator for powering 120VAC loads
- › Large 1.4 gallon fuel tank for longer runtimes
- › Quiet operation, 66dB @7m/23ft
- › Limited 12Vdc, 8.3A output for recharging lead acid batteries
- › Fuel economy switch automatically to minimize fuel consumption and noise under idle condition

P/N: 041-036-10

NOMINAL SPECIFICATIONS

| | |
|---|--|
| Rated: | 1900W |
| Maximum Output: | 2000W |
| Automatic Low Oil Shutdown: | Yes |
| Certifications: | EPA, CETL, CARB, ISO 9001 |
| Choke: | Manual |
| Continuous Runtime: | |
| Full load: | 3.0hrs |
| ¼ load: | 7.5hrs |
| Altitude: | 5000ft/1500m |
| DC Output: | 12V to 8.3A |
| Engine Type: | Single cylinder, 4-stroke OHV, Air cooled, gasoline |
| Fuel Type: | Unleaded gasoline |
| Fuel Tank Capacity: | 1.4 gal (5.3L) |
| Horsepower: | 4.3hp / 125cc |
| Ignition System: | Electronic ignition |
| Maximum Current: | 16.7A |
| Maximum Output: | 2.0kW |
| Noise Level db @ 23ft/ 7m (Zero load/full load): | 56dB/66dB |
| Oil Capacity: | 15.6oz |
| Oil Type: | 15W-40 |
| Overload Reset Switch: | No |
| Primer Bulb: | Yes |
| Rated Current: | 15.8A |
| Rated Frequency: | .60Hz |
| Rated Output: | 1.9kW |
| Rated Voltage: | 120V |
| Receptacles: | One 120V, 20A 5-20R Duplex |
| Starting System: | Recoil |

MECHANICAL

| | |
|--------------------|--------------------------|
| Dimensions: | |
| inches: | 22L x 11W x 19D |
| mm: | 558.8L x 279.4W x 482.6D |
| Dry Weight: | 28kg (62lbs) |

FEATURES

Accessories Included:

Oil jug, 12V charge cable, spare spark plug, spark plug wrench and handle, manual, keys and remote, oil drain extension, spare 10A glass tube fuse.

| | |
|------------------------------------|---------------------------|
| Automatic Low Oil Shutdown: | Yes |
| Certifications: | EPA, CETL, CARB, ISO 9001 |
| Choke: | Manual |
| Circuit Breaker: | Panel mounted |
| Fuel Economy Switch: | Yes |
| Fuel Gauge: | No |
| Hour Meter: | No |
| Ignition System: | Electronic ignition |
| Inverter Equipped: | Yes |
| Overload Reset Switch: | No |
| Parallel Ready: | No |
| Phase: | Single |
| Primer Bulb: | Yes |
| Structure: | Enclosed |
| Wheels: | No |

ACCESSORIES



- Oil Jug
- 12V Charge Cable
- Spare Spark Plug
- Spark Plug Wrench & Handle
- Manual
- Oil Drain Extension



ALPHAGEN™

DC GENERATOR SYSTEM

- › Integrated generator system lets you deploy power where you need it
- › Cost effective extended runtime solution for Telecom 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
- › Designed for stand-alone or collocated powernode applications
- › Built-in safeguards to protect the system, operators and the public
- › Safe unattended operation designed to UL2200, NFPA 37, 54, 58 and 70 standards

PERFORMANCE / FEATURES

Gas Inlet Pressure:0.5 to 2 PSI inlet pressure (see note 1)

Ign Charger Voltage: 13.5Vdc

Ign Charger Current:6A max

Remote Interface Length:

75ft max Distance depends upon proper installation, de-rating and wire gauge (see note 2)

Fuel System, Controls & 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
- Water intrusion
- Pad shear
- Tamper

Safety Shutdowns:

- Low oil pressure
- Water intrusion
- Over temp
- Over speed
- Low fuel pressure shutdown (propane only)
- Pad shear
- Gas hazard (propane or natural gas)
- Over crank

Optional Feature:

Cold start kit: Provides additional starting capability at temperatures below 17.7°C (0°F).

DC Output Voltage:..... 39.0V ±0.5V @ no load 36V configuration
52.0V ±0.5V @ no load 48V configuration

DC Output Load Regulation: 0.5V

Output Current:..... 39.0V @ 128A max
52.0V @ 96A max

Engine: 398CC, Air cooled, Single OHV
10.5hp (using natural gas fuel)

RPM: (Variable Speed): 2800 to 3600RPM

ACOUSTICAL NOISE

- dBa 10' @ 100% Rated Load:** 68.5Ave
- dBa 20' @ 100% Rated Load:** 62.5Ave
- dBa 10' @ 70% Rated Load:** 66.9Ave
- dBa 20' @ 70% Rated Load:** 60.9Ave

MECHANICAL

| Dimensions | | CE-3x | CE-9x | PN-4xL |
|------------|-----|-------|-------|--------|
| Height | cm | 111.2 | 132.1 | 81.3 |
| | in | 44 | 52 | 32 |
| Width | cm | 66 | 132.1 | 81.3 |
| | in | 26 | 52 | 32 |
| Depth | cm | 61 | 61 | 76 |
| | in | 24 | 24 | 30 |
| Weight | kg | 174 | 187 | 177 |
| | lbs | 383 | 413 | 390 |

APU FUEL CONSUMPTION

Natural Gas: 1000 BTU/Ft.3:..... 80ft³/hr

Propane Gas: 2520 BTU/Ft.3:..... 1.10gal/hr
40ft³/hr
4.62lbs/hr

Exterior Surface Temperature:..... 65°C max (149°F)
(meets requirements of UL/CSA)

AGENCY COMPLIANCE

UL1778, UL2200, NFPA 37/54/58/70 , CSA C22.2 No.107.1, EMC/FCC Part 15 Class A

Note: Contact Alpha Technologies for the following:

1. Low pressure
2. Remote interface length distance



RENEWABLE ENERGY SOLUTIONS

Focusing on engineered Off-Grid and Hybrid Power Systems (HPS), The Alpha Group can provide customized powering solutions designed to meet the unique powering requirements of renewables-focused powering projects through a partnership between OutBack Power, Alpha Energy and NavSemi Technologies.

- Alpha has a proven track record of optimizing reliability in high-profile, mission-critical projects in the military and security markets, underscoring our capability and commitment to innovative, robust and efficient designs.
- Our OEM supplier relationships provide competitive volume purchasing contracts, allowing us to maximize project value.
- From all stages of the project; from proposal, design and manufacturing to testing, delivery and support, Alpha offers our clients the ease of turn key solutions and single-point accountability.

RENEWABLE ENERGY SOLUTIONS

Alpha Energy, member of The Alpha Group and a division of Alpha Technologies Services, is a full-service engineering and project development company for the distributed generation power industry. Alpha is recognized as a market innovator in packaging renewable energy technologies and is one of the leading developers of turn-key photovoltaic systems for commercial, residential, institutional and remote applications. Utilizing solar, wind and alternative resources, Alpha Energy provides innovative power conversion solutions for the most demanding applications. www.alpha.com

Outback Power Technologies, a member of The Alpha Group, is the leading designer and manufacturer of advanced power electronics for renewable energy, backup power and mobile applications. With an emphasis on product performance, OutBack has established itself as the product of choice in harsh environmental conditions where product reliability is paramount. For grid-tied, grid-interactive, and off-grid applications, OutBack has advanced power conversion electronics to make your renewable energy system efficient and dependable. www.outbackpower.com

NavSemi Technologies, a member of The Alpha Group, is committed to making solar energy affordable through technological innovation in power electronics, software algorithms, and balance-of-system component engineering. Its application-oriented designs provide feature-rich, competitive and reliable products to end-users for longer, worry-free renewable energy system operation. www.navsemi.com

COMPONENTS



RADIAN SERIES INVERTER/CHARGER

- UPS mode capabilities
- Unsurpassed surge capability
- Simplified parallel design allows
- 4000W and 8000W 60Hz models and 3500W and 7000W 50Hz models available
- 120/240Vac split-phase voltage
- Quick and easy installation easy installation of systems from 8 to 80kW

The Radian Series provides a comprehensive answer for grid-interactive and stand-alone power systems.



FXR INVERTER/CHARGER

- Sinewave output
- Intelligent battery charging
- High 93% operating efficiency
- Modular system architecture
- Field serviceable

The FXR Series offers an industry leading sealed inverter that has been proven to serve in the most extreme environments, while the VFXR is suitable for more protected installations. And unlike typical grid-tied inverters, the GFX continues to function during a grid outage.



FLEXMAX CHARGE CONTROLLERS

- Battery voltages from 12 to 60Vdc
- Built-in 128 days of data logging
- Increased PV array output by up to 30%
- Advanced continuous maximum power point tracking
- Full power output in ambient temperature up to 40°C (104°F)

OutBack charge controllers allow you to maximize your systems potential and can increase your renewable energy yield by up to 30%.

SYSTEMS



SOLAR POWER SYSTEMS (SPS)

Alpha's Solar Power Systems (SPS) are solar powered DC power systems that support loads of up to 200 Watts. All system designs include the most recent advances in PV manufacturing, electronic controls and power management.

- Battery-based, off-grid applications
- For smaller loads up to 200 watts
- Multiple design choices including economy, standard or premium grade
- Pole-mount arrays and enclosed electronics
- Larger, ground-mount battery banks also available



HYBRID POWER SYSTEMS (HPS)

Alpha's Hybrid Power Systems (HPS) are ideal for a wide variety of missioncritical applications, including telecom, security, military and pipeline operations. These highly versatile power plants are fully-configurable with AC or DC input and output options, and include inverters, DC rectifiers, converters, breakers,alarms, batteries and solar controllers.

- Multiple power generation sources
- Fully integrated system design
- For larger, off-grid applications
- Application specific, custom systems available



SECURITY SOLAR POWER SYSTEMS (SSPS)

Security Solar Power Systems (sSPS) are specifically designed, engineered and built to meet the unique powering requirements of wireless high-end security cameras in locations where grid power is either non-existent or impractical to access.

Each SSPS model is a complete solution featuring:

- Integrated pole-mounted PV/solar panel
- Back-up battery storage
- Compact NEMA 3-R corrosion resistant enclosure with conformal coating
- Integrated on-board electronics support Class III 802.3 compliant cameras
- Operating temperature range from -20 to 55°C**
- Integrated Power over Ethernet (PoE) switch, 1-4 port pre-configured on selected models

** Temperature range applies to component functionality and not the potential effects of extreme temperatures on system or battery operations.



PHOTOVOLTAIC POWER SYSTEM (PVPS)

Alpha's Photovoltaic Power Systems (PVPS) are ideal for customers seeking to incorporate solar electricity into DC-based powering applications. These scalable systems provide direct DC to DC input and output, maximizing available power. This fully configurable power plant also offers diverse options including programmable remote monitoring.

- Battery-based, on-grid or off-grid applications
- Fully scalable to meet power requirements
- Provides power to battery bank or DC bus
- Optional remote status monitoring



SERVICES & SUPPORT

Alpha has the knowledge, experience and resources to provide you with the service and support solutions that keep your power infrastructure optimized and providing continuous, reliable power. We offer a full range of services designed to optimize investments by protecting assets and maximizing uptime, while ensuring reliability and performance of your equipment when it's needed most. Alpha's service goal is to enable you to confidently focus on your core business, knowing there is a single point of contact for all of your power system servicing needs such as 24/7 emergency technical support, training, troubleshooting, on-site & depot repair, extended warranties, bundled or single element service contracts, battery renewal or replacement programs and more.

ALPHA FIELD SERVICES

Alpha offers a broad array of field installation, engineering and construction services for your critical infrastructure. We service customers of all sizes over several business verticals, from small to large we operate in the following environments:

- Central Offices
- Co-location facilities
- Broadband head-ends
- Outside plant Fibre Splicing & HFC services
- Customer premises
- Line power, DAS and small cell installations
- Data Centers
- Communications shelters

Alpha's FIELD SERVICE offering include:

- Complete EF&I services
- End to End Construction Managements Services
- Critical facility upgrades & design build services
- Turnkey installation & startup
- Project management, site evaluations & facility audits
- DC power equipment and infrastructure installations
- Equipment commissioning, performance audits & operational analysis
- Preventative maintenance for critical facilities & other
- CATV power supplies O&M, node segmentations & Fiber builds
- HVAC/CRAC installation, engineering & maintenance
- On-call, emergency & demand responses
- Project management

SERVICES & SUPPORT

VISIT WWW.ALPHA.CA/SERVICE FOR MORE DETAILS

FIELD SERVICES — INSTALLATION, TEST & COMMISSION

Qualified service throughout your power system's lifecycle is key to maximizing uptime, protecting your investment, and ensuring peak performance & reliability. Alpha offers a broad range of field and engineering services to help you maximize your investment in your AC and DC power systems and batteries. Performed to strict quality standards, services offered include turnkey installation & commissioning, testing & reporting, 24/7 emergency technical support, training, troubleshooting, on-site & depot repair, and warranty. Benefit from reduced commissioning pricing by purchasing with an Alpha Service Plan.

We can safely handle system reconfigurations, upgrades, relocations and decommissioning up to, and beyond 10,000 Amps. If your business is new to Alpha, our service technicians have the experience and qualifications to work with power equipment of other makes and models.

TECHNICAL SUPPORT

The goal of our technical support team is to delight our customers with exceptional support, and we achieve this by employing a response system featuring traceability and an escalation path that leads right up to our CEO.

In addition to the Technical Response Centers hours of 5am-5pm PST Alpha provides Emergency Technical Support 24 hours 7 days a week, 365 days a year.

WARRANTIES & CONTRACTS

Predictive and preventative maintenance is a critical part of ensuring your power equipment continues to operate as it did the day it was installed. An annual preventative maintenance visit performed by Alpha's certified technicians will ensure that your batteries and system are up to the job. They will tune up your equipment with precision and speed, using genuine parts and documenting all findings/actions with a comprehensive site report.

Alpha service plans and warranties are designed to help you plan for, and minimize costs. Our Reliability Plan provides regularly scheduled preventative maintenance visits that keep your equipment running smoothly and mitigate costly faults or failures before they happen. Should one of our standard services not be exactly what you are looking for, we would be happy to work with you to define a custom service plan to address the key challenges in your business.

Visit www.alpha.ca/warranty or www.alpha.ca/serviceplans for more details.

For assistance, contact the Alpha Technical Response Team

5AM - 5PM North American Pacific Standard Time for regular inquiries

Toll free North America: **1.888.462.7487**

Outside Canada and USA: **+1.604.415.7444**

24/7 Emergency Support: **1.888.462.7487**

To report a problem, visit: www.alpha.ca/report-a-problem

To request depot repair, visit: www.alpha.ca/rma



SERVICES & SUPPORT

ALPHA SERVICE PLANS

WHAT'S THE DIFFERENCE AT ALPHA?

Our distinctive service excellence at Alpha is not just having expertise or the latest high-tech equipment...but simply being as “easy to do business with” as possible, and understanding your powering challenges better than anyone else. Combining this with our innate understanding of Alpha product uniquely positions us as the most qualified supplier of services for power infrastructure in the marketplace.

Alpha’s quality management system governs not only our products but our broad services portfolio, procedures and processes. Pooling this with our operational excellence and continuous improvement programs, we aim to achieve complete customer satisfaction by providing service of the highest standard and value.

If you have a pressing powering challenge, contact us with your specific requirements at **1.800.667.8743** (toll free North America) or email **sales@alpha.ca**. Visit Alpha online at **www.alpha.ca/service** for more information.

| SERVICES | | | | | |
|--------------------------|---|------------------------------------|------------------------------------|------------------------|------------------------|
| Service | Delayed Startup Warranty | Factory Warranty | Extended Warranty | Reliability | Reliability Plus |
| Remote Technical Support | Postpones Factory Warranty / Extended Warranty for 6 months - 2 years | 5:00 am - 5:00 pm PST Mon - Fri | 5:00 am - 5:00 pm PST Mon - Fri | 24x7 | 24x7 |
| Advanced Replacement | | 60 days post purchase | 90 days post purchase | 120 days post purchase | 180 days post purchase |
| Depot Repair | | Included | Included | Included | Included |
| Freight to Customer | | Included | Included | Included | Included |
| Install & Commissioning | Purchaseable via Quote | Purchaseable via Quote | Purchaseable via Quote | Discount Eligible | Discount Eligible |
| Parts | N/A | N/A | N/A | OOW Discount Eligible | OOW Discount Eligible |
| Preventative Maintenance | N/A | N/A | N/A | Annual PM Included | Annual PM Included |
| Onsite 5 Day Response | N/A | N/A | N/A | Time & Materials | Included *Priority |

| SERVICE UPLIFTS - A LA CARTE | | | | | |
|-----------------------------------|--------------------------|------------------|-------------------|-----------------------------------|-----------------------------------|
| Service | Delayed Startup Warranty | Factory Warranty | Extended Warranty | Reliability | Reliability Plus |
| Batteries | N/A | N/A | N/A | Discount Eligible | Discount Eligible |
| PM - more than annual | N/A | N/A | N/A | Discount Eligible >1 year term | Discount Eligible >1 year term |
| Onsite Next Business Day Response | N/A | N/A | N/A | N/A | Location Dependent |
| Onsite 2 Business Day Response | N/A | N/A | N/A | N/A | Location Dependent |
| Emergency Response | N/A | N/A | N/A | N/A | Location Dependent |

We offer a full range of services designed to optimize investments by protecting assets and maximizing uptime, while ensuring reliability and performance of your equipment throughout its working life.



All requests for repair are easily initiated by visiting **www.alpha.ca/rma** or calling toll free **1.888.462.7487** (North America) or **+1 (604) 436.5900** (international)

ALPHA TRAINING COURSES

VISIT WWW.ALPHA.CA/TRAINING FOR MORE DETAILS

Today's advanced power electronics require skilled, experienced technicians to not only maintain a networks' safety and performance; but to ensure its efficiency, reliability and cost effectiveness. Alpha Technologies offers a range of industry renowned Power Training Courses that are both interactive and technical. Delivered by qualified and experienced industry professionals, these courses offer a mix of theory, group activities and hands on training. Attendees will be in an active learning environment that focuses on understanding every nuance of the technology. Field ready information will be presented that can be applied directly to your team's benefit. Safety and best practices will always be in the foreground to complement and enhance the skills of your team.

Alpha also provides custom training courses, including generic DC Power training, as well as courses on Uninterruptible Power Systems (UPS), AMPS inverter systems and more. Custom courses are tailored to our clients' specific requirements, and can be delivered onsite or online.

Visit www.alpha.ca/training for more details.

COURSE 1 - TELECOM DC POWER AND CORDEX HP ADVANCED POWER SYSTEM TRAINING P/N: 0700016-001

This intensive course covers concepts, design, application, maintenance and operation of DC power systems/components, and includes classroom instruction as well as hands-on training. Courses are taught by industry experts in a classroom and lab environment.

The classes are focused on the advanced Alpha Cordex series of power system controllers and rectifiers. Many of the engineering, installation and maintenance practices can be applied to all types of DC power systems.

Course is available to be conducted on site at your location.

Who should attend

Developed specifically for Alpha customers, the course is intended to complement the basic electrical knowledge of Telecommunications technicians/engineers with specialized training in modern DC power systems and components.

Students will receive certificates upon successful completion of the course.

Key Features

- DC Power system theory
- DC System sizing
- Site engineering
- Installation and commissioning
- Safety
- Cordex controller programming
- Remote access, Ethernet and SNMP
- 40% hands-on training
- Basic maintenance and troubleshooting techniques
- Checking alarm set-points
- Certification

Benefits

On completion of the course students will be proficient in the design, installation, maintenance and operation of Alpha Cordex DC power systems and will be prepared to work safely and efficiently in this environment.



ALPHA TRAINING COURSES

VISIT WWW.ALPHA.CA/TRAINING FOR MORE DETAILS

COURSE 2 - POWER SYSTEMS FOR CABLE APPLICATIONS

P/N: 0700017-001

Headend DC Power Training

The DC power headend course covers concepts, maintenance and operation of DC power systems/components, and includes classroom instruction as well as hands-on training. The classes are focused on the advanced Alpha Cordex series of power system controllers and rectifiers with an overview of the AMPS inverter systems.

Outside Plant Course

The outside plant course will cover the XM3 cable UPS operating and configuration parameters. The communication module along with battery maintenance and Midtronics Celltron conductance testing will be included in the classroom instruction as well as hands-on training.

Courses are available to be conducted on site at your location.

Who should attend

Developed specifically for Alpha customers, the course is intended to complement the basic electrical knowledge of Cable Telecommunications technicians/engineers with specialized training in modern DC power systems and or outside plant components.

Key Features

| Headend | Outside Plant |
|---|--|
| • DC Power system theory | • XM3; setting parameter |
| • Cordex controller; setting parameters | • Understanding parameters |
| • Remote access; Ethernet, and SNMP | • Celltron battery conductance testing |
| • Programming and checking alarm set-points | • Hands on for both the XM and batteries |
| • 25% Hands-on training | • Battery theory and safe practices |
| • AMPS Inverter System | |

Benefits

Having two separate course focused on the cable telecommunication field you will have the opportunity to train your team on the equipment they are working with and to be prepared to work safely and efficiently in this environment.

COURSE 3 - CORDEX HP POWER SYSTEMS - BASIC

P/N: 0700019-001

This introductory course covers concepts and operation of DC power systems/components, and includes classroom instruction as well as hands-on training. Courses are taught by industry experts in a classroom and lab environment.

The classes are focused on the advanced Alpha Cordex series of power system controllers and rectifiers.

Course is available to be conducted on site at your location.

Who should attend

Developed specifically for Alpha customers, the course is intended to complement the basic electrical knowledge of Telecommunications technicians/engineers with specialized training in modern DC power systems and components.

Key Features

- Cordex controller; setting parameters
- Remote access; Ethernet, and SNMP
- 50% hands-on training
- Checking alarm set-points
- Programming

Benefits

On completion of the course students will be proficient in navigating the Alpha Cordex Controller in DC power systems and will be prepared to work safely and efficiently in this environment.

COURSE 4 - CORDEX HP POWER SYSTEMS - ADVANCED

P/N: 0700018-001

This intensive course covers concepts and operation of DC power systems/components, and includes classroom instruction as well as hands-on training. Courses are taught by industry experts in a classroom and lab environment.

The classes are focused on the advanced Alpha Cordex series of power system controllers and rectifiers.

Course is available to be conducted on site at your location.

Who should attend

Developed specifically for Alpha customers, the course is intended to complement the basic electrical knowledge of Telecommunications technicians/engineers with specialized training in modern DC power systems and components.

Key Features

- DC Power systems
- Installation and commissioning
- Safety
- Cordex controller programming
- Remote access, Ethernet and SNMP
- 60% hands-on training
- Basic maintenance and troubleshooting techniques
- Checking alarm set-points

Benefits

On completion of the course students will be proficient in the installation and operation of Alpha Cordex DC power systems and will be prepared to work safely and efficiently in this environment.

COURSE 5 - TELECOM DC POWER

P/N: 0700020-001

This intensive, course covers concepts, design, application, maintenance and operation of DC power systems/components, and includes classroom instruction as well as hands-on training. Courses are taught by industry experts in a classroom and lab environment.

The classes are focused on the advanced Alpha Cordex series of power system controllers and rectifiers. Many of the engineering, installation and maintenance practices can be applied to all types of DC power systems.

Course is available to be conducted on site at your location.

Who should attend

Developed specifically for Alpha customers, the course is intended to complement the basic electrical knowledge of Telecommunications technicians/engineers with specialized training in modern DC power systems and components.

Key Features

- DC Power system theory
- DC System sizing
- Site engineering
- Installation and commissioning
- Safety
- 25% hands-on training
- Basic maintenance and troubleshooting techniques
- Checking alarm set-points

Benefits

On completion of the course students will understand the fundamental design, installation, maintenance and operation of Alpha Cordex DC power systems and will be prepared to work safely and in this environment.

ATL CONTACT US

CORPORATE HEADQUARTERS

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7700 Riverfront Gate
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Canada V5J 5M4

☎ Canada/USA (Toll-Free): 1.800.667.8743
International: 1.604.436.5900
📠 604.436.1233
✉ sales@alpha.ca
🌐 www.alpha.ca

SALES / ACCOUNT MANAGEMENT

Provides quotes and bid proposals for customer configured power systems & enclosures.

All purchase orders must be sent via fax or email to:

📠 604.638.8698
✉ orders@alpha.ca
☎ Canada/USA (Toll-Free): 1.800.667.8743
International: 1.604.436.5900
✉ sales@alpha.ca

INSIDE SALES

Provides pricing and availability for configured systems and spare parts (including breakers, fuses, cables, rectifier accessories, rack accessories, etc.)

All sales inquiries – including pricing and availability – from channel partners (VARs and distributors).

All purchase orders must be sent via fax or email to:

📠 604.638.8698
✉ expressorders@alpha.ca
☎ Canada/USA (Toll-Free): 1.800.667.8743
International: 1.604.415.7477
✉ insidesales@alpha.ca

CUSTOMER SERVICE

Any questions or concerns related to an order:

- Purchase orders • Freight inquiries
- Order Status • Order Tracking
- Order Expedites

☎ Canada/USA (Toll-Free): 1.800.667.8743
International: 1.604.415.7474
✉ csr@alpha.ca
🌐 Order Tracking: www.alpha.ca/ordertracking

SERVICE & SUPPORT

Technical support requests and inquiries
Mon- Fri, 5AM - 5PM PST for regular inquiries.
24/7 for emergency support.

☎ North America (Toll-Free) 1.888.462.7487
International +1.604.436.5547
🌐 Report a problem online:
www.alpha.ca/report-a-problem

Requests for returns, return status, warranty inquiries.

🌐 Online RMA Form: www.alpha.ca/rma

TRAINING COURSES

DC Power Training Courses
Custom courses available

☎ North America (Toll-Free) 1.888.462.7487
International +1.604.436.5547
✉ training@alpha.ca
🌐 www.alpha.ca/training

ACCOUNTS RECEIVABLE

Customer invoices and payments

☎ Canada/USA (Toll-Free): 1.800.667.8743
International: 1.604.436.5900
✉ accounts.receivable@alpha.ca

REQUEST FOR INFORMATION

☎ Canada/USA (Toll-Free): 1.800.667.8743
International: 1.604.436.5900
🌐 www.alpha.ca/request-information

REQUEST FOR A QUOTE

☎ Canada/USA (Toll-Free): 1.800.667.8743
International: 1.604.436.5900
🌐 www.alpha.ca/request-quotation

TRACK YOUR ORDER

🌐 www.alpha.ca/ordertracking
✉ csr@alpha.ca

REQUEST FOR SERVICE & SUPPORT

Regular Business Hours: Monday-Friday,
6am-5pm Pacific Standard Time

☎ Canada/USA (Toll Free): 1.888.462.7487
International: 1.604.436.5547

Outside Normal Business Hours

☎ 24/7 Emergency Technical
Support Service: 1.888.462.7487
🌐 www.alpha.ca/rma
✉ support@alpha.ca

REPORT A PROBLEM

Regular Business Hours: Monday-Friday,
6am-5pm Pacific Standard Time

☎ Canada/USA (Toll Free): 1.888.462.7487
International: 1.604.436.5547

Outside Normal Business Hours

☎ 24/7 Emergency Technical
Support Service: 1.888.462.7487
🌐 www.alpha.ca/report-a-problem

Power

Your Power Solutions Partner

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member of The  Group™

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