

# Omni Series

## -48V Power System

The Omni series is a flexible modular power system designed for central office and wireless applications.

Each frame provides up to (7) Shindengen's ultra high performance GPR130, -48V/130A switchmode rectifiers. The hot-swappable plug-and-play rectifier modules offer state of the art switchmode technology with efficiency levels of >92% (or greater) and a THD of 3%. The system operates over a wide AC input range of 180Vac to 264Vac (three phase). Flexible DC distribution is available with circuit breakers or fuses in various sizes and combinations.

Shindengen has vast experience in network monitoring and the Omni Series benefits from this know-how. The advanced intelligent controller provides intuitive graphical system monitoring via your browser and includes system's operating status, alarm information, battery conditions and history. System monitoring can be achieved through standard local RS232 connection. The controller is sophisticated yet simple to operate.

### Features:

- Flexible, modular, cost effective
- N+1 redundancy
- Hot-swappable, plug and play 130A, 3U high rectifier modules
- Field replaceable fans
- Wide AC input range (208/220/240Vac 3 Phase)
- Industry standard footprint with 7ft maximum height
- Remote multiple system monitoring with optional Ethernet (SNMP) interface
- System Monitoring via RS232 or Modem
- Sophisticated controller with LCD display—easy to operate
- Flexible DC distribution with breakers and fuses
- Low Voltage Disconnect Option
- THD 3%
- 91% System efficiency
- NEBS Level 3
- Local custom configuration to meet your needs



### Applications

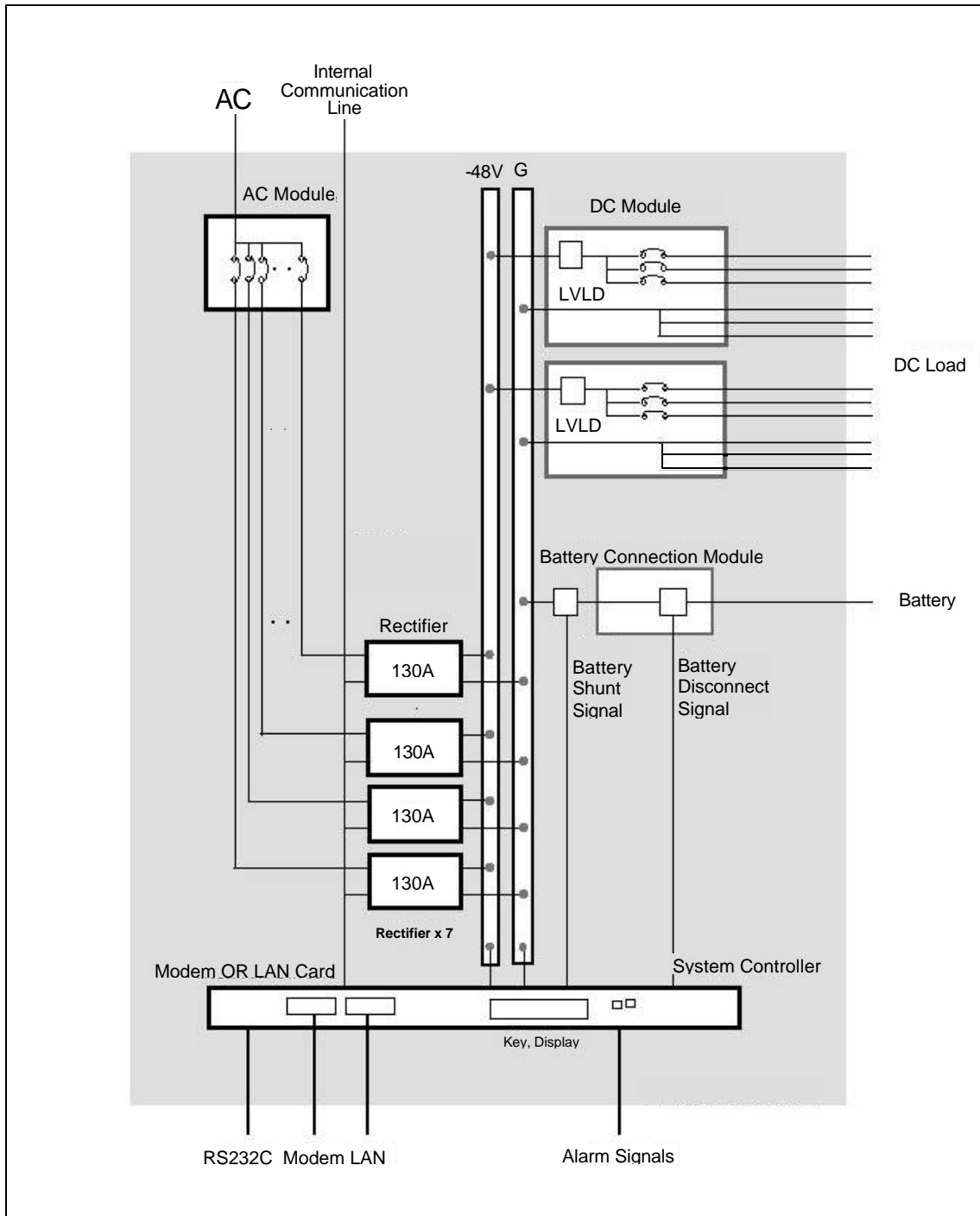
- Central Office
- Wireless Sites
- Controlled Environment Vaults
- Microwave Transmission Sites
- Industrial
- Utilities

If you require further information or assistance, please contact Shindengen at the following address:

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**Omni Series System Block Diagram:**



**Omni Series, – 48V SYSTEM SPECIFICATIONS:**

General	Description
Architecture	<p><b>Distributed Architecture:</b></p> <p>Each frame is basically a self-contained system. Overall system capacity is increased by adding frames and associated batteries.</p> <p>Each frame contains:</p> <ul style="list-style-type: none"> <li>• AC distribution panel</li> <li>• DC distribution panel</li> <li>• battery connect / disconnect modules, each with a battery shunt per battery section</li> <li>• rectifiers</li> <li>• termination points for load circuits</li> </ul> <p>The initial frame also contains the system controller and is the only frame that can function as a stand-alone system.</p>
Rectifiers per frame	<ul style="list-style-type: none"> <li>• Distributed Architecture Frame: Initial &amp; Expansion frame – 1 to 7 rectifiers</li> </ul>
Rated Current per frame	Distributed Architecture – 910A
Output DC distribution	<p>Options:</p> <ul style="list-style-type: none"> <li>• Qty. (15) TPS style fuses from 3A to 70A distribution module</li> <li>• Qty. (15) DIN style circuit breakers from 0.5A to 63A distribution module</li> <li>• Qty. (20) TPC style fuses from 3A to 100A distribution module</li> <li>• Qty. (20) Bullet style circuit breakers or fuses from 1A to 100A distribution module</li> <li>• Qty. (3) TPL style large fuses from 70A to 250A distribution module with shunts. Option with LVLD available</li> <li>• Qty. (2) TPL style large fuses from 70A to 400A distribution module with shunts. Option with LVLD available</li> <li>• Qty. (1) TPL style large fuse from 300A to 600A distribution module with shunt. Option with LVLD available</li> <li>• Qty. (3) Large circuit breakers from 100A to 250A distribution module with shunts. Option with LVLD available</li> <li>• Qty. (2) Large circuit breakers from 100A to 400A distribution module with shunts. Option with LVLD available</li> <li>• Qty. (1) Large circuit breaker from 100A to 600A distribution module with shunt. Option with LVLD available</li> </ul>
AC input module option	<ul style="list-style-type: none"> <li>• AC input circuit breaker panel. Qty. 1 AC breaker per rectifier.</li> <li>• AC input terminal block panel. (External individual AC breakers)</li> </ul>
Low Voltage Battery Disconnect (LVBD)	Options available with 1500A contactor or 1500A contactor with (2) TPL style fuses from 300A to 600A
Low Voltage Load Disconnect	Optional with DC distribution panels
Acoustic Noise	< 65dBA

Electrical (Input / Output)	Description
Maximum Output Current	10,000A
System Efficiency	> 91%
Psophometric Noise	<2.0 mV
Ripple (Peak to Peak noise)	150 mV peak-to-peak

**Omni Series, – 48V SYSTEM SPECIFICATIONS (continued):**

Environmental	Description
Operating Ambient Temperature	0°C to 40°C. (50°C operation for 96 hours)
Operating Relative Humidity	5%–96% (non-condensing)
Storage Ambient Temperature	–15°C to 75°C
Storage Relative Humidity	0%–95% (non-condensing)
Operating Altitude	–200 ft. to 10,000 ft. For altitudes above 5000 ft. derate the temperature by 2.0°C per 1000 ft.
Heat Dissipation / Heat Release	4431W maximum per frame (with 7 rectifiers)

Physical	Description
Height	82.80 in. (2100mm)
Width	23.6 in. (600mm)
Depth	23.6in. (600mm)
Weight (without rectifiers)	540 lbs (Frame only)

Safety / EMC	Description
Safety	UL1801, UL 60950, CSA C22.2 No. 60950 (c UL)
EMC	Emission: FCC Part 15 Class B, Radiated / Conducted Emissions
NEBS	Level 3. GR-63-CORE, GR-1089-CORE

**GPP CONTROLLER SPECIFICATIONS:**

General	Description
Display	4 line by 20 character backlit LCD
System Status Severity LEDs	Normal, PMJ, PMN
Communications Status LED	COM
Individual Alarm Status LEDs	RECT, BATT, DIST, AC, MON, BD, CTRL
System Status Severity Relays	PMJ, PMN
Individual Alarm Status Relays	MJF, BD, LV, BUZZ, HV, ACF
Automatic Rectifier Sequencing	Provided
Remote Rectifier (ON/OFF) control	Provided
Automatic Rectifier restart	Provided
Control & Monitoring	Monitoring and control of all rectifiers in all frames. Monitor and control essential plant functions such as plant voltage, plant current, temperature, LVBD, LVLD.
Alarm Configuration	Change alarm descriptions, LEDs, severity (Major, Minor, Notice, Log Only) and relays. Alarm configuration stored in non volatile memory
System configuration & settings	Change system configuration & settings from the keys on the front panel of the controller or from an external device via the communications port.
Audible Alarm Cut off	Standard
Battery Temperature Monitoring	2 temperature probes per frame.

**GPP CONTROLLER SPECIFICATIONS (continued):**

General	Description
Local RS232 Serial Port connection	Standard. (ANSI Standard T1.317 interface)
LAN / SNMP interface Card	Future Option
Modem	Optional. V.90 38.4 kbps (ANSI Standard T1.317 interface)
Configuration Software	Shindengen's Windows based software for configuration and reporting
Security Access Levels	Three password protected security access levels: <ul style="list-style-type: none"> <li>• Read only</li> <li>• Read and Write</li> <li>• Read, Write and Password Change</li> </ul>
Call Back Security-Modem	Modem port capable of call back security

**GPR130 – 48V, 130ADC RECTIFIER SPECIFICATIONS:**

AC Input	Description
Nominal Voltage, 3 phase	GPR130: 200Vac / 208Vac / 220Vac/ 240Vac nominal, 3-wire plus ground (no neutral)
Voltage Range	GPR130: 180Vac–264Vac phase-to-phase
Operating Frequency (Range)	50 Hz / 60Hz nominal (47Hz–63Hz)
Power Factor	≥ 0.98 (for > 50% load)
Total Harmonic Distortion (THD)	3% for > 50% load
Low AC Voltage Protection	No damage from any voltage less than 180Vac with automatic recovery

DC Output	Description
Rated Current	130A <sub>dc</sub> at 56V <sub>dc</sub> 152A at ≤ 48V <sub>dc</sub>
Nominal Voltage	48/52.08/54.5V <sub>dc</sub>
Operating Voltage Range	48V <sub>dc</sub> to 56V <sub>dc</sub> (adjustable through controller)
Voltage Regulation	±0.5%
Ripple (Peak to Peak noise)	< 150 mV peak-to-peak ripple
Psophometric Noise	< 2.0 mV
High Voltage Shutdown Backup	Individual rectifiers shall shutdown when output voltage of the rectifier exceeds 60V <sub>dc</sub> maximum for a minimum of 1 sec regardless of other conditions (This is done through hardware circuit)
High Voltage Shutdown Internal	Individual rectifiers providing current shall shut down when output voltage of the rectifier exceeds a configured value for a minimum of 1 sec <b>and</b> communication with controller is failed. Threshold range 51V <sub>dc</sub> –59V <sub>dc</sub>
High Voltage Shutdown External	Individual rectifiers providing current shall shut down when system voltage exceeds a configured value for a minimum of 1 sec <b>and</b> communication with controller is OK. Threshold range 51V <sub>dc</sub> –59V <sub>dc</sub>
Manual ON / OFF	The rectifier has an ON / OFF control panel switch
Automatic Restart	The rectifier controller itself and system controller will attempt to restart any rectifier that has stopped providing power for any reason.
Forced Load Sharing	< 5%
Current Limiting Set Point	50A-160A
Constant Power Mode	Provides more than the rated 130A from 48V <sub>dc</sub> to 56V <sub>dc</sub> Maximum current available: 130A at 56V <sub>dc</sub> 152A at ≤ 48V <sub>dc</sub>
Operating Temperature	0°C to 50°C

## GPR130 – 48V, 130ADC RECTIFIER SPECIFICATIONS (continued):

Environmental	Description
Operating Relative Humidity	5%–90% (non-condensing)
Storage & Transportation Temperature	–15°C to 75°C (non-condensing)
Storage & Transportation Relative Humidity	0%–95%
Operating Altitude	–200 ft. to 10,000 ft. For altitudes above 5000 ft. derate the temperature by 2.0°C per 1000 ft.
Heat Dissipation	633 Watts / rectifier

General	Description
Efficiency	> 92%, at 50%–100% of output full load & nominal input voltage and output voltage
Cooling	Front to Rear Dual Fan Cooling
Fan Filters	Removable, reusable, and washable.
Acoustic Noise	<60 dBA
Visual Indicators (LED)	OPE (green), OC (yellow), ALM (red), FAN ALM (red), HV (red)
Serial Interface Signaling: Rectifier to Controller	<ul style="list-style-type: none"> <li>Rectifier current</li> <li>Rectifier ID (physical position in system)</li> <li>RFA (Rectifier Fail Alarm) (Every rectifier malfunction shall cause a notification to be sent to the controller)</li> <li>Fan fail</li> <li>Manual OFF</li> <li>Rectifier design revision level</li> </ul>
Serial Interface Signaling: Controller to Rectifier	<ul style="list-style-type: none"> <li>Remote sense</li> <li>Voltage set points</li> <li>Current set points</li> <li>Restart</li> <li>High Voltage</li> <li>ON/ Standby</li> </ul>

Physical	Description
Height	5.20 in. (132 mm)
Width	18.8 in. (480 mm)
Depth	18.7 in. (474 mm)
Weight	< 51 lbs

Safety	Description
Safety	UL 60950, CSA C22.2 No. 60950 (c UL)
NEBS	Level 3, GR-63-CORE, GR-1089-CORE