

DC Power Solutions Catalogue



Powering Business Worldwide

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Eaton's Telecommunications Power Solutions Business



Our Business

Eaton Corporation is a global diversified industrial manufacturer and a leader in electrical power quality, distribution and control. Eaton serves the needs of customers located in over 125 countries.

Eaton's telecommunications power solutions business provides telecommunications and related sectors with world-leading infrastructure products and services.

Global Presence

Headquarters are located in Raleigh, North Carolina and regional sales headquarters are located in USA, Asia and Europe with offices in over 30 additional countries and with representation in over 100 countries it is one of the few telecommunications infrastructure providers with a truly global presence.

Environmental Standards

Eaton strives for the highest environmental standards across both our operations and products and our commitment goes beyond compliance with existing regulations. We wish to become recognized as an industry leader in creating safe workplaces and conserving world resources.

Eaton is committed to environmental stewardship and participates in a number of volunteer government partnership programs worldwide.

We were among the first diversified industrial companies to pursue global ISO 14001 certification - a rigorous standard for managing and improving environmental performance. Today, virtually all of Eaton's facilities worldwide have earned this designation.

We've also set tough performance goals for ourselves, like reducing our greenhouse gas emissions by 18 percent (adjusted for production) by 2012.

Unsurpassed Experience

Eaton has in excess of 40 years experience of working closely with customers to deliver tailored power management solutions. for communications networks around the world.

Customer led Solutions

Eaton's insight into customer needs is demonstrated through its products in terms of reliability, efficiency, smart energy features, power density, and ease of installation,

Intelligent monitoring and control capabilities add flexibility, precision, reliability, and automation - without added complexity.

Comprehensive Range

Our telecom power solution range includes AC and DC power systems, power and ancillary equipment management software, cabinets and enclosures, and other products. Eaton also offers a wide range of DC services including design, installation and commissioning remote monitoring, turnkey integration and site support, to provide a seamless solution.

Delivery

Eaton's global scale manufacturing and logistic capability means that products and services can be delivered with maximum cost-effectiveness and with the delivery speed and flexibility that you expect.



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Eaton's Telecommunications Power Solutions Business

Services Capability

Eaton's offers a wide range of DC secure power services including power quality evaluation, sizing, design consultancy, installation and commissioning, full project management and turnkey integration, anywhere in the world. Our individually tailored service contract plans can provide ongoing service maintenance, training, after-sales service, and repairs, Eaton's global presence ensures quick response times for all of our customers.

Design Services

Skilled engineering staff can provide a full design service for DC power systems to specifically suit individual applications and sites.

World-Wide On-Site Services

Eaton's fully trained customer service engineers can carry out all installation tasks or supervise and assist local staff.

Integration Services

Our telecommunications integration services provide complete install, testing and integration services for any type of communications or other electronic equipment, to world leading standards of quality.

Typical projects Eaton has completed include the integration of network access equipment into roadside cabinets and the on-site installation and commissioning of telecoms equipment.

Eaton is now applying this expertise to the provision of integration services for original equipment manufacturers and network operators.

Power Monitoring

Eaton can provide 24 x 7 DC power system and battery monitoring, and provide remote diagnostics to maximize responsiveness and uptime, Monthly performance reports and trend analysis assist optimum system performance.



Eaton's Telecommunications Power Solutions Business

After-Sales Service and Repairs

Eaton DC Regional Repair Sites, staffed by fully trained technicians, are strategically located around the world to provide rapid turnaround times. Individually tailored service contracts are also available so customers can choose the ongoing service package that best suits their requirements.

Options include extended warranty periods, unlimited out-of-warranty repairs, immediate replacement, on-site maintenance, and battery testing and conditioning. Special terms and conditions apply to some DC services.

with practical demonstrations and hands-on opportunities. Courses can be arranged at an Eaton location or at a customer's site.

Training

Eaton offers a comprehensive range of training courses designed to provide the right level of product knowledge



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Application and Product Selection Guide for Eaton DC Power Solutions

		Eaton DC Power Solutions			
	Application	Enterprise Power Solutions	Access Power Solutions ¹	Metro Power Solutions ²	Core Power Solutions ³
			1-744A, 24V or 48V	Up to 1500A, 24V or 48V	Up to 15,360A, 48V
Customer Premises Equipment	PBX/VoIP	✓	✓		
	Wireless Access	✓	✓		
Wireless	Mini/metro sites		✓		
	Base transceiver stations (BTS)		✓	✓	
	Base station controllers (BSC)		✓	✓	
	Main switches			✓	✓
	Fiber transmission systems	✓	✓	✓	✓
Wireline	Digital microwave radio		✓	✓	
	Broadband voice data services	✓	✓	✓	
	Satellite earth stations			✓	✓

1. Including Maxi-Access Power Solutions with APR rectifier modules.

2. Including Maxi-Metro and Maxi-Core Power Solutions with APR / CR rectifier modules.

3. Systems with higher output are also available



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3G Enterprise Power Solutions - EPS2 Series



The **Eaton® 3G Enterprise Power Solutions** are the ideal solution for converged data networks and low power telecommunications applications requiring compact, efficient and flexible DC power supplies.

This EPS2 series is a 19" rack mounted system and is available with up to two of the Eaton 3G Enterprise or Access 48V rectifier modules providing a total output of up to 4000W.

The versatile SC200 system controller features a front access USB port for ease of system setup along with a RS232 rear port and a 10BaseT Ethernet port for remote networking and communications.

Communication features of the SC200 system controller include TCP/IP, SNMP and an onboard web server allowing access with standard web browsers. The SC200 also supports GSM cellular (including text messaging) and standard PSTN modems.

The Enterprise systems include an integral DC distribution panel with easy to fit push-in circuit breakers and low voltage disconnect contactor to prevent over discharging of the optional backup batteries.

Typical applications include providing secure power for customer premises equipment, roadside cabinets, converged VoIP/data networks, PoE, IP routers and small PABX's.

Features

- 19" rack mounting
- High power density
- Intelligent system controls
- Pre-configured software
- Onboard secure web server
- Push-in easy to fit circuit breakers
- Low voltage disconnect
- Fast on-line expansion of rectifiers (hot-swap)
- High efficiency and unity power factor
- Easy to use menu & full color display
- Optional batteries
- Compatible with Eaton's Energy Saver (ES) rectifier



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Technical Specifications

Input

AC Supply	Nominal: 120V, 240V Operating Range: 90V – 275V
Power Factor †	>0.99 (50 – 100% Output Current)
Efficiency †	>96% peak >95% (20% to 100% load, 230Vac)

Output

DC Output Voltage Range	43 – 57.5V
DC Output Power (maximum*) †	240V AC: APR48-ES: 4.0kW APR48-3G: 3.6kW EPR48-3G: 1.8kW 120V AC: APR48-ES: 2.3kW APR48-3G: 2.2kW EPR48-3G: 1.1kW

* Based on two rectifiers fitted, refer to rectifier data sheets.

Environmental

Operating Temperature Range	Rated: -10°C to +50°C [-14°F to +122°F] Extended*: -40°C to +70°C [-40°F to +158°F]
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*Output current is derated above 50°C [122°F]

Mechanical

Dimensions H,W,D	2U , 19" mounting, 14.1" [360mm]*
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* Additional clear depth space is required for exhaust air.

System

System Controller	SC200
DC Distribution Module	12-way circuit breakers (2 x Battery, 10 x Load) Circuit breaker type: Magnetic/Hydraulic, push fit Battery circuit breakers: Heinemann AC1R Series Typical ranges available: 30A, 40A, 50A, 60A, 70A Load circuit Breakers: Heinemann JC1S Series Typical ranges available: 6A, 10A, 15A, 20A, 25A, 30A
Communication Features	USB direct 10BaseT Ethernet, TCP/IP, SNMP, Modbus-TCP, Modbus-RTU and on board web server RS232 to external PSTN or GSM modem (modem not included)
Rectifier Blank Panels	For unused rectifier positions

Software

DCTools	Configuration software. Free download from: www.powerware.com/downloads
PowerManagerII	Remote control and monitoring software

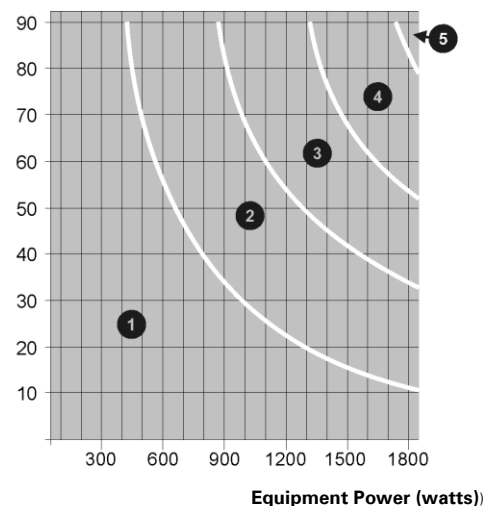
† Power factor, efficiency and DC output power are dependant on rectifier model fitted. Refer to the rectifier data sheet for further details.

Options

Battery*	Eaton Extended Battery Module (EBM) 5PX version - 5PXEBM48RT (available globally) 5130 version - 103006587-6591 (EMEA only)Weight: 29.5kg [65lb] Dimensions (H,W,D*): 85mm (2U), 432mm (19" mounting), 487mm *Additional space is required at the rear for cables.
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Typical Run time values* (see graph).

Battery Run Time (minutes)



A = Required number of battery modules.

*Battery times are approximate and vary depending on factors such as:
- load configuration
- battery charge
- battery age and temperature.

* Other battery options available - consult your local Eaton agent.

Battery Cables	CKBATT-02 Eaton EBM 5130 connection cable, 2000mm long or CKBATT-01 'other batteries' connection cable, 2000mm long
Equipment Cable	Customer Equipment Connection Cable CKLOAD-00 10-way connection loom, 1000mm long
EBM Rack Mounting Kit	Included with the EBM as standard

Certifications

All products comply with International Standards.

North America	UL (Canada, USA), FCC Class B
Europe	CE
Australia and New Zealand	C-Tick

In the interests of continual product improvement all specifications are subject to change without notice.



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3G Enterprise Power Solutions - EPS5 Series



The **Eaton® 3G Enterprise Power Solutions** are the ideal solution for converged data networks and low power telecommunications applications requiring compact, efficient and flexible DC power supplies.

The EPS5 series is a 19" rack mounted system and is available with up to five of the Eaton 48V 3G Enterprise power rectifier modules, providing a total output of up to 4500W. The modular design of the system allows users to simply add additional rectifiers and batteries as required to meet future growth of their network power demand, thus, better protecting the initial power system investment.

The versatile SC200 system controller features a front access USB port for ease of system setup along with a

RS232 rear port and a 10BaseT Ethernet port for remote networking and communications.

Communication features of the SC200 system controller include TCP/IP, SNMP and an onboard web server allowing access with standard web browsers.

The Enterprise systems include an integral DC distribution panel with easy to fit push-in circuit breakers and low voltage disconnect contactor to prevent over discharging of the optional backup batteries.

Typical applications include providing secure power for customer premises equipment, roadside cabinets, converged VoIP/data networks, PoE, IP routers and small PABX's.

Features

- 19" rack mounting
- High power density
- Intelligent system controls
- Pre-configured software
- Onboard secure web server
- Push-in easy to fit circuit breakers
- Low voltage disconnect
- Fast on-line expansion of rectifiers (hot-swap)
- High efficiency and unity power factor
- Easy to use menu & full color display
- Optional batteries



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Technical Specifications

Input

AC Supply	Nominal: 120V, 240V Operating range: 90V – 275V
Power Factor †	>0.99 (50 – 100% output current)
Efficiency †	91% (50 – 100% output current)

Output

DC Output Voltage Range	43 – 57.5V
DC Output Power (maximum*) †	240V AC: 4.5kW 120V AC: 2.25kW
* Based on five rectifiers fitted, refer to EPR48-3G rectifier data sheets.	

Environmental

Operating Temperature Range	Rated: -10°C to +50°C [-14°F to +122°F] Extended*: -40°C to +70°C [-40°F to +158°F] *Output current is derated above 50°C [122°F]
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Mechanical

Dimensions H,W,D	3U, 19" mounting, 13.2" [335mm]* * Additional clear depth space is required for exhaust air.
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System

System Controller	SC200
DC Distribution Module	12-way circuit breakers (2 x battery, 10 x load) Circuit breaker type: magnetic/hydraulic, push fit Battery circuit breakers: Heinemann AC1R Series Typical ranges available: 30A, 40A, 50A, 60A, 70A Load circuit breakers: Heinemann JC1S Series Typical ranges available: 6A, 10A, 15A, 20A, 25A, 30A
Communication Features	USB direct 10BaseT Ethernet, TCP/IP, SNMP, Modbus-TCP, Modbus-RTU and on board web server RS232 to external PSTN or GSM modem (modem not included)
Rectifier Blank Panels	For unused rectifier positions

Software

DCTools	Configuration software. Free download from: www.powerware.com/downloads
PowerManagerII	Remote control and monitoring software

† Power factor, efficiency and DC output power are dependant on rectifier model fitted. Refer to the rectifier data sheet for further details.

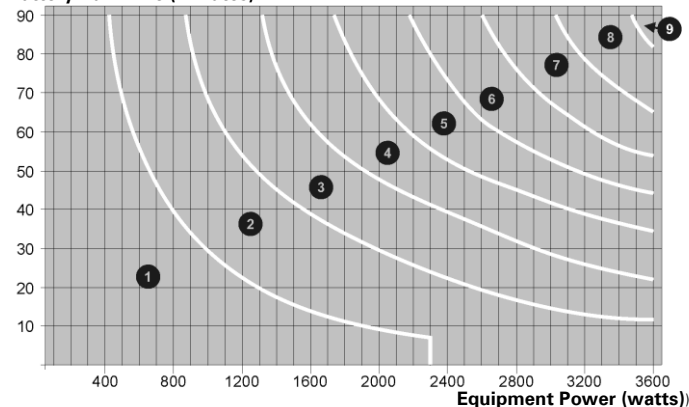
Options

Battery*	Eaton Extended Battery Module (EBM) 5PX version - 5PXEBM48RT (available globally) 5130 version - 103006587-6591 (EMEA only)
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Weight: 29.5kg [65lb]
Dimensions (H,W,D*): 85mm (2U), 432mm (19" mounting), 487mm
*Additional space is required at the rear for cables.

Typical run time values* (see graph).

Battery Run Time (minutes)



● = Required number of battery modules.

* Battery times are approximate and vary depending on factors such as:
- load configuration
- battery charge
- battery age and temperature.

* Other battery options available - consult your local Eaton agent.

Battery Cables	CKBATT-02 Eaton EBM 5130 connection cable, 2000mm long. or CKBATT-01 'other batteries' connection cable, 2000mm long.
Equipment Cable	Customer equipment connection cable
EBM Rack Mounting Kit	CKLOAD-00 10-way connection loom, 1000mm long Included with the EBM as standard

Certifications

All products comply with international standards.

North America	UL (Canada, USA), FCC Class B
Europe	CE
Australia and New Zealand	C-Tick

In the interests of continual product improvement all specifications are subject to change without notice.



Enterprise Battery Module



Eaton 5PX version pictured

The **Eaton® 3G Enterprise Extended Battery Module (EBM)** is designed as an optional integrated backup power source to the 3G Enterprise Power Systems, providing secure power during AC grid failure for anything from orderly shutdowns through to extended runtimes for continuity of service.

Multiple battery modules can be connected together to achieve increased backup capacity for a given output demand.

This module is slim and rack mountable to suit the likely applications for these systems such as server room racks.

The battery modules use simple 'plug and play' cables for connecting the Enterprise Power Solution. No specialized tools are required, thus making installation very easy in an IT environment.

The scalability of the EBM ensures that your investment is protected into the future as the demands of your network increase. Simply add more EBM modules as your network grows.

EBM has an 18Ahr capacity and is service maintenance free for the life of the battery module. Battery function is monitored and controlled by the power system controller for complete battery protection.

Features

- Easy to install
- Slimline 19" rack mounting
- Extended runtime -18Ahr capacity
- Modular and scaleable
- Service maintenance free VLRA batteries



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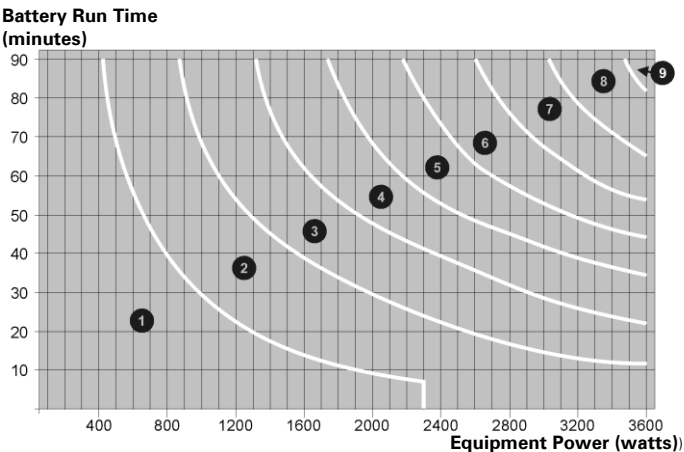
Technical Specifications

Output	
DC Output Voltage	48V nominal
DC Output Capacity	18Ahr
	Maximum input/output current should not exceed 55Amps

Mechanical	
Weight	29.5kg
Dimensions H,W,D	85mm (2U), 432mm (19" mounting), 487mm*
* Additional space is required at the rear for cables.	

Battery

Typical Run Time Values*



● = Required number of battery modules.

*Battery times are approximate and vary depending on factors such as:
- load configuration
- battery charge
- battery age and temperature.

Order Number	Eaton Extended Battery Module (EBM)
	5PX version - 5PXEBM48RT (available globally)
	5130 version - 103006587-6591 (EMEA only)

Certifications	
All products comply with international standards. Contact your local Eaton DC representative for details on the specific product versions available with these safety and EMC approvals:	
North America	UL listed
Europe	CE

In the interests of continual product improvement all specifications are subject to change without notice.



3G Access Power Solutions - APS3 and APS6 Series



Features

- 19" sub-rack
- Modular 3U and 6U options
- Up to 6 rectifier modules
- Pre-configured software
- High power density (24/48V: 300/250A, 6U, 19")
- Multiple AC option (1Ø, 3Ø, 2Ø)
- Fast on-line expansion of rectifiers (hot-swap)
- High efficiency and unity power factor
- Priority and non priority options for DC distributions
- Compatible with Eaton Energy Saver (ES) Rectifiers



24V and 48V secure DC power up to 8.64kW and 12kW respectively.

The **Eaton® 3G Access Power Solutions** are ideal for low to medium power telecommunications applications, offering compact, efficient, flexible and reliable secure DC power supply.

These 19" rack mount systems are available with up to 3 or 6 of the Eaton 3G Access power rectifier modules as either 24V or 48V with output up to 280A. For superior operating efficiency to further reduce operating costs, these systems are also compatible with Eaton Energy Saver (ES) Access power rectifiers which provides operating efficiency in excess of 96%.

The systems include an integral DC distribution panel with a range of MCB and Low Voltage Disconnect (LVD) options available.

The SC200 series of system controller offers highly advanced control and monitoring features including Smart Alarms – a configurable logic for automated site energy control. The SC200 also offers a complete array of communications options with Ethernet, GSM cellular (including text messaging), standard modem and TCP/IP communications options. The slightly lower specification SC100 is also available.

Typical applications include providing secure power for customer premises equipment, roadside terminals, data networks and IP routers. The 3G Access Power Solutions are pre-configured and all system settings are fully adjustable in software and stored in transferable, configuration files for repeatable and quick one-step system set-up.

Technical Specifications

Input

AC Supply†	100 – 240V, 50 – 60Hz (nominal) 175 – 275V full power output up to 50°C [122°F] 90 – 175V reduced power output
Power Factor†	>0.99 (50 – 100% Output Current)
Efficiency†	APR48-3G : 92% (50 – 100% Output Current) APR48-ES : >96% peak, >95% (20% to 100% load, 230Vac)

Output

DC Output Voltage Range	21.5V – 32V / 43-57.5V						
DC Output Power (maximum)*	<table> <tr> <td>APS3-300</td><td>48V: 6.00kW 24V: 4.32kW</td></tr> <tr> <td>APS6-300</td><td>48V: 8.90kW</td></tr> <tr> <td>APS6-500</td><td>48V: 12.0kW 24V: 8.64kW</td></tr> </table>	APS3-300	48V: 6.00kW 24V: 4.32kW	APS6-300	48V: 8.90kW	APS6-500	48V: 12.0kW 24V: 8.64kW
APS3-300	48V: 6.00kW 24V: 4.32kW						
APS6-300	48V: 8.90kW						
APS6-500	48V: 12.0kW 24V: 8.64kW						
* Ratings are stated without LVD's fitted. In some cases lower ratings may result when LVDs are used. Refer to installation guide for detailed load specs and MCB derating factors.							

Environmental

Operating Temperature Range*	-40°C to +70°C [-40°F to +158°F] * Refer to rectifier data sheet for more information. Output current is derated above 50°C [122°F] and below -10°C [14°F]
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Mechanical

Dimensions H,W,D	APS3-300: 3U, 19" mounting, 315mm [12.4"]* APS6-300: 6U, 19" mounting, 335mm [13.2"]* APS6-500: 6U, 19" mounting, 335mm [13.2"]*
* Additional clear space is required for exhaust air.	

System

System Controller	SC200 or SC100						
DC Distribution Module	<table> <tr> <td>APS3-300:</td><td>12-way circuit breakers (2 x battery, 10 x load)</td></tr> <tr> <td>APS6-300:</td><td>20-way circuit breakers (4 x battery, 16 x load)</td></tr> <tr> <td>APS6-500:</td><td>20-way circuit breakers (4 x battery, 16 x load)</td></tr> </table>	APS3-300:	12-way circuit breakers (2 x battery, 10 x load)	APS6-300:	20-way circuit breakers (4 x battery, 16 x load)	APS6-500:	20-way circuit breakers (4 x battery, 16 x load)
APS3-300:	12-way circuit breakers (2 x battery, 10 x load)						
APS6-300:	20-way circuit breakers (4 x battery, 16 x load)						
APS6-500:	20-way circuit breakers (4 x battery, 16 x load)						
Communication Features	USB direct* 10BaseT Ethernet*, TCP/IP*, SNMP*, Modbus-TCP*, Modbus-RTU* and on board web server* RS232 to external PSTN or GSM modem (modem not included) *SC200 only						
Low Voltage Disconnect (LVD)	<table> <tr> <td>APS3-300:</td><td>optional battery LVD</td></tr> <tr> <td>APS6-300:</td><td>optional 200A LVD's for battery or load, or both.</td></tr> <tr> <td>APS6-500:</td><td>optional 400A LVD's for battery or load, or both.</td></tr> </table>	APS3-300:	optional battery LVD	APS6-300:	optional 200A LVD's for battery or load, or both.	APS6-500:	optional 400A LVD's for battery or load, or both.
APS3-300:	optional battery LVD						
APS6-300:	optional 200A LVD's for battery or load, or both.						
APS6-500:	optional 400A LVD's for battery or load, or both.						
Rectifier Blank Panels	For unused rectifier positions						
Options	External Surge Protection						

† Power factor, efficiency, AC voltage range and output power is dependant on rectifier module fitted. Refer to the rectifier data sheet for more information.

Software

DCTools	Configuration software. Free download from: www.powerware.com/downloads
PowerManagerII	Remote control and monitoring software

Certifications

All products comply with international standards.

In the interests of continual product improvement all specifications are subject to change without notice.



3G Access Power Solutions - APS3-400 Series



Features

- Compact and scalable 19" sub-rack solution
- High power density (6kW @ 48V/3U, 19")
- Easy plug-and-go rectifier set-up
- Fast on-line rectifier expansion (hot-plug)
- High efficiency and unity power factor
- Single AC input or individual rectifier feeds
- Intelligent system management features
- Remote access (TCP/IP, web browser, SNMP)
- Pre-configured software for quick & simple deployment
- Onboard energy management software optimizes operating efficiency for lower OPEX
- Compatible with Eaton Energy Saver (ES) Rectifiers



The **Eaton® 3G Access Power Solutions** are ideal for low to medium power telecommunications applications requiring compact, efficient and flexible DC power supplies with or without batteries.

This Eaton 3G Access Power Solution 400 series has UL and FCC standards certifications. A technician friendly user-interface includes a full color menu screen and is preconfigured for fast install and easy commissioning. All system settings are fully adjustable in software and stored in transferable configuration files for repeatable one-step system set-up.

With up to 6kW of power output, it features state-of-the-art 48V 3G or Energy Saver (ES) Access Power Rectifiers for superior operating efficiency (>96%). The DC distribution panel, simple to use hydraulic magnetic circuit breakers, and optional low voltage disconnect (LVD) modules are fully integrated.

The advanced SC200 system controller offers high-level communications capability for real time information. It also has built-in intelligence for optimizing system efficiency, and comprehensive alarm and system status notifications, which are all designed to minimize operational expenses.

A comprehensive range of other controller features ensures maximum battery life and optimum system performance under a wide range of environmental conditions.

The 19" rack mount system is ideal for rapid deployment into customer facilities or enclosures.

Typical applications include standby power for customer premises equipment, outdoor power plants, data networks and IP routers.

Technical Specifications

Input

AC Supply†	Nominal: 120V, 208-240V Operating Range: 90V – 275V*
* <i>Output power derates below 175V AC.</i>	
Power Factor†	>0.99 (50 – 100% Output Current)
Efficiency†	APR48-3G : 92% (50 – 100% Output Current) APR48-ES : >96% peak, >95% (20% to 100% load, 230Vac)
Total Harmonic Distortion	<5% THD from 50% to 100% at load.

Output

DC Output Voltage Range	43 – 57.5V
DC Output Power (maximum)†	APR48-3G : 120V AC: 3.3kW @ 48V 208-240V AC: 5.4kW @ 48V APR48-ES : 120V AC: 3.45kW @ 48V 208-240V AC: 6kW @ 48V

Environmental

Temperature Range*	Rated: -10°C – +50°C [14°F – +122°F] Extended: -40°C – +65°C [-40°F – 149°F]
* <i>Output current is derated above 50°C [122°F]</i>	

Mechanical

Dimensions H,W,D	3U [5.25", 133mm], 19" [483mm] mounting, 14" [356mm]*
* <i>Additional clear space is required for exhaust air. Rear access is required for cable terminations.</i>	

System

System Controller	SC200 as standard. SC100 optional.
DC Distribution Module	10-way circuit breakers (2 x Battery, 8 x Load). Load circuit breakers: Heinemann AMIR Series 5A, 10A, 20A, 30A, 40A, 50A, 70A, 80A, 100A. Battery circuit breakers: Heinemann AMIR 100A or AMIP 120A.
Communication Features	USB direct* 10BaseT Ethernet*, TCP/IP*, SNMP*, Modbus-TCP*, Modbus-RTU* and on board web server* RS232 to external PSTN or GSM modem (modem not included) *SC200 only
Low Voltage Disconnect (LVD)	Battery disconnect: 200A internal.
Rectifier Blank Panels	For unused rectifier positions.
Options	Relay Rack Batteries.

† Power factor, efficiency, AC voltage range and output power is dependant on rectifier module fitted. Refer to the rectifier data sheet for more information.

Software

DCTools	Configuration software. Free download from: www.powerware.com/downloads
PowerManagerII	Remote control and monitoring software

Certifications

All products comply with International Standards including UL (US and Canada) and FCC (Class B) Verification.

In the interests of continual product improvement all specifications are subject to change without notice.



3G Access Power Solutions - APS6-400 Series



Features

- High power density (12kW @ 48V/6U, 19")
- Suitable for both 19" relay rack or enclosed cabinet
- High efficiency and unity power factor
- Easy fit plug-in hydraulic/magnetic circuit breakers.
- 20-way load and 6-way battery distributions
- Single or dual low voltage disconnect (LVD) options
- SC200 or SC100 intelligent system controller
- Onboard energy management software optimizes operating efficiency for lower OPEX
- Pre-configured software for quick & simple deployment
- Remote access (TCP/IP, web browser, SNMP)
- Easy plug-and-go rectifier set-up
- Fast on-line rectifier expansion (hot-plug)



The **Eaton® 3G Access Power Solutions** are ideal for low to medium power telecommunications applications requiring compact, efficient and flexible DC power supplies with or without batteries. Typical applications include standby DC power for customer premises equipment, outdoor power plants, data networks and IP routers.

A technician friendly user-interface includes a full color menu screen and is preconfigured for fast install and easy commissioning.

The 19" rack mount system is ideal for rapid deployment into customer facilities or enclosures.

All system settings are fully adjustable in software and stored in transferable configuration files for repeatable one-step system set-up.

The APS6-400 series has up to 12kW of power output, it features state-of-the-art 48 volt 3G Access Power Rectifiers, an integral DC distribution panel, easy to fit plug-in hydraulic magnetic circuit breakers, and optional low voltage disconnect (LVD) modules for battery and non priority loads.

The advanced system controller offers high-level communications capability for real time information. It also has built-in intelligence for optimizing system efficiency, and comprehensive alarm and system status notifications, which are all designed to minimize operational expenses.

Other features include temperature compensated voltage output, automated equalize charging, and integrated battery testing, for maximum battery life under a wide range of environmental conditions.



Powering Business Worldwide

Technical Specifications

Input

AC Supply†	Nominal: 120V, 208-240V Operating Range: 90V – 275V*
* <i>Output power derates below 175V AC.</i>	
Power Factor†	>0.99 (50 – 100% Output Current)
Efficiency†	By system rectifier type: APR48-ES: >95% (20 - 100% output current) APR48-3G: 92% (50 - 100% output current)
Total Harmonic Distortion	<5% THD from 50% to 100% at load.

Output

DC Output Voltage Range	43 – 57.5V
DC Output Power (maximum)	Rectifier type: 110/120V AC: 6.6kW @ 48V 208-240V AC: 10.8kW @ 48V
	APR48-3G 6.9kW @ 48V APR48-ES 12kW @ 48V

Environmental

Temperature Range	Rated: -10°C to +45°C [14°F to +122°F]
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Mechanical

Dimensions H,W,D	6U [10.5", 267mm], 19" [483mm] mounting, 15.3" [390mm]*
* <i>Additional clear space is required for exhaust air. Rear access is required for cable terminations.</i>	

System

System Controller	SC200 as standard. SC100 optional.
DC Distribution Module	26-way circuit breakers (6 x Battery, 20 x Load). Load circuit breakers: Heinemann AMIR Series 5A, 10A, 20A, 30A, 40A, 50A, 70A, 80A, 100A, 120A (2-pole). Battery circuit breakers: 6 x Heinemann AMIR 80A, 100A or 3 x Heinemann AMIP 120A, 150A, 200A.
Communication Features of SC200	USB direct. 10BaseT Ethernet, TCP/IP, SNMP, On board web server. RS232 to external PSTN or GSM modem (modem not included).
Low Voltage Disconnect (LVD) (Optional)	Battery disconnect: 400A internal. Non priority load: 200A internal.
Rectifier Blank Panels	For unused rectifier positions.
Options	Relay Rack Batteries.

† Power factor, efficiency, AC voltage range and output power is dependant on rectifier module fitted. Refer to the rectifier data sheet for more information.

Software

DCTools	Configuration software. Free download from: www.powerware.com/downloads
PowerManagerII	Remote control and monitoring software

Certifications

North America:	UL listed 1801, cUL, FCC
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In the interests of continual product improvement all specifications are subject to change without notice.



3G Access Power Solutions - APS12 Series



48V secure power up to 17.2kW

The **Eaton® 3G Access Power Solutions** are ideal for low to medium power telecommunications applications, offering compact, efficient, flexible and reliably secure DC power supply.

This 19" rack mount system has an integrated distribution panel and is available with up to 12 of the 48V Eaton 3G Access Power Rectifier modules or, for superior operating efficiency, with Energy Saver (ES) Rectifier modules with output up to 360A.

The advanced SC200 system controller offers high-level communications capability for real time information. It also has built-in intelligence for

optimizing system efficiency, and comprehensive alarm and system status notifications, which are all designed to minimize operational expenses.

A comprehensive range of other controller features ensures maximum battery life and optimum system performance under a wide range of environmental conditions.

The 3G Access Power Solutions are pre-configured and all system settings are fully adjustable in software and stored in transferable, configuration files for repeatable and quick one-step system set-up.

Typical applications include providing secure power for cellular base stations, roadside terminals, data networks and IP routers.

Features

- Compact 9U, 19" sub-rack
- Up to 12 rectifier modules
- Compatible with Eaton Energy Saver (ES) Rectifiers
- Pre-configured software
- High power density (400A/9U)
- Dual AC input
- Fast on-line expansion of rectifiers (hot-swap)
- High efficiency and unity power factor
- Priority and non priority options for DC distributions



Powering Business Worldwide

Technical Specifications

Input

AC Supply†	100 – 240V, 50 – 60Hz (nominal) 175 – 275V full power output up to 50°C [122°F] 90 – 175V reduced power output Dual AC input - 1Ø, 2Ø or 3Ø (one supply feed per 6-rectifier shelf)
Power Factor†	>0.99 (50 – 100% Output Current)
Efficiency†	APR48-3G : 92% (50 – 100% Output Current) APR48-ES : >96% peak >95% (20% to 100% load, 230Vac)

Output

DC Output Voltage Range	43 – 57.5V
DC Output Power (maximum) *	APR48-3G : 17.2kW @ 48V APR48-ES : 17.2kW @ 48V * Ratings are stated without LVD's fitted. In some cases lower ratings may result when LVDs are used. Refer to installation guide for detailed load specs and MCB de-rating factors.

Environmental

Operating Temperature Range	-40°C to +70°C [-40°F to +158°F] Output current is derated above 40°C [104°F] and below -10°C [14°F]
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Mechanical

Dimensions H,W,D	9U, 19" mounting, 335mm [12.4"]* * Additional clear space is required for exhaust air.
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System

System Controller	SC200 or SC100
DC Distribution Module	20-way circuit breakers (4 x Battery, 16 x Load)
Communication Features	USB direct* 10BaseT Ethernet*, TCP/IP*, SNMP*, Modbus-TCP*, Modbus-RTU* and on board web server* RS232 to external PSTN or GSM modem (modem not included) *SC200 only
Low Voltage Disconnect (LVD)	Optional battery LVD, or non priority LVD, or battery and non priority LVD's. (Contactors 400A rated)
Rectifier Blank Panels	For unused rectifier positions
Options	External Surge Protection

† Power factor, efficiency, AC voltage range and output power is dependant on rectifier module fitted. Refer to the rectifier data sheet for more information.

Software

DCTools	Configuration software. Free download from: www.powerware.com/downloads
PowerManagerII	Remote control and monitoring software

Certifications

All products comply with international standards. Contact your local Eaton DC representative for details on the specific product versions available with these safety and EMC approvals:

Europe	CE
Australia / New Zealand	C-tick

In the interests of continual product improvement all specifications are subject to change without notice.



Flexi - 3G Access Power Solution



The **Eaton® Flexi – 3G Access Power Solution** is designed for low to medium power applications requiring compact, efficient and flexible DC power supplies.

It is well suited to limited space installations with its reduced depth and battery cabinet height options. The innovative systems design reduces shipping costs, improves storage and handling, and is easily assembled onsite.

This solution uses the APR48-3G rectifier module or, for superior operating efficiency, can be fitted with Energy Saver (ES) rectifier modules. The system accommodates up to five 48V strings of high capacity VRLA batteries. Low Voltage Disconnect (LVD), for battery protection, is included. All systems offer integral AC and DC distribution with flexible combinations of MCBs.

The advanced SC200 system controller offers high-level communications capability for real time information. It also has built-in intelligence for

optimizing system efficiency, and comprehensive alarm and system status notifications, which are all designed to minimize operational expenses.

A comprehensive range of other controller features ensures maximum battery life and optimum system performance under a wide range of environmental conditions.

The Flexi – 3G series of power systems are configured for fast installation and set-up. All systems settings are fully adjustable in software and stored in transferable, configuration files for repeatable one-step system set-up.

Typical Applications

- Wireless BTS and MSC sites (CDMA/GSM/3G UMTS)
- WiMAX Nodes
- Local and central office switching
- IP switching nodes

Features

- Innovative system design reduces shipping costs and is easily assembled on-site
- Integrated batteries with optional rack heights
- Reduced rack-depth option (450mm) ideal for installations with restricted space
- Integral DC distribution
- Wide AC input voltage range
- Hot swappable rectifiers
- High power density
- Pre-configured software
- Flexible modular design
- Remote monitoring and control
- Ethernet communications offering SNMP
- Compatible with Eaton Energy Saver (ES) Rectifiers



Powering Business Worldwide

Technical Specifications

Input

AC Supply†	230/400 3Ø+N+PE (cabinets may be supplied from 230V single-phase) 120/208 3Ø+PE (specific version with protection in each phase) 230/400 dual, single or 3-phase connection (specific version)
Frequency	50/60Hz (nominal)
Power Factor†	>0.99 (50 – 100% Output Current)
Efficiency †	>96% peak >95% (20% to 100% load, 230Vac)

Output

DC Output Voltage Range	43 – 57.5V
Maximum DC Output Power† *	APR48-3G : 16.2kW APR48-ES : 18.0kW * Ratings are stated with LVD's fitted.

Environmental

Operating Temperature Range	-40°C to +70°C Maximum output power is derated according to rectifier used:- APR48-3G: below -10°C and above 50°C APR48-ES: below -10°C and above 55°C
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Mechanical

Dimensions H,W,D	Combined battery rack / Power Box: 1800/2000mm, 600mm, 450mm 2121mm, 600mm, 600mm Battery Rack: 1150mm – Maximum 4 Battery Shelves (258mm min. space) 1350mm – Maximum 4 Battery Shelves (308mm min. space) 1471mm – Maximum 5 Battery Shelves (262mm min. space)
Weight	System cabinet: <110kg (excluding rectifiers and batteries) Rectifiers : APR48-3G/APR48-ES: 1.7kg
Finish	Cabinet is constructed with a galvanised finish (unpainted)

System

System Controller	Extended functionality: SC200
Communication	USB direct
Features	10BaseT Ethernet, TCP/IP, SNMP, Modbus-TCP, Modbus-RTU and on board web server RS232 to external PSTN or GSM modem (modem not included)

† Power factor, efficiency, AC voltage range and output power is dependant on rectifier module fitted. Refer to the rectifier data sheet for more information

Options

Battery Rack Extension	Extension kit for extending battery rack from 450mm to 600mm depth, is available for 1150 and 1350mm battery racks
DC Distribution	22 Load MCB (18mm) positions * 4 Battery MCB (27mm) positions *
	*other configurations available
Cabinet Doors	Optional doors available for battery racks and Power Box
Rectifier Blank Panels	For unused rectifier positions

Software

PowerManagerII	Remote control and monitoring for small to large networks
DCTools	Configuration Software. Free download from www.powerware.com/downloads

Certifications

All products comply with International Standards. Contact your local Eaton DC product representative for details on the specific product versions available with these safety and EMC approvals:	
Europe	CE

In the interests of continual product improvement all specifications are subject to change without notice.



Maxi Access 3G - Power Solutions



Powering Business Worldwide

48V integrated systems of up to 20 or 40kW

The **Eaton® Maxi Access 3G Power Solutions** range of DC power systems is designed for communication applications requiring compact, efficient, reliable and secure DC power.

System configurations include single cabinets offering up to 20kW, or two cabinets suited together to permit up to 40kW of output power.

The core building block of the system is the APR48-3G rectifier module or, for superior operating efficiency, the APR48-ES "Energy Saver" module.

Each cabinet can accommodate either three or four 48V strings of high capacity VRLA batteries. Integral AC and DC distributions are offered with flexible combinations of load and battery MCBs, and an SC200 system controller as standard. Low Voltage Disconnect (LVD) is included as standard.

The advanced SC200 system controller offers high-level communications capability for real time information. It also has built-in intelligence for optimizing system efficiency, and comprehensive alarm and system status notifications,

which are all designed to minimize operational expenses.

A comprehensive range of other controller features ensures maximum battery life and optimum system performance under a wide range of environmental conditions.

Systems are pre-configured for fast installation and set-up and fully adjustable and transferable for repeatable one-step system set-up.

Typical applications are providing secure power for cellular base transceiver stations, WiMAX nodes, base station controllers, long-distance transmission systems, local office switches and other telecommunication switch installations requiring distributed power.

Typical Applications:

- Wireless BTS sites (CDMA GSM/3G/UMTS/LTE)
- Transmission terminals
- Access nodes
- Local and central office switching

Features

- Single systems, or two-cabinet suited options
- Intelligent system management features
- Pre-configured software
- High power density
- Fast on-line expansion of rectifiers (hot-swap)
- High efficiency and unity power factor
- Flexible DC distribution configurations
- Integrated batteries and battery condition monitoring
- Wide AC input voltage range
- Remote monitoring and control
- Full length security door (optional)
- Compatible with Eaton Energy Saver Rectifiers

Technical Specification

Input

AC Supply†	3P+N+PE, 1P+N+PE 50/60Hz (nominal)
Power Factor†	>0.99 (20 – 100% Maximum System Current)
Efficiency†	>96% peak >95% (20% to 100% load, 230Vac)

Output

DC Output	40 – 57.5V
Voltage Range	
Typical DC	APR48-3G : 18 kW (375A @ 48V) or
Output Power per cabinet†	APR48-ES : 20kW (416A @ 48V)

Environmental

Operating Temperature Range	-25°C to +50°C
Range	Output current is derated above 50°C [122°F] Refer to rectifier data sheet for more information.

Mechanical

Dimensions H,W,D*	2187mm [86"], 600mm [23.6"], 600mm [23.6"] or, 2009mm [79"], 600mm [23.6"], 600mm [23.6"]
Weight*	870kg [1914lb]* Typical maximum with 10 rectifier modules and 3 or 4 x 48V/100Ah battery strings.

System

Rectifiers	APR48-3G APR48-ES
System Controller	SC200
Communications Features	USB direct, 10BaseT Ethernet, TCP/IP, SNMP, Modbus-TCP, Modbus-RTU and on board web server, RS232 to external PSTN or GSM modem (modem not included)
Batteries	Typically up to 3 or 4 strings @ 48V, 330-440Ah total capacity*. Other battery configurations available.

† Power factor, efficiency, AC voltage range and output power is dependant on rectifier module fitted. Refer to the rectifier data sheet for more information.

* Cabinet weights are dependent on system configuration, cabinet height, and how many batteries are fitted.

Options

AC Distribution	AC isolator per rectifier shelf
DC Distribution	24-way DC load distribution unit comprised of: 24 x 18mm Load MCBs (1-63A) 1 x 27mm Battery MCB per battery string Custom options available on request.
Low Voltage Disconnect (LVD)	Single LVD configured as battery disconnect.
Rectifier Blank	For unused rectifier positions
Panels	
SiteSure	Input/output modules to monitor and control external equipment (optional)
CellSure	Comprehensive battery monitoring and fault diagnosis system with patented state-of-health algorithms (optional)

Software

PowerManagerII	Remote control and monitoring software
DCTools	Configuration Software. Free download from www.powerware.com/downloads

Certifications

All products comply with International Standards. Contact your local Eaton DC representative for details on the specific product versions available with these safety and EMC approvals:

Europe	CE
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In the interests of continual product improvement all specifications are subject to change without notice.



Maxi Network 3G - Power Solution



48V integrated systems up to 250kW

The **Eaton® Maxi Network 3G Power Solutions** range of DC power systems is designed for communications applications requiring high powered, efficient, flexible, and secure DC power.

Complete systems can be created from a suite of cabinets including rectifier cabinets, distribution cabinets, battery cabinets, or combinations of each.

The core building block of the system is the APR48-3G rectifier module or, for superior operating efficiency, the APR48-ES "Energy Saver" module.

Each cabinet can include integral AC and DC distribution with flexible combinations of fuses and MCBs. Low voltage disconnect (LVD) options are also available. DC distribution cabinets can be connected in parallel where additional distribution space is required. Systems of up to 5000A can be configured using internal horizontal busbars.

The SC200 system controller offers a broad range of intelligent system management features including: battery temperature compensation, fast charge, battery current

limit, automatic equalize charging and automatic battery condition monitoring.

Typical applications include provision of 48V standby power for centralised architecture such as local and central office switches and other large switch installations, wireless switching centres, long-distance transmission systems and data centres.

Eaton Maxi Network 3G Power Solutions are pre-configured for fast installation and set-up. All system settings are fully adjustable in software and stored in transferable configuration files for repeatable one-step system set-up.

Typical Applications

- Wireless MSC sites (CDMA/GSM/3G UMTS/LTE)
- Local and central office switching
- Point of presence (POP) sites
- Data centres

Features

- Intelligent system management features
- Pre-configured software
- High power density
- Fast on-line expansion of rectifiers (hot-swap)
- High efficiency and unity power factor
- Range of DC distribution configurations
- Battery condition monitoring
- Wide AC input voltage range
- Remote monitoring and control
- Full length security door (optional)
- Remote monitoring and control



Powering Business Worldwide

Technical Specifications

Input

Nominal AC	3P+N+PE, Y 230/400VAC
Supply †	50/60Hz
Power Factor †	>0.99 (20 – 100% Maximum System Current)
Efficiency †	>96% peak >95% (20% to 100% load, 230VAC)

Output

DC Output	40 – 58V
Voltage Range	
Typical DC	66kW - 250kW
Output Power †	

Environmental

Operating Temperature Range	-25°C to +50°C
	Output current is derated above 50°C [122°F] Refer to rectifier data sheet for more information.

Mechanical

Dimensions H,W,D*	2184mm [86"], 600mm [23.6"], 600mm [23.6"]
Weight*	300kg [664lb] Typical rectifier cabinet configuration with 20 rectifier modules.

System

System Controller	SC200
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† Power factor, efficiency, AC voltage range and output power are dependent on rectifier module fitted. Refer to the rectifier data sheet for more information.

* Cabinet weights are dependent on system configuration, cabinet height, and whether batteries are fitted.

* System output power will vary depending on rectifiers and batteries selected.

Options

AC Distribution	AC Isolator per rectifier shelf
DC Distribution	A wide range of DC distribution elements are available including: 24 x 18mm MCBs (1-63A) 16 x 27mm MCBs (63-125A) 6 x NH3 type HRC fuses (400-630A) 3 x NH4 type HRC fuses (800-1200A) Open frame distributions: 4 x NH4 type HRC fuses (800-1200A) 4 x NS250 type MCCB 3 x NS400 type MCCB 2 x NS630 type MCCB
Low Voltage Disconnect (LVD)	SW1500A dual LVD, configured as battery disconnect fitted into open frame distribution.
Rectifier Blank Panels	For unused rectifier positions
SiteSure	Input/output modules to monitor and control external equipment (optional)
CellSure	Comprehensive battery monitoring and fault diagnosis system with patented state-of-health algorithms (optional)

Software

PowerManagerII	Remote control and monitoring software
DCTools	Configuration Software. Free download from www.powerware.com/downloads

Certifications

All products comply with International Standards. Contact your local Eaton DC representative for details on the specific product versions available with these safety and EMC approvals:

Europe	CE
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In the interests of continual product improvement all specifications are subject to change without notice.



Matrix™ Modular Inverter Solution



The **Eaton® Matrix™ Modular Inverter Solution** is an integrated inverter power system designed for applications where a very high reliability AC supply is required.

The Matrix modular design ensures maximum flexibility to configure solutions to customers' requirements. Modules include inverters, Static Transfer Switch, controller, interface module and Maintenance Bypass Module. With its versatile "building block" design and n+x redundant configuration, the Matrix ensures reliable telecommunication and industrial AC power.

The Matrix Static Transfer Switch provides automatic and instantaneous load transfer between mains power and inverter power and back again, to ensure uninterrupted AC supply to sensitive electronic equipment.

The Matrix solution uses digital microprocessor control. The monitoring controller gives real-time system status through comprehensive LCD /LED displays, and allows program settings through the display panel.

With the Matrix communication interface module installed, you can control and monitor the system remotely.

Features

- Ultimate high power density reducing space demand
- Hot-pluggable connection allows module addition or removal without interruption to AC supply
- Versatile modular design allows a variety of configurations for different power needs
- Capacity up to 18kVA
- n+x redundancy
- Single phase 120Vac or 230Vac output options
- High efficiency, >89%
- Comprehensive LCD/LED display provides system status, and user-friendly panel eases program settings
- Optional maintenance bypass switch with integrated AC distribution
- Optional USB/RS232/RS485 communication for local and remote management



Powering Business Worldwide

Technical Specifications

DC Input

Nominal Voltage	48Vdc
Operating Range	40.5Vdc ~ 58Vdc
Surge Protection	Telcordia GR-1089 CORD, ANSI C62.41-IEEE, STD 587-1980
Input Protection	Reverse polarity protection

AC Output

Output	Pure sine wave
Waveform	
Output power	18kVA (max)
Power factor	0.8
Nominal Output	110/115/120Vac 208/220/230/240Vac
Frequency	50/60Hz ±0.5%
Crest factor	3:1
THD	<3%, linear load <5%, non-linear load
Efficiency	Min 88% at rated load
Overload	1.5*Inom >20s 1.25*Inom temperature controlled

Compliance

Conducted (AC)	EN55022 (Class A)
Conducted (DC)	EN300386
Radiated	EN55022 (Class A)

Modules

Inverter	INV-4810E: 1000VA/800W inverter module INV-4810: 1000VA/800W inverter module INV-4815E: 1500VA/1200W inverter module INV-4815: 1500VA/1200W inverter module
Static Transfer Switch	INV-STS-050: 50A static transfer switch INV-STS-100: 100A static transfer switch
Controller	INV-MC-1000: Controller module INV-IFC-1000: RS232/USB/RS485 interface module
Shelf	INV-SS-2-1U: Chassis for two inverters (1U) INV-STSSS-1U: Chassis for controller/STS-050 (1U) INV-STSSS-2U: Chassis for controller/STS-100 (2U) INV-MBSDU-50: 50A maintenance bypass, power distribution module (2U) INV-MBSDU-100: 100A maintenance bypass module (2U)

Mechanical

Inverter Shelf	INV-SS-2-1U: (HxWxD) 1U x 19" x 330mm (1.75"x19"x13") Weight 2.7kg (6lb)
50A STS Shelf	INV-STSSS-1U: (HxWxD) 1U x 19" x 330mm (1.75"x19"x13") Weight 2.7kg (6 lb)
50A MBS/DU	INV-MBSDU-50: (HxWxD) 2U x 19" x 330mm (3.5"x19"x13") Weight 7.0kg (15.4lb)
100A STS Shelf	INV-STSSS-2U: (HxWxD) 2U x 19" x 330mm (3.5"x19"x13") Weight 3kg (6.6 lb)
100A MBS	INV-MBS-100: ' (HxWxD) 2U x 19" x 330mm (3.5"x19"x13") Weight 7.0kg (15.4lb)

Maximum Number of Inverter Modules for Parallel Operation (Max Power)

Model	Without STS	With STS-050	With STS-100
INV-4810	12 (12kVA)	6 (6kVA)	12 (12kVA)
INV-4810E	12 (12kVA)	12 (12kVA)	12 (12kVA)
INV-4815	12 (18kVA)	4 (6kVA)	8 (12kVA)
INV-4815E	12 (18kVA)	8 (12kVA)	12 (18kVA)

Certifications

All products comply with international standards including CE and UL.

In the interests of continual product improvement all specifications are subject to change without notice.



Matrix™ 2000 Standalone Inverter



Features

- Designed for telecom applications
- Pure sine wave output
- Unity power factor (full 2000 watt output power)
- Significant overload capability, 120% continuously, 200% for 5 seconds
- High efficiency, >91%
- High power density
- Built in Static Transfer Switch (STS)
- DSP design for improved reliability and performance
- Single phase 120Vac or 230Vac output options
- Comprehensive LCD/LED with keypad
- Wide selection of configurable parameters.
- International certifications

The **Eaton® Matrix™ 2000 Standalone Inverter** is designed for use in telecommunications applications where a very reliable AC supply is required. The high efficiency and compact size makes the Matrix 2000 Inverter an outstanding solution for powering all types of critical AC equipment.

The Matrix 2000 Standalone Inverter provides 2000W of reliable AC power in a 1U x 19" rack mount package that includes a built-in Static Transfer Switch (STS). The STS automatically and instantaneously switches the AC output, from the DC inverter to an alternative source such as AC mains (and back again), providing extra security of the AC supply to the load equipment.

The Matrix 2000 solution uses digital microprocessor control to provide maximum performance under all operating conditions. The built-in controller gives real-time system status through comprehensive LCD/LED displays, and allows program setting through a keypad panel.



Powering Business Worldwide

Technical Specifications

DC Input

Operating Range	48V: 40Vdc ~ 60Vdc
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AC Input (to Transfer Switch)

Voltage Range: (50/60Hz)	INV-4820SA: 89Vac to 138Vac	INV-4820ESA: 176Vac to 276Vac
Transfer Time	<10ms	

AC Output

Power Output	2000VA / 2000W
Wave Form	Pure sine wave
Power Factor	1.0
Nominal Output Voltage (selectable)	INV-4820SA: 110/115/120Vac INV-4820ESA: 208/220/230/240Vac
Output Frequency	50,60Hz
Efficiency	>91% at rated load
Over Load Protection	2*Inom, 5sec max 1.5*Inom, 10sec max 1.25*Inom, temperature controlled

Environmental Requirements

Operating Temperature Range	-20°C to 60°C (-4°F to 140°F)
	-20°C to 50 °C (-4°F to 122°F), full performance
Cooling	Fan Cooled

Certifications

All products comply with international standards.

Safety EN60950-1 / UL60950-1

Europe CE

In the interests of continual product improvement all specifications are subject to change without notice.



Telecom Inverter Solution



The **Eaton Telecom Inverter** is an innovative dual input inverter solution designed for applications where very high reliability of your AC supply is required. By incorporating a 230Vac input, as well as the 48Vdc input, Eaton has developed a solution that closes the gap between the traditional UPS and conventional inverter solutions.

The innovative architecture allows users to provide clean, regulated and continuous AC power to critical loads with the same n+x reliability as traditional DC power systems. The design of the inverter ensures a seamless transfer between the AC and DC inputs, giving zero transfer time and eliminating the need for a Static Transfer Switch.

Users can select between "Line Mode" and "Battery Mode". In Line Mode, the inverter operates similar to a double conversion UPS, drawing power from the AC mains, and delivering

smoothed and isolated AC power to the load. In "Battery Mode", the inverter draws power from the DC input. When power to the preferred input is interrupted; the Inverters seamlessly switch to the alternative input with no interruption of power to your critical AC loads.

The Eaton Telecom Inverter solutions can be configured with an optional controller module and/or Maintenance Bypass Switch. The monitoring controller gives real-time system status through comprehensive LCD /LED displays, and allows system parameter setting through the keypad panel. The communication interface allows users to monitor and control the system remotely.

An optional Maintenance Bypass Switch lets users manually switch the loads between inverter power and AC mains, allowing for complete shutdown of the inverter system while still maintaining mains power to the loads.

Features

- Pure sine wave output
- AC and DC inputs
- High efficiency, >94% in line mode
- Up to 28kVA single phase output
- 120% overload capacity @ 30°C
- Modular n+x design
- No single point of failure
- Zero transfer time
- Hot-plug connection of modules
- Optional Maintenance Bypass Switch
- Optional LCD display + keypad with USB/RS232/RS485 interface
- ROHS compliance

Brief Technical Specification

DC Input

Operating Range	48V: 40Vdc ~ 60Vdc
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AC Input

Voltage Range: (50/60Hz)	185Vac - 265Vac
Transfer Time	zero

AC Output

Power Output (inverter module)	3500VA / 2800W
Maximum System Power Output (8 Inverters)	28kVA / 22.4kW
Wave Form	Pure sine wave
Power Factor	0.8
Nominal Output Voltage (selectable)	208/220/230/240Vac
Output Frequency	50/60Hz
Efficiency	>94% AC Input >91% DC Input
Over Load Protection	1.5*Inom, 10sec max 1.2*Inom, temperature controlled

Environmental Requirements

Operating Temperature Range	-20°C to 60°C (-4°F to 140°F)
Operating Temperature Range	-20°C to 50 °C (-4°F to 122°F), full performance
Cooling	Fan Cooled

Certifications

All products comply with international standards.

Safety	EN60950-1 / UL60950-1
Europe	CE

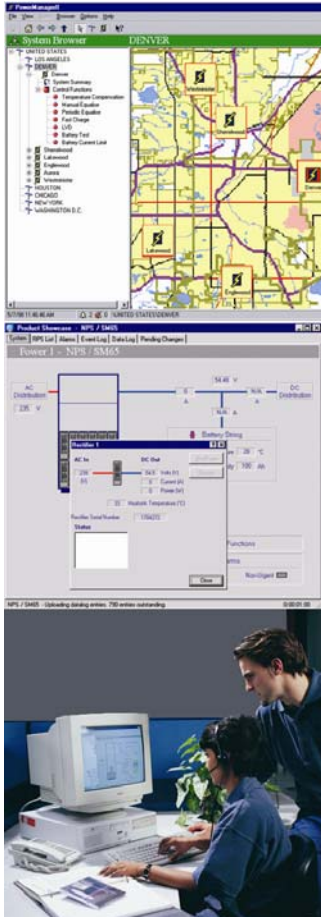
In the interests of continual product improvement all specifications are subject to change without notice.



Part Numbers

INV-4835E	Eaton, Dual Input Inverter module. 48Vdc input, 230Vac Input, 230Vac output. 3.5kVA
INV-SS-8	Inverter Shelf for 8 x INV-4835E. 8U x 19"
INV-MC-2000	Controller for Dual Input Inverter systems (requires controller shelf)
INV-MCSS-1U	Controller Shelf for Dual Input Inverter systems. 1U x 19"
INV-MBS-125	125A Maintenance Bypass Switch for Dual Input Inverter systems. 3U x 19"

PowerManagerII™ Control and Monitoring Software



Features

- Windows® Based Graphical User Interface
- Real-Time Monitoring
- Automatic Alarm Indication
- Alarm and Activity Logging
- On-Line Access to System Control Functions
- Reduces the Need for Site Visits
- International Language Options
- User Configurable Navigation Maps
- Remote Battery Testing

The **Eaton® PowerManagerII** software provides effective remote management for Eaton DC power systems. The intuitive, Windows® - based graphical user interface enables you to quickly 'zoom in' and view concise summary information, or specific control functions, key operational data, or alarm details.

PowerManagerII is cost-effective. Remote management can reduce operating and maintenance costs. The latest power system information is available where and when you want it, greatly reducing the need for site visits. Alarms are highlighted and detailed, to help you analyze faults and produce maintenance histories and schedules.

PowerManagerII is comprehensive. You can connect as many power systems as you like, and all necessary data is clearly presented. PowerManagerII is flexible. You can set up area map views of urban areas and wider regions, to help you visually navigate to any site - the choices are yours. And it's simple to add new maps and site locations.

Remote Control and Monitoring

PowerManagerII can control and monitor power equipment at multiple sites from one central location. It provides real-time graphical displays of system operating conditions, and monitors all system functions including individual rectifier modules.

Event Logs and Data Logs

PowerManagerII lists data from each site. This includes all alarms, with activation details. Historical data can be recorded for fault analysis and preparation of maintenance schedules. The information can be filtered, sorted or exported to other applications.

Customization

PowerManagerII is designed for easy customization. Maps and locations of the sites can be added to the PowerManagerII interface.

In addition to Eaton DC Power Systems, air-conditioning equipment and intruder alarms and other plant connected to the system Supervisory Module I/O connections, can also be monitored.

With the SiteManager option, PowerManagerII can monitor a wide range of inputs using SiteSure modules.



Powering Business Worldwide

Technical Specifications

Control Functions

PowerManagerII includes graphical displays of all system control processes. All parameters are displayed together with real-time displays of the system operating conditions:

System schematic	Displays operating conditions and system status.
Individual rectifier	PowerManagerII monitors individual rectifier performance.
System summary	Graphical real-time display of system status.
System control functions	Display of output voltage control systems.
Temperature Compensation	Set temperature compensation parameters for optimum battery charging.
Manual Equalize	Initiate battery equalize charge.
Periodic Equalize	Set the duration and level of auto battery equalize charges.
Fast Charge	Set-up fast battery recharge parameters for optimum system recovery after AC outage.
Low Voltage Disconnect	Set the operational parameters of the low voltage disconnect module.
Battery Current Limit	Set the maximum battery recharge current.
Battery Test	Conduct on-line battery tests to determine battery condition.
Discharge Test	Calibrates the Battery Capacity remaining algorithm.

Data Networks

The Eaton Customer Services Team offers a complete installation and software customization service, and can provide advice on integration of PowerManagerII into existing data networks.

Computer Minimum Requirements

Operating System	Windows 98, Windows NT 4.0 or later
Ram	16Mb Windows 98, 24Mb Windows NT
Connection	Standard Serial port (Com port)
Disc drive	CD-ROM

Comms

Protocols	SNMP (Can emit traps) S3P three layer protocol
Interfaces	RS232, RS485, Ethernet, TCP/IP, modem

User Configurable Graphics

Format	Windows bitmap format (.BMP), or Windows Metafile (.WMF) file formats supported
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Accessories

Hardware Included	Copy protect device, null modem cable.
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In the interests of continual product improvement all specifications are subject to change without notice.

DCTools™ Configuration Software



Eaton® DCTools is the new configuration software for field technicians installing and maintaining Eaton DC power systems. It is supplied at no charge by download from the Internet and simplifies the setup and operation of all Eaton DC power systems.

Frontline staff will find DCTools is a major benefit during the installation, troubleshooting and support of any Eaton DC power system, CellSure battery monitoring systems and SiteSure ancillary monitoring and control systems.

For added flexibility DCTools can connect to an Eaton DC power system in three ways; directly through an RS232 serial connection; through a dialup or cellular modem, or through an Ethernet LAN/WAN.

DCTools is the ideal setup and diagnostic tool for field technicians. It provides a very easy way for them to configure an Eaton DC product, and view status and alarm conditions.

Among the advantages of using DCTools are reduced installation times, lower fault response times, less need to visit sites and better access to operating data for fault analysis and operating conditions such as load growth.

These make the processes of power system installation and operation more efficient with the potential for real operating cost savings.

DCTools is available for download at www.powerware.com/downloads

Features

- DC power system configuration software
- Windows® compatible
- Easy to use graphical display
- Operates with all Eaton DC power systems, CellSure™ and SiteSure™
- Local (RS232 serial) or remote (dialup modem or Ethernet) connection
- Downloadable from the Internet at no charge



Powering Business Worldwide

Technical Specifications

Computer Minimum Requirements

Operating System	Windows 98, Windows NT 4.0 or later
RAM	16Mb Ram Windows 98, 24Mb Windows NT

Connection	Standard serial port (Com port)
Internet connection	Required for download only

Interfaces

Communications interfaces supported	RS232, Ethernet, or modem
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Availability

Free download	www.powerware.com/downloads
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In the interests of continual product improvement all specifications are subject to change without notice.

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EPR48-3G Rectifier Module



The **Eaton® EPR48-3G Enterprise Power Rectifiers** are designed specifically for enterprise applications such as PoE and VoIP converged data networks, customer premises equipment and also tele-communications roadside cabinet installations.

The EPR48-3G is a telecom network grade rectifier with 900W output. It is designed for operation at up to 70°C (158°F) and under a wide range of AC power conditions.

The EPR48-3G rectifier is microprocessor controlled and includes intelligent features such as automatic set up during installation, temperature dependant variable speed fans for lowest audible noise and automatic self protection over wide ranging environmental conditions.

The EPR48-3G also has power factor correction and is up to 91% efficient, with optimum performance available at typical load currents. Together these give the EPR48-3G some of the lowest running costs for any DC power system of its type available.

The EPR48-3G rectifier module will provide years of costeffective, and trouble free service for your 48V enterprise access equipment.

Typical Applications:

- PoE equipment
- VoIP/IP converged data networks
- PABX for any business network
- Telecom roadside cabinets

Features

- Fast on-line expansion of rectifiers (hot-swap)
- Automatic set-up from system controller
- Intelligent microprocessor controlled
- High efficiency and unity power factor
- Universal AC supply input
- Wide output voltage ranges
- Constant power output
- Compliance with international standards

Technical Specifications

Input

AC Supply	Nominal: 220/240V, 50/60Hz Extended Operating Range: 90V – 275V
Power Factor	>0.98 (50 – 100% Output Current)
Efficiency	91% (50 – 100% Output Current)

Output

DC Output Voltage Range	48V: 43 – 57.5V
DC Output (maximum)	900W (240V AC nominal) 550W (120V AC nominal)

Environmental

Operating Temperature Range	-40°C – +70°C [-40°F – +158°F] Output current is derated above 50°C [122°F]
Cooling	Temperature controlled, variable speed, high reliability fans

Mechanical

Dimensions	3U: 133mm [5.25"], 42mm [1.65"], H,W,D
Weight	266mm [10.45"] overall 1.7kg [3.7 lb]

Certifications

North America	UL, FCC Verification
Europe	CE
Australia / New Zealand	C-tick, Telepermit

In the interests of continual product improvement all specifications are subject to change without notice. Performance ratings are valid with all other variables at Nominal. Specifications guaranteed over rated operating range.



APR24-3G Rectifier Module



The **Eaton® APR24-3G Access Power Rectifier** is the 24V series of rectifier modules designed specifically for telecom access networks and light industrial applications such as cellular base stations, radio trunk networks and SCADA systems. The APR24-3G is also suitable for NiCad battery applications.

The new generation 3G architecture is reliable, power dense and compact. The high power density allows as little as 1U of rack space to be occupied by power, therefore, maximizing space available for telecom equipment.

The APR24-3G rectifier incorporates a combination of leading-edge high frequency switch mode technology for a flexible and efficient DC power source, with high reliability fan cooling which further contributes to its high overall reliability.

Designed for operation at up to 70°C (158°F) and under a wide range of AC power conditions, the APR24-3G is perfectly suited to the demanding environments found in network access applications.

With up to 90% efficiency, optimum performance at typical load currents, and power factor correction the APR24-3G has some of the lowest running costs for any 24V DC power system of its type available.

The APR24-3G is designed to operate with the Eaton SC100 and SC200 system controllers in any of the versatile Access Power Solutions and provide years of cost-effective and trouble-free service for your network access equipment.

Features

- Fast on-line expansion of rectifiers (hot-swap)
- Automatic set-up from system controller
- Intelligent microprocessor controlled
- High power density
- High efficiency and unity power factor
- Wide AC supply conditions
- Wide output voltage ranges
- Constant current output
- NiCad battery compatible
- Compliance with international standards



Powering Business Worldwide

Technical Specifications

Input

AC Supply	220/240V, 50/60Hz (nominal) 175-275V full output power up to 50°C [122°F]
Power Factor	>0.98 (50 – 100% Output Current)
Efficiency	89% (50 – 100% Output Current)

Output

DC Output Voltage Range	24V: 20 – 32V
DC Output (maximum)	Constant power 1440W, 28.8 - 32V Constant current 50A, 20 - 28.8V

Environmental

Operating Temperature Range	-40°C – +70°C [-40°F – +158°F] Output current is derated above 50°C [122°F] and below -10°C [14°F]
Cooling	Temperature controlled, high reliability fans

Mechanical

Dimensions	3U: 133mm [5.25"], 42mm [1.65"], H,W,D 266mm [10.45"] overall
Weight	1.7kg [3.7 lb]

Certifications

North America	UL, FCC Verification, CSA, IC
Europe	CE
Australia / New Zealand	C-tick, Telepermit

In the interests of continual product improvement all specifications are subject to change without notice. Performance ratings are valid with all other variables at Nominal. Specifications guaranteed over rated operating range.



APR48-3G Rectifier Module



The **Eaton® APR48-3G Access Power Rectifiers** are designed specifically for network access applications such as cellular base stations, customer premises equipment and road-side cabinet installations.

The new generation 3G architecture is reliable, power dense and compact. The high power density allows as little as 1U of rack space to be occupied by power, therefore, maximizing space available for telco equipment.

The APR48-3G rectifier incorporates a combination of leading-edge high frequency switch mode technology for a flexible and efficient DC power source, with high reliability fan cooling which further contributes to its high overall reliability.

The APR48-3G is a high powered rectifier with 1800W output. It is designed for operation at up to 70°C (158°F) and under a wide range of AC power conditions.

These features make the APR48-3G perfectly suited to the wide variety of equipment and demanding environmental conditions found in network access applications.

The APR48-3G also has power factor correction and is up to 92% efficient, with optimum performance available at typical load currents. Together these give the APR48-3G some of the lowest running costs for any DC powersystem of its type available.

Operating with the Eaton SC100 or SC200 system controller, the APR48-3G rectifier modules will provide years of cost-effective, and trouble free service for your 48V network access equipment.

Features

- Fast on-line expansion of rectifiers (hot-swap)
- Automatic set-up from system controller
- Intelligent microprocessor controlled
- Industry leading power density
- High efficiency and unity power factor
- Wide AC supply conditions
- Wide output voltage ranges
- Constant power output
- Compliance with international standards

Technical Specifications

Input

AC Supply	220/240V, 50/60Hz (nominal) 175-275V full output power up to 50°C [122°F]
Power Factor	>0.99 (50 – 100% Output Current)
Efficiency	92% (50 – 100% Output Current)

Output

DC Output Voltage Range	48V: 43 – 57.5V
DC Output (maximum)	1800W @ 48V

Environmental

Operating Temperature Range	-40°C – +70°C [-40°F – +158°F] Output current is derated above 50°C [122°F] and below -10°C [14°F]
Cooling	Temperature controlled, high reliability fans

Mechanical

Dimensions	3U: 133mm [5.25"], 42mm [1.65"], H,W,D
Weight	266mm [10.45"] overall 1.7kg [3.7 lb]

Certifications

North America	UL, FCC Verification, CSA, IC
Europe	CE
Australia / New Zealand	C-tick, Telepermit

In the interests of continual product improvement all specifications are subject to change without notice. Performance ratings are valid with all other variables at Nominal. Specifications guaranteed over rated operating range.



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APR48-ES Energy Saver Rectifier



The **Eaton® APR48-ES Energy Saver Rectifier** is designed for communications network operators who are striving to cut energy costs across the network, and/or to meet aggressive carbon footprint reduction targets.

Operating with well over 96% efficiency, it produces at least 50% less waste energy than most other modern rectifiers, and with potentially greater savings over older infrastructure.

The 2kW Energy Saver Rectifier is the ideal module size for powering access applications within a telecom network such as cellular base stations, ADSL equipment, and fibre nodes.

This rectifier features intelligent digital signal processing for enhanced control, producing peak efficiency in excess of 96% for typical operating loads, while also maintaining a very high minimum operating efficiency of 95 to 96%, over a very wide range of loads (from 30% to 100% of the 2kW capacity).

The high power density, short depth and flexible mounting options makes the Energy Saver Rectifier well suited to limited space applications such as ETSI and road side cabinets.

The Energy Saver Rectifier is fully compatible with existing Eaton 3G systems and it is one of the easiest rectifiers to use, with a simple plug-and-go insertion. It operates under a wide range of AC power conditions and in temperatures at up to 70°C (158°F).

Features

- 2000W output power
- Energy saving efficiency greater than 96%
- Wide efficiency curve
- Industry leading power density
- Fast on-line expansion of rectifiers (hot-swap)
- Simple 'plug and go' insert
- Unity power factor
- Digital signal processing for enhanced control
- Wide AC supply conditions
- Wide output voltage range
- Constant power output
- Compliance with international standards

Technical Specifications

Input

AC Supply	120V/208-240V, 50/60Hz (nominal) 185-275V full output power up to 50°C [122°F] 90-185V reduced output power
Power Factor	>0.99 (50 – 100% output current)
Efficiency	>96% peak >95% (20 – 100% output power)

Output

DC Output	
Voltage Range	43 – 57.5V
DC Output (maximum)	2000W @ 48V

Environmental

Operating	
Temperature	-40°C – +70°C [-40°F – +158°F]
Range	Output power derates above 50°C [122°F]
Cooling	Temperature controlled, variable speed, high reliability fan <50dBA ambient temperature 25°C

Mechanical

Dimensions	3U: 133mm [5.25"], 42mm [1.65"], H,W,D
	266mm [10.45"] overall
Weight	1.7kg [3.7 lb]

Certifications

North America	UL, FCC Verification, CSA, IC
Europe	CE

In the interests of continual product improvement all specifications are subject to change without notice. Performance ratings are valid with all other variables at Nominal.



CR48-3G Rectifier Module



The **Eaton® CR48-3G Core Network Rectifiers** are designed specifically for core network applications such as central office and data centres.

The new generation 3G architecture of the CR48-3G rectifier has improved space utilisation so rack space can be maximised for use with telco equipment and not power equipment.

The combination of industry leading power density and high frequency switch mode technology with high reliability fan cooling makes the CR48-3G a flexible, efficient, and very highly reliable DC power source.

The CR48-3G is a very high powered rectifier with 5800W output, it is designed for operation at up to 70°C (158°F) and under a wide range of AC power conditions.

The CR48-3G also has power factor correction and is up to 92% efficient, with optimum performance available at typical load currents. Together these give the CR48-3G some of the lowest running costs for any DC power system of its type available.

These features make the CR48-3G ideally suited to central office and data center applications that require the highest level of performance and reliability from the DC power system.

Operating with the Eaton SC200 system controller, the CR48-3G rectifier modules will provide years of cost-effective, and trouble free service for your core 48V network equipment.

Features

- Fast on-line expansion of rectifiers (hot-swap)
- Automatic set-up from system controller
- Intelligent microprocessor controlled
- Industry leading power density
- High efficiency and unity power factor
- 3Ø AC supply
- Wide AC supply conditions
- Wide output voltage ranges
- Constant power output
- Compliance with international standards



Powering Business Worldwide

Technical Specifications

Input

AC Supply	208V, 50/60Hz (nominal) 3-phase Δ 400V, 50/60Hz (nominal) 3-phase Y 323-510V full output power up to 50°C [122°F]
Power Factor	>0.99 (50 – 100% Output Current)
Efficiency	92% (50 – 100% Output Current)

Output

DC Output	43 – 58V
Voltage Range	
DC Output (maximum)	5800W @ 48V

Environmental

Operating Temperature Range	-40°C – +70°C [-40°F – +158°F] Output current is derated above 50°C [122°F] and below -10°C [14°F]
Cooling	Temperature controlled, high reliability fan

Mechanical

Dimensions	3U: 130mm [5.25"], 121mm [4.8"], H,W,D
Weight	321mm [12.6"] overall 4.4kg [9.7 lb]

Certifications

North America	UL, FCC Verification, CSA, IC
Europe	CE
Australia / New Zealand	C-tick, Telepermit

In the interests of continual product improvement all specifications are subject to change without notice.



SC200 System Controller



The **Eaton® SC200 System Controller** is an advanced control and monitoring solution for Eaton Enterprise, Access, Metro and Core Power Solutions.

It provides a full suite of advanced communications options, including built-in Ethernet interface, Web server, and SNMP agent.

Alarm notifications may be by SNMP traps, email, SMS, dial-out to PowerManagerII remote monitoring software, or relay contact closures.

An intelligent "Smart Alarms" feature provides highly configurable control and alarms to automated site management and improve performance – e.g. disconnect loads during peak AC grid loading, run outdoor cabinets in low noise mode at night, manage cooling, or customise site alarms to network requirements.

The SC200 provides full generator control and fuel metering capability for off-grid, hybrid generator, battery, solar and wind applications.

The SC200 is supplied preconfigured with a default configuration file, or factory customized for a particular

application, ensuring fast and problem free installation. On-site changes are easily made from the front panel or with a Windows PC using DCTools configuration software.

The high-resolution color LCD display is easy to read and has an easy to use menu structure. All system values and alarms can be displayed, with easy keypad access to check or edit settings.

The SC200 works with separate system I/O boards for powerful and user-friendly interfacing. Easy, low cost I/O expansion is possible by adding additional I/O boards.

Typical Applications:

- 24V & 48V power systems
- Wireless cell sites & switches
- Transmission terminals
- Local & central office switching

Options:

- External GSM or PSTN modem
- Additional I/O boards for system expansion
- SiteSure-3G modules for site management

Features

- Ethernet interface built-in
- SNMP agent V1, V2c, V3
- Battery mid-point monitoring & discharge time remaining
- Generator control & fuel metering
- Alternative energy input metering
- SMS & email alarm messages (with GSM modem)
- Comprehensive system control functions
- Complies with international standards
- Setup via web, keypad or DCTools configuration software
- Language options
- Optional extra I/O boards or SiteSure-3G modules for expansion
- Smart alarms
- Modbus



Powering Business Worldwide

Technical Specification

Operation

Supply Voltage Range	18 to 60Vdc
Operating Range	Standard: -10 to +50°C [14 to 122 °F] Extended: -25 to 70°C [-13 to 158 °F]

Input/Output Standard

Analog inputs	Current sensor (3), Bus voltage (1), Temperature (2)
Digital inputs	4 Internal (pre-defined), 6 external (user-defined)
LVD contactor outputs	2 with one IOBGP module Up to 16 with additional IOBGP modules
Relay outputs	6 Voltage free, NO-C-NC, 0.1A @ 60VDC Screwless terminal block, 0.5mm ² - 2.0mm ² conductors

Communications Interfaces

Physical	Ethernet, USB and RS232
Software	IP, http, https (secure web), S3P, Modbus, SMTP (email)
Management software	DCTools configuration / local management software. PowerManagerII remote management software. SNMP version V1, V2c or V3. Supports standard Network Management System software including HP OpenView Network Node Manager.

User Interface

Display	Back-lit color dot matrix LCD 160 x 128 pixel Adjustable viewing angle
Keypad	6 keys
Language Options	English: Standard Spanish, German and Chinese available on request. Other language software upgrades by arrangement.
Indicators	Power on, Critical/Major alarm, Minor alarm

Mechanical

Dimensions H,W,D	SC200: 133.5mm (3U), 44.5mm, 70mm IOBGP: 106mm, 175mm, 18mm
Mounting	SC200: rectifier slot or flush panel mount Orientation: vertical or horizontal IOBGP: panel mount

Datalogging

Event Log	10,000 records
Data Log	10,000 records

Options

Input/Output	With IOBSS module (SiteSure-3G): Analog inputs: 48 Digital inputs: 108 Digital outputs: 32
Modem communications	PSTN or GSM. Requires external modem.

Certifications

China	MII
North America	UL, FCC Verification, IC
Europe	CE
Australia / New Zealand	C-tick

In the interests of continual product improvement all specifications are subject to change without notice.



SC100 System Controller



The **Eaton® SC100 System Controller** is a control and monitoring solution for the Eaton 3G power solutions.

It provides a full suite of system control functions including Temperature Compensation, Equalize and Fast Charge.

A comprehensive range of alarms and alarm notification options are available, including SMS, relay contacts and modem dial out to PowerManagerII.

The SC100 is supplied preconfigured with either a default configuration file, or with one factory customized for a particular application. This ensures fast and problem free installation.

If on-site changes are needed then these can be easily made from the front panel or with a Windows PC using DCTools configuration software.

The front panel incorporates a high-resolution back-lit LCD display with easy to read characters and easy to use menu system.

All system values and alarms can be displayed and the keypad provides easy access to check or edit settings.

The SC100 works with a separate system I/O board for powerful and user-friendly interfacing.

Typical Applications:

- 24V and 48V power systems
- Wireless cell sites and switches
- Transmission terminals

Options:

- External GSM or PSTN modem

Features

- Comprehensive system control functions
- Supports PSTN and GSM external modems
- User-friendly menus
- Pre-loaded customized configuration file
- Complies with international standards
- Setup via DCTools configuration software
- Language options
- Low cost



Powering Business Worldwide

Technical Specifications

Operation

Supply Voltage Range	19 to 60Vdc
Operating Range	-10 to +70 °C [14 to 158 °F]

Input/Output with IOBGP-00

Analog inputs	Current sensor (3), Bus voltage (1), Temperature (2)
Digital inputs	4 Internal (pre-defined), 6 external (user-defined)
LVD contactor outputs	2
Relay outputs	6 Voltage free, NO-C-NC, 0.5A @ 100VDC Screw terminal block, 0.5mm ² - 2.0mm ² conductors

Communications Interfaces

Physical	RS232
Software	S3P, MII
Management software	DCTools configuration / local management software. PowerManagerII remote management software.

User Interface

Display	Back-lit dot matrix LCD 128 x 128 pixel Adjustable viewing angle
Keypad	4 keys
Language	English: Standard
Options	Other languages by arrangement.
Indicators	Power on, Critical/major alarm, Minor alarm

Mechanical

Dimensions H,W,D	SC100: 133.5mm (3U), 44.5mm, 60mm IOBGP: 106mm, 175mm, 18mm
Mounting	SC100: rectifier slot or flush panel mount Orientation: vertical or horizontal IOBGP: panel mount

Datalogging

Event Log	100 records
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Options

Modem communications	PSTN or GSM. Requires external modem.
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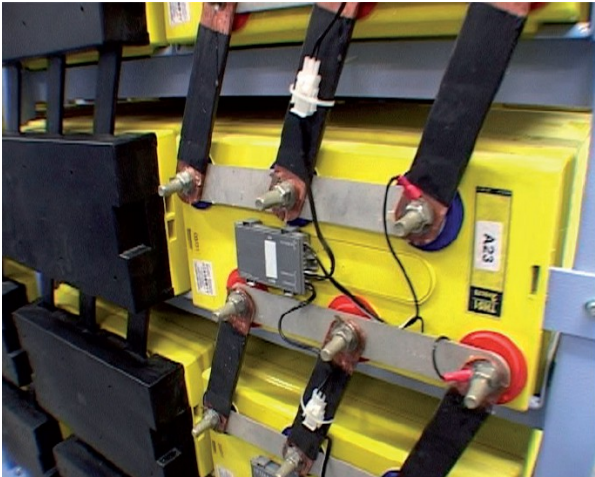
Certifications

China	MII
North America	FCC Verification, IC
Europe	CE
Australia / New Zealand	C-tick

In the interests of continual product improvement all specifications are subject to change without notice.



CellSure™ Battery Monitoring and Fault Diagnosis



Features

- Early warning of potential failures
- Reserve Time remaining on Discharge
- Accurate battery capacity and state-of-health measurements
- Patented software algorithm
- Cost effective for network wide deployment
- Remote communications options
- Graphical data displays
- Data export capability
- Real-time monitoring and alarms
- Modular and expandable
- Easy to install and operate
- Remote Battery Testing (with PowerManagerII™ software)

When there's a power failure there is only one thing between your network never missing a beat and an outage – the battery. Batteries tend to be the forgotten safety net. Rarely needed, they sit quietly waiting to do their job.

However, when they are called to action will they be ready?

A battery monitoring system is the best way to keep track of a battery's condition and to highlight ahead of time if any maintenance is needed.

But until now the hardware requirements, and the need for regular site visits to setup and run a monitoring system, have made this an expensive option.

Now there's the Eaton® CellSure battery monitoring and fault diagnosis system.

CellSure provides a method to report on batteries, showing where problems may occur and giving the most important information - reliable battery capacity measurements in real time.

Technical Specifications

System configurations

Nominal system voltages	24V or 48V
Battery strings per system	1-4 strings
Cell/monobloc voltage	2V, 6V or 12V
Battery types	VRLA (standard) or flooded cells (on request)

Alarms and Indicators

Controller module indicators	Status LED, 4 String Alarm LEDs
Controller module alarms	Voltage free relay contacts (Urgent and Non-urgent)

Inputs

Cell/monobloc voltage	±0.5% accuracy
String current	±1% accuracy
Ambient temperature	±1°C accuracy
String temperature	±1°C accuracy

Data Output

Alarm conditions	Cell/monobloc voltage low, Cell/monobloc divergence, Discharge voltage low, String temperature, String overcharge, Low capacity, Low charge.
Measured values	Actual capacity, Reserve charge, Reserve time, "State of Health"
Data	Weekly log: 7day x 24hour cell/monobloc data Yearly log: 365day cell/monobloc data (averaged) Last two partial discharges. Last full discharge.

Certifications

All products comply with International Standards. Contact your local Eaton DC representative for details on the specific product versions available with these safety and EMC approvals:

North America	UL, FCC Verification
Canada	IC
Europe	CE
Australia / New Zealand	C-tick

In the interests of continual product improvement all specifications are subject to change without notice.



SiteSure-3G™



The **Eaton® SiteSure-3G** adds on to the SC200 Controller to provide control and monitoring of a wide range of external devices. It uses the communications capability of an Eaton DC power system to monitor and control security, air conditioning, engine alternators and other building services, or sense DC currents for load metering.

SiteSure-3G modules can be remotely controlled and configured using the PowerManagerII remote control and monitoring software or with DCTools local craft terminal.

SiteSure-3G is also compatible with Network Management Systems using SNMP.

Additional SiteSure-3G modules can be added as required to provide the number of inputs and outputs needed for a particular application.

Features

- Remote control and monitoring
- Expandable
- Modular
- Real time data collection
- Compliance with international standards

Technical Specifications

Operation

Supply Voltage	19 to 60V
Range	
Rated Operating	-10°C to +80°C [+14°F to +176°F]
Range	

Input/Output

Bus voltage	Number:	1
input	Range:	-60V to +60V
Current inputs	Number:	3
	Range:	-50mV to +50mV
Temperature	Number:	2
inputs	Range:	2.53V to 3.23V (-20°C to +70°C with TS02 temperature sensor)
Digital inputs	Number:	10
General	Number:	4
purpose analog	Range:	0V to +10V
inputs		
Digital Outputs	Number:	6
(Relays)	Type:	Voltage free, NO-C-NC 0.3A @ 60VDC / 1A @ 30VDC

Certifications

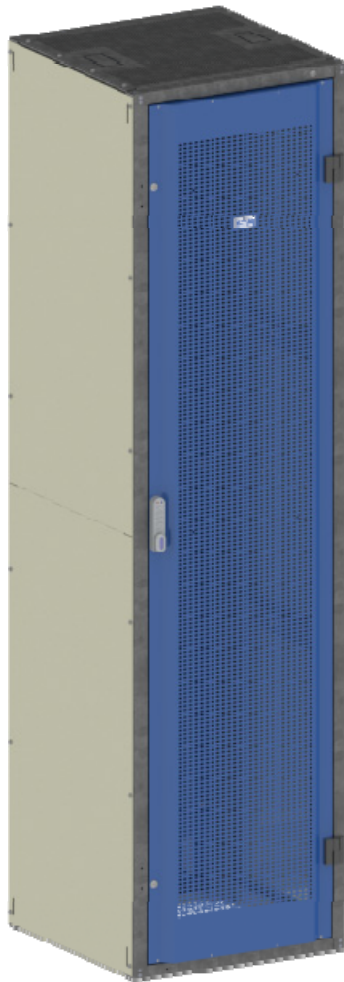
All products comply with international standards. Contact your local Eaton DC representative for details on the specific product versions available with these safety and EMC approvals:

North America	UL, FCC Verification, IC
Europe	CE
Australia /	C-tick
New Zealand	

In the interests of continual product improvement all specifications are subject to change without notice.



Multi-Functional Rack System - Broadband Series



The Eaton® Broadband series of Racks and Rack accessories

have been specifically designed to support converged data and voice networks implemented as part of local loop unbundling programmes.

The Broadband series of racks and accessories offer a broad array of enclosures and supporting components to ensure a successful and trouble-free deployment of broadband services.

For maximum security each rack can be specified with an electronic programmable lock.

Racks can be ordered empty or configured with various arrangements of DC distributions, battery shelves, document trays, AC power distribution units, and more.

The Broadband series of racks and accessories are a result of many years supplying such products into telecommunication environments. Eaton understands how critical a short time to market can be in the highly competitive broadband marketplace.

Additional services can be provided including delivery, placement, electrical installation and commissioning.

Eaton can also offer integration services where a complete cabinet can be assembled together with telecommunication and electrical equipment, with the complete solution electrically tested. The finished configuration can be shipped to site and installed to simplify the deployment process.

For critical broadband deployments, Eaton's Broadband series of racks and accessories complete with supporting services can ensure deployment programmes are delivered on time.

Features

- Cabinet frames of 300mm, 600mm, and 800mm depth
- Up to 48U of equipment space
- 19" equipment mounting
- Optional cabinet doors with electronic programmable door locks, which can be fitted on front and rear of cabinets
- Document pockets and shelf kits
- DC Fused Distribution Units with A+B feeding
- Battery shelf kits
- HDF Sub-Frames
- Internal and external cable channels
- 19" Fibre Shelves
- AC PDU outlets
- DC Power System options



Powering Business Worldwide

Technical Specifications

Mechanical

Dimensions H,W,D	Depth:	H, W
	300mm	2198x568
	600mm	2198x568
	800mm	2198x568
Material	Galvanised finish, mild steel construction	
Equipment	48U	
Space	19" mounting (moveable forward and back)	

Mechanical Options

Door	Fitted to front and rear of rack. Lightweight painted mild steel. Can be lifted off hinges to allow maintenance access.	
	Programmable electronic lock for enhanced security	
Top Cover	600 and 800mm racks Pre-punched apertures for cables	
Side Panels	Painted panels for 600mm and 800mm racks	
Documents	Door mounted document pocket. Full and half-depth 19" trays.	
Battery Trays	Two sizes to suit 600mm and 800mm racks. 3U high spacing, with up to 3 shelves per rack.	

Door

Operating Temperature Range	Rated: -10°C to +50°C [-14°F to +122°F] Extended: -40°C to +70°C [-40°F to +158°F]
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Electrical Options

DC Distribution	Compact 1U high distribution
	A and B sections with 38Amp per section. 16 ways, up to 10Amp each. 20mm or 32mm fuses (32Amp standard). Can be configured as all A or all B distribution. Distributions can be linked or "daisy chained". Supplied with outgoing cables.
AC outlet PDU	19" mountable AC Power Distribution Unit. 230VAC 13Amp rated.

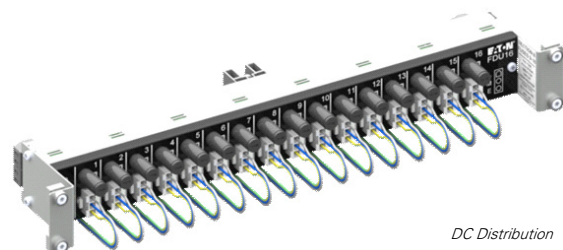


Telecom Options

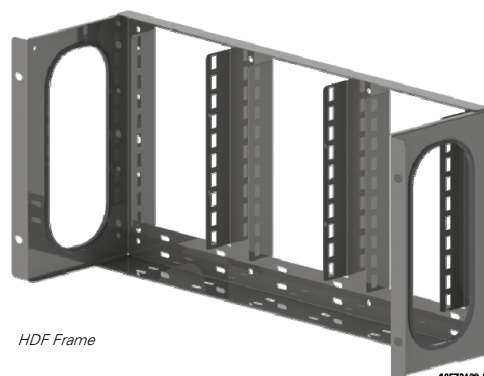
HDF Sub-Frames	Sub-frames that can be specified and fitted during rack configuration and build. 19" mountable. Fitted at front or rear of the rack. Accept 3M Quante modules (up to 30 modules/300 lines per HDF)
Cable Tray	Permits cables to be routed within the rack to where they are needed. Fitted to either or both internal sides. External cable channel options.
Fibre Shelf	19" shelf with large radius edges for fibre cable protection.

Certifications

All products comply with International Standards.
Europe CE
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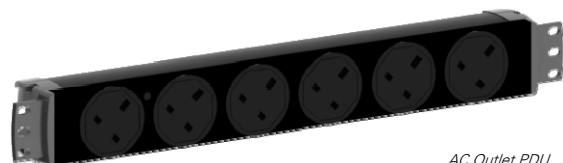


DC Distribution



HDF Frame

10672400-01



AC Outlet PDU

Whisper Cabinet™ Roadside Telecom Equipment Enclosures



Single Bay and Double Bay

Features

- Whisper quiet operation – to minimize neighborhood noise pollution
- Air to air heat-exchangers – giving 1300W heat dissipation with only 10°C internal temperature rise
- Variable speed DC fans – lowest noise, highest efficiency, and operation under mains fail
- Removable fan plates – to simplify servicing
- 19", 21" or 23" standard equipment bay mounting – flexibility to adapt
- Single or double equipment bays – more room for revenue generating equipment
- Double skin design, cabinet within a cabinet – to fully protect your electronics
- Graffiti resistant paint – aids cleaning and against vandal impact
- Three point locks – secure locks to resist tampering
- Marine grade aluminum – ensures long life and corrosion resistance
- Galvanized steel plinth – for secure and simplified installation
- Separate MDF chamber – enables contractor maintenance access
- Large battery compartment – for high power loads and longer battery reserve times
- High seismic withstand capability – for reliability in adversity



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Technical Specification

Dimensions

(H, W, D)

Overall	Single bay: 1500mm x 1650mm x 600mm Double bay: 1500mm x 2240mm x 600mm
Equipment bay(s)	1330mm x 660mm x 500mm Single bay: 1 x 27RU 19"/23", 1 x 48SU, 21" (ETSI) Double bay: 2 x 27RU 19"/23", 2 x 48SU, 21" (ETSI)
MDF bay	1330mm, 630mm, 300mm 1 x 48SU (ETSI 21") Space 2000 pairs R&M disconnect
Battery bay	1330mm, 300mm, 630mm Suits 2 x 48V x 150Ah FT type

Cable access

Cable Entry	3 x removable panels
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Environmental

Thermal Performance	1300W per 10°C above ambient (in equipment chamber)
External Ambient Temperature	-40°C to +45°C
IP Rating	IP56 (equipment bay) IP54 (MDF and battery bay)
Seismic Rating	2g in any direction

Construction

Cabinet	Single bay: 2.0mm marine grade aluminum Double bay: 2.5mm marine grade aluminum
Base	5mm MS hot dipped galvanized
Color/Finish	Anti-graffiti green or beige, powder-coat

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