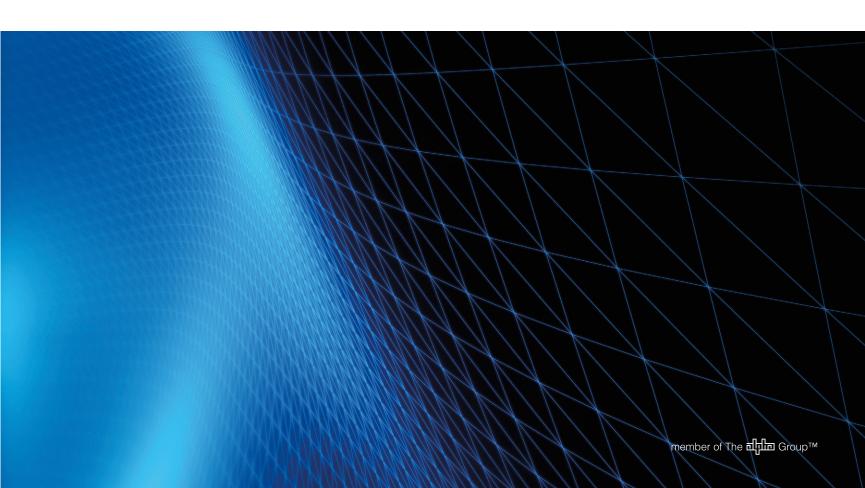
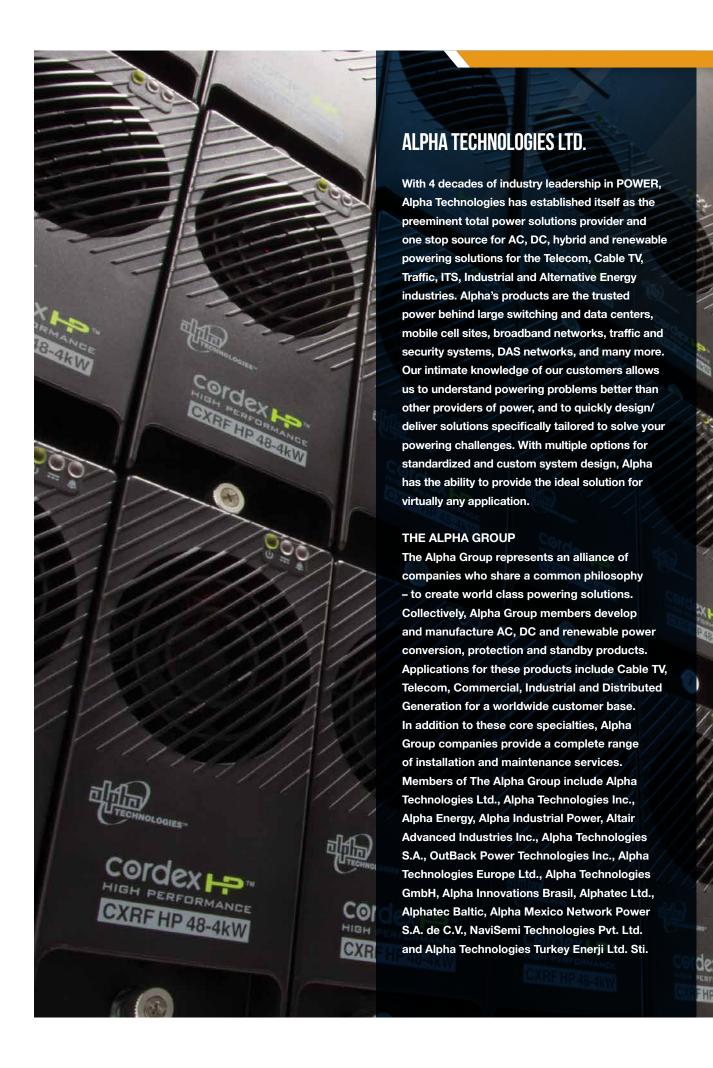


Alpha Power Solutions

TOTAL POWER SOLUTIONS BY ALPHA TECHNOLOGIES LTD.







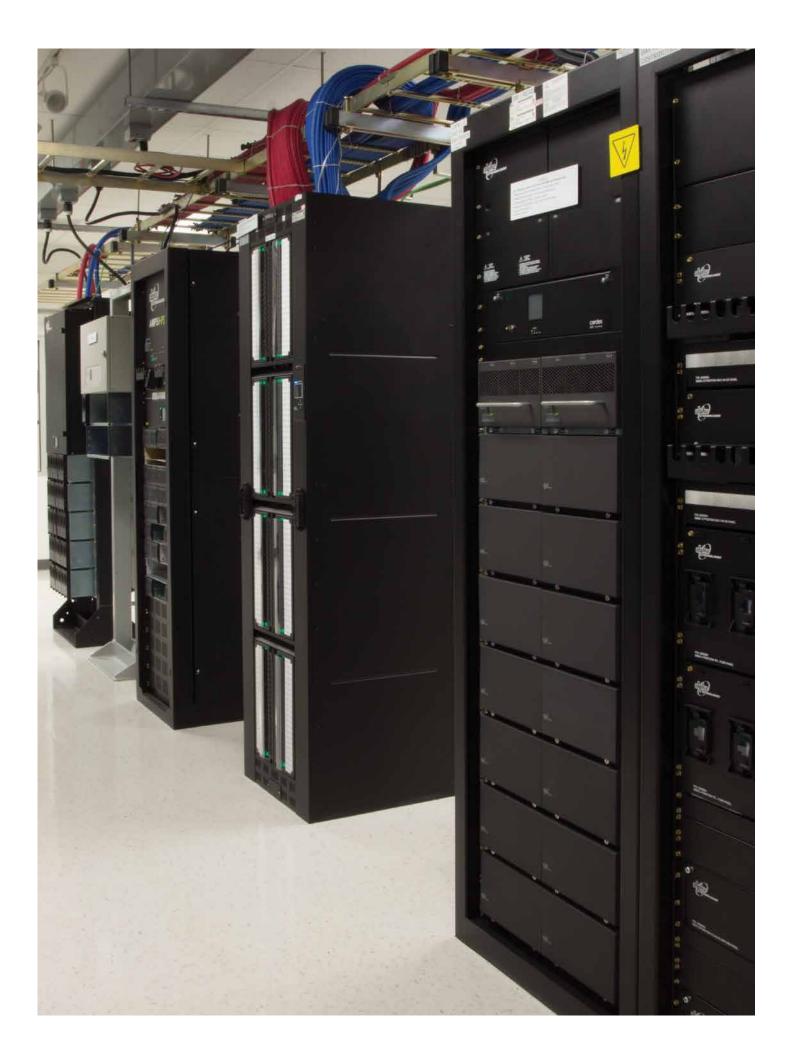


MARKET OVERVIEW

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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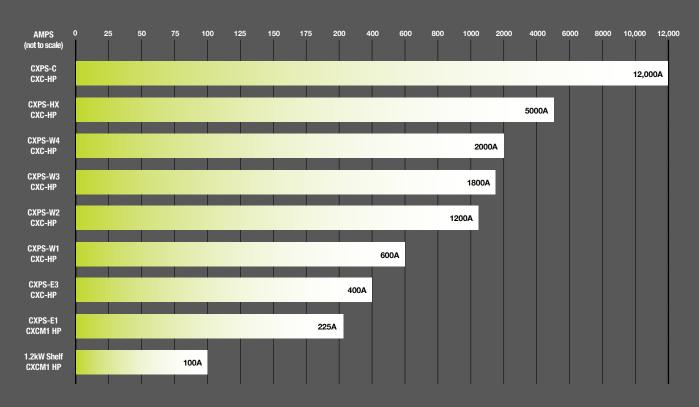
DC POWER SYSTEMS

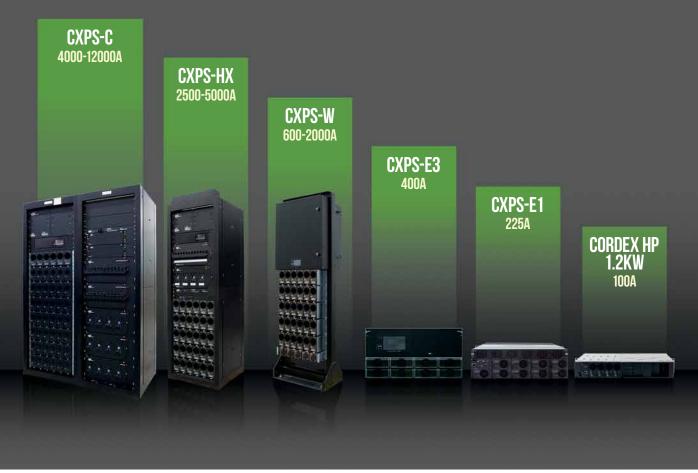
Alpha's extensive experience in serving the Telecom, Data Center, Cable TV, Enterprise and Traffic markets has resulted in the industry's broadest assortment of DC power solutions. Our products range from multi-bay systems for large switching offices to small shelf systems that can mount on a wall or 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.

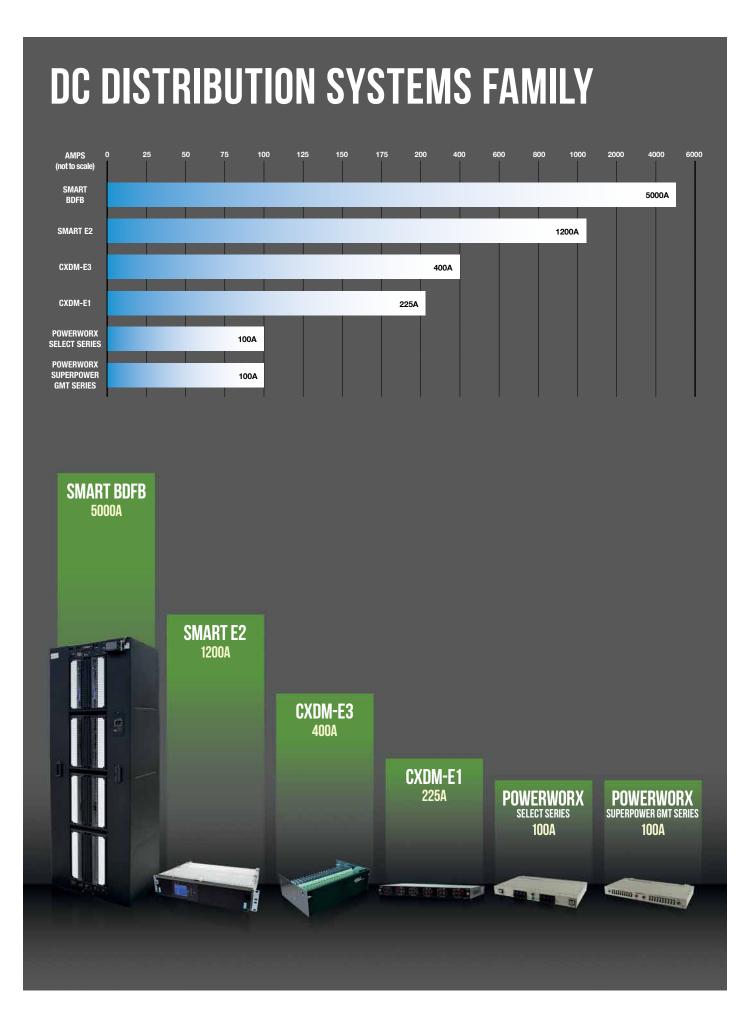
Alpha's shelf systems provide a complete power solution in a rack-mount package. Each system incorporates a Cordex controller, rectifiers and distribution options in a compact shelf design. Distribution can be inside the shelf for applications with a few loads, or adjoined in integrated panels for those 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 knowhow, Alpha is ready to earn your business with solutions that meet your unique requirements.

DC POWER SYSTEMS FAMILY



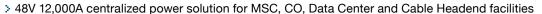












- > High efficiency Cordex modular rectifiers reduce operating costs
- > Flexible circuit breaker, TPS and TPL fuse options designed to feed equipment or remote BDFBs
- > Compact footprint dramatically reduces floor space requirements
- > Internal Bay-to-Bay copper busswork and easy access to connections 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

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	Up to 125A
4 fuse holders per panel	18 fuse holders per panel
6 fuse panels per bay	12 fuse panels per bay

Bolt-in Breakers 1 polo up to 250A

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

Plug-in Bullet Breakers

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

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

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 2.5mm ² (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 13/4" centers or
	%" 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
4 fuse holders per panel	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	May O free
2 pole 275 to 400A	5 pole 850 to 1000A	Max 3 fuse
3 pole 450 to 600A	6 pole 1050 to 1200A	panels per bay

Plug-in Bullet Breakers

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

Output Termination

TPL fuse	2 hole, 3/8" dia. on 1" center & 1/2" dia. on 13/4" center
TLS/TPS/AM breaker	1 pole, 2 hole, 1/4" dia. on 5/4" center 2 and 3 pole, 2 hole, 3/4" dia. on 1" center
Internal Ground Bar (optional)	2 hole, ¼" dia. on %" center, %" dia. on 1" center & ½" dia. on 1¾" center
Battery	2 hole, 6 sets %" dia. on 1" center & ½" dia. on 1%" 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:LC	CD with touch screen
S	ystem OK (green LED)
S	ystem minor alarm (yellow LED)
S	ystem major alarm (red LED)
Load Disconnect:Fu	use/CB panel mounted option

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 13/4" centers o
	3/8" dia. on 1" centers
Unit Capacity:	5,000A per bar
Ultimate Capacity:	2 bar limit (10,000A)
Remote Return Bar:	
Mounting	O" Auxiliary framing (austamor aunaliad)

Mounting:	.2" Auxiliary framing (customer supplied)
Termination:	.124 sets of 2 hole 1/2" dia. on 13/4" 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



- > 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

Out	nut	VกI	tan	ρ.
Out	pul	401	Lay	ъ.

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

TLS/TPS/

Plug-in Breaker:.....1 pole are 1/4" studs on 5/8" centers,

2 pole and 3 pole are 3/8" dia. on 1" centers

Internal Ground Bar:......1/4" studs on 5%" 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

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 1/4" Studs on 5/8" Centers

Return Positions:21x sets of 1/4" Studs on 5/8" 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 1/4" Studs on 5/8" Centers

Return Positions:26x sets of 1/4" Studs on 5/8" 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
Out on the same of	6.0A max (90 to 176Vac) per module
Eroguanovi	* * * * * * * * * * * * * * * * * * * *
Frequency:	
	>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)
σαρασιτή σήσιστιπ π	112.5A max @ 48Vdc (115Vac input)
 Poctifior: 	25A max @ 48Vdc (nominal I/P)
Trectiller	· · · · · · · · · · · · · · · · · · ·
	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 	

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)

Capacity System: 10800W max @ 48Vdc (nominal input)

600W @ 115Vac

Rectifier:1200W max @ nominal I/P

5400W max @ 48Vdc (115Vac input)

(subject to de-rating below 110Vac)

MECHANICAL

CXPS-E101 100A Capacity System Dimensions:			
mm:			
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)		
Connnections:			
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)		

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

. Front access for operation and maintenance

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, $\frac{1}{4}$ " lug: P/N 747-095-20-072 Temperature sensor assembly 12ft, %" 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) 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

(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

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

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

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:

Weiaht:	6.9kg (15.5lbs)
inches:	3.5H x 17.1W x 11.9D
mm:	89H x 435W x 302D

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:

	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:

Weight:	6.9kg (15.5lbs)
inches:	3.5H x 17.1W x 11.9D
mm:	89H x 435W x 302D

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

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 De moletien	Static <±0.1%	Static <±0.1%
Line Regulation	Dynamic ±1% for any change within rated	
Noise		
Voice band	<32dBrnC	<32dBrnC
\A(', 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	<10mV RMS (to 10MHz)	<10mV RMS (to 10MHz)
Wide band	<150mV pk to pk (to 100MHz)	<100mV
Psophometric	<1mV RMS	<1mV RMS

MECHANICAL

Dimensions:

weight:	Sky (6.6108)	
Weight:	2kg (6 6lbs)	
inches:	4.6H x 11.1W x 3.98[D
mm:	117H x 281Wx 101D	

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 2.5mm ² 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:	
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	
NFRS:	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 ind	cludes seismic anchors	and washers
0380195-001	23"	Insulation Kit
Note: Includes insula	ation 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 option 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:
0380042-022 (gray)	NA	- seismic anchors and washers
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 no	t include breaker housing)

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

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

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

^{*}AM/GJ breakers are not included







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: 3/8" dia. on 1" centers (or) 1/2" dia. on 13/4" centers

Secondary Load Cable

Termination Details: 1 pole are 1/4" dia. on 5/8" centers,

2 pole and 3 pole are 3/8" dia. on 1" centers

Internal Ground Bar:1/4" dia. on 5%" centers (lug adapters for

2 pole and 3 pole)

External Ground Bar:.....21 x 1/4" dia. on 5/8" centers, 8 x 3/8" dia.

on 1" centers and 7 x 1/2" dia. on 1 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 41/2' 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



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	3	
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)	%" Holes on 1" Center	%" 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)
	22x sets of 1/4" studs on 5%" Centers	22x sets of 1/4" studs on 5/8" Centers
Output (Hot & Return)	Double Pole: %" Studs on 1" Centers Triple Pole: %" Studs on 1" Centers	Double Pole: %" Studs on 1" Centers Triple Pole: %" Studs on 1" Centers
Chassis Ground	1/4" studs on 5/8" Center	1/4" studs on 5%" 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		
Temprature	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	mm	133H x 435W x 226D	44H x 435W x 254D	Standard access 10/10 GMT fuse panel: 44H x 435W x 203D Standard access 20/20 GMT fuse panel: 44H x 540W x 102D Total front access: 10/10 GMT fuse panel: 89H x 540W x 102D
depth of power connectors, alarm lamps or fuses	in	5.25H x 17.12W x 8.89D	1.75H x 17.12W x 10D	Standard access 10/10 GMT fuse panel: 1.75H x 17.12W x 8D Standard access 20/20 GMT fuse panel: 1.75H x 21.25W x 4D Total front access: 10/10 GMT fuse panel: 3.5H x 21.25W x 4D
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.	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.



400A DISTRIBUTION PANEL

CXDM-E3

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

NOMINAL SPECIFICATION	NS	
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
Dimenions	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	%" Holes on 1" Center*	%" Holes on 1" Center*
Hot Positions	21x Load Brkrs	26x Load Brkrs
——————————————————————————————————————	21x sets of 1/4" Studs on 5%" Centers	26x sets of 1/4" Studs on 5/8" Centers
Return Positions	21x sets of 1/4" Studs on 5%" 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



CXDM-E1

DISTRIBUTION CENTER

- > 225A capacity distribution center with 10 load breaker positions
- > Ultra compact, high density, utilizing standard plug-in circuit breakers
- > Integrated low voltage battery disconnect and 2 breakers for battery protection
- > Universal 19/23" rack mounting
- > Compact 1RU high, maximizing space for revenue generating equipment
- > Integrated controller I/O for 1.2kW Cordex rectifiers, simplifying installation

P/N 0200066-001

ELECTRICAL

Voltage:-48Vdc

Current:225A DC max (200A load max)

MECHANICAL

Dimensions (excludes mounting brackets):

mm:.....45H x 432W x 318D inches:1.75H x 17.25W x 12.5D Mounting:.....19/23", flush/center mount

PERFORMANCE / FEATURES

Distribution:10x load breakers (Plug-in bullet style) 2x battery breakers (Plug-in bullet style) Maximum capacity: 125A single pole

200A double pole

Access:.....Front and rear required

Alarm Interface:DB25

LVD:225A Low voltage battery disconnect LVD Override: Front mounted switch with status indicators

Shunt:400A battery shunt

Alarms:LVBD

Circuit breaker trip

CONNNECTIONS

Load Breaker:.....1/4"-20 studs on 5%" centers Battery Breaker:14"-20 studs on 5%" centers Ground Bar:13x sets 1/4" studs on 5/8" centers

Rectifier Input:

Hot:2x sets %" holes on 1" centers Return:2x sets %" holes on 1" centers

ENVIRONMENTAL

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

*Requires air circulation for above 30°C ambient

Humidity: 0 to 95% non-condensing

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

AGENCY COMPLIANCE

Safety: CSA C22.2, N0.60950



CIRCUIT BREAKERS

DC DISTRIBUTION ACCESSORIES

BULLET, MID-1	TRIP (LOAD BREAKERS)		
P/N	Description	P/N	Description
470-300-10	CB,1 P, 1A, 80Vdc, 5/16" Bullet, Mid-trip	470-313-10	CB, 1P, 70A, 80Vdc, 5/16" Bullet,Mid-trip
470-301-10	CB, 1P, 3A, 80Vdc, 5/16" Bullet, Mid-trip	470-314-10	CB, 1P, 80A, 80Vdc, 5/16" Bullet,Mid-trip
470-302-10	CB, 1P, 5A, 80Vdc, 5/16" Bullet, Mid-trip	470-315-10	CB, 1P, 90A, 80Vdc, 5/16" Bullet, Mid-trip
470-303-10	CB, 1P, 10A, 80Vdc, 5/16" Bullet,Mid-trip	470-316-10	CB, 1P, 100A, 80Vdc, 5/16" Bullet, Mid-trip
470-304-10	CB, 1P, 15A, 80Vdc, 5/16" Bullet, Mid-trip	470-317-10	CB, 2P, 110A, 65Vdc, 5/16" Bullet, Mid-trip
470-305-10	CB, 1P, 20A, 80Vdc, 5/16" Bullet, Mid-trip	470-318-10	CB, 2P, 125A, 65Vdc, 5/16" Bullet, Mid-trip
470-306-10	CB, 1P, 25A,80Vdc, 5/16" Bullet,Mid-trip	470-319-10	CB, 2P, 150A, 65Vdc, 5√16" Bullet, Mid-trip
470-307-10	CB, 1P, 30A,80Vdc, 5/16" Bullet,Mid-trip	4700236	CB, 2P, 175A, 65Vdc, 5/16" Bullet, Mid-trip
470-308-10	CB, 1P, 35A, 80Vdc, 5/16" Bullet, Mid-trip	4700154	CB, 2P, 200A, 80Vdc, 5/16" Bullet,Mid-trip
470-309-10	CB, 1P, 40A, 80Vdc, 5/16" Bullet, Mid-trip	470-357-10	CB, 3P, 225A, 80Vdc, 5/16" Bullet, Mid-trip
470-310-10	CB, 1P, 45A, 80Vdc, 5/16" Bullet, Mid-trip	470-342-10	CB, 3P, 250A, 80Vdc, 5/16" Bullet, Mid-trip
470-311-10	CB, 1P, 50A, 80Vdc, 5/16" Bullet, Mid-trip	4700149	CB, 3P, 300A, 80Vdc, 5/16" Bullet,Mid-trip
470-312-10	CB, 1P, 60A, 80Vdc, 5/16" Bullet, Mid-trip		
BREAKERS FO	R 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, 5/16" Bullet, Series-trip	470-673-19	CB, 2P, 150A, 80Vdc, 5/16" Bullet, Series-trip
470-347-10	CB, 1P, 100A, 80Vdc, 5/16" Bullet, Series-trip	4700153	CB, 2P, 200A, 80Vdc, 5/16" Bullet, Series-trip
4700187	CB, 1P, 125A, 80Vdc, 5/16" Bullet, Series-trip	470-674-19	CB, 3P, 250A, 80Vdc, 5√,6" Bullet, Series-trip
BREAKERS FO	OR 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

P/N	Description	P/N	Description
470-120-10	CB, 1P, 100A, 125Vdc, 7/6" Bolt-In	470-122-10	CB, 2P, 300A, 160Vdc, 7/16" Bolt-In
470-125-10	CB, 1P, 125A, 125Vdc, 7/16" Bolt-In	470-126-10	CB, 2P, 400A, 160Vdc, 7/16" Bolt-In
470-188-10	CB, 1P, 150A, 125Vdc, 7/16" Bolt-In	470-210-10	CB, 3P, 450A, 160Vdc, 7/16" Bolt-In
470-171-10	CB, 1P, 175A, 125Vdc, 7/16" Bolt-In	470-123-10	CB, 3P, 500A, 160Vdc, 7/16" Bolt-In
470-121-10	CB, 1P, 200A, 125Vdc, 7/16" Bolt-In	470-219-10	CB, 3P, 600A, 160Vdc, 7/16" Bolt-In
470-081-10	CB, 1P, 225A, 125Vdc, 7/16" Bolt-In	470-208-10	CB, 3P, 700A, 160Vdc, 7/16" Bolt-In
470-228-10	CB, 1P, 250A, 125Vdc, 7/16" Bolt-In		

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 US	E WITH ALPHA PANELS		

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

TPS/TLS FUSES	S		
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 US	E 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 US	E WITH ALPHA PANELS		
020-597-20			

BREAKERS & FUSES | 33

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 userfriendly 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.

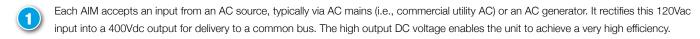
AMPS HP2 can be configured for either single phase, two pole/split phase or 3-phase AC output power.

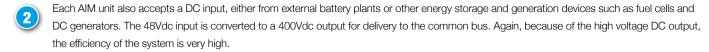
AMPS HP2 is designed to handle dynamic load surges.

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.

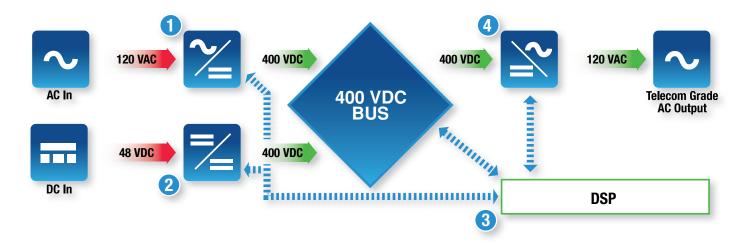
AIM INTERNAL POWER ARCHITECTURE

How does it work





- 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.
- The 400Vdc bus is then inverted into 120Vac to power the equipment.



Features	Inverter	UPS	AMPS HP2
Filtered AC output	•	•	*
High efficiency design	•	*	*
Utilize low voltage, telecom batteries	*	0	*
Eliminates need for STS	•	•	*
Additional rectification ONLY for charging	•	•	*
Modularity / Scalability	*	•	*
Centralized AC & DC control and monitoring	0	*	*
Compatibility with existing DC plants	*	0	*



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		
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 Mountab	le Front or Mid Mount		Preinstalled in Box Bay			
DC Input Connections	4x %" on 1" Centers per polarity	4x %" on 1" Centers per polarity	4x %" on 1" Centers per polarity	4x 3/8" on 1" Centers per polarity**	4x %" 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 Storage: -40 to 70°C (-40						
Relative Humidity	Up to 95%, non-conden	Up to 95%, non-condensing					
Operating Altitude	Up to 1500m (4900ft) ab	Up to 1500m (4900ft) above sea level					
Thermal Dissipation per 2.5kVA/2kW AIM module	437 BTU/hr in AC to AC	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					
	Too Giffin Far to Gladof (1020 doc						

^{*}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



INEX™SYSTEM

48V MODULAR INVERTER SYSTEM

- > Versatile modular design provides flexibility for different power applications
- > Expandable capacity up to 18kVA with N+1 redundancy configuration
- > "All master" dynamic mechanism eliminates single point failure to optimize reliability
- > Hot swappable operation allows module addition or removal without powering down
- > High power density and high efficiency

The INEX inverter series is an integrated telecommunications power system, including inverter, static switch, LCD display controller and interface modules. With a versatile "building block" design and N+1 redundant configuration, the INEX inverter system facilitates complex telecommunications and industrial power demands, and provides ultimate flexibility for your current and future power requirements.

N+1 parallel redundancy allows power capacity expandable up to 24kVA. INEX "all master" dynamic mechanism automatically shares and re-organizes critical loads to prevent interruption should any inverter module fail. The DSP-microprocessing controller gives real-time system status through a comprehensive LCD display, and allows programmable settings through the display panel. With a communication interface module installed, you can further control and monitor the system remotely.

Consult your Alpha representative for P/N configurations

ELECTRICAL

Inverter Module

DC Input:

Nominal Voltage:48Vdc Operating Range:40.5Vdc ~ 58Vdc Input Protection:.....Reverse polarity protection

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

AC Output:

Power Rating:.....1500VA/1200W or 1000VA/800W

Waveform:.....Pure sine wave

Power Factor:.....0.8

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

Voltage Variation:Max ±2% Output Frequency:50/60Hz Crest Factor:3:1

THD:....<3%, linear load

<5%, non-linear load

Efficiency:.....Min 88%

Isolation AC-enclosure: ... Basic isolation (Pri-Gnd) 2121Vdc/1min

Dynamic Response:.....<±10% Over Load Protection: 1.5 x I_{nom} >20s

1.25 x I_{nom} temperature controlled

STS Module

Input:

Over Voltage Threshold:

- Adjustable between 127 to 138Vac for 120Vac systems, the default value
- 233 to 252Vac for 220Vac systems, the default value is 242Vac

Under Voltage Threshold:

- Adjustable between 100 to 114Vac for 120Vac systems, the default value is 108Vac
- 176 to 209Vac for 220Vac systems, the default value is 198Vac

Backfeed Protection: Comply with safety requirement Redundant Power: Startup power-on by priority Design:.....Source or alternative

Output:

Nominal Output Voltage: Same as utility or the output of inverter modules

Frequency Area:.....Max. ±2.5% (inverter synchronization)

Transfer Time:Typical 1/4 cycle Rated Current:50A or 100A options

Operation Methods:Inverter priority/mains priority

MECHANICAL

Inverter Module

Dimension:

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

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

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-232×2:Communicate with PC RS-485×2: Communicate with supervision Dry contact x5: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



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

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 l 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 448Wx 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



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	
Nomina	Nominal Voltage 120Vac 230Vac		230Vac	
Freque	ncy	60/50Hz ±5% (auto-d	etection)	
Voltage range (w/o transferring Input 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	
Voltage regulation Output 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)		
Freque	Frequency Output frequency = Input frequency			

MECHANICAL

Mounting: 19" or 23" rack with the addition of ears for rack mounting **Dimensions:** 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: (F

^{*}Derates after 55°C (131°F)

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

^{***}CE applies to 230Vac version only



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

E	LE	СТ	RI	CA	L

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



^{*}Derates after 55°C

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

^{**}CE applies to 230Vac version only



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

MECHANICAL

Dimensions:

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 M	lodel			
	Input		Output	
Standard	⊗ Θ Ø Ø	Terminal Block	Terminal Block	
Optional	⊗ Θ Ø Ø	Terminal Block	Terminal Block + Dual 5-15R	
		IEC**	IEC**	
230Vac N	230Vac Model			
Standard	● ● Ø Ø● Ø Ø	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



^{*}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



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 120Vac 230Vac Model **Battery String Voltage** 48Vdc 48Vdc **Nominal Voltage** 120Vac 230Vac 60/50Hz ±5% (auto-detection) Frequency 85 to 152Vac Voltage range 150 to 328Vac Current (@ nominal Input voltage and 20A 12A max battery charging current Waveform Pure sinewave Nominal voltage 120Vac 230Vac Output Voltage regulation ±10% on line mode, ±2% on inverter mode at nominal input Power at 50°C 2000W/VA

Output frequency = Input frequency

MECHANICAL

Dimensions:

Frequency

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 Transfer Time:.....<5ms Load Crest Factor: 3:1 (load dependent)

POWER CONNECTOR OPTIONS

120Vac Mo	odel	
	Input	Output
Standard	Terminal Block	Terminal Block
230Vac M	odel	
Standard	Terminal Block	Terminal Block

AGENCY COMPLIANCE

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



^{*120}Vac 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:

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:

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





^{*}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 350

RUGGED UPS SYSTEM

- > Compact, integrated UPS system designed to operate in extreme environments and provide maximum flexibility while ensuring critical loads remain protected and running during power outages and other power disturbances
- > Up to 11 hours backup time at full load (350W) for extended system continuity
- > NEMA 3R rated enclosure for superior performance in outdoor applications
- > 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 automatically adjusts charge voltage extending the life of the battery

Available with 2 dry contacts/2 user inputs or 5 dry contacts and 4 user inputs. 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	tion)		
Input				
Voltage range (w/o transferring to battery mode)	88 to 152Vac	151 to 282Vac		
Current (@ nominal voltage and max battery charging current)	Micro 350: 6.16/5.76A Micro 350XL: 6.12/6.22A Micro 350XL3: 7.54/7.2A	Micro 350: 2.94A Micro 350XL: 3.2A Micro 350XL3: 3.7A		
Output				
Waveform	Pure sinewave			
Nominal voltage	Dual 120Vac, 24Vac	Dual 230Vac, 24Vac		
Voltage regulation at nominal input	±10% on line mode, ±2% on inverter mode			
Power at 50°C	350W/VA Total 24Vac: 260W/VA (max) 120Vac: 350W/VA (max)			
Frequency	Output frequency = Input f	requency		

PERFORMANCE

Typical Output Voltage THD:.....<3% (resistive load) Typical Efficiencyl Line Mode:...>96% (resistive load) Typical Transfer Time:.....<5ms

Lead Crest Factor:.....3:1 (load dependent)

MECHANICAL				
	Alpha Micro			
·	Dimensions	mm	500H x 358W x 294D	
	Dimensions	inches	19.7H x 14.1W x 11.6D	
	Weight (w/o b	atteries)	25kg (56lbs)	
*	Alpha Micro	KL		
	Dimensions	mm	776H x 358W x 294D	
	Dimensions	inches	30.6H x 14.1W x 11.6D	
<u> </u>	Weight (w/o batteries)		29kg (65lbs)	
• «	Alpha Micro	KL3		
	Dimensions	mm	1330H x 358W x 294D	
	Dimensions	inches	52.4H x 14.1W x 11.6D	
	Weight (w/o batteries)		33kg (74lbs)	

ENVIRONMENTAL

Operating Temp Range*:-40 to 74°C (-40 to 165°F) Humidity:Up to 95% (non condensing) Audible Noise @ 25°C:45dBa @ 1 meter (39in) BTU/Hr:Normal mode 9W/30.7BTU/hr Backup mode 110W/675 BTU/hr

AGENCY COMPLIANCE

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



^{*}Derates after 50°C (122°F)

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

^{***}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
	Dimensions	inches	19.7H x 14.1W x 11.6D
	Weight (w/o b	atteries)	19.7kg (43.4lbs)
	Alpha Micro	KL	
•	Dimensions	mm	776H x 358W x 294D
	Dimensions	inches	30.6H x 14.1W x 11.6D
	Weight (w/o b	atteries)	19.7kg (49.8lbs)
• **	Alpha Micro	(L3	
	Di	mm	1330H x 358W x 294D
	Dimensions inches		52.4H x 14.1W x 11.6D
	Weight (w/o b	atteries)	22.6kg (69.2lbs)

AGENCY COMPLIANCE

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



^{*} 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 environments
- > 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
	Dimensions	inches	19.7H x 14.1W x 11.6D
	Weight (w/o b	atteries)	19.7kg (43.4lbs)
	Alpha Micro	(L	
490	Dimensions	mm	776H x 358W x 294D
		inches	30.6H x 14.1W x 11.6D
	Weight (w/o b	atteries)	19.7kg (49.8lbs)
• 460	Alpha Micro	(L3	
	Dimensions	mm	1330H x 358W x 294D
	Dimensions	inches	52.4H x 14.1W x 11.6D
	Weight (w/o b	atteries)	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

Model Traffic Mini 350 BBS Traffic Mini 1000 BBS P/N 0170021-040 0170021-010 ELECTRICAL Table Transport 0170021-010 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 MECHANICAL Pure Sine Wave Pure Sine Wave MECHANICAL Dimensions 34H x 16W x 12D 34H x 16W x 12D Dimensions mm 34H x 16W x 305D 364H x 406W x 305D 364H x 406W x 305D Weight (w/o batteries) 65 lbs (29.5 kg) 55 lbs	NOMINAL SPECIFICATIONS			
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 Waveform bure Sine Wave Pure Sine Wave MECHANICAL bure Sine Wave Pure Sine Wave MECHANICAL 34H x 16W x 12D 34H x 16W x 12D Dimensions in 34H x 16W x 12D 34H x 16W x 12D Meight (w/o batteries) 65 ibs (29.5 kg) 55 ibs (25 kg) Construction Aluminum, 5052-H32 (High strength corrosion resistance) Finish Natural Aluminum Natural Aluminum Cable Entrance Bottom or Rear Bottom or Rear Mounting	Model		Traffic Mini 350 BBS	Traffic Mini 1000 BBS
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 MECHANICAL Vure Sine Wave Pure Sine Wave MECHANICAL 34H x 16W x 12D 34H x 16W x 12D Dimensions 65 lbs (29.5 kg) 364H x 406W x 305D Weight (w/o batteries) 65 lbs (29.5 kg) 55 lbs (25 kg) Construction Aluminum, 5052-H32 (High strength corrosion resistance) Natural Aluminum Finish Natural Aluminum Natural Aluminum Cable Entrance Bottom or Rear Bottom or Rear	P/N		0170021-040	0170021-010
Input Current Rating***	ELECTRICAL			
Input Frequency	System Input Voltage		120Vac	120Vac
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 MECHANICAL Dimensions in 34H x 16W x 12D 34H x 16W x 12D MECHANICAL 34H x 406W x 305D 864H x 406W x 305D Weight (w/o batteries) 65 lbs (29.5 kg) 55 lbs (25 kg) Construction Aluminum, 5052-H32 (High strength corrosion resistance) Finish Natural Aluminum Natural Aluminum Cable Entrance Bottom or Rear 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 13.3 mm²) Terminal blocks #14 to #6 AWG	Input Current Rating***		5.3A	14A
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 MECHANICAL Dimensions in 34H x 16W x 12D 34H x 16W x 12D B64H x 406W x 305D 864H x 406W x 305D Weight (w/o batteries) 65 lbs (29.5 kg) 55 lbs (25 kg) 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 13.3 mm²) Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	Input Frequency		50/60Hz ±5% (Autosense)	50/60Hz ±5% (Autosense)
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 MECHANICAL Dimensions in 34H x 16W x 12D / mm 864H x 406W x 305D 34H x 16W x 12D Weight (w/o batteries) 65 lbs (29.5 kg) 55 lbs (25 kg) 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 13.3 mm²) Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	AVR Range		88-152Vac	85-169Vac
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 B64H x 406W x 305D 34H x 16W x 12D Jamma B64H x 406W x 305D 864H x 406W x 305D 864H x 406W x 305D Weight (w/o batteries) 65 lbs (29.5 kg) 55 lbs (25 kg) Construction Aluminum, 5052-H32 (High strength corrosion resistance) Natural Aluminum 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 13.3 mm²) Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	System DC Voltage		24Vdc	48Vdc
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 34H x 16W x 12D 34H x 16W x 12D Weight (w/o batteries) 65 lbs (29.5 kg) 55 lbs (25 kg) 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 13.3 mm²) Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	Max Charge Current		6A DC	10A DC
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 34H x 16W x 12D mm 864H x 406W x 305D Weight (w/o batteries) 65 lbs (29.5 kg) 55 lbs (25 kg) 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 13.3 mm²) Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	System Output Voltage		120Vac	120Vac
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	Output Power@ 50°C		350W	1000W
at nominal input Dutput 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) Construction Aluminum, 5052-H32 (High strength corrosion resistance) Finish Natural Aluminum Cable Entrance Bottom or Rear Mounting Side mount, Optional - wall, pole or pedestal kit available Access AC Input Connections AWG Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²) Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²) Pure Sine Mode ±2% Inverter Mode #10% Line Mode ±2% Inverter Mode ±10% Inverter Mo	Output Frequency (Hz)		Output frequency = Input frequency	Output frequency = Input frequency
MECHANICAL Dimensions in 34H x 16W x 12D 34H x 16W x 12D 34H x 16W x 12D 34H x 406W x 305D 36H x 406W			±10% Line Mode ±2% Inverter Mode	±10% Line Mode ±2% Inverter Mode
Dimensions in 34H x 16W x 12D mm 34H x 16W x	Output Waveform		Pure Sine Wave	Pure Sine Wave
Dimensionsmm864H x 406W x 305D864H x 406W x 305DWeight (w/o batteries)65 lbs (29.5 kg)55 lbs (25 kg)ConstructionAluminum, 5052-H32 (High strength corrosion resistance)FinishNatural AluminumNatural AluminumCable EntranceBottom or RearBottom or RearMountingSide mount, Optional - wall, pole or pedestal kit availableAccessRemovable bottom shelf for easy wiring accessAC Input Connections AWGTerminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	MECHANICAL			
mm864H x 406W x 305D864H x 406W x 305DWeight (w/o batteries)65 lbs (29.5 kg)55 lbs (25 kg)ConstructionAluminum, 5052-H32 (High strength corrosion resistance)FinishNatural AluminumNatural AluminumCable EntranceBottom or RearBottom or RearMountingSide mount, Optional - wall, pole or pedestal kit availableAccessRemovable bottom shelf for easy wiring accessAC Input Connections AWGTerminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	Dimensions	in	34H x 16W x 12D	34H x 16W x 12D
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 13.3 mm²) Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	Dimensions	mm	864H x 406W x 305D	864H x 406W x 305D
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 13.3 mm²) Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	Weight (w/o batteries)		65 lbs (29.5 kg)	55 lbs (25 kg)
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 13.3 mm²) Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	Construction		Aluminum, 5052-H32 (High strength corrosion resistar	nce)
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 13.3 mm²) Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	Finish		Natural Aluminum	Natural Aluminum
Access Removable bottom shelf for easy wiring access AC Input Connections AWG Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²) Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	Cable Entrance		Bottom or Rear	Bottom or Rear
AC Input Connections AWG Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²) Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	Mounting		Side mount, Optional - wall, pole or pedestal kit availal	ole
	Access	Removable bottom shelf for easy wiring access		
AC Output Connections AWG Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²) Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	AC Input Connections AWG		Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)
	AC Output Connections AWO	à	Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)	Terminal blocks #14 to #6 AWG (2.08 to 13.3 mm²)
Dry Contact AWG Terminal blocks #26 to #12 AWG (0.2 to 2.5 mm²) Terminal blocks #26 to #12 AWG (0.2 to 2.5 mm²)	Dry Contact AWG		Terminal blocks #26 to #12 AWG (0.2 to 2.5 mm²)	Terminal blocks #26 to #12 AWG (0.2 to 2.5 mm²)

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				
Tamananatuwa	Operating	-40 to 74°C (-4 to 165°F)****	-40 to 74°C (-4 to 165°F)****	
Temperature	Storage	-40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)	
Relative Humidity		Up to 95%, non-condensing	Up to 95%, non-condensing	
Altitude		Operating: Up to 2000 m (6562 ft) above sea level	Operating: Up to 2000 m (6562 ft) above sea level	
PERFORMANCE				
Typical Output Voltage T	HD	<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		©®° _{∪S}		
EMC		CFR47, Part 15 Subpart B, Class A; CES-003 Class A		
NEMA		3R	3R	
STANDARD SYSTEM CO	NFIGURATION			

- 0.125" Thick Natural Aluminum Enclosure • 350 or 1000W UPS Module
- Universal Automatic Transfer Switch
- Battery Cable Kit 1/4" 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 ACCESSIORIES

- 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



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 SPECIFICATIO Model		Continuity 2000	Continuity 2000
	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			
Туре	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 siler	nce 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 byp	pass)	<105% continuously. >106%~120% for 30 seconds transfer to bypass >121%~150% for 10 seconds transfer to bypass >121%~150% for 10 seconds transfer to bypass • AC mode: immediately transfer to bypass • Backup mode: immediately shutdown			diately transfer to bypass		
Bypass Mode		<105% continuously. >106%~120% for 250 seconds shut do >121%~130% for 125 seconds shut dow >131%~135% for 50 seconds shut dow >136%~145% for 20 seconds shut dow >146%~148% for 5 seconds shut down	wn > wn > rn > rn E	158%~176% for 1			
Overheat		AC Mode: Switch to Bypass; Backup M	Node: UPS shuts down	immediately			
Battery Low		Alarm and Switch Off	Alarm and Switch Of	f	Alarm and Switch Off		
EPO		UPS shuts down immediately	UPS shuts down imr	nediately	UPS shuts down immediately		
Battery		Advanced Battery Discharge Managem		•			
<u>-</u>	V System	400 Joules	400 Joules		400 Joules		
	V System	300 Joules	300 Joules		300 Joules		
	2,000111		111130.00		1		
ALARMS							
Audible & Visual		Line Failure, Battery Low, Overload, Sy	stem Fault Conditions				
MECHANICAL			T		T		
Dimensions	<u>mm</u>	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		
nput 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	е	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 INTERFAC	E		•				
Interface Type		Standard RS232 and USB	Standard RS232 and	d 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 complie	d	EN62040-1 complied		
Performance		EN62040-3 complied	EN62040-3 complie	d	EN62040-3 complied		
EMC Standard EN62040-2, EN610		EN62040-2, EN61000-3-2, EN61000-3	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	7Ah		9Ah		
Output Voltage		36Vdc	72Vdc		72Vdc		
Battery Quantity		12pcs	12pcs		12pcs		
Unit Weight		38kg (83.8lbs)	38kg (83.8lbs)		44.6kg (83.8lbs)		
	mm	88H x 440W x 650D	88H x 440W x 650D		88H x 440W x 650D		
Dimensions		33.1.1 1011 X 3000D	3311X 113VV X 000D	,	33.1.X 1 1011 X 3000D		

^{*}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.



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		

^{*120}Vac output requires optional transformer module

NA - J. I		O and in call to OV	O and in the 40K		
Model		Continuity 6K	Continuity 10K		
DIOPLAT		Lina Moda, Rackun Moda, ECO Moda, Bunasa Supplied	Battery Low, Battery Bad/Disconnect, Overload, Transferring		
Status On LE	D + LCD	with interruption & UPS Fault.			
Readings on	LCD	Input Voltage, Input Frequency, Output Voltage, Output Frequency, Load Percentage, Battery Voltage & Inner Temperature.			
Self-diagnos ALARMS	tics	Upon Power-on, Front Panel Setting & Software Control, 24-hour routine checking			
Audible & Vis	ual	Line Failure, Battery Low, Transfer to Bypass, System Fa	ult Conditions		
PROTECTION		Ellie Fallure, Dattery Low, Transier to Dypass, Gysterin E	un Conditions		
Overload (w/s		Inverter Supply: 105%~150% for 160 seconds ~ 2 cycles before switching bypass.			
•	ing I-T Curve)	Bypass Supply: 105%~200% for 500 seconds ~8 cycles	0 71		
Short Circuit		Switch off Immediately Switch off Immediately			
Overheat	AC Mode	Switch to Bypass	Switch to Bypass		
Overneat	Backup Mode	Switch off the UPS	Switch off the UPS		
Battery Low		Alarm and Switch Off	Alarm and Switch Off		
Noise Suppre	ession	Complies with EN62040-2	Complies with EN62040-2		
Spike Suppre	ession	Complies with EN61000-4-5	Complies with EN61000-4-5		
Heat dissipation	w/o Isolated Transformer Module	<467W	101k: <780W		
(at full linear		<715W	101k: <1190W		
load)	Transformer Module				
Leakage Cur		<3mA at Full Load	<3mA at Full Load		
MECHANICA	L				
Dimensions	mm	88H x 440W x 680D	132H x 440W x 680D		
Difficultions	inches	3.46H x 17.3W x 26.8D	5.2H x 17.3W x 26.8D		
Input/Output	Connection	Hardwire	Hardwire		
External Batt	tery Connection	Plug-in & Play	Plug-in & Play		
Net Weight		24kg (52.9lbs)	26.0kg (57.3lbs)		
ENVIRONME	NT				
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 Ambient temperature above this range will affect battery	· · ·		
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 Typ	ne	Standard RS232	Standard RS232		
Communicat		2nd RS232, USB, RS485, Dry Contact Card or SNMP C			
AGENCY COI	MPLIANCE				
Safety Stand	ard	EN62040-1-1, UL1778			
EMC Standar		EN62040-2, EN61000-3-2, EN61000-3-3, FCC Class A			
Marks		cUL, UL			
	OV	332, 32			
BATTERY PA	<u>CR</u>				
Model		BP Continuity 6K	BP Continuity 10K		
P/Ns		0320007-001	0320008-001		
Battery Type		7Ah	9Ah		
Battery Quar		20pcs	20pcs		
Output Voltag	ge	240Vdc	240Vdc		
Unit Weight		54.2kg (119.49lbs)	65.2kg (143.74lbs)		
Dimensions	mm	132H x 440W x 680D	132H x 440W x 680D		
inches		5.2H x 17.3W x 26.8D	5.2H x 17.3W x 26.8D		
STEP-DOWN	TRANSFORMER				
Model		Continuity 6K Transformer	Continuity 10K Transformer		
P/Ns		7400117	7400118		
Input Voltage	<u> </u>	208Vac	208Vac		
Output Voltage		Configurable 120Vac or 120/208Vac or 120/240Vac	Configurable 120Vac or 120/208Vac or 120/240Vac		
Unit Weight	<i>u</i> -	42kg (92.6lbs)	53kg (116.84lbs)		
Jim Weight	mm	88H x 440W x 680D	132H x 440W x 680D		
Dimensions	mm				
	inches	3.46H x 17.3W x 26.8D	5.2H 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 SPECIFICAT	TIONS					
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 kA	IC)	5	5	10	10	
Switches*		L1 & L2	L1, L2 & L3	L1 & L2	L1, L2 & L3	
Internal Fuse (Utility F	eed)	None	None	2 x 400A	3 x 400A	
MONITORING						
		UPS/Utility lamps, Dry Con	tacts, 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	
Dimensions	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						
T		Operating: -25 to 50°C (-13 to 122°F)				
Temperature		Storage: -40 to 75°C (-40 to 167°F)				
Relative Humidity		Up to 95%, non-condensing	g			
A lataal a		Operating: Up to 3,858 m (12,000 ft) above sea level				
Altitude		Storage: Up to 4,572m (15,000ft) above sea level				
AGENCY COMPLIANC	E					
Safety		UL/cUL 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	Χ				
AMPS HP2 Medium 20	kVA	Χ				
AMPS HP2 Medium 30	kVA		X			
AMPS HP2 Large 40 k	VA			X		
AMPS HP2 Large 68kV	/A N+1				X	
*Neutral is not switched						

^{*}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

>230V OPTION NOT AVAILABLE

Alpha's Maintenance Bypass Switch allows the user to manually bypass the UPS system to safely perform

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



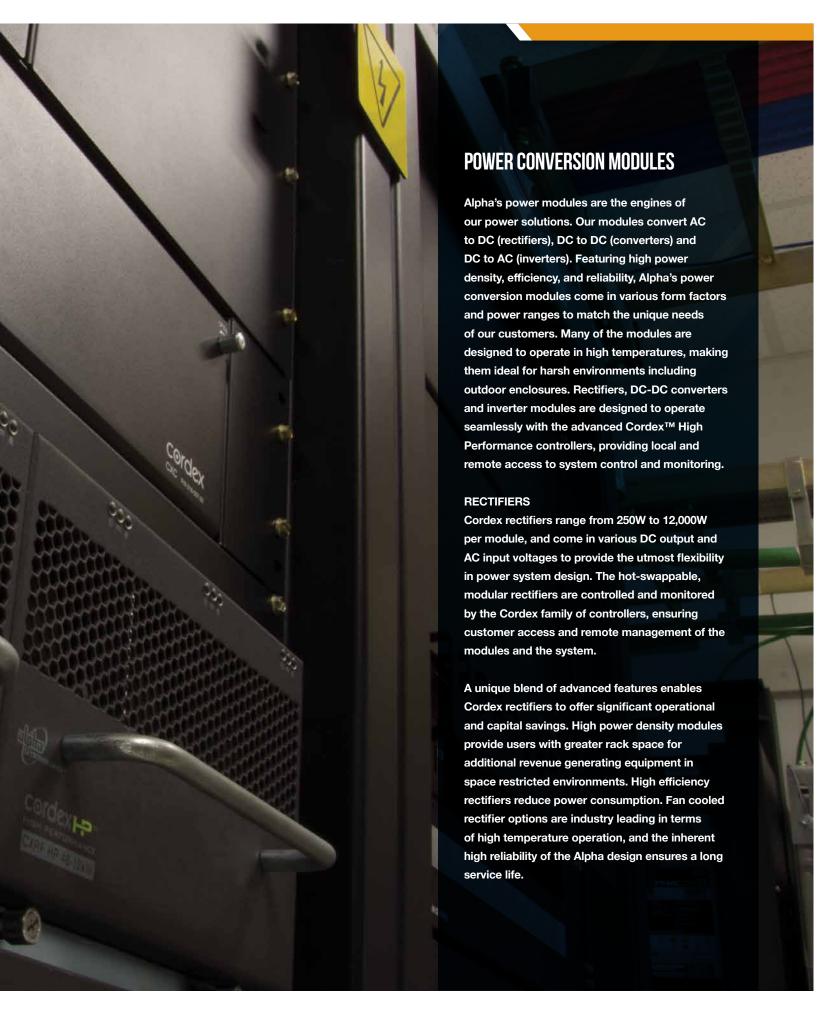
Rack Mount Options

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.









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

Inp	out	۷o	ltag	ge:
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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)

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 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:<38dBrnC

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 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



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







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:

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:<38dBrnC

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

 ${\sf Module\ OK-green\ LED}$

Module fail - red LED

Controls:CAN interface to Cordex controllers

Adjustments (via CXC HP Controller):

Float voltage

Equalize voltage

• High/low voltage alarm

• High voltage shutdown

Current limitStart delay

• 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:

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)

Heat Dissipation:<1150 BTU per hour

SHELVES

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

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

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

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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

Load Regulation:

Static:....<±0.5%

Output Current:.....220A max

Dynamic:<±4% for 40% - 90% load step

Line Regulation:.....Static <±0.1%

Noise:

Voice band:<42dBrnC

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

• Equalize voltage

• High voltage alarm • High voltage shutdown • Low voltage alarm • Current limit

• Slope

• Start delay timers

Protection:

• Current limit/short circuit

Start delay

• Input/output fuses Power limiting

• 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 %" 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™ 250W

12VDC MODULAR SWITCHED MODE RECTIFIER

- > Available in 20.8A @ 12Vdc
- > Universal 120/208 to 240Vac input
- > Power factor correction
- > Convection cooled
- > Hot swappable, 2RU ultra compact design

P/N: 010-587-20

ELECTRICAL

Input Voltage:90 to 320Vac Input Frequency:.....45 to 70Hz Power Factor:....>99% **THD:**....<5% **Efficiency:**.....>90% Power Output:250W **Output Voltage:**.....10.5 to 14.5Vdc Load Regulation:<±0.5% (static) Line Regulation:<±0.1% (static) Transient Response: ±2% for 50 to 100% load step 2ms recovery time 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 CXC HP controller):

- Float voltage
- High/low voltage alarm
- Current limit
- Start delay

Protection:

- Current limit/short circuit
- Input/output fuses
- Power limiting
- Input transient

- Equalize voltage
- High voltage shutdown
- Slope

• Start delay

- Output high voltage shutdown
- Thermal foldback/shutdown
- AC low line foldback shutdown

MECHANICAL

Dimensions:

mm:......88.4H x 71.6W x 242D 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/center moun

Fits 23" rack center mount

Connections:

Input:Dual feed terminal blocks	
4 to 6mm ² (12 to 10AWG)	
Output:1/4" studs on 5%" centers	
Chassis ground:1/4" 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™ 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):

- 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:	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 Dissination:	<94 BTI I 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:	
Chassis ground:	1/4" stud

AGENCY COMPLIANCE

CAN communication: RJ 12 offset

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:

Extended:90 to 176Vac (de-rated power)

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

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

Output Power:3100W continuous/module
Output Current:115A @ 27Vdc (130A max. 24V)

Transient Response: ±2% for 50 to 100% load step,

2ms recovery time

Noise:

Voice band:<32dBrnC

Wide band:....<30mV RMS (10kHz to 10MHz)

<150mV pk to pk (10kHz to 100MHz)

Psophometric:....<1.0 mV

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
- Equalize voltage
- High/low voltage alarm
- High voltage shutdown
- Current limitStart delay
- 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:

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

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:

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

Load Regulation:<\pre>±0.5% (static)
Line Regulation:
±0.1% (static)

Transient Response:±1% for 50 to 100% load step,

2ms recovery time

Noise:

Voice band:<32dBrnC 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:

ENVIRONMENTAL

Temperature:

Operation:-40 to 50°C (-40 to 122°F)

(with short periods up to 70°C/158°F)

Heat Dissipation:<295 BTU per hour

SHELVES

19"/23" Shelf Dimensions:

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

Connections:

Chassis ground:......1/4" stud CAN communication:.....RJ 12 offset

AGENCY COMPLIANCE

Safety: CSA C22.2 No 60950-1-03, UL 60950-1 $1^{\rm st}$ 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) $\textbf{Load Regulation:} \dots Static < \pm 0.5\%$

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:

Weight:	2.9kg (6.4lbs)
inches:	6.9H x 2.8W x 9.8D
mm:	177H x 71W x 250D

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

Mounting:.....Fits 19" rack flush mount Fits 19" or 23" center mount

Connections:

Input:.....Terminal blocks for 3 feeds 4-6mm² (12-10AWG) Output:.....14" studs on 5%" centers

Chassis ground:.....1/4" 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)

 $\textbf{Load Regulation:} \dots \dots Static < \pm 0.5\%$ 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 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

Mounting:.....Fits 19" rack flush mount Fits 19" or 23" center mount

Connections:

Input:.....Terminal blocks for 3 feeds 4-6mm² (12-10AWG)

Output:.....14" studs on 5%" centers

Chassis ground:14" 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	VO	ltage:	

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 <±0.5% Line Regulation:.....Static <±0.1%

Transient Response:< ±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

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

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 %" 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





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	<32dBrnC	<32dBrnC	
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	<38dBrnC	<38dBrnC	
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:

Weight:	10.4kg (23.0lbs)
inches:	3.5H x 23.0W x 12.0D
mm:	89H x 584W x 304D

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

Dimensions:

/eight:	85kg (19lbs)
inches:	3.5H x 17.2W x 12.2D
mm:	89H x 438W x 310D

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 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 Max Crest Factor at Nominal Power: .. 3.5 Short Term Overload Capacity: 150% for 5 seconds Permanent Overload Capacity: 110%

AC Input

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

MTBF:>230,000hrs

Nominal DC Voltage: 48Vdc

Maximum DC Voltage Range (max):.... 40 - 60Vdc (user adjustable)

Voltage Ripple:<2mV/<38 dbrnc

MECHANICAL

Dimensions:

mm:	88.9H x 102W x435D
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	y:Up to 95%, non-condensing
Operating Altitud	le: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



FOR INSTALLATION IN INEX SYSTEMS

> Pure sine wave inverter module

INEX 1500

- > Hot swappable replacement in shelf
- > DSP design for higher system reliability
- > Smart fan speed control
- > N+1 redundancy system, load sharing difference <5%
- > High power density
- > Wide operation temperature range, -20 to 70°C (-4 to 158°F)

ELECTRICAL

DC Input

Nominal Voltage:..... 48Vdc

Operating Range: 40.5Vdc ~ 58Vdc

Input Protection: Reverse polarity protection Psophometric Noise Voltage: ≤1.0mV ITU-T O.41 (16.66~6000Hz)

Power Rating:..... 1500VA/1200W Waveform: Pure sine wave

Nominal Output Voltage: 110/115/120Vac

208/220/230/240Vac

Voltage Variation: Max $\pm 2\%$ Output Frequency:..... 50/60Hz

Crest Factor: 3:1

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

Efficiency: Min 88%

Isolation AC-enclosure:..... Basic isolation (Pri-Gnd) 2121Vdc/1min

Dynamic Response:<±10% Over Load Protection:..... 1.5*Inom >20s

1.25*Inom temperature controlled

MECHANICAL

Dimension:

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

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

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



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 276 Vac

Over Voltage Threshold:.......... 138/276Vac Under Voltage Threshold: 89/176Vac Frequency Range:50/60Hz, ±2.5%

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 ±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 ≥10s

• 2.0 x Inom ≥5s

DC Input

Nominal Voltage:48Vdc Operating Range:40 to 58Vdc

Psophometric Noise Voltage: .≤1.0mV 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 (15.7lbss)

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 FTS 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 POWERING SOLUTIONS POWER NODE ENCLOSURE 240VAC TO ±190VDC FLPS04 AGGREGATOR CLASS 2 DEVICE TO POWER RAUS LPR SERIES 90VDC TO 12VDC/48V **ELIMITER+** LPR SERIES ±190VDC TO 12VDC/48VDC LPR SERIES **WIRELESS** AGGREGATOR CLASS 2 DEVICE TO POWER ONTS LPR SERIES **BROADBAND** ELIMITER+ LOCATED IN THE IDF CLOSET LPR12-30, LPR12-60, LPR48-30, LPR48-60 LPS36 48VDC TO ±190VDC TE27-1820 48VDC TO ±190VDC /34 LPS36 COMPACT CSM46 12" ±190VDC TO 48VDC (20CH) CSM46 5" LPR12/48-150 IP68 FLPS04 LPS04



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 stings 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

- 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 AlarmTwo relay: AC OK, Battery Low





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

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

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 ±190Vdc)

Input Current:.....240mA ±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

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)

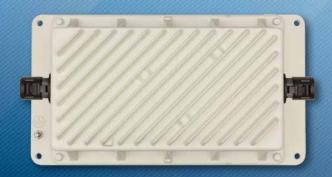
AGENCY COMPLIANCE

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





LPR48-300

±190VDC TO 48VDC LINE POWERING REMOTE DOWN-CONVERTER UNIT

- > Remote powering module providing up to 300W output at 48Vdc to power remote nodes
- > Designed for installation in underground vaults, poles, walls and strand mount
- > Wide operating temperature range for deployment in harsh OSP environments
- > High reliability sealed and ruggedized design for a long life cycle
- > Built-in holdup to ensure that the remote equipment rides through line surges

P/N: 0370445-001

ELECTRICAL

Input Voltage:200 to 380Vdc (±100 to ±190Vdc)

Number of Inputs:.....4

Input Current Per Feed: 245mA max

Output Voltage:-54 to-56Vdc (LPR48-300-IP67)

Output Power:

Up to 300W (the power available from the unit depends on the distance from the up-converter and wire gauge of the twisted copper pairs)

Output Current (de-rates with input voltage): 5.48A (LPR48-300)

Efficiency:>92% (LPR48-300)

Electrical Noise:<100mVRMS to 20MHz (wide band)

<500mVp-p to 20MHz

Holdup:>200 millisecond at 300W load

Load Sharing:Within 10%

MECHANICAL

Dimensions:

mm:.....70H x 255W x 140D inches:2.8H x 10.0W x 5.5D Weight:2.2kg (5lbs) - approximate Connections:Two IP67 sealed connectors

ENVIRONMENTAL

Temperature:

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

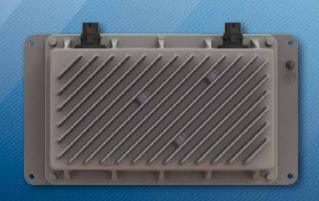
Environmental Protection: IP67

Humidity:5 to 95% RH **Elevation:**-500 to 2800m (-1640 to 9186ft)

AGENCY COMPLIANCE

Safety: IEC/CSA/UL 60950-1, Compatible with IEC/CSA/UL 60950-21 (RFT-V circuit), IEC/CSA/UL 60950-22, Low Voltage Directive 2006/95/EC GR-1089-CORE Safety

EMC: CFR47 (FCC) Part 15 Class B EN 300 386 v1.6.1



LPR48-150-IP68

±190VDC TO -48VDC LINE POWERING REMOTE DOWN-CONVERTER UNIT

- > Remote powering module providing up to 150W output at 54Vdc to power remote nodes
- > Designed for installation in underground vaults or mounted on poles and walls
- > Wide operating temperature range for deployment in harsh OSP environments
- > High reliability IP68 sealed and ruggedized design for a long life cycle
- > Built-in holdup to ensure that the remote equipment rides through line surges

P/N: 0370414-001

ELECTRICAL

Input Voltage:200 to 380Vdc (±100 to ±190Vdc)

Number of Inputs:.....2 Input Current Per Feed: 245mA max

Output Voltage:-53 to -55Vdc

Output Power:

Up to 150W (the power available from the unit depends on the distance from the up-converter and wire gauge of the twisted copper pairs)

Output Current:3.1A max (de-rates with input voltage)

Efficiency:.....90%

Electrical Noise:<100mVRMS to 20MHz (wide band)

<500mVp-p to 20MHz

Holdup:....>150 millisecond at 100W load

Load Sharing: within 10%

PERFORMANCE / FEATURES

Alarm:Form C contact

MECHANICAL

Dimensions:

mm:.....70H x 255W x 140D inches:2.8H x 10.0W x 5.5D Weight:1.89kg (4.2lbs)

Connections:Three blunt cut cables (input, output, alarm)

ENVIRONMENTAL

Temperature:

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

Environmental Protection: IP68

Humidity:5 to 100% RH

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

AGENCY COMPLIANCE

Safety: IEC/CSA/UL 60950-1, Compatible with IEC/CSA/UL 60950-21 (RFT-V circuit), IEC/CSA/UL 60950-22, Low Voltage Directive 2006/95/EC,

GR-1089-CORE Safety

EMC: CFR47 (FCC) Part 15 Class B, EN 300 386 v1.6.1

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 11/2" pan head screws with RTV

sealing compound

MECHANICAL

Dimensions:

mm:.....202H x 138W x 52D 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



CORDEX™HP LPS36



-48VDC TO ±190VDC LINE POWER SYSTEM

- > Modular Line Powering System designed for remotely powering network equipment over twisted copper lines
- > High efficiency >92% for increased OPEX savings and reduced carbon footprint
- > High temperature tolerance for installation in Central Office or harsh OSP cabinet environments
- > Industry leading power density enabling up to 48 channels in a compact 23" 2RU footprint
- > High reliability convection-cooled design with optional fan tray
- > Cordex CXCI-HP system controller provides advanced remote web based monitoring and control features

P/N: 0120011-001

ELECTRICAL

Input Voltage:-40 to -60Vdc
Output Voltage:±190Vdc

Power:96W nominal per output

>92W worst case conditions

(4 outputs per module)

Efficiency:>92%

Regulation:<2% no load to full load

<1% line

Noise:

Wide band:.....
<500mV RMS (10kHz to 10MHz)</p>
<2.5V pk to pk (10kHz to 100MHz)

Acoustic:<60dBa @ 1m (3ft), 55°C

MECHANICAL

Quad Output Power Module

Dimensions:

mm:.....86H x 35W x 283D inches:3.4H x 1.4W x 11.1D **Weight:**0.61kg (1.4lbs)

SHELVES

23" Shelf - 12 Modules

P/N: 0300090-001, A/B Input P/N: 0300090-011

Dimensions:

19" Shelf - 9 Modules

P/N: 0300055-001, A/B Input P/N: 0300055-011

Dimensions:

Connections:

ENVIRONMENTAL

Temperature:

 Operation with forced air cooling: -40 to 65°C (-40 to 149°F) with mininum cabinet air flow @ 200LFM

Operation with convection cooling: -40 to 45°C (-40 to 122°F) single shelf operation only or separated by 1RU baffle

 Operation only or separated by 1RU baffle

PERFORMANCE / FEATURES

Communication Ports:

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

Alarm Relays:Form C major
Form C minor

Form C fan tray alarm

Tri Color LED:System ok (green)

Minor alarm (yellow)

Major alarm (red)

Test Points:4 connectors to test output voltages

AGENCY COMPLIANCE

Safety: CSA/UL 60950-1, CSA/UL 60950-21 (RFT-V circuit)

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 - Class A2, GR-63-CORE, GR-3108-CORE

RELATED COMPONENTS

CXCI+ Controller: P/N 7400232-001 CXCI-HP Controller: P/N 0180053-001

CXCI HP Controller A/B Shelf: P/N 0180053-002 Blanking Plate Kit (2 items): P/N 0380070-001

23" Fan Tray: P/N 0300090-002 23" Baffle: P/N 0300090-003 19" Fan Tray: P/N 0300055-002 19" Baffle: P/N 0300055-003







-48VDC TO ±190VDC QUAD LINE POWER UP-CONVERTER UNIT

- > Providing four (4) ±190Vdc line powering RFT-V channels with current limiting and ground fault protection
- > 92% efficiency for decreased OPEX savings and reduced carbon footprint
- > High reliability, rugged and sealed enclosure for installation either inside or outside power cabinets
- > Wide operating temperature range for deployment in harsh OSP environments

P/N: 0120037-001

ELECTRICAL

Input Voltage:-40 to -60Vdc Output Voltage:±190Vdc

Number of Outputs:.....4

Power:96W nominal per output (4 outputs per unit)

>92W for worst case conditions Output Current:.....Maximum 254 mA per output

Efficiency:.....>92%

Regulation:<2% no load to full load

<1% line

Noise:

Wide band:....<500mV RMS (10kHz to 10MHz)

<2.5V pk to pk (10kHz to 100MHz)

PERFORMANCE / FEATURES

Alarm Relays:Form C

LED:System ok (green)

Minor alarm (yellow) Major alarm (red)

MECHANICAL

Dimensions:

mm:.....142H x 305W x 54D inches:5.6H x 12W x 2.1D Weight:2.9kg (6.5lbs) Connections:Two (2) blunt cut cables

ENVIRONMENTAL

Temperature:

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

Environmental Protection: IP65

Humidity:5 to 100% RH

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

AGENCY COMPLIANCE

Safety: IEC/CSA/UL 60950-1, IEC/CSA/UL 60950-21 (RFT-V circuit) IEC/CSA 1UL 60950-22, CSA 94.07/UL50E, GR-1089-COR Class A2 EMC: CFR47 (FCC) Part 15 Class A, ETSI EN 300 386, EN 55022 Class A



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 Current:.....240mA ±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 2/3W 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:14" studs on 5%" 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)



ALPHACAP 665

SHORT DURATION BACKUP POWER MODULE

- > Provide 3 to 10 seconds of backup power (holdup) of 48Vdc to remote loads such as xDSL and FTTx equipment to ensure maximum reliability
- > Supply up to 750W, of continuous power ouput
- > Ensure load equipment can ride through brief converter resets
- > Reduce truck rolls and operating expenses with no batteries at remote site

P/N: 013-015-20-040

ELECTRICAL

Input:

Voltage:-48 to -56Vdc Current (charge):160 mA ±10% max

Backed Up

output Voltage:....-46Vdc ±3%

Duration Backup:.....4.5 seconds, 665W @ 5 to 55°C

3 seconds minimum, 665 W @ -40 to 65°C 30 seconds maximum duration at low load

3.8 seconds, 750W load

MECHANICAL

Dimensions:

mm:.....43H x 183Wx 350D inches: 1.7H x 7.2W x 13.8D

Mounting:....L-shaped brackets for wall mounting

ENVIRONMENTAL

Temperature:

Nominal:.....5 to 55°C (41 to 131°F) Extended:-40 to 65°C (-40 to 149°F) Storage:-40 to 85°C (-40 to 185°F) Humidity:0 to 95% RH non-condensing

AGENCY COMPLIANCE

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

FCC: 47 CFR Part 15 Class A

Telcordia: GR-1089-CORE (where applicable)





ELIMITER+

100VA CLASS 2 DISTRIBUTION SYSTEM

- > Modular line powering system designed for remotely powering iDAS and WiFi network equipment
- > Meets NEC class 2 and communication circuit requirements for limited power circuits
- > Dramatically reduces CAPEX costs for deployment and simplifies installation of network equipment requiring remote powering
- > Built in DC-DC converter eliminates the need for externally mounted converter devices, significantly reducing network planning and engineering costs
- > Industry leading power density, enabling up to 36 channels in a compact 19/23" 2RU footprint
- > High reliability, convection cooled design with optional fan tray
- > Cordex CXCI HP system controller provides advanced remote web-based monitoring and control features

P/N: 0120028-001

ELECTRICAL

Input Voltage:-40 to -60Vdc

Recommended

Breaker Size:2 x 70A feed

Output Voltage:-57Vdc

Power:98W nominal per output

±2W tolerance

(4 outputs per module)

Efficiency:>92%

Regulation:<2% no load to full load

<1% line

Noise:

Wide band:....<50mV RMS (10kHz to 10MHz)

<100mV pk to pk (10kHz to 100MHz)

Acoustic:<60dBa @ 1m (3ft), 55°C

MECHANICAL

Quad Output Power Module

Dimensions:

mm:.....386H x 35W x 283D

SHELVES

19" Shelf - 9 Modules

P/N: 0300156-001

Dimensions:

mm:.....88H x 435W x 432D inches:3.5H x 17.1W x 17D Weight:5.45kg (12lbs)

Connections:

Input:.....HOT: 2x sets, 1/4" holes on 5/8" centers RTN: 2x sets, 1/4" holes on 5/8" centers Output:.....9x 8 posn. Screw door TB (12-26AWG)

ENVIRONMENTAL

Temperature:

• Operation with forced air cooling: -40 to 65°C (-40 to 149°F) with mininum cabinet air flow @ 200LFM

 Operation with convection cooling: -40 to 45°C (-40 to 122°F) single shelf operation only or separated by 1RU baffle

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:<118 BTU per hour/module

PERFORMANCE / FEATURES

Communication Ports:

CAN:Smart Peripherals

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

Alarm Relays:Form C major Form C minor

Form C fan tray alarm

Tri Color LED:System ok (green) Minor alarm (yellow)

Major alarm (red)

AGENCY COMPLIANCE

Safety: CSA/UL 60950-1 EMC: ETSI 300 386

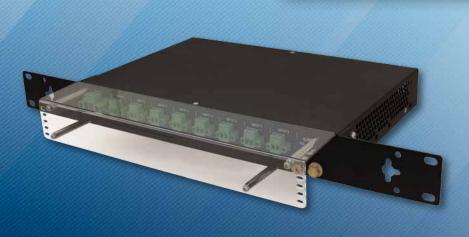
Emissions: CFR47 (FCC) Part 15 Class A Immunity: EN 61000-4-2, 4-3, 4-4, 4-5,4-6 NEBS/Telcordia: GR-1089-CORE, GR-63-CORE

ORDERING INFORMATION

CXCI HP Controller: P/N 0180053-001 Fan Tray: P/N 0300055-002 Air Baffle: P/N 0300055-003 Blank, 2 Module: P/N 0380070-001

ASSOCIATED PRODUCTS ORDERING INFORMATION

Aggregator Unit - Class 2 Circuit Aggregation device: P/N 0120028-001



CLASS 2 CIRCUIT AGGREGATION DEVICE

AGGREGATOR

- > 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 1/4" - 5%" 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:

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

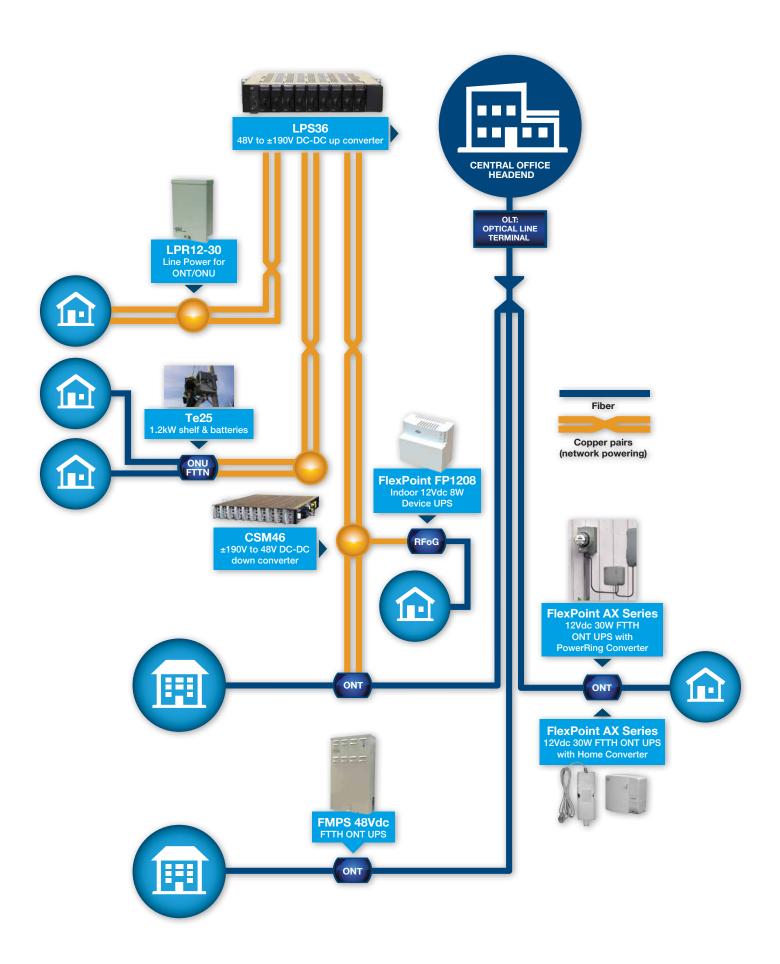
Safety: CSA/UL 60950-1 EMC: ETSI 300 386

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)





FLEXPOINT™ 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	6.6L x 7.5W x 3.28D		
5, 6.5, 7.2 or 8Ah Battery	mm	167.64L x 190	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:

noudi 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	FF	P1208F	FP1215	FP1232	FP1	250
P/N	01	0-353-20	010-354-20	010-355-20	010-	-356-20
ОUТРUТ						
Operational Output Power (ONT load)	8V	V max continuous	15W max continuous	32W max. continue	ous 50W	max. continuous
Output Voltage	12	Vdc nominal (battery volta	age upon loss of AC)			
MECHANICAL						
Dimensions	mm 16	7.6H x 190.5W x 83.3D	167.6H x 190.5W x 83.3D	_	_	
5, 6.5, 7.2 or 8Ah battery	inches 6.6	6H x 7.5W x 3.2D	6.6H x 7.5W x 3.2D	_	_	
Weight w/o Battery	0.8	54 (1.2lbs)	0.54 (1.2lbs)	0.58 (1.3lbs)	0.63	(1.4lbs)
BATTERY WEIGHT						
5.0Ah Battery Weight	1.8	3 (3.9lbs)	1.8 (3.9lbs)	1.8 (3.9lbs)	1.8 (3.9lbs)
6.5Ah Battery Weight	1.9	97 (4.3lbs)	1.97 (4.3lbs)	1.97 (4.3lbs)	1.97	(4.3lbs)
7.2Ah Battery Weight	2.6	6 (5.7lbs)	2.6 (5.7lbs)	2.6 (5.7lbs)	2.6 (5.7lbs)
8.0Ah Battery Weight	2.7	7 (5.73lbs)	2.7 (5.73lbs)	2.7 (5.73lbs)	2.7 (5.73lbs)
ENVIRONMENT						
Storage Temperature	-2	0 to 45°C (4 to 113°F)	-20 to 45°C (4 to 113°F)	-20 to 45°C (4 to 1°	13°F) -201	to 45°C (4 to 113°F)
Operating Temperature	-2	O to 45°C (4 to 113°F)	-20 to 45°C (4 to 113°F)	-20 to 45°C (4 to 1°	13°F) -201	to 45°C (4 to 113°F)
Humidity	5 t	o 95% non condensing	5 to 95% non condensing	5 to 95% non cond	densing 5 to	95% non condensir
Elevation Operation Maxir	mum 3,0	000m (10,000ft) derate at	2°C (35.6°F) per 304.8m (1,00	00ft) above 1,828.8m	(6,000ft)	
Elevation Storage Maximu	um 15	,000m (50,000ft)	15,000m (50,000ft)	15,000m (50,000ft) 15,0	00m (50,000ft)
MODELS & INPUT POWE	R LINE CORDS					
120VAC 3-conductor NEM	MA 5-15 FF	P-1208F-5A	FP-1215-5A	FP-1232-8A	FP-1	250-12A
230VAC 3-conductor Sch	uko FF	P-1208F-5B	FP-1215-5B	FP-1232-8B	FP-1	250-12B
230VAC 3-conductor UK	FF	P-1208F-5C	FP-1215-5C	FP-1232-8C	FP-1	250-12C
240VAC 3-conductor Australia/New Zealand	FF	P-1208F-5D	FP-1215-5D	FP-1232-8D	FP-1	250-12D
120VAC 3-conductor NEM power cord with BC cable	_		_	FP-1232-8-6C	FP-1	250-12-6C
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 *Battery Runtime @ 25°C		Maintenan	ce free, leak-proof, sealed val	ve regulated lead acid	d (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 In	put Vo	Itage:
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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 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:

operaning reinperature rianger	
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 Alarm	ns – PacketCable Compliant):
AC Fail:	Output power drawn from battery
Replace Battery:	Battery has failed periodic self-ter
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)



FLEXNET™ FMPS

MULTIPURPOSE POWER SUPPLY

- > 150W Fibre-to-the-premise UPS for multiple dwelling, multiple tenant and small business unit applications
- > Supports one or two MDU/SBU ONTs located up to 100ft from FMPS
- > Battery management performs periodic battery capacity testing and status reporting to the ONT and customer
- > Built-in battery heater provides extended runtime for applications in cold winter conditions
- > Hybrid 16AWG and alarm cable minimizes installation labor
- > Status indicators and audible alarm provide local status
- > Option for dry contact and Packet Cable compliant telemetry connections to ONT and MTA

FlexNet FMPS, FTTX Multipurpose PS, 120V line cord, -40°C (-40°F) P/N: 010-592-20-053

Dry contact alarm extension kit for 4 x MTA loads: P/N 0370016-001 Alarm relay kit for ONT loads: P/N 0370037-001

ELECTRICAL

Voltage:90 to 320Vac Frequency:45 to 66Hz

Surge Protection:ANSI/IEEE Std. C62.41 to Category A, B, or C

requirements, using a "Ring Wave" or "Combination" waveform, at a level of 6kV

Output:

Operational:150W continuous - 170W, 10 sec max. Voltage:48 to 58Vdc w/AC power

42 to 58Vdc with battery

Power loading:Following GR-909 telephone lines in various states, e.g., ringing, off-hook, on-hook, data, and

video operation requirements. Ripple:Less than 3mVrms

Noise:Less than 100mVp-p

Output Connection:......Two terminal blocks accepting 16AWG,

parallel connections

PERFORMANCE / FEATURES

Battery:Four or eight 7.2Ah or 8Ah valve regulated lead acid (VRLA) (batteries sold separately)

MECHANICAL

Model		FMPS	FMPS + Shipping Carton
	in	14W x 23.75H x 5.5D	17W x 28.5H x 11.75D
Dimensions	cm	35.6W x 60.3H x 14D	35.6W x 60.3H x 14D
Weight		11.3kg (25lbs)	13.6kg (30lbs)

ENVIRONMENTAL

Operating:

Temperature:....-40 to 46°C (-40 to 115°F) plus solar loading Humidity:.....0 to 95% RH non-condensing Elevation:.....0 to 10000ft (0 to 3000m) elevation Storage: Temperature:.....-15 to 85°C (-5 to 185°F) plus solar loading

Humidity:.....0 to 95% RH non-condensing Elevation:.....0 to 50000ft (0 to 15000m)

USER INTERFACE

Local Alarms:

System LED: Green steady = system output normal, DC output Off = no AC or battery power Battery LED:.....Yellow steady = system on battery Off = normal mode

Replace battery:.....Red steady = replace one or two battery strings Off = batteries within parameters

A&B (internal): Red steady = replace one or both battery strings

Off = batteries within parameters

Remote Alarms:

Replace battery

Pin 1 alarm return: Open collector return reference

Pin 2 AC fail: On battery

Pin 3 replace battery: One or both battery strings failed periodic self test Pin 4 missing battery:.....Less than eight batteries

Pin 5 battery low:Battery string voltage is less than 46.8Vdc

Local - Audible Indicator:

located on UPS

Batteries below voltage parameters

AGENCY COMPLIANCE

CSA/UL 60950, EN 60950, EN 55022 class B, FCC part 15 class B, GR-63 Sect 4.2 fire resistance, GR-1089 Sect 3 emissions, Sect 4 lightning and AC power fault, Sect 7 electrical safety, CE, C-Tick, RoHS 5 of 6



CELLECT 600

48VDC SMALL CELL POWER SUPPLY WITH INBUILT BATTERY

- > -48V/600W telecom grade outdoor power system, Class 4/IP65
- > Integrated battery backup increases system availability and end-user Quality of Experience (QoE)
- > Key features enable outdoor small cell deployments
 - Small physical size (16" x 9" x 6") alleviates concerns about optical intrusion
 - · Light weight (25lbs) design maximizes options for deployment on poles andwalls
 - · Easy to install by a single technician within minutes
- > Reduced OPEX resulting from maintenance-free battery & enclosure, and high efficiency rectifier design
- > Advanced monitoring and control, including SNMP, at both the system level and for individual circuits

P/N: 0100021-001

ELECTRICAL

AC Nominal Input:.....100 to 277Vac AC Input Frequency:......45 to 65Hz Output Voltage:-48 to -55Vdc Output Power:600W continuous **Efficiency:**>94.5% Electrical Noise:....<30mV RMS (to 10MHz) <150mV pk to pk (to 100MHz) Acoustic Noise:.....<40dBa at 1m (3ft) Power Backup:3.2Ah

PERFORMANCE / FEATURES

Power Backup Runtime: 15 min @ 450W load

Alarms:

- AC Fail
- On Battery
- Battery Low
- Module Error

LED:Green: DC Output OK Remote Monitoring: Ethernet, SNMP

MECHANICAL

Dimensions:

mm:......382H x 236W x 165D (195 w/bracket) inches: 15H x 9.3W x 6.5D (7.7 w/bracket) Weight:<11kg (24lbs) Mounting:.....Bracket for pole and wall mounting

Connections (IP65 cable glands):

- Six (6) DC Output
- AC Input
- Alarms
- Ethernet

ENVIRONMENTAL

Temperature:

Operation:-40 to 46°C (-40 to 149°F) plus solar loading Storage:-40 to 85°C (-40 to 185°F) Environmental Protection: IP65 **Humidity:**5 to 100% RH

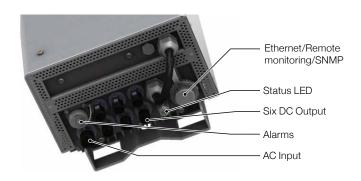
Elevation:-500 to 2000m (-1640 to 6561ft)

AGENCY COMPLIANCE

Safety: IEC/CSA/UL 60950-1, ETSI 300 386-2, CE Mark

EMC: CFR47 (FCC) Part 15 Class A, EN 55022 class A, 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-63-CORE, GR-1089-CORE



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.

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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

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

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 runway

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 runway

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,

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™CXC HP



SYSTEM CONTROLLER

- > Advanced next-generation control and monitoring platform for Alpha's Cordex product family
- > High resolution color touchscreen LCD display with advanced local UI
- > Integrated USB host for local firmware upgrades, configuration updates and system backup/restoration
- > Comprehensive graphical user interface for advanced system configuration
- > Seamless integration of multiple energy systems allowing comprehensive management, monitoring and control
- > External ADIO peripherals for customizing unique I/O configurations
- > Compact flexible mounting options to reduce space requirements

P/N: 0180036

FEATURES

User Interface:

Local GUI:LCD touch screen display for local access Display:Full graphic LCD, 480x272 pixels, with backlight and contrast adjustment 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

- 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
- Power save 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:	2x Ports for communication to Cordex series
	power electronics peripherals
Ethernet:	2x Ports front and rear; 10/100 Base T with full/
	half duplex; Auto MDI/MDI-X
USB:	2x USB 2.0 Ports front and rear

ELECTRICAL

Input Voltage: 10 to 60Vdc

MECHANICAL

Dimensions:

Veight	0.45kg (1.0 lb)
inches:	3.3H x 6.1W x 1.8D
mm:	83.5H x 153.8W x 46.2E

ENVIRONMENTAL

Temperature: 40 to +65°C	
Humidity: 0 to 95% RH non-condensir	ηg

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,

Immunity: EN 61000-4-2/3/4/5/6 **NEBS:** NEBS Level 3 Certified

RELATED COMPONENTS

3U rack mount assembly: P/N 0180046 DIN rail mount kit: P/N 0370190/0370196 Redundant input power module: P/N 0180045

HIGH PERFORMANCE



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

- 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 accessbile on 1.2kW shelf system for
	connection to CXC HP ADIO periperals
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:

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
Neight:	0.45kg (1.0 lb)

ENVIRONMENTAL

Temperature: 40 to 65°C (-40 to 149°F)	
Humidity:0 to 95% RH non-condensing	ıg

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

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
- 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 accessbile on 1.2kW shelf system for
	connection to CXC HP ADIO periperals
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	i internai on some models)^
Voltage inputs:1 + 1 ir	nternal
Temp inputs:2	
Current inputs: 1 (0 + 1	I 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

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 **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





CXC HP 6i-ADIO

CXC HP SMART PERIPHERAL

- > CXC HP series ADIO peripheral with flexible rack, panel, and DIN mounting options
- > I/O expansion via CAN bus for advanced site monitoring applications, including support for future growth
- > Provides six accurate monitoring channels for current measurements

P/N: 0180051

ELECTRICAL

Input Voltage:10 to 60Vdc

FEATURES

Local Alarms:Power ON (Blue)

Communications OK (Green)

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

Controller I/O:

Current shunt inputs:6 (25 to 200mV)

MECHANICAL

Mounting:.....CXC HP 3U rack panel mount (0180046) or

DIN/Panel mounting (0370196)

Dimensions:

mm:......131.3H x 83.9W x 28.9D inches:5.1H x 3.3W x 1.2D Weight:0.20kg (0.44lbs)

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



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, SNTP, 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.

	Character Representation
TE 27 - 22 18	1. Tailored Enclosure
	2. Height (in)
1 2 3 4	3. Width (in)
	4. Depth (in)





ENCLOSURE SELECTION CONSIDERATIONS

What are the requirements for the base enclosure?									
Dimensions (in	ons (in/mm) Mounting Accessibility Cable entry/exit		//exit	Security					
Height:		□ Pad	□ Rack	☐ Front	□ Rear	□ Тор	☐ Padlock-able		
Width:		☐ Pole	□ Pedestal	□ Rear	■ Bottom	☐ Front	☐ Special "keyed	"	
Depth:		■ Wall		□ Тор	□ Sides		Other:		
What are the	environmental	conditions	?						
Temperature ((°C/°F)				Wind Drive	n		Seismic z	one
Minimum:					□ Rain	□ Dust		1	3
Maximum:					□ Snow	Other:		1 2	4
What is the el	lectrical servic	e available	at the location?						
AC Voltage					Main break	er rating			
□ 120Vac	1 20/2	40Vac (3 277/480Vac		□ 15A	□ 30A	□ 100A		
□ 120/208Vac	3 47/6	00Vac (Other		□ 20A	□ 50A	Other:		
What are the	operating para	ameters of y	our equipment?						
AC Voltage		DC Voltag	je	Total load cu	ırrent (A)		Mounting		
☐ 24Vac	□ 208Vac	□ 12Vdc	□ 125Vdc	Minimum:			☐ 19" rack		
☐ 120Vac	□ 240Vac	□ 24Vdc	□ 48Vdc						
Other:		Other:		Maximum:			■ 23" rack		
Equipment sp	ace (RU)		Operatin	g temperature rai	nge	Equipme	nt heat dissipatior	n (Btu/hr or	W)
Item 1:			Min:	Max:					
Item 2:			Min:	Max:					
Item 3:			Min:	Max:					
Which climate	e control optio	n is prefera	ble with the encl	osure?					
Cooling/Heati	ing		Thermal Ma	nagement Selecti	on Guide				
☐ Fan(s)	☐ Hea	t exchanger	• Fan(s) - op	en loop system util	izing filtered οι	utside ambient	air to cool the electr	onics	
☐ Air condition	ner 🗖 Hea	ter		 Air conditioner - closed loop system where electronics require an environment cooler than ambient Heat exchanger - closed loop system that keeps ambient air contaminents out of the enclosure but tem- 					
				anger - closed loop side is slightly abov	•	keeps ambient a	air contaminents ou	t of the enci	osure but tem-
What are the	battery require	ements?	•	9 ,					
Application Battery chemistry				Discharge time			Recha	rge time	
☐ Cycle	☐ Lead-	acid 🗖	Li-lon		Hour(s):		Hour(s)	:	
☐ Float	☐ Ni-Ca	d O	ther:		Minute:		Minute	:	
How is the po	wer distribute	d to the criti	ical loads?						
☐ Fuse (S	Specify size and	quantity if kn	own):						
☐ Breaker (S	Specify size and	quantity if kn	own):						
Have you con	Have you considered these system options?								
□ Load center □ Surge suppression □ Fiber winding box									
☐ Generator in	ılet	☐ Meter bas	se	☐ Convenience of	outlet(s)				
☐ Transfer switch ☐ Battery heater mat			eater mat	Specify other opt	ions required:				
Are there any requirements for agency compliance?									
GR standard				NEBS		Safety co	mpliance		
GR487:	GR1089:			☐ Lev	el 1	□ CSA/U	L 60950		
GR13:	GR63:			☐ Lev	el 2	☐ CE			
Other:				☐ Lev	el 3	Other:			



TE27-2218

27" GENERAL PURPOSE OUTDOOR ENCLOSURE

- > Compact enclosure design provides ideal fit for locations where aesthetics and footprint are important
- > Light-weight powder coated aluminum construction offers superior corrosion resistant properties
- > Large sun shield reduces solar heat load inside cabinet
- > 180° stainless steel piano-hinged door make installation and maintenance easy and convenient
- > Thermostat controlled filtered fan cooling and louvered vents ensure reliable operation in high temperature environments
- > Various mounting options make this highly versatile in space constrained mobile broadband applications

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 aluminum

Finish:Power coated white color Equipment Space:5RU space with one battery shelf

Equipment Rails:.....EIA standard 19"

Cable Entrance:

Bottom of enclosure:......1 x 3" diameter knock-out (21/2" trade size) 4 x 1.125" diameter knock-out (3/4" trade size) Rear of enclosure:4 x 1.125" diameter knock-out (3/4" trade size)

HARDWARE

Hinge Type: Stainless steel piano hinge

Door Prop:Aluminum rod, 2 locking open positions Door Latch: Bellcore 216 compression lock with pad 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 Louvers: Equipped with splash baffle (optional filters available)

ENCLOSURE OPTIONS

Mounting:Pole, wall, pedestal or stake mount

SYSTEM SPECIFICATIONS (AS SHOWN)



- Battery shelf with 4x AlphaCell™ 195GXL-FT batteries
- FXM1100 UPS
- · Pedestal mount kit

System Options

- Alpha universal automatic transfer switch
- Alpha universal generator transfer switch
- AlphaGuard battery balancer
- Battery heater mats
- Transient voltage surge suppression device

AGENCY COMPLIANCE

CSA/UL: C22.2 No.60950 Telcordia: GR-13-CORE **NEMA Rating: 3R**



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:

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:

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

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





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

.Side mount (standard) - designed to mount to Mounting:....

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

Dimensi	ons:
---------	------

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

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





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 arrestor 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

- 3 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 inches84H 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

Consult factory for other 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

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 ¾" knock-out Bottom of enclosure......1 x 3" diameter knock-out; 4 x ¾" knock-out Sides of enclosure......2 x 3" diameter knock-out; 4 x 34" knock-out

HARDWARE

Door Latch:Removable front door

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

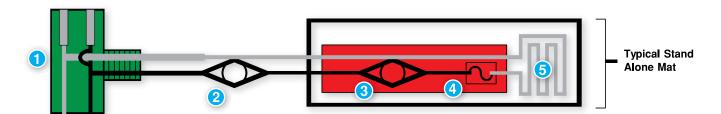




EXTEND BATTERY RUNTIME IN COLD WEATHER

- > 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.





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 (LiFe PO 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



GEL TOP-TERMINAL BATTERIES

ALPHACELL™ GXL

- > 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 SPI	CIFICATIO	NS FOR G	OLD-HP											
Model				2200	GXL			195GXL			165G	XL		
P/N				181-	231-10			181-230-	10		18100)15		
Warranty				4 to 5	5 years full	replaceme	ent*							
Service Life				Exte	nded			Extended			Exten	Extended		
Battery Type				True	gel cell an	d silver allo	y grid ba	battery technologies						
Heat Resistan	ıt			Extre	eme			Extreme			Extre	ne		
Hydrogen Em	ission			Low				Low			Low			
Capacity at 20)hrs (to 1.75	VPC)		109A	۸h			100Ah			86Ah			
Typical Runtin	ne**			221 r	mins			196 mins			165 m	ins		
BCI Group Siz	e			31				31			27			
Terminals				Threa	aded inser	t 1/4"- 20 U	NC							
Cells Per Unit				6				6			6			
Voltage Per U	nit			12.8\	/			12.8V			12.8V			
Conductance	Value @ 25°	С		960-	1400			880-1320			800-1	200		
Impedance @	60Hz			0.00	5 Ohms			0.005 Ohr	ns		0.005	5 Ohms		
Max. Discharg	ge Current			900A	4			900A			800A			
Short Circuit	Current			2800)A			2600A			2500	4		
10 Second Vol	ts @ 100A			11.4				11.3			11.2			
MECHANICAL	-													
Dimensions			mm	215.4	H x 340.9\	W x 172.7D		215.4H x 3	40.9W x 17	2.7D	204.5	1 x 317.8W x	173.4D	
w/ Terminals			inches	8.48	Н x 13.42V	V x 6.8D		8.48H x 13	.42W x 6.8	D	8.05H	x 12.5W x 6.	83D	
Weight				33.2	kg (73lbs)			28.6kg (63	lbs)		30.5kg	(67lbs)		
ENVIRONMEN	ITAL													
Discharge				-40 to	o 71°C (-40	0 to 160°F)		-40 to 71°C	C (-40 to 16	0°F)	-40 to	71°C (-40 to	160°F)	
Charge (w/ tem	perature com	pensation)		-23 to	o 60°C (-9.	.4 to 140°F) (charge	temperatur	re compens	ation @ ±5	imV/C per	°C)		
Float Chargin	g Voltage			13.5	to 13.8Vdd	c average p	er 12Vd	c unit at 25°	C (77°F)					
AC Ripple Cha	arger			0.5%	RMS or 1	.5% of floa	t charge	voltage rec	ommended	l for best re	esults. Ma:	k. allowed =	4%V pk to pk	
CURRENT DIS	CHARGE R	ATINGS T	ABLE IN A	MPS (EN	ND VOLTA	GE 1.75V	PC @ 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	y country and r	egion. Warra	anty valid onl	y when use	ed with Alph	a approved	power su	oplies, charge	ers and enclo	sures 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	SPECIFICA	TIONS														
Model				220 GO	LD-HP				195 GO	LD-HP						
P/N				181-233	-10				181-232	181-232-10						
Warranty				5 to 6 ye	ars full repla	acement*			5 to 6 ye	ears full repl	acement*					
Service Lif	e ·			Extende	d				Extende	Extended						
Battery Ty	ре			True gel	cell and silv	er alloy gric	d battery ted	chnologies								
Heat Resis	tant			Extreme					Extreme)						
Hydrogen	Emission			Low					Low							
Capacity a	t 20hrs (to	1.75VPC)		109Ah					100Ah							
Typical Ru	ntime**			221 mins	3				196 min	S						
BCI Group	Size			31					31							
Terminals				Threade	d insert 1/4 t	o 20 UNC										
Cells Per L	Init			6					6							
Voltage Pe	r Unit			12.8V					12.8V							
Conductar	nce Value			960-140	0				880-132	20						
Impedance	e @ 60Hz			0.005 OI	nms				0.005 Ohms							
Max. Discl	narge Curr	ent		900A					900A							
Short Circ	uit Current			2800A					2600A							
10 Second	Volts @ 10	0 A		11.4					11.3							
MECHANIC	CAL															
Dimension	ıs		mm	215.4H x	340.9W x 17	72.7D			215.4H	x 340.9W x	172.7D					
w/ Termina	als		inches	8.48H x	13.42W x 6.	.80D			8.48H x	13.42W x 6	5.8D					
Weight				33.2kg (7	73lbs)				30.5kg (67lbs)						
ENVIRON	/IENTAL															
Discharge				-40 to 71	°C (-40 to 1	60°F)			-40 to 7	1°C (-40 to	160°F)					
Charge (w/	temperatur	e compens	sation)	-23 to 60	°C (-9.4 to	140°F) (Cha	arger temp o	comp @ ±5r	nV/C per °C	C)						
Float Char	ging Volta	je		13.5 to 1	3.8Vdc ave	rage per 12	V unit at 25	°C (77°F)								
AC Ripple	Charger			0.5% RM	1S or 1.5% o	of float char	ge voltage i	ed for best	results. Ma	x. allowed =	= 4%V pk to	pk				
CURRENT	DISCHAR	E RATIN	GS TABLE	IN AMPS (E	ND VOLTA	AGE 1.75VI	PC @ 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 S	SPECIFICA	TIONS								
Model			100XTV		150XTV		195XTV		240XTV	
P/N			1810226		1810227		1810228		1810229	
Warranty			5-year full replac	ement*	5-year full rep	acement*	5-year full repl	acement*	5-year full rep	lacement*
Operating (w/ Temper		re Range pensation)	-40 to 60°C (-40	to 140°F) (cl	harger temperat	ure compensa	ation @ ±3.3mVpo	per °C)		
Storage Te	mperature)	-10 to 40°C (14 t	o 104°F)	-10 to 40°C (14	4 to 104°F)	-10 to 40°C (14	l to 104°F)	-10 to 40°C (1	4 to 104°F)
Self Discha	ırge		Battery can be s Higher temperat				ent recharge.			
Voltage Per	r Unit		12V		12V		12V		12V	
Float Charg	ge Voltage		13.5 to 13.8Vdc	average per	12V unit at 25°C	(77°F)				
Refresh/Bo	ost Charg	ing Voltage	14.4 to 15.0Vdc	average per	12V unit at 25°C	(77°F)				
Maximum A	AC Ripple	(Charger)	0.5% RMS or 1.5	5% of float re	commended for	best results. I	Maximum voltage	e allowed = 4°	% P/P	
Terminal Ty	/pe		Threaded alloy insto accept M6 x 12		Threaded allo	y insert termin	al to accept M6 x	20mm bolt		
Terminal Ha	ardware To	orque	13.6NM / 120in-	lbs	13.6NM / 120i	n-lbs	13.6NM / 120i	n-lbs	13.6NM / 120	in-lbs
Case Sizes			22NF		24		27		31	
MECHANIC	AL									
Dimension	s	mm	207H x 228L x10	38W	214H x 275L x	168W	214H x 322L x	169W	217H x 343L :	k 170W
w/ Termina	ls	inches	8.17H x 9.01L x	5.46W	8.44H x 10.85	L x 6.65W	8.43H x 12.71l	x 6.67W	8.57H x 13.50	L x 6.71W
Weight			17.7kg (39lbs)		25.4kg (56lbs)		30.5kg (67lbs)		32kg (75lbs)	
BATTERY										
Runtime Ra (@ 25°C/77°		pc)	100 minutes		150 minutes		195 minutes		240 minutes	
Amp Hour (@ 25°C/77°			56Ah		80Ah		100Ah		112Ah	
Conductan Charged No (@ 25°C/77°	ew Battery		700 - 800		900 - 1100		1050 - 1250		1250 - 1550	
CURRENT	DISCHAR	GE RATINGS	TABLE IN AMPS	(END VOLT	AGE 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

NOMINA	AL SPECIFICATIONS										
Model			3.5HP				4.0HP				
P/N			1810077			1810078					
Warrant	ty		5-year full	replacement*		5-year full replace	ement*				
Service	Life		Extended				Extended				
Battery	Туре		Pure lead	AGM			Pure lead AGM				
Heat Re	esistant		Extreme				Extreme				
Hydroge	en Emission		Low				Low				
Capacit	ty at 20hrs (to 1.75VP	C)	104Ah				114Ah				
Typical	Runtime**		210 mins				240 mins				
BCI Gro	oup Size		31				31				
Termina	als		Threaded	insert 1/4 - 20 l	JNC"		Threaded insert 1	/4 - 20 UNC"			
Cells Pe	er Unit		6				6				
Voltage	Per Unit		12.8				12.8				
Conduc	tance Value		1400-185	0			1700-2500				
Max. Di	scharge Current		800A				900A				
Short C	ircuit Current		2800A				3200A				
10 Seco	ond Volts @ 100A		11.7				11.8				
Impeda	nce @ 60Hz		2.7 Ohms				2.2 Ohms				
MECHA	NICAL										
Dimens	ions	mm	223.5H x	337.8W x 172.7	D		223.5H x 337.8W	x 172.7D			
w/ Term	ninals	inches	8.5H x 13	.4W x 6.8D			8.5H x 13.4W x 6	.8D			
Weight			30.8kg (6	Blbs)			35.6kg (74lbs)				
ENVIRO	NMENTAL										
Dischar	ge		-40 to 60°	°C (-40 to 140°F	·)		-40 to 60°C (-40 t	to 140°F)			
Charge	(w/ Temperature con	npensation)	-40 to 60°	°C (-9.4 to 140°F	F) (Charger temp of	comp @ ±4mV/0	C per °C)	•			
	narging Voltage	,		,	per 12V unit at 25°	<u> </u>	- 1 /				
	ole Charger			0 1		, ,	for best results. Max	allowed = 4%V n	ık to nk		
	NT DISCHARGE RAT	NGS TABLE					ior boot roodito. Wax	. anovod – 170v p	ik to pik		
Hours			1	2	3	4	8	10	20		
0 EUD	End voltage 1.75VPC	D:	70.2	40.3	28.6	22.3	12.1	9.9	5.2		
3.5HP	End voltage 1.70VPC	D:	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		
-1.0111	End voltage 1.70VPC	D: (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 SPEC	IFICATION	NS											
Model			195 (GXL-FT									
P/N			1810	029									
Warranty			Exter	nded warra	anty - 3 yea	ır full replace	ement*						
Sealed VRLA			Valve	regulated	lead acid								
Heat Resistant			Extre	eme									
Hydrogen Emiss	sion		Low										
Terminals			16mr	m insert Me	6 thread								
Typical Runtime	1		195 r	nins									
Cells Per Unit			6										
Voltage Per Unit	t		12.8\	/									
Conductance Va	alue		800-	1200									
Max. Discharge	Current		400A	١									
Short Circuit Cu	rrent		3000)A									
10 Second Volts	@ 100A		10.8										
Impedance @ 60	Hz		0.004	41 Ohms									
Capacity at 20hr	rs (to 1.75\	VPC)	110A	h									
MECHANICAL													
Dimensions		mm	285H	1 x 110W x	395D								
w/ Terminals**		inches	11.22	2H x 4.33W	/ x 15.55D								
Weight			34.5	kg (76.3lbs)								
ENVIRONMENTA	AL												
Discharge		,	-40 to	o 71°C (-40) to 160°F)								
Charge (w/ Temp	p compen	sation)	-20 to	50°C (-4	to 122°F) (0	Charger tem	np comp @	±4mV/C pe	r °C)				
Float Charging \	/oltage (Vo	dc)	Float	2.27 to 2.3	30VPC @ 2	5°C cycling	2.35VPC @	25°C					
AC Ripple Charg	ger		0.5%	RMS or 1.	5% of float	charge volt	age recom	mended for	best resu	lts. Max. a	allowed =	4% P-P	
CURRENT DISC	HARGE RA	ATINGS TA	BLE IN A	MPS (EN	D VOLTAG	E 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 SPECIFIC	A.10110				41.1.0	400 DT		1 0 11/200	D-		0 11 040 7-		
Model					AlphaCell	160 BT		phaCell 180	ВТ	<u> </u>	Cell 210 B1	Ī	
P/N					1810119 1810120 1810154								
Warranty					4 years full	replacement		ars prorated	•				
Voltage					12V		12	V		12V	12V		
Ampere Hour Capac	ity 8hr Ra	te @ 25°C ((77°F) to 1.	.75 V /c	157Ah		18	1Ah		202Ah			
Ampere Hour Capac	ity 10hr R	ate @ 25°C	(77°F) to	1.75 V/c	161Ah		18	6Ah		209Ah			
Maximum Discharg	e Current				800A		80	10A		800A			
Short Circuit Currer	ıt				4,700A		4,5	500A		4,500A	1		
Ohms Impedance 6)Hz (Ω)				0.0031 Ohr	ns	0.0	0037 Ohms		0.0040	Ohms		
Self Discharge					required. Ba	atteries store	ed at temp	nths at 25°C (peratures great wer temperat	ater than 25°		0 0		
Equalize Charge and	d Cycle Se	rvice Volta	age		14.40 to 14.	80Vdc avera	ige per 12	V unit @ 25°C	C (77°F)				
Terminal: Inserted I	nterunit Co	onnector P	rovided		Threaded c	opper alloy i	nsert term	ninal to accep	t 1/4-20 UNC	bolt			
Terminal Hardware	Initial Torq	jue			110 in. lbs. (110 in. lbs. (12.4 Nm) 110 in. lbs. (12.4 Nm) 110 in. lbs. (12.4 Nm)							
MECHANICAL													
Dimensions			mr	m	283H x 559	D x 126W	32	0H x 559D x	126W	320H x	559D x 126	3W	
Difficusions			inc	ches	11H x 22D x	5W	13	H x 22D x 5V	V	13H x 2	22D x 5W		
Weight					52.2kg (115	lbs)	59	.4kg (131lbs)		63.51k	g (142lbs)		
ENVIRONMENTAL													
Operating Tempera	ture Range	(w/Temp	compensa	ation)	Discharge:	-40 to 71°C	-40 to 160	0°F) Charge:	-23 to 60°C	(-10 to 140	°F)		
Nominal Operating	Temperatu	ire Range			23 to 27°C	(74 to 80°F)	23	to 27°C (74 t	o 80°F)	23 to 2	7°C (74 to 8	0°F)	
Recommended Max	Charging	Current Lir	mit		C/5 ampere	es (20hr rate)	C/:	5 amperes (2	Ohr rate)	C/5 am	peres (20hi	r rate)	
Float Charging Volta	age .				13.5 to 13.8	Vdc average	per 12V ι	unit charger t	emp comp (@ ±5mV/C	oer °C @ 25	°C (77	
Maximum AC Ripple	(charger)					or 1.5% of floe allowed = 1		voltage reco (4% P-P)	mmended f	or best res	ults.		
CURRENT DISCHAF	RGE RATIN	GS TABLE	IN AMPS	(END VO	LTAGE 1.75V	PC @ 25°C	/77°)						
Hours	1	2	3	4	5	6	7	8	10	12	20	24	
110410		00.0	44.9	35.4	29.3	25.1	22.0	19.7	16.1	13.7	8.6	7.3	
AlphaCell 160 BT	107.1	62.2	44.9	33.4									
	107.1 123.1	71.1	51.7	40.8	33.8	29.0	25.4	22.6	18.6	15.9	10.0	8.8	

^{*}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 SPECIFICAT	IONS												
P/N			18	1810118									
Warranty			3	Years*									
Voltage			12	12V									
Nominal 20hr rate to 1.	75 VPC in Am	pere-Hours	20	206Ah									
Cells Per Unit			6	6									
Maximum Terminal Dis	charge Curr	ent Rating	80	00A									
Self Discharge			В	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 & Cyc	le Service Vo	ltage	14	4.40 to 14.80 V	dc average p	er 12V unit @	77°F (25°C)						
Terminal: Inserted - Int	erunit Conne	ector Provid	ed TI	hreaded coppe	er alloy insert	terminal to ac	cept 1/4-20 U	NC bolt					
Terminal Hardware Init	ial Torque		11	10 inlbs. (12.4	N-m)								
MECHANICAL													
Dimensions		mn	n 32	20.04H x 559.0)5D x 125.73V	V							
Dimensions		inc	hes 12	2.60H x 22.01D	x 4.95W								
Weight			10	31lbs (60kg)									
ENVIRONMENTAL													
Operating Temperature (w/ Temperature comp	-			ischarge: -40°l Charger temp c	, ,	, ,	Charge: -10°F	(-23°C) to +14	0°F (60°C)				
Nominal Operating Ten	nperature Ra	ange	+7	74°F (23°C) to -	+80°F (27°C)								
Recommended Maxim	um Charging	Current Lir	nit C	/5 amperes @	20 Hr rate								
Float Charging Voltage	1		10	3.5 to 13.8 Vdc	average per	12V unit @ 77	°F (25°C)						
Maximum AC Ripple (c	harger)			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 DI	SCHARGE R	ATINGS - W	ATTS PER (CELL @ 77°F (25°C)								
Operating Time to End	Point Voltag	e (in minute	s)										
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								,					
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.





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

Model		Alpl	haCell 34	RE	AlphaCe	ell 52 RE	Alp	haCell 78	RE	AlphaC	ell 95 RE	Aln	haCell 10)6 RE
P/N		<u>_</u>	0252		1810248			0253		1810254			0164	
Warranty*		2 ye			2 years		2 ye			2 years			ears	
Voltage Per Unit		12.8			12.84		12.8			12.84			12.84	
Electrolyte		Abs	orbed H29	SO4' SG=	1.300									
Self Discharge											equired. Bat stored at lov			
Terminal			rted Term 32 UNF bo	· · · · · ·	per Alloy)			erted Term 10 UNC bo	, ,	per Alloy)				
Terminal Hardward Initial Torque	•	30 ir	nlbs (3.4	N-m)	30 inlbs	s (3.4 N-m)	110	inlbs (12	.4 N-m)	110 inlk	os (12.4 N-m)	110	inlbs (12	.4 N-n
MECHANICAL														
Dimensions	mm	172.	7 x 131.9	x 197.1	205.1 x 1	39.2 x 228	6 203	.5 x 173.4	x 273.2	204.8 x	173.4 x 317.8	216	i.4 x 172.7	x 340
(H x W x D)	inches	6.80	0 x 5.19 x 7	'.76	8.07 x 5.4	48 x 9.0	8.01	1 x 6.83 x	10.76	8.06 x 6.	83 x 12.51	8.5	2 x 6.80 x	13.42
Weight		12kg	g (27lbs)		18kg (40l	bs)	25k	g (54lbs)		30kg (64	lbs)	31k	g (69lbs)	
ENVIRONMENTAL														
Operating Temper (w/ temperature co					(-40 to 160 0 to 140°F)									
Normal Operating Temperature Rang	ıe	23 to	o 27°C (74	to 80°F)										
Recommended Ma Charge Current Li		C/5	amperes (@ 20hr ra	te									
Float Charge Volta	ge	13.5	to 13.8Vc	lc/unit Av	erage at 25	5°C (77°F) (Charger :	temp com	p @ ±5m	V/C per °C)			
Equalization & Cyc Charging & Curren		14.4	to 14.8Vo	lc/unit Ave	erage at 25	5°C (77°F)								
CURRENT DISCHA	RGE RAT	INGS TAI	BLE IN AI	MPS (EN	D VOLTAC	GE 1.75VP	C @ 25°C	C/77°F)						
Hours	1	2	3	4	5	6	7	8	10	12	20	24	72	10
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	0.3
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	0.5
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	0.7
	47.00	20.00	22.00	17.70	14.80	12.70	11.14	9.90	8.17	6.97	4.40	3.70	1.29	0.9
AlphaCell 95 RE	47.00	29.00	22.00	17.70	14.00	12.70		0.00	0.17	0.01	1.10	0 0	0	0.0

^{*}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 SPECIFICATIO	ONS											
Model		,	EnergyCell 17	ORE			EnergyCell 200RE					
P/N			1810255				1810137					
Warranty*			2 years				2 years					
Voltage Per Unit			12Vdc				12Vdc					
Self Discharge			Battery can be Batteries store stored at lower	d at temperat	ures greater t					eries		
Temp Compensation Fac	ctor (char	ging)	±5mV per °C p	er cell (2V)			±5mV per °C	per cell (2V)				
Terminal			Threaded copp	oer alloy inser	t terminal to a	ccept 1/4"-20	UNC bolt					
Terminal Hardware Initia	l Torque		110 in-lbs (12.4	Nm)			110 in-lbs (12	.4 Nm)				
MECHANICAL												
Dimensionatt		mm	283H x 559D x	126W			320H x 559D	x 126W				
Dimensions**		inches	11.14H x 22.01l	O x 4.95W			12.60H x 22.0	01D x 4.95W				
Weight			52kg (115lbs)				60kg (131lbs)					
**Batteries to be installed with 0).5in (12.7mr	m) spacing mi	nimum and free air	ventilation								
ENVIRONMENTAL												
Operating Temperature I (w/ Temperature comper	•		Discharge: -40 Charge: -23 to	- ' '	,		Discharge: -4 Charge: -23 t		,			
Optimal Operating Temp	Range		23 to 27°C (74	to 80°F)			23 to 27°C (74	4 to 80°F)				
Maximum Charge Curre	nt Limit P	er String	46.9A				53.4A					
Float Charging Voltage		-	13.62Vdc/unit	average at 25	°C (77°F)		13.62Vdc/uni	t average at 2	5°C (77°F)			
Equalization & Cycle Serv	ice Charg	ing Limits	14.4Vdc/unit av	erage at 25°C	C (77°F)	14.4Vdc/unit	average at 25	°C (77°F)				
CURRENT DISCHARGE	RATINGS	TABLE IN A	AMPS (END VO	LTAGE 1.75V	PC @ 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 confi	gurations
ELECTRICAL		
Туре		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
	Discharge	-20 to 50°C (-4 to 122°F)
Operating Temperature Range (extended temperature batteries)	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.





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 – 16Vac	
Power consumption:	.12V: <10mA nominal,	0.5/6A during admittance
	test	

MECHANICAL

Site Controller Unit:

Dimensions:

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

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

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.



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,
	-1	and the late of		The second second	Attacked to

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 lung, heavy-duty alligator clamp, or Y-adapter*



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

Output Regulation:±1Vdc

Control Features:

- Automatic voltage regulation
- Over current protection
- Hour meter
- Electronic governor
- Digital voltmeter/ammeter
- 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



Ring lug battery interface P/N: 874-946-21

Batterv Interface Cable (choose one)



Alligator clamp battery interface P/N: 874-946-20



Y-Adaptor* P/N: 874-946-22

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

^{*} Connects the power supply's battery input directly to the generator



ALPHAGEN ACX 20001

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 Shute	down: Yes
Certifications:	EPA, CE

TL, CARB, ISO 9001

Choke: Manual

Continuous Runtime:

Full load:.....3.0hrs **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 • Low fuel pressure shutdown (propane only)
- Water intrusion Pad shear
- Over temp · Gas hazard (propane or natural gas)
- Over speed Over crank

Optional Feature:

Cold start kit: Provides additional starting capability at temperatures below

52.0V ±0.5V @ no load 48V configuration

DC Output Load Regulation: 0.5V

52.0V @ 96A max

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
Hataba	cm	111.2	132.1	81.3
Height	in	44	52	32
MC 111	cm	66	132.1	81.3
Width	in	26	52	32
Darable	cm	61	61	76
Depth	in	24	24	30
W-1-I-4	kg	174	187	177
Weight	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

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
- Advanced continuous maximum power point tracking • Full power output in ambient temperature up to 40°C (104°F)
- Increased PV array output by up to 30%

OutBack charge controllers allow you to maximize your systems potential and can increase your renewable energy yield by

SYSTEMS



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
- Provides power to battery bank or DC bus
- Fully scalable to meet power requirements
- 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.



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.



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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

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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1 604.436.1233

www.alpha.ca

SALES / ACCOUNT MANAGEMENT

Provides guotes and bid proposals for customer configured power systems & enclosures.

All purchase orders must be sent via fax or email to:

604.638.8698

Canada/USA (Toll-Free): 1.800.667.8743 International: 1.604.436.5900

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:

1 ■ 604.638.8698

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
- Order Tracking: www.alpha.ca/ordertracking

SERVICE & SUPPORT

Technical support requests and inquiries Mon- Fri, 5AM - 5PM PST for regular inquires. 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
- www.alpha.ca/training

ACCOUNTS RECEIVABLE

Customer invoices and payments

- Canada/USA (Toll-Free): 1.800.667.8743 International: 1.604.436.5900

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

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



Your Power Solutions Partner

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Alpha Technologies Ltd.

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