Network DC Power Solutions:

- Power Enclosures
- Power Systems
- DIN-Rail DC UPS
- Converters
- Inverters
- DC Distribution
- Monitoring
- Low Voltage Disconnects
- Power Management
- Batteries
- Accessories
Unity Power System: 12 & 24 Volt

The Unity Rectifier System comprises a low profile 1.75” (1RU) shelf which accommodates up to three 150 watt, -48 or +24 volt hot swap rectifiers, plus an optional GMT fuse distribution panel which contains five individually fuse protected circuits. The system is scalable/adaptable for N, N+1 or N+2 configurations. Front panel test points and voltage adjustment pot are provided for fine-tuning output to the requirements of sensitive loads and to optimize load sharing. Form C status contacts enable remote alarms for the rectifiers and fuse distribution circuits. Front panel OK/FAIL LED’s allow monitoring status of each rectifier individually. The optional power distribution module employs industry standard GMT fuses, configured with alarm contacts and a front panel “BLOWN FUSE” LED indicator.

Features
- 150 watt rectifier units - 48 or 24 volt, slide and lock into the Unity Shelf
- Shelf accommodates up to three rectifiers - 450 watts total - plus an optional five-position GMT fuse panel
- Scalable/adaptable hot swap configuration: N, N+1, N+2
- Front panel status indicators, output voltage test points and adjustment potentiometers
- Individual or summary rectifier alarm contacts; Form C
- Summary fuse panel alarm contacts; Form C
- Forced air cooling of rectifiers for extended component life
- 115/230 VAC shelf/rectifier input - easily adapts to available site power
- GMT fuse panel: Five positions, easy rear panel wiring to loads, fuse access at front
- Shelf adapts for 19” or 23” rack; center or flush mount (four-point cabinet mount optional)

### Shelf

<table>
<thead>
<tr>
<th>Input</th>
<th>Capacity</th>
<th>Size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>URS</td>
<td>115/230 VAC Nom. 3 Unity Rectifiers (-48 or +24 V), 1 GMT fuse panel</td>
<td>19/23” Rackmount, 1 RU</td>
<td>6.7 lbs.</td>
</tr>
</tbody>
</table>

### Rectifier

<table>
<thead>
<tr>
<th>Input Amps @ Full Load 115/230V</th>
<th>Output Voltage</th>
<th>Output</th>
<th>Watts</th>
<th>Size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>UR48-3 2.2/1.1 -</td>
<td>-54.4 VDC, adjustable 42-56 VDC</td>
<td>3</td>
<td>150</td>
<td>1 RU</td>
<td>1.9 lbs.</td>
</tr>
<tr>
<td>UR24-6 2.2/1.1 +</td>
<td>+27.2 VDC, adjustable 21-28 VDC</td>
<td>6</td>
<td>150</td>
<td>1 RU</td>
<td>1.9 lbs</td>
</tr>
</tbody>
</table>

### GMT Panel

<table>
<thead>
<tr>
<th>Nominal Input/Output</th>
<th>Total Fuse</th>
<th>Fuse Capacity</th>
<th>Total Current Capacity</th>
<th>Size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>UFP-5 -48 or +24 VDC</td>
<td>5</td>
<td>20A</td>
<td>1 RU</td>
<td>1 lbs.</td>
<td></td>
</tr>
</tbody>
</table>

### Optional System Component

Unity Low Voltage Disconnect & Monitor

Digital battery monitor and alarm panel with Low Voltage Disconnect integrates with the Unity rack mount shelf into a highly functional power system. Built-in features include: LVD, digital monitor of voltage and amperage, battery disconnect breaker and alarm contacts. The digital display monitors bus voltage, battery voltage, system output current and low voltage connect/disconnect set points.

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage Range</th>
<th>Max. Continuous Current</th>
<th>Low Voltage Battery Disconnect</th>
<th>Size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULM-100</td>
<td>8 - 65 VDC</td>
<td>100 Amps DC</td>
<td>100 Amp, Solid State (FET)</td>
<td>19/23”, 1 RU</td>
<td>6.25 lbs.</td>
</tr>
</tbody>
</table>
Scout Power System: 12 Volt

The Scout is a compact, high power density 12 volt rackmount power system that brings telecom power technology to 12 volt base station radio applications to power transmitters and maintain back-up batteries. Its dual 100 amp hot swap rectifiers configured in N+1 redundancy provides fault tolerant reliability. Remote monitoring capability provides system administrators with operating status.

**Features**
- Redundant hot swap rectifiers provide high system reliability
- Powers transmitters and maintains back-up batteries
- 100 amp output per module - 200 amp system capacity
- Controller module provides Web based remote monitoring and alarms, and LCD digital display of DC volts and amps
- Compact 1U rackmount shelf
- Optional: LVD, power distribution shelf, & expansion shelf
- Four programmable Form C alarm relay contacts
- Abnormal condition event log: over voltage protection, overload protection, output short circuit protection, over-temperature protection, internal over-temperature alarm, low AC power shutdown, and fan malfunction protection

**Specifications**

**Input**
- **Voltage:** 90 - 264 VAC, 50 - 60 hz. via IEC C19/20 socket (x2)
- **Current (per module):** 13 amps @ 115 VAC, 7 amps @ 230 VAC

**Output**
- **Voltage:** 13.6 VDC, adjustable 10.5 - 14.0 VDC
- **Power (per module):** 1200 watts, 100 amps @ 230 VAC input, 1140 watts, 95 amps @ 115 VAC input

**Protection:** Short circuit, overvoltage, current limit, over-temperature

**Monitors**
- LCD Digital Display: DC volt and current
- Remote via Ethernet (web page)
- DC ok via TTL
- AC fail
- Over-temp
- Fan fail

**Operating Temperature:** -40 to + 70˚ C

**Mechanical:** 19” rackmount, flush, 1RU, 13.75” depth

**Safety Compliance:** UL 60950

<table>
<thead>
<tr>
<th># of Rectifiers Installed</th>
<th>Input Voltage</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200 Watts, 100 Amps</td>
<td>230 VAC</td>
<td>100 Amps, 1200 Watts</td>
<td>200 Amps, 2400 Watts</td>
</tr>
<tr>
<td>1140 Watts, 95 Amps</td>
<td>115 VAC</td>
<td>95 Amps, 1140 Watts</td>
<td>190 Amps, 2280 Watts</td>
</tr>
</tbody>
</table>

**Optional System Component:** Low Voltage Disconnect, Circuit Breaker Distribution Shelf with DC System Bus/Tie Points Creates Complete Power System

**PFM-500**
- Power Function Manager, 500 amps

Preliminary specifications subject to change without notice.
Sentinel Power System: 48 Volt

Incredible Functionality, Scalability and Web Monitoring in a 1 RU, 600 Watt to 1.8 Kw, 48V DC Power System

- 19”, 1U rackmount shelf with integrated power distribution and SNMP digital controller
- 90-250 VAC input, power factor corrected
- 3 power bays accept 600 watt modular rectifiers, -48V
- 33 amp, 1800 watt total max. output capacity
- Output temperature compensated for precise battery charging
- 4 DC circuit breaker distribution capacity, with tripped breaker alarm
- Master disconnect breaker for two battery strings, with tripped breaker alarm
- Controller with digital display of system parameters with TCP/IP Web interface and SNMP monitoring/logging
- Alarm contacts monitor major system functions
- General Purpose Digital Inputs for user configured external alarms
- Low voltage disconnect built-in
- Easily configures to meet site power requirements

Complete system design and assembly to your application parameters: rectifier configuration, distribution circuit breaker installation and programming of alarms and monitors. Installation in a relay rack with batteries and wiring also available.

<table>
<thead>
<tr>
<th>Rectifier</th>
<th>Input Amps @ Full Load 115/230V</th>
<th>Output Voltage</th>
<th>Output Amps Cont.</th>
<th>Watts</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>RM-648</td>
<td>5.8/2.9</td>
<td>-54.4 VDC, adjustable 54 - 58 VDC</td>
<td>11A</td>
<td>600</td>
<td>1.9 lbs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shelf</th>
<th>Input Voltage Range</th>
<th>Configuration</th>
<th>Size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRS-48</td>
<td>90-300V, 45-65 Hz.</td>
<td>3 Sentinel Rectifiers (-48 V bays), Controller, 4 DC Circuit Breaker Distribution, 2 x 30A Battery Breakers</td>
<td>19/23**, 1 RU</td>
<td>19.84 lbs.</td>
</tr>
</tbody>
</table>

* 23” adapters required, model SRS-1U

Smart Power Features

Newmar power systems embed the latest technology in smart software to provide the ultimate in intelligent system functionality.

Elements include:
- **Smart Set-Up**: An extensive menu of system parameters for customization per site
- **Smart On-Site Data Viewing**: All system data accessible on-site by laptop via USB
- **Smart Viewing by Web**: Voltages, load, and battery performance data (Ethernet, RJ45)
- **Smart Automatic System Adjustments**: Temperature Compensated charging, low voltage disconnect, battery equalization, fast charging
- **Smart Alarm Notifications**: Voltage, temperature as well as several user defined

General Specifications

**AC Input**
Nominal: 115 or 230VAC (power cord with NEMA-5-20 plug attached)

**DC Distribution**
Load: 4 breaker position capacity, available amperages (specify) 6A, 10A, 20A, 30 amp, with tripped breaker alarm
Battery: 2 x 30A battery circuit breakers, with tripped breaker alarm
Low Voltage Battery Disconnect: 80A battery LVD installed, with disconnect alarm

**Wiring Option**: Battery Cable, 8 AWG, 7’ Length (P/N: 433-8007-0)
Centurion II Power System: 24 & 48 Volt

Incredible Functionality, Scalability and Web Monitoring in a 2 RU, 1.0 to 6.0 Kw, -24/48V DC Power System

- 19", 2U rackmount shelf with integrated power distribution
- 90-250 VAC input, Power Factor Corrected
- 3 power bays accept 1000 or 2000 watt modular rectifiers
- 111 amp, 6000 watt total max. output capacity, (74 Amp, 4000 Watt, N+1) @ -48 VDC
- Output temperature compensated for precise battery charging
- 16 DC circuit breaker distribution capacity, with tripped breaker alarm
- Master disconnect breakers for two battery strings, with tripped breaker alarm
- Controller with digital display of system parameters with TCP/IP Web interface and SNMP monitoring/logging
- Alarm contacts monitor major system functions and dry contacts for user programmable alarms
- General Purpose Digital Inputs for user configured external alarms
- Low voltage disconnect built in
- Easily configures to meet site power requirements

Complete system design and assembly to your application parameters: rectifier configuration, circuit breaker installation, and programming of alarms and monitors. Installation in a relay rack with batteries and wiring also available.

<table>
<thead>
<tr>
<th>Rectifier</th>
<th>Input Amps @ Full Load 115/230V</th>
<th>Output Voltage</th>
<th>Output Amps Cont.</th>
<th>Watts</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2R-1000</td>
<td>@ &lt;175 VAC = 6.2A</td>
<td>-54.4 VDC, adjustable 48 - 58 VDC</td>
<td>18A*</td>
<td>1000</td>
<td>3.5 Lbs.</td>
</tr>
<tr>
<td>C2R-2000</td>
<td>@ &lt;175 VAC = 12.5A</td>
<td>+27.2 VDC, adjustable 24 - 29 VDC</td>
<td>37A*</td>
<td>1000</td>
<td>3.5 Lbs.</td>
</tr>
<tr>
<td>C2RX-2048</td>
<td>@ &lt;175 VAC = 12.5A</td>
<td>-54.4 VDC, adjustable 48 - 58 VDC</td>
<td>37A*</td>
<td>2000</td>
<td>3.5 Lbs.</td>
</tr>
</tbody>
</table>

* @ 120 VAC: Derate 2 kW rectifiers 41%; 1kW rectifiers 33%

General Specifications

- Input: Nominal: 230V
- Voltage Range: 90 - 300V (derate @ 115 input)
- Frequency Range: 45 - 65 Hz
- Power Factor: >0.99
- Efficiency: >94% (from 30-95% output power)
- Current Draw @ 230 VAC: 1000W Rectifier: 4.6 Amps
- 2000W Rectifier: 9.2 Amps

- Ambient Temperature: Nominal: 25+/−5°C, 5-95% RH (non-condensing)
- Range: -10°C to +70°C (derate above +50°C)
- Altitude: <8,202 ft., De-rate maximum ambient temperature by 4°C per 3,280 ft. above sea level
- Wiring Option: Battery Cable, 2 AWG, 7' Length (P/N: 435-2007-0)

The Centurion II Power System features Smart Power, see page 3 for more information.
Commander Power System: 48 Volt

Incredible Functionality, Scalability and Web Monitoring in a 5 RU, 1.0 to 14.0 Kw, -48V DC Power System

- 19", 5U rackmount shelf with integrated power distribution
- 90-250 VAC input, Power Factor Corrected
- 7 power bays accept 1000 or 2000 watt, -48V modular rectifiers
- 259 amp, 14,000 watt total max. output capacity, (222 Amp, 2,000 Watt, N+1) @ -54 VDC
- Output temperature compensated for precise battery charging
- 18 DC circuit breaker distribution capacity, with tripped breaker alarm, 63 amp max. circuit breaker rating
- Master battery disconnect breakers for four battery strings, with tripped breaker alarm
- Controller with digital display of system parameters with TCP/IP interface and SNMP monitoring/logging
- Alarm contacts monitor major system functions and dry contacts for user programmable alarms
- General Purpose Digital Inputs for user configured external alarms
- Low voltage disconnect built-in
- Easily configures to meet site power requirements

Complete system design and assembly your application parameters: rectifier configuration, distribution circuit breaker installation, and configuration of alarms and monitors. Installation in a relay rack with batteries and wiring also available.

<table>
<thead>
<tr>
<th>Rectifier</th>
<th>Input Amps @ Full Load 115/230V</th>
<th>Output Voltage</th>
<th>Output Amps Cont.</th>
<th>Watts</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2R-1000</td>
<td>18/12</td>
<td>-54.4 VDC, adjustable 48 - 58 VDC</td>
<td>18A*</td>
<td>1000</td>
<td>3.5 Lbs.</td>
</tr>
</tbody>
</table>
* @ 120 VAC: Derate 2 kW rectifiers by 41%; 1kW rectifiers by 33%

<table>
<thead>
<tr>
<th>Shelf</th>
<th>Input Voltage Range</th>
<th>Configuration</th>
<th>Size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMDRS-48</td>
<td>90-300V (derate @ 115 input), 45-65 Hz.</td>
<td>7 Commander Rectifiers (-48 V), Controller, 18 DC Circuit Breaker Distribution, 4 x 100A Battery Breakers</td>
<td>19/23&quot;, 5 RU</td>
<td>35.15 Lbs.</td>
</tr>
</tbody>
</table>

General Specifications

DC Distribution
Battery: 4 x 100A battery circuit breakers.

Breaker Fail Detection: Electronic fail detection on both load and battery breakers
Low Voltage Battery Disconnect: 300A battery LVD installed standard, with disconnect alarm

The Commander Power System features Smart Power, see page 3 for more information.
Power Modules: 12, 24 & 48 Volts

These versatile Rectifier Modules function as either power supplies or battery chargers for 12, 24 or 48 volt systems; positive, negative or floating ground. They may be employed singly or in combination, enabling the installer to scale the system anywhere from 500 to 10,000 watts per rack. Units may be paralleled for N+1 redundancy and alarm contacts allow local or remote monitoring. An optional DC quick connect wiring kit allows easy replacement of modules without system shutdown.

Power Modules may be used separately as a power source, or they may be integrated with the Power Function Manager, model PFM-500.

Features

- 12, 24 or 48 volts output; pos., neg. or floating ground
- Built-in oring diode for parallel or N + 1 configuration
- Power supply or battery charger operation (DC UPS system)
- Optional battery charging circuit: three-step charging, gel/lead-acid switch, and temperature compensation
- Form C alarm contacts

### Specifications

**Input:**
- 85 - 135/170-270 VAC (selectable), 47 - 63 Hz., 560 watt models
- 90 - 265 VAC, 1000 watt models
- 207 - 253 VAC, 2200 watt model

**Power Factor:**
- 560W & 2200W models: 0.7
- 1000W models: 0.98

**Regulation:**
- ± 1% at direct output (V2); ± 2% through "oring" diode (V out)

**Output Dimensions**

<table>
<thead>
<tr>
<th>Model</th>
<th>Input Amps @ Full Load 115/230V</th>
<th>VDC V1 (V Out)</th>
<th>VDC V2 (V Out)</th>
<th>Output Amps Cont.+</th>
<th>Watts</th>
<th>Dimensions (H x W x D)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM-12-40</td>
<td>8.5/4.3</td>
<td>13.6</td>
<td>14.3</td>
<td>40</td>
<td>560</td>
<td>3.5 x 17 x 20.5</td>
<td>12.2</td>
</tr>
<tr>
<td>PM-12-80</td>
<td>16/8</td>
<td>13.6</td>
<td>—</td>
<td>80</td>
<td>1000</td>
<td>19” mounting brackets provided</td>
<td>15.2</td>
</tr>
<tr>
<td>PM-24-20</td>
<td>8.5/4.3</td>
<td>27.2</td>
<td>27.9</td>
<td>20</td>
<td>560</td>
<td></td>
<td>12.2</td>
</tr>
<tr>
<td>PM-24-40</td>
<td>16/8</td>
<td>27.2</td>
<td>—</td>
<td>40</td>
<td>1000</td>
<td></td>
<td>15.2</td>
</tr>
<tr>
<td>PM-48-10</td>
<td>8.5/4.3</td>
<td>54.4</td>
<td>55.1</td>
<td>10</td>
<td>560</td>
<td></td>
<td>12.2</td>
</tr>
<tr>
<td>PM-48-20</td>
<td>16/8</td>
<td>54.4</td>
<td>—</td>
<td>20</td>
<td>1000</td>
<td></td>
<td>14.0</td>
</tr>
<tr>
<td>PM-48-50</td>
<td>*/22</td>
<td>54.4</td>
<td>—</td>
<td>50</td>
<td>2200</td>
<td></td>
<td>34</td>
</tr>
</tbody>
</table>

*VDC (V out) Measured at output terminal with oring diode
+ 230 VAC input only
VDC (V2) Measured at direct output terminal
+ For parallel configuration/load sharing derate output 10%

**Input:**
- Ripple: 1% (Typical)
- Efficiency: 80-85% @ full load
- Front panel Output Voltage Adjustment Pot Range: ±10%
- Altitude Range: Full output to 5,000 feet. Derate output current 4% per 1,000 feet to 10,000 feet max.

**Temperature Rating**
- 560 watt models: -40° C to +60° C; Derate linearly from 100% load @ 50° C to 75% @ 60° C
- 1000 watt models: -20° C to +70° C; Derate linearly from 100% load @ 50° C to 50% @ 70° C
- 2200 watt model: 0 - 50° C
The Integrated Power System (IPS) is a unique multifunction power supply which incorporates built-in battery back-up and numerous power accessories within a single 2RU (3.5") chassis, thus eliminating time-consuming system integration, component sourcing and installation, while saving precious rack space--ideal for any low-to-medium power application requiring AC fault tolerant operation.

A precision regulated power supply/charger, back-up battery, low voltage battery disconnect, output metering, LED status and Form C alarm contacts are all pre-wired and calibrated within the unit for plug-and-play operation. Plug-in terminals are provided for easy wiring of an additional parallel rectifier input, or external batteries for increased back-up capacity.

The batteries are always in-line with the load, thus there is no interruption from relays or transfer switches in the event of AC loss. Batteries are recharged when AC is restored. A manual battery disconnect switch allows internal or external battery service or replacement while the system is running. Models available for -48, +24 and +12 volt applications.

**Features**

- Precision regulated power supply simultaneously maintains batteries at peak charge and supplies system load
- Built-in batteries instantly power load during AC failure - no switch-over delay. 3 - 5 year average life. Terminals provided for additional external batteries for increased back-up capacity
- Terminals provided for easy addition of parallel rectifier. (48V and 24V models only)
- Automatic low voltage and manual battery disconnect
- Numerous front panel monitors - L.E.D. status indicators and digital ammeter/voltmeter
- Form C summary failure alarm contacts; loss of internal rectifier output, loss of external rectifier output, LVBD contactor open. AC input failure alarm contacts optional
- Numerous protection features--AC input breaker, internal battery breaker, auto thermal shutdown/recovery, current-limiting, short-circuit and over-voltage protection.
- 19” or 23” rack mount, flush or 6” forward mounting

**Specifications**

**AC Input**

- Input Range (switch selectable): 115V = 92-130 VAC; 230V = 184-260 VAC
- Frequency: 47-63 Hz

**DC Output**

- Max. Load w/ External Rectifier and Battery Inputs: 40 A
- Regulation: Line: ± 1 %, Load: ± 2 %
- Ripple: ± 1 %

**Environmental**

- Temperature Rating: -10° to + 60° C; Derate linearly from 100% load @ 50° C to 75% @ 60° C

**Internal Batteries**

- Type: 12 Volt, 5 A-H Sealed Lead-Acid, Maintenance-Free
- Approvals: UL Recognized, DOT and IATA, approved for shipment by air

### Models

<table>
<thead>
<tr>
<th>Models</th>
<th>Input Amps @ Full Load</th>
<th>VDC</th>
<th>Adjustment Range</th>
<th>Output Amps</th>
<th>Supplemental Input Ports</th>
<th>Internal Battery Capacity</th>
<th>Ground Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPS 48-11</td>
<td>11 / 5.5</td>
<td>54.4</td>
<td>40 - 60 VDC</td>
<td>11</td>
<td>40 Amps</td>
<td>5 A-H</td>
<td>Positive</td>
</tr>
<tr>
<td>IPS 24-22</td>
<td>11 / 5.5</td>
<td>27.2</td>
<td>20 - 30 VDC</td>
<td>22</td>
<td>40 Amps</td>
<td>10 A-H</td>
<td>Negative</td>
</tr>
<tr>
<td>IPS 12-40</td>
<td>11 / 5.5</td>
<td>13.6</td>
<td>10 - 15 VDC</td>
<td>40</td>
<td>N/A</td>
<td>20 A-H</td>
<td>Negative</td>
</tr>
</tbody>
</table>

**Go To Webpage**
The Site Power System (SPS) series provides a complete DC power solution that integrates quickly with batteries, loads, and monitors. Available in 12, 24 and -48 volt, 300 watt configurations, the compact assembly contains: power supply with temperature compensated, automatic boost/float battery charge cycle, low voltage disconnect, and programmable alarm contacts. High operating temperature rating with convection cooling make the unit ideal for remote site shelters, railroad wayside bungalows, and pole mount enclosure applications, as well as private network base stations and microwave sites.

### Features
- Well regulated noise free output - no interference with sensitive electronic loads
- Separate Battery Charger output with remote temperature compensation sensor (provided)
- Automatic Boost Voltage output after AC power failure quickly recovers battery
- Low Voltage Disconnect protects batteries from over discharge
- Output current indicator LEDs
- Wide temperature operating range (-40° to +70° C), convection cooled, meets AREMA standards
- Alarm contacts interface with remote monitoring systems

### Models

<table>
<thead>
<tr>
<th>Models</th>
<th>Voltage Range</th>
<th>Voltage Adjustment Range</th>
<th>Output Amps</th>
<th>Dimensions (Inches)</th>
<th>Weight (Lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPS 12-20</td>
<td>13.6V</td>
<td>11 - 15V</td>
<td>20</td>
<td>1.75</td>
<td>17</td>
</tr>
<tr>
<td>SPS 24-10</td>
<td>27.2V</td>
<td>22 - 30V</td>
<td>10</td>
<td>1.75</td>
<td>17</td>
</tr>
<tr>
<td>SPS 48-6</td>
<td>54V</td>
<td>44 - 60V</td>
<td>6</td>
<td>1.75</td>
<td>17</td>
</tr>
</tbody>
</table>

### Specifications

**AC Input**
- Nominal: 110/220V, 50/60Hz
- Voltage Range: 100-275V AC (full power output), 85-100V AC (reduced power output)

**Frequency Range:** 45-66Hz

**Power Factor/Efficiency:** >0.99 (full load)/87%

**Input Fuses:** Fuses in phase & neutral

**Maximum Input Current:** 300W Models: 4A

**Isolation**
- Input to Output: 4,200V DC
- Input to Chassis: 3,500V DC (VDR to chassis removed.)
- Output to Chassis: 2,100V DC

**Environmental**
- **Cooling:** Convection cooled
- **Range:** -40° to +70° C operating range; -10° to +60° C @ 100% load rating. Derate to 20% load below -10° C and above +60° C

**Protection**
- **Input Voltage:** Automatic shutdown, restarts automatically when correct voltage restored.
- **Current Limit:** Adjustable to 50-100% of maximum rated current
- **Over Temp:** Automatic current turndown, backup shutdown protection
- **Polarity Reversal:** Output fuse with crowbar diode
- **Over Voltage:** Adjustable limit
Public Safety/BDA In-Building Coverage

An integral part of an in-building solution for emergency response radio coverage is the backup power system. NFPA codes relating to the autonomous operation and monitoring of the BDA power is quite stringent. These back up power enclosures were engineered to meet every aspect of NFPA 72 and provide integrators configuration flexibility and rapid delivery directly to site, batteries included.

Features

- NFPA Compliant
  - All Required monitoring alarms
- Batteries included
  - Choose capacity to match system requirements
- NEMA 4X Enclosure
  - Choose wall mount case size A or B
- Prewired internal & external, with waterproof feed thru’s for easy on-site connections:
- Customization to meet local AHJ’s requirements

Specifications

Input: 115/230 VAC

Outputs:
DC: 12, 24 and 48 V, with 120, 240 and 480 Watt DC UPS
AC: 110V at 100 watts, 24 hour rating (contact factory for detailed specifications)

Protctions: Battery breaker, AC input breaker, NEMA 4X enclosure

NFPA Compliant Alarms (Form C, Dry Contact)
- AC fail
- Battery discharged to 30% of capacity
- Charger fail

Batteries Included: maintenance free, valve regulated, sealed lead acid, 18, 55, and 100 AH capacity

*Preliminary: Specifications subject to change

<table>
<thead>
<tr>
<th>Model</th>
<th>Output Voltage</th>
<th>DC UPS Power Watts</th>
<th>Batt Capacity</th>
<th>Enclosure Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE-12V-120W-18AH</td>
<td>12 VDC</td>
<td>120</td>
<td>18</td>
<td>A</td>
</tr>
<tr>
<td>PE-12V-120W-55AH</td>
<td>12 VDC</td>
<td>120</td>
<td>55</td>
<td>A</td>
</tr>
<tr>
<td>PE-12V-120W-100AH</td>
<td>12 VDC</td>
<td>120</td>
<td>100</td>
<td>A</td>
</tr>
<tr>
<td>PE-24V-240W-18AH</td>
<td>24 VDC</td>
<td>240</td>
<td>18</td>
<td>A</td>
</tr>
<tr>
<td>PE-24V-240W-55AH</td>
<td>24 VDC</td>
<td>240</td>
<td>55</td>
<td>A</td>
</tr>
<tr>
<td>PE-24V-240W-100AH</td>
<td>24 VDC</td>
<td>240</td>
<td>100</td>
<td>A</td>
</tr>
<tr>
<td>PE-48V-480W-18AH</td>
<td>48 VDC</td>
<td>480</td>
<td>18</td>
<td>A</td>
</tr>
<tr>
<td>PE-48V-480W-55AH</td>
<td>48 VDC</td>
<td>480</td>
<td>55</td>
<td>A</td>
</tr>
<tr>
<td>PE-48-480W-100AH</td>
<td>48 VDC</td>
<td>480</td>
<td>100</td>
<td>B</td>
</tr>
<tr>
<td>PE-110V-100W-100AH/24V</td>
<td>110 VAC</td>
<td>100</td>
<td>100</td>
<td>A</td>
</tr>
</tbody>
</table>

External wiring:
- AC Input: 16 AWG, UL 3 conductor, SJT jacket, 12’, with molded plug

Enclosure: NEMA 4X, IP 65, welded aluminum with IP 65 battery vent and locking door with 4 each 1/2” knock-outs for cable entry on sides and bottom (16 total), IP 65 cable entries. Red powder coat wall mount.

Optional Configurations/Components

- Input/Output wire lengths/terminations/plugs
- Ethernet/SNMP monitoring and data logging (see model SPM-200 for specifications)
- Battery temperature compensation sensor
- Inverter installed - AC UPS

Case Size

<table>
<thead>
<tr>
<th>Size</th>
<th>Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>26” x 22” x 10”</td>
</tr>
<tr>
<td>B</td>
<td>19” x 24” x 20”</td>
</tr>
</tbody>
</table>
DC UPS for Public Safety DAS

- Combines power supply, battery charger, UPS circuitry and status monitoring in ONE compact DIN rail mount unit
- Alarm outputs comply with NFPA public safety in-building wireless communications back-up power requirements:
  - AC Fail, Low Battery, & Charger Fail
- Separate outputs for load and battery
- “Load Priority” circuit prevents discharged battery from impacting operation of critical loads when AC power is restored
- 3 step charging for rapid battery recovery, programmable for battery type, with optional temperature compensation sensor
- Low voltage disconnect protects battery from total discharge
- High operating temperature range to 70˚ C
- Communication MODBUS via RS-485 Interface/RJ-45 (Model 48-10 only)
- CE Approved/Designed to UL 1950

Battery Detection Signal Outputs (form C):
1. AC Fail
2. Low battery voltage indicating battery discharge by 70% (i.e. only 30% capacity remains)
3. Internal charger/power circuit fail

Specifications
Refer to page 11 for DIN-UPS/BDS unit specifications.

<table>
<thead>
<tr>
<th>BDS-DIN-UPS</th>
<th>Output</th>
<th>MODBUS</th>
<th>Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Voltage</td>
<td>Power</td>
<td></td>
</tr>
<tr>
<td>12-10</td>
<td>12 VDC</td>
<td>10 Amps</td>
<td>No A</td>
</tr>
<tr>
<td>24-10</td>
<td>24 VDC</td>
<td>10 Amps</td>
<td>No B</td>
</tr>
<tr>
<td>48-10</td>
<td>48 VDC</td>
<td>10 Amps</td>
<td>Yes C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case</th>
<th>Dimensions (H x W x D)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.5” x 2.6” x 5.3”</td>
<td>2 Lbs.</td>
</tr>
<tr>
<td>B</td>
<td>4.5” x 3.9” x 5.3”</td>
<td>2 Lbs.</td>
</tr>
<tr>
<td>C</td>
<td>4.5” x 5.9” x 5.3”</td>
<td>4 Lbs.</td>
</tr>
</tbody>
</table>

DIN RAIL Mount Batteries

These DIN Rail mount cases provide a quick and convenient method to integrate batteries into a DC UPS system resulting in a professional integration.

The enclosures feature heavy duty clips for 35mm rail, with additional case top and bottom hanging tabs if extra mounting security or non-DIN Rail mounting is desired. Touch safe screw terminals are located at top of the case for easy connection and wire routing. The convenient fold down door gives quick access to fuses and allows easy battery replacement.

Configuration choices include 12, 24, and 48 volts, in capacity of 1.2 to 14 amp hours.

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Amp-Hours</th>
<th>Case</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN-BATT 12-1.2</td>
<td>12V DC</td>
<td>1.2</td>
<td>A</td>
<td>3.8 Lbs.</td>
</tr>
<tr>
<td>DIN-BATT 24-1.2</td>
<td>24V DC</td>
<td>1.2</td>
<td>A</td>
<td>3.8 Lbs.</td>
</tr>
<tr>
<td>DIN-BATT 12-12.0</td>
<td>12V DC</td>
<td>12.0</td>
<td>B</td>
<td>6.8 Lbs.</td>
</tr>
<tr>
<td>DIN-BATT 24-7.0</td>
<td>24V DC</td>
<td>7.0</td>
<td>B</td>
<td>11.6 Lbs.</td>
</tr>
<tr>
<td>DIN-BATT 48-1.2</td>
<td>48V DC</td>
<td>7.0</td>
<td>2 x A</td>
<td>7.2 Lbs.</td>
</tr>
<tr>
<td>DIN-BATT 48-7.0</td>
<td>48V DC</td>
<td>7.0</td>
<td>2 x B</td>
<td>23.2 Lbs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case</th>
<th>Dimensions (D x H x W)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.6” x 7” x 2.75”</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>4.9” x 8” x 5.5”</td>
<td></td>
</tr>
</tbody>
</table>
DIN-Rail DC UPS

Powers Loads and Charges Back-Up Battery, Ideal for Automation and Wireless System Transmitter Applications

- Combines all system power functions: power supply, battery charger, UPS circuitry and status monitoring in ONE compact DIN rail mount unit
- Separate outputs for load and battery
- “Load priority” circuit ensures power is dedicated first to the load, with remainder then allocated to battery charging, thus preventing a discharged battery from impacting operation of critical loads.
- 3 step charging for rapid battery recovery, programmable for battery type, with optional temperature compensation sensor
- Battery automatically supports load anytime AC fails
- Low voltage disconnect protects battery from total discharge
- Automatic periodic battery health diagnosis
- High operating temperature range to 70˚C
- Alarm contacts: AC fail, battery at risk
- Communication MODBUS via RS-45 Interface (DIN-UPS-48-10/24-20/12-35)
- CE Approved/Designed to UL 1950

Specifications

Front Panel LED Indicators:
- Power Source: AC or on back up
- Battery and System Diagnostics (via blink code)

Settings/Selectors:
- Battery Type: Lead Acid, Gel-Cell
- Charge Current Limit: 20 - 100% of charge rating
- Back-Up Run Time on Batteries:
  - Programmed time limit: 1 - 60 min. (48-10, 24-20, and 12-35 models only)
  - Until LVD disconnect (all models)
- Power Restore Button: re-connects battery without AC present

DIN UPS: 115/230 VAC Input

<table>
<thead>
<tr>
<th>DIN-UPS  Model</th>
<th>Output Voltage</th>
<th>Output Power</th>
<th>MODBUS</th>
<th>Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-10*</td>
<td>12 VDC</td>
<td>10 Amps</td>
<td>NA</td>
<td>A</td>
</tr>
<tr>
<td>12-35</td>
<td>12 VDC</td>
<td>35 Amps</td>
<td>Yes</td>
<td>C</td>
</tr>
<tr>
<td>24-10</td>
<td>24 VDC</td>
<td>10 Amps</td>
<td>NA</td>
<td>B</td>
</tr>
<tr>
<td>24-20</td>
<td>24 VDC</td>
<td>20 Amps</td>
<td>Yes</td>
<td>C</td>
</tr>
<tr>
<td>48-5</td>
<td>48 VDC</td>
<td>5 Amps</td>
<td>NA</td>
<td>B</td>
</tr>
<tr>
<td>48-10</td>
<td>48 VDC</td>
<td>10 Amps</td>
<td>Yes</td>
<td>C</td>
</tr>
</tbody>
</table>

*UL Recognized Component

Signal Outputs (form C):
- AC Fail - operating on back-up power
- Battery abnormal condition (summary contact): Discharged, damaged, disconnected
- MODBUS Communication (DIN-UPS 48-10/24-20/12-35) only)

Temperature: -25 to +70˚C. Continuous to 50˚C, de-rate 2.5% per˚C >50˚C (50% output @ +70˚C)

Cooling: Free air, convection

Protection:
- Low Voltage disconnect at 1.5 volts per cell
- Internal fuse
- Current limiting
- Short circuit and reverse polarity protection
- Thermal overload shut down and recovery

Terminal Blocks: Screw type

Mounting: DIN Rail Bracket (35mm)

Optional:
- Battery temp. comp. probe (468-4510-1)
- BDA/DAS version w/ NFPA compliant alarm signals

<table>
<thead>
<tr>
<th>Case</th>
<th>Dimensions (H x W x D)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.5” x 2.6” x 5.3”</td>
<td>2 Lbs.</td>
</tr>
<tr>
<td>B</td>
<td>4.5” x 3.9” x 5.3”</td>
<td>2 Lbs.</td>
</tr>
<tr>
<td>C</td>
<td>4.5” x 5.9” x 5.3”</td>
<td>4 Lbs.</td>
</tr>
</tbody>
</table>
Low Voltage Disconnects/ Power Management

The **ULM-100** is a 1RU assembly that contains numerous DC control and monitoring features that integrate power and distribution components into a highly functional system. Built-in features include:

- Low voltage disconnect, digital monitor of voltage and amperage, battery disconnect breaker, and alarm contacts. The digital display monitors bus voltage, battery voltage, system output current, and low voltage connect/disconnect set points. Alarm contacts actuate on low voltage and battery disconnect conditions. Rear panel bus bars provide ample terminal landings for easy integration with rack mount rectifiers, distribution panels and batteries.

**Features**

- Solid state (FET) low battery voltage disconnect with adjustable set points and manual override switch for system maintenance/testing, with adjustable low battery alarm contact alerting to impending system shutdown
- Digital monitor displays system bus voltage, battery voltage, total rectifier amperage, and connect/disconnect voltage set points, and system ambient temperature
- 100 amp battery disconnect breaker for system protection and easy testing and maintenance
- Form C alarm contacts
- All these functions in a compact 1RU unit, minimizing system rack space
- For use with 12, 24, and -48V systems

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage Range</th>
<th>Max. Continuous Current</th>
<th>Low Voltage Battery Disconnect</th>
<th>Size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULM-100</td>
<td>8 - 65 VDC</td>
<td>100 Amps DC</td>
<td>100 Amp, Solid State (FET)</td>
<td>19/23”, 1 RU</td>
<td>6.25 Lbs.</td>
</tr>
</tbody>
</table>

The **Power Function Manager (PFM-500)** is a system integrating component which converts ordinary power supplies (or Power Modules) into a fully integrated and multifunctional power system. The unit provides for control, monitoring, paralleling and protection of 12, 24 or 48 VDC, positive negative or floating ground power sources. A built-in Low Voltage Disconnect protects batteries in the event of extended AC power loss.

**Features**

- Low voltage battery disconnect protects batteries in the event of extended AC power loss
- Simplifies wiring with parallel tie point for power modules
- 12, 24 or 48 VDC input/output
- Digital meter displays: system bus voltage, battery voltage, total rectifier amperage, connect/disconnect voltage set points, and system ambient temperature
- Up to five isolated distribution circuit breaker capacity with alarm contacts; easy front panel plug-in installation
- Alarm LED (summary) indicates impending LVD disconnection, Power Module output fail or load circuit breaker trip
- Summary alarm contacts (form C) allow remote monitoring of system status
- Manual battery disconnect switch allows service/replacement of batteries without system shutdown

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage Range</th>
<th>Max. Continuous Current</th>
<th>Low Voltage Battery Disconnect</th>
<th>Size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFM-500</td>
<td>8 - 65 VDC</td>
<td>500 Amps DC</td>
<td>500 Amp, Contactor</td>
<td>19/23”, 2 RU</td>
<td>20 Lbs.</td>
</tr>
</tbody>
</table>
Rackmount Inverter - 1RU Series

1RU, 48V Input, 1000 Watts Output

- Pure sine wave AC output powers telecom equipment without performance degradation
- Continuous duty rated - full output wattage maintained even during extended power outages
- 1000 Watts - easily cascade for N+1 redundancy, providing maximum reliability required by data centers
- Utility bypass, with fast load transfer switch, <8mS
- Load & temperature controlled cooling fan
- Form C alarm contacts for monitoring abnormal conditions

1RU, 48V Input, 2000 Watts Output

- Pure sine wave AC output powers telecom equipment without performance degradation
- 2000 watts surge, 1700 watts/2 KVA continuous
- Easily cascaded for N+1 redundancy, providing maximum reliability required by data centers
- Low EMI and RFI interference characteristics
- High efficiency: 90% (Full linear load at 120 VAC Output)
- Two NEMA 5-20R AC receptacles provided
- Utility bypass, with fast load transfer switch, <6mS

<table>
<thead>
<tr>
<th>Model</th>
<th>DC Input Voltage</th>
<th>DC Input Amps</th>
<th>AC Output Volts</th>
<th>Surge Watts</th>
<th>Cont. Watts</th>
<th>Cont. VA</th>
</tr>
</thead>
<tbody>
<tr>
<td>48-1U-2000RM</td>
<td>42 - 62 VDC</td>
<td>50</td>
<td>100 - 120V AC</td>
<td>2000</td>
<td>1700</td>
<td>2 KVA</td>
</tr>
</tbody>
</table>

- Numerous circuit and load protections: over-temp, overload, reverse polarity, high/low battery voltage, AC input breaker
- Load & temperature controlled cooling fan
- Form C alarm contacts for monitoring abnormal conditions
- All diagnostic Operation Controlled by a microprocessor
- User-friendly Status and Diagnostic LED displays
- Remote Power Management optional via remote control relay RS-232 port
- Inverter/UPS mode selector switch
- 19”, Rackmount, 1RU

Model | DC Input | AC Output
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>48-1U-1000RM</td>
<td>36 - 60 VDC, 25A</td>
<td>115 VAC, 60 Hz., 1000 Watts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
- Pure sine wave AC output powers telecom equipment without performance degradation
- Continuous duty rated – full output wattage maintained even during extended power outages
- 3000 Watts – easily cascaded for N+1 redundancy, providing maximum reliability required by data centers
- Low EMI and RFI interference characteristics
- High efficiency: 89% (Full linear load at 120 VAC Output)
- Four NEMA 5-15R AC receptacles provided
- Utility bypass, with fast load transfer switch, <6mS
- Numerous circuit and load protections: over- temp, overload, reverse polarity, high/low battery voltage, AC input breaker

### Rackmount Inverter - 2RU Series

- Load & temperature controlled cooling fan
- Form C alarm contacts for monitoring abnormal conditions
- All diagnostic Operation Controlled by a microprocessor
- User-friendly Status and Diagnostic LCD/LED displays
- Remote Power Management optional via remote control relay RS-232 port
- Inverter/UPS mode selector switch

<table>
<thead>
<tr>
<th>Model</th>
<th>DC Input Voltage</th>
<th>DC Input Amps</th>
<th>AC Output Volts</th>
<th>AC Output Watts</th>
<th>Dimensions (H x W x D)</th>
<th>Weight (Lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>48-3000RM</td>
<td>42 – 62</td>
<td>75</td>
<td>100 - 120V AC</td>
<td>3000</td>
<td>3.46” x 17.52” x 16.7”</td>
<td>31.5</td>
</tr>
</tbody>
</table>

* Load & temperature controlled cooling fan
* Form C alarm contacts for monitoring abnormal conditions
* All diagnostic Operation Controlled by a microprocessor
* User-friendly Status and Diagnostic LCD/LED displays
* Remote Power Management optional via remote control relay RS-232 port
* Inverter/UPS mode selector switch

<table>
<thead>
<tr>
<th>Model</th>
<th>DC Input Voltage</th>
<th>DC Input Amps</th>
<th>AC Input Voltage</th>
<th>AC Input KVA</th>
<th>AC Input Cont. Watts</th>
<th>AC Input Surge Watts</th>
<th>Weight (Lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-1000RM</td>
<td>20 - 30</td>
<td>50</td>
<td>115 VAC, 60 Hz.</td>
<td>1 KVA</td>
<td>800</td>
<td>1000</td>
<td>15.4</td>
</tr>
<tr>
<td>48-1000RM</td>
<td>40 - 60</td>
<td>25</td>
<td>115 VAC, 60 Hz.</td>
<td>1 KVA</td>
<td>800</td>
<td>1000</td>
<td>15.4</td>
</tr>
<tr>
<td>48-1000IRM</td>
<td>40 - 60</td>
<td>25</td>
<td>230 VAC, 50 Hz.</td>
<td>1 KVA</td>
<td>800</td>
<td>1000</td>
<td>15.4</td>
</tr>
<tr>
<td>48-2000RM</td>
<td>40 - 60</td>
<td>50</td>
<td>115 VAC, 60 Hz.</td>
<td>2 KVA</td>
<td>1600</td>
<td>2000</td>
<td>17.6</td>
</tr>
<tr>
<td>48-2000IRM</td>
<td>40 - 60</td>
<td>50</td>
<td>230 VAC, 50 Hz.</td>
<td>2 KVA</td>
<td>1600</td>
<td>2000</td>
<td>17.6</td>
</tr>
<tr>
<td>125-1000RM</td>
<td>100 - 150</td>
<td>10</td>
<td>115 VAC, 60 Hz.</td>
<td>1 KVA</td>
<td>800</td>
<td>1000</td>
<td>15.4</td>
</tr>
<tr>
<td>125-2000RM</td>
<td>100 - 150</td>
<td>20</td>
<td>115 VAC, 60 Hz.</td>
<td>2 KVA</td>
<td>1600</td>
<td>2000</td>
<td>17.6</td>
</tr>
</tbody>
</table>

* Adjustable for 60 Hz; † Special Order - Contact Factory
DC-DC Converters

Communication sites require isolated DC Converters to provide excellent voltage regulation, low noise, and high efficiency voltage conversion. Reliability is vital under continuous duty operation and high ambient temperatures. All these aspects were incorporated in the design of our rackmount DC Converters.

These units accept a wide input range at 24 or 48 VDC nominal, positive or negative ground, and produce pure 12 or 24 volt power. The solid state circuitry is conservatively designed and semi-conductors are selected and tested to withstand 200% of normal operating power.

Output voltage is maintained within 1% for all line and load conditions and the output is well filtered, allowing use with sensitive transceivers and telecom equipment.

Features
- 48, 24 volt inputs; 12, 24 volt outputs; positive, negative or floating ground
- Input/Output chassis isolation – 250 VDC
- 400 watt output
- Rated for continuous duty at full load
- Excellent regulation under all line/load conditions
- Low ripple provides noise free output
- High efficiency – 87% typical
- Easily adapts to both 19” and 23” racks, center mount (6” from front)
- Output volt and ammeter
- Output voltage adjustment on front panel
- Low profile – occupies two RU (one RU space above and below recommended for cooling)

### Specifications

**Input**  
Model | Voltage (VDC) | Max. Amps | Volts (VDC) | Output Adjustment | Amperage (Continuous) | H | W | D | Lbs | Kg.
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
48-12-30RM | 40 - 60 | 12 | 13.6 | 12.6 - 14.5 | 30 | 3.5” | 19” | 8.9” | 10 | 4.6
48-24-15RM | 40 - 60 | 12 | 27.2 | 25.2 - 29.0 | 15 | 3.5” | 19” | 8.9” | 10 | 4.6
24-12-30RM* | 20 - 30 | 26 | 27.2 | 12.6 - 14.5 | 30 | 3.5” | 19” | 8.9” | 10 | 4.6
24-48-8RM | 20 - 30 | 26 | 54.4 | 50.4 - 58.0 | 8 | 3.5” | 19” | 8.9” | 10 | 4.6

* Special order - contact factory for availability

**Protection**  
- Input and Output circuit breaker
- Current limited/short circuit proof
- High/low input voltage shutdown
- Fail-safe components guard against output over-voltage condition
- Automatic high temperature power reduction starting at 65° C heat sink temp
- Automatic thermal shut down and recovery @ 80° C heat sink temp. (automatic reset @ 55° C heat sink temp.)
- Reverse polarity protection

**Options**  
- Operation as battery charger and/or parallel redundant operation
- Output Failure Alarm Contacts; Form C
Modular DC-DC Converter System

Convert 48 to 24 or 24 to 48 volts with this compact, high power density (1RU) DC converter system. Wide range input maintains well regulated (isolated) output even when source voltage goes low. Multiple power bays accept 1500 watt converter modules allowing system scalability, load sharing and N+1 redundancy for high reliability. Built-in remote monitoring by Form C alarm contacts alerts operators to major and minor fault conditions.

Features
- High power density 1RU shelf, saves valuable rack space
- Scalable to 7500 watts output by insertion of multiple 1500 watt DC converter modules, up to 5 per shelf
- N+1 redundancy back-up, converters always on-line in event of failure, providing seamless back up power
- Wide input range accepts variation of input voltage while producing steady output essential for proper equipment operation
- Wide temperature range -40 to 75˚ C assures performance in remote sites and outdoor cabinets
- High efficiency: 95% conserves energy and minimizes heat generation, reducing ambient cooling requirements
- Remote monitoring provides major and minor failure conditions notifications
- Diagnostic LEDs on each converter provides on-site trouble shooting diagnostics

Specifications

<table>
<thead>
<tr>
<th>Shelf</th>
<th>Input Voltage</th>
<th>Output Voltage</th>
<th>Amperage</th>
<th>Size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRS-248-7500</td>
<td>21.5 - 58.0V DC</td>
<td>24 or 48V DC</td>
<td>290 @ 24V; 145 @ 48V</td>
<td>19”, 1 RU</td>
<td>10.6 Lbs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DC Converter Module</th>
<th>Input Voltage</th>
<th>Output Voltage</th>
<th>Output Amps Cont.</th>
<th>Watts</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-48-DHS</td>
<td>21.5 - 29.0V</td>
<td>54.4 VDC</td>
<td>27A</td>
<td>1500</td>
</tr>
<tr>
<td>48-24-DHS</td>
<td>43.0 - 58.0V</td>
<td>27.0 VDC</td>
<td>55A</td>
<td>1500</td>
</tr>
</tbody>
</table>

General Specifications
- Ground Reference: Positive/Negative/Floating
- Efficiency: 95%
- Connections: Dual stud for two hole lugs
- Alarm Module: 2 Form C relays, single pole, double throw, 0.5 amps at 60V DC
- Operating Temperature: -40˚ to 75˚ C
- Protection: Internal fuse
- Safety: UL 60950, Nebs GR-1089
- Shelf Dimensions: 19” W x 1.72” H x 15” D
Circuit Breaker Distribution Panels

- High density, 2RU Rackmount Panels designed to accommodate virtually any 48, 24 or 12 VDC power distribution requirement
- Accommodates up to 10 or 20 circuits depending on model
- Distributes up to 900 amps (450 amps per bus)
- Unique plug-in circuit breaker design requires only front panel access for quick and easy installation
- Tripped breaker alarm contacts provide remote alarm/indications

- Circuit Breaker ratings: 5, 10, 15, 20, 25, 30, 40, 50, 75 or 100 amp
- UL Listed, CE Marked

### Models

<table>
<thead>
<tr>
<th>Models</th>
<th>Nominal Input/Output</th>
<th>Bus</th>
<th>Total Circuit Capacity</th>
<th>Total Current Capacity</th>
<th>Dimensions (Inches)</th>
<th>Weight* (Lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DST-10</td>
<td>12, 24 or 48 VDC</td>
<td>Single</td>
<td>10</td>
<td>450 amps</td>
<td>3.5 19 14.4</td>
<td>9</td>
</tr>
<tr>
<td>DST-20A</td>
<td>12, 24 or 48 VDC</td>
<td>Dual</td>
<td>20</td>
<td>900 amps</td>
<td>3.5 19 14.4</td>
<td>12</td>
</tr>
</tbody>
</table>

* Weight with no circuit breakers installed

DC Power Distribution Panel Plug-In Circuit Breakers

This 8 position circuit distribution panel provides system integrators a flexible solution for DC power distribution on 12, 24 or 48 volt application. Plug in circuit breakers allow easy front access configuration to load distribution. Front panel indicators provide system status: Power available, and if breaker is tripped/off position. In addition, remote monitoring is provided via form C contact indicating tripped breaker condition. The panel’s compact 2 RU height saves valuable rack space and the barrier terminal blocks on rear panel provide convenient wire terminals landing points, and simplifies cable management.

### Features

- 12, 24, or -48 VDC, Positive or Negative Ground operation
- Integrates easily with any power system
- 100 amps Bus - 8 plug-in circuit breaker capacity (breakers sold separately)
- Indicator LEDs: Power available, tripped/off circuit breaker
- Form C alarm contacts: tripped breaker, input fail

### Models

<table>
<thead>
<tr>
<th>Models</th>
<th>Nominal Input/Output</th>
<th>Total Circuit Capacity</th>
<th>Total Current Capacity</th>
<th>Dimensions (Inches)</th>
<th>Weight* (Lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DST-100/8</td>
<td>12, 24 or 48 VDC</td>
<td>8</td>
<td>100 Amps</td>
<td>3.5 19 11</td>
<td>5</td>
</tr>
</tbody>
</table>

* Weight with no circuit breakers installed
Fuse Distribution Panels

These fuse panels are ideal for DC distribution to low power loads in 24 and 48 volt positive and negative ground network applications and provide enhanced system reliability via dual input buses which allow configuration with redundant power sources. Each input bus accommodates 10 or 20 GMT output fuses (depending on model) in ratings up to 15 amps. Form C alarm contacts provide remote monitoring of input power and blown fuse conditions. Front panel LEDs indicates normal operation, fuse failure mode, as well as a user configured external alarm signal. Their low profile 1.75” (1RU) occupies minimal space and can be configured for 19 or 23 inch rack mounting.

Features
- GMT Fuse
- Polarity insensitive panels work with positive and negative ground systems -/+ 24 or -/+ 48 VDC
- Form "C" alarm contacts
- 1RU (1.75”) in height will configure to 19” or 23” rack mounting

Specifications
Nominal Input/Output: +/- 24 or +/- 48 VDC

Fuse Capacity
FDP-1010: 10 GMT fuses per bus (20 total)
FDP-2020: 20 GMT fuses per bus (40 total)

Total Current Capacity
FDP-1010: 200 amps (dual 100 amp bus)
FDP-2020: 200 amps (dual 100 amp bus)
Fuse Holder & Fuse Rating: 15 amps max.

GMT Fuses: Available amperages: 1, 3, 5, 7.5, 10, and 15. Other ratings available upon request. Note: Fuses sold separately

Operating Temperature: -20° to +60° C (-5° to + 140° F)

Alarms
- Form C alarm contacts for each bus
- External ground input alarm (bay or rack alarms)

Compliances: NEBS 3 certified

<table>
<thead>
<tr>
<th>Models</th>
<th>Nominal Input/Output</th>
<th>Total Fuse Capacity</th>
<th>Amps per Bus (Dual Bus)</th>
<th>Total Current Capacity</th>
<th>Dimensions (Inches)</th>
<th>Weight (Lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDP-1010</td>
<td>+/- 24 or 48 VDC</td>
<td>20</td>
<td>100</td>
<td>200 amps</td>
<td>1.75</td>
<td>17</td>
</tr>
<tr>
<td>FDP-2020</td>
<td>+/- 24 or 48 VDC</td>
<td>40</td>
<td>100</td>
<td>200 amps</td>
<td>1.75</td>
<td>17</td>
</tr>
</tbody>
</table>

Mechanical
- Steel case painted flat black
- Mounting ears provided for 19” and 23” rackmount, flush mount or 6” offset
- 1 RU (1.75”), can be zero clearance mounted directly adjacent to other equipment

Front Panel Details
- LED status indicators:
  - Normal Operation
  - Fuse Alarm
  - External alarm
- Easy accessible fuse blocks
- Spare fuse holder

Rear Panel Details
- Input Terminal Block: Two 14” studs on 5/8” centers
- Output and Alarm Terminal Blocks:
  - FDP-1010: Barrier Terminal Block; #22 to #10 AWG wire for fork or ring #6 screw
  - FDP-2020: Elevator clamp style terminal block; #26 to #12 AWG wire.
- Cable Management Bar Clear Lexan cover protects wiring connections

Newport Beach, CA USA
www.poweringthenetwork.com  • 800-854-3906

Powering the Network
Circuit Breaker Distribution

with Remote Re-Boot Control

Instantly reboot, start or stop -48V network equipment (contact factory for +12V and +24V modification) in remote locations securely from your web browser or via program control. Eliminate overloads, brown-outs, blown breakers and other power problems before they occur, start devices in sequence automatically.

Ease of remote operation is made possible via numerous web browser control options of up to 8 breaker protected circuits. Remotely control power relays, choose from sequential on, all-off, selective circuit, or last state. In addition, an advanced custom control function is built-in, programmed via a BASIC style language that remotely initializes scripts without user intervention upon defined conditions such as: power-up, or when lock up is sensed via the “Auto-Ping” feature. Auto Ping continually monitors critical network devices, such as telecom equipment, servers and routers. If a device fails to respond after a user selectable number of pings, the power controller will automatically reboot it, or run a user’s script with no user intervention. “Locked-up” devices are brought back to life instantly. Long distance service calls are averted.

Convenient monitoring via user-defined graphics and hyperlinks allow you to customize web pages. Programmable web links provide a seamless control panel of multiple systems comprising several distribution reboot units.

Features

- Remote control routers, telecom equipment. Switches any -48VDC device, up to 15 amps. An internal web server gives you manual control from anywhere in the world.
- Use scripts to automate control from remote locations via LAN or WAN
- The “Auto-Ping” feature intelligently reboots a machine, router, server, or other Ethernet device automatically
- Windows utility provides e-mail notification of logs and events. Also supports UNIX style SYSLOG
- Front panel system control buttons with LCD display enables manual on-site relay control for ease of set-up

<table>
<thead>
<tr>
<th>Model</th>
<th>Input Voltage</th>
<th>Circuit Capacity</th>
<th>Dimensions (H x D x W)</th>
<th>Weight (Lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DST-8-RB</td>
<td>36 - 75V DC either A or B bus</td>
<td>8</td>
<td>1.75” x 11” x 17”</td>
<td>9.3</td>
</tr>
</tbody>
</table>

Electrical

- Input: 11.5 - 75V DC, either A or B bus
- Frequency: 20% ripple permissible
- A/B Input Breakers: 50A thermal, manual reset
- Power Dissipation: 10.3W Max (relays on) <3 W idle
- Ethernet Interface: 10/100 autosensing, Static IP, TCP port selectable, 8 pin RJ-45 w/ internal FCC filtering
- Input Terminal Rating: 100A
- Relay Contact Rating: 20A DC
- Password Transmission: Secure authentication Encrypted, base 64 Movable HTTP port for security

Output Circuit Breakers: 15A standard or specify 7 or 10A thermal, manual reset
Power Fail Hold-Over: 600ms minimum (all relays on)
Switches & Controls: Reset to factory default switch Link, ACT (Relays On), Pwr LEDs
Power-Up Settings: Last relay settings, all relays off, sequential on or run PLC script
Software Controls (via web or script): Individual outlets on/off, all on

Environmental

- Operating Temperature: -40° to 170° F, -34° to 77° C
Web-enable and integrate intelligence to any site’s AC and DC power system for 24/7 monitoring, alarm condition notification, and data logging of vital electrical functions. All programmable, accessible, and managed via the Internet: TCP/IP or SNMP. View current conditions and log 30 day history of DC and AC power status at remote sites before dispatching personnel.

The Site Power Monitor is designed specifically for monitoring power supplies, rectifiers, batteries, converters, inverters, UPS, distribution panels, and AC power at communication sites, base stations, outdoor enclosures, and command vehicles via Ethernet or Wireless connection. The palm sized unit can be rack, DIN-rail, or wall mounted and is easily adapted to virtually any make of power system via nine sensor input ports which capture and stream critical data via the internet for analysis and logging of site history. Web page based programs are easily user configured for site parameters with up to 50 desired alarm conditions settings and multiple automatic notification options by e-mail, mobile phone and smart devices.

Sites without internet access can use the monitor solely as a data logger that captures and retains 30 days’ data, ready for download to laptop for site history file and analysis of component performance and failure conditions.

Sensor Data
- DC Bus/Battery Voltage
- DC System Amperage/Battery Charge-Discharge Current
- AC Voltage
- Ambient Temperature
- Dry Contacts/Alarms

Firmware
- Programmable Alarms
- Data Logging
- Ethernet Camera

Reporting Via
- Internet – Software Included
- E-Mail
- Mobile Phone

Optional Accessories
- Rackmount Panel (model SPM-RM)

Monitor Inputs: 9 Total

DC: 3 Ports:
- 2 each: 0-40 VDC
- 1 each: 36-60 VDC
- Accuracy: +/- 2%

AC: 2 Ports:
- 120/240 (90-264) utility power (L-N or L-L)
- 120/240 inverter output (floating)
- Accuracy: +/-2%

DC Current: 1 Port
- +/- 100mv, 100 amp via differential using provided shunt
- Read battery charge/discharge current, or load current
- Accuracy: +/-3%

Dry Contact Switch Sensors: 3 Ports
- Possible uses: door open, water leak detection, smoke alarm, component fail, breaker trip, high temperature

Ambient Temperature Sensor
- Located outside case of unit
- Range: -40 to +60° C, -40° to +140° F
- Accuracy: +/-0.5° C

<table>
<thead>
<tr>
<th>Model</th>
<th>Input</th>
<th>Dimensions (H x D x W)</th>
<th>Weight (Lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPM-200</td>
<td>9 - 60 VDC, neg./pos. ground, 250 mA max.</td>
<td>3.27” x 4.66” x 2.18”</td>
<td>1</td>
</tr>
</tbody>
</table>
Battery Disconnect Panels

- Provides over-current protection in high current battery wiring applications
- Provides a convenient means of disconnecting batteries from power plant during servicing
- High current single pole breaker is mounted into 2RU rackmount panel
- Auxiliary contacts (form C) provide tripped breaker signal to power plant monitor
- 10,000 amp interrupt current rating (AIC)
- 19” rackmount ears provided (23” ears available, contact factory)
- Voltage Rating: 12, 24 or 48 VDC, positive or negative ground

Model Battery Breakers Available Amperage

<table>
<thead>
<tr>
<th>Model</th>
<th>Battery Breakers</th>
<th>Available Amperage</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDP-1</td>
<td>1</td>
<td>50, 75, 100</td>
</tr>
<tr>
<td>BDP-2</td>
<td>2</td>
<td>50, 75, 100</td>
</tr>
</tbody>
</table>

- Form C alarm contacts - breaker off or tripped
- Bus bar terminations, 1/4-20 tapped holes and hole center to center spacing for 2 hole lugs
- 25,000 amp interrupt current rating (AIC)
- 2RU chassis, adapts for 19” and 23” racks

- Voltage Rating: 12, 24 or 48 VDC, positive or negative ground systems
- UL and CSA listed
- Special order, contact factory for availability

**Dimensions**

- Voltage Rating: 12, 24 or 48 VDC, positive or negative ground systems
- UL and CSA listed
- Special order, contact factory for availability

- 10,000 amp interrupt current rating (AIC)
- 19” rackmount ears provided (23” ears available, contact factory)
**Battery Trays and Equipment Shelves**

<table>
<thead>
<tr>
<th>Model</th>
<th>Tray Area</th>
<th>Weight Capacity</th>
<th>Colors</th>
<th>Ship Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>T 19” x 19”</td>
<td>19.25” x 19.04”</td>
<td>350 lbs</td>
<td>Black</td>
<td>12 lbs</td>
</tr>
<tr>
<td>T 19” x 21”</td>
<td>17.25” x 22.3”</td>
<td>400 lbs</td>
<td>Black or Gray</td>
<td>17 lbs</td>
</tr>
</tbody>
</table>

23” tray available in various depths - contact factory for more information.

<table>
<thead>
<tr>
<th>Model</th>
<th>Shelf Area</th>
<th>Weight Capacity</th>
<th>Colors</th>
<th>Ship Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>S 19” x 16” Adjustable</td>
<td>17.56” x 16”</td>
<td>200 lbs</td>
<td>Black or Gray</td>
<td>10 lbs</td>
</tr>
<tr>
<td>S 19” x 20” Adjustable</td>
<td>17.56” x 20”</td>
<td>200 lbs</td>
<td>Black or Gray</td>
<td>11 lbs</td>
</tr>
<tr>
<td>S 19” x 16” Ventilated</td>
<td>17.5” x 14.87”</td>
<td>150 lbs</td>
<td>Black or Gray</td>
<td>10 lbs</td>
</tr>
</tbody>
</table>

**Bus Bars**

**BBA-800**
- 800 amp rated nickel-plated copper bus bar for use as heavy duty DC positive or negative connection point in rack installations.
- Multiple attachment holes in two sizes provided for single and dual hole lugs: 18 ea. @ .312” x .500”; 6 ea. @ .437” round; 4 ea. @ .281” round.

**GB-19**
- Copper bus bar for (unplated), 100 amp rating.
- 14 ea. 1/4” landing points.
- Installer must supply insulating stand-offs.
- Tie bar provided for connecting to adjacent racks.

<table>
<thead>
<tr>
<th>Model</th>
<th>Rating</th>
<th>Dimensions (H x W x D)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>BBA-800</td>
<td>800 Amps</td>
<td>19.5” x 2” x 0.25”</td>
<td>4 Lbs.</td>
</tr>
<tr>
<td>GB-19</td>
<td>100 Amps</td>
<td>19.3” x 0.75” x 0.15”</td>
<td>1 Lbs.</td>
</tr>
</tbody>
</table>

**Quick Connects**

Designed specifically for use with Newmar’s PM Series Power Modules and Power Function Manager in stacked rack configuration.

<table>
<thead>
<tr>
<th>Models</th>
<th>Description</th>
<th>AWG</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>QCK-3</td>
<td>for up to 3 Power Modules, 70A rating</td>
<td>6</td>
<td>3 Lbs.</td>
</tr>
<tr>
<td>QCK-3A*</td>
<td>for up to 3 Power Modules, 80A rating</td>
<td>4</td>
<td>3 Lbs.</td>
</tr>
<tr>
<td>QCK-6</td>
<td>for up to 6 Power Modules, 70A rating</td>
<td>6</td>
<td>4 Lbs.</td>
</tr>
<tr>
<td>QCK-6A*</td>
<td>for up to 6 Power Modules, 80A rating</td>
<td>4</td>
<td>4 Lbs.</td>
</tr>
<tr>
<td>CCK-4**</td>
<td>for up to 4 Power Modules (2200 Watt)</td>
<td>4</td>
<td>6 Lbs.</td>
</tr>
</tbody>
</table>

* PM-12-80 - only use QCK-3A or QCK-6A; ** PM-48-50 - only use CCK

**Rack Covers**

Clear plastic panels attach to rear of racks to protect service personnel by preventing accidental contact with “live” terminals, etc., from top, sides and rear.

<table>
<thead>
<tr>
<th>Model</th>
<th>Rack Height (1RU = 1.75”)</th>
<th>Rack Width</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRC-3-19</td>
<td>3 RU</td>
<td>19”</td>
<td>4 Lbs.</td>
</tr>
<tr>
<td>RRC-7-19</td>
<td>7 RU</td>
<td>19”</td>
<td>5 Lbs.</td>
</tr>
<tr>
<td>RRC-3-23</td>
<td>3 RU</td>
<td>23”</td>
<td>5 Lbs.</td>
</tr>
<tr>
<td>RRC-7-23</td>
<td>7 RU</td>
<td>23”</td>
<td>6 Lbs.</td>
</tr>
<tr>
<td>Description</td>
<td>Pages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Systems</td>
<td>1 – 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Enclosures</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIN-Rail DC UPS &amp; Batteries</td>
<td>10 - 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LVD &amp; Power Management</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC-AC Inverters</td>
<td>13 - 14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC-DC Converters</td>
<td>15 - 16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC Distribution</td>
<td>17 - 18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote Re-Boot Distribution</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote Monitoring</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery Disconnect Panels</td>
<td>21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessories</td>
<td>22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>