

## ULTRA COMPACT, 48V, 24V and 12V INTEGRATED DC POWER SYSTEMS



GRAVITAS X100



LVD73/23/EEC

### KEY FEATURES

- ◆ Compact, 2RU High
- ◆ Fully Integrated System
- ◆ Hot-Swap Rectifier Modules
- ◆ Integrated Controller
- ◆ 100A at +13.6VDC
- ◆ 99A at +27.2VDC
- ◆ 60A at -54.4VDC
- ◆ Pluggable Circuit Breakers
- ◆ Quick-Connect Terminals
- ◆ Wide Range AC Input
- ◆ Less Than 12-Inches (305mm) Depth

### SAFETY CERTIFICATIONS

AGENCY	STANDARD
UL	UL1950
CUL	CSA22.2, No. 950
DEMKO	EN60950

**TWO-YEAR WARRANTY**

### DESCRIPTION

Gravitas X100 is an ultra-compact, integrated, DC power system. It consists of up to three high power-density, hot-swap rectifier modules which can produce 60 amperes at -54.4VDC, 99 amperes at +27.2VDC and two rectifiers for 100A at +13.6VDC. In 2+1 redundant operation the output current is 40 amperes or 66 amperes, respectively for -54.4VDC & 24.72VDC, or 50 amperes for +13.6VDC.

The system has a DC distribution panel with up to 5 load circuits which are protected by circuit breakers (standard) and GMT fuses (option). A battery breaker is standard and a low-voltage battery disconnect is optional.

The integral controller has LED visual alarms, Form C relay alarms, test points and set-point adjustments including over- and under-voltage adjustments. There is also a temperature compensation option.

The complete Gravitas X100 is only 2RU high (3.47 inches or 88.1mm) and is easily installed by a qualified technician. All power connections are at the rear of the unit to DIN-rail terminal blocks. A comprehensive operating manual explains all the details of operation and installation. The units may be mounted in 19- or 23-inch racks.



**PLUGGABLE  
CIRCUIT  
BREAKERS**

## GRAVITAS X100 SUMMARY FEATURES

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>◆ -48, +24, or +12VDC Hot-Swap Rectifiers</li> <li>◆ 120 or 230VAC Input</li> <li>◆ Power Factor Corrected</li> <li>◆ Pluggable Circuit Breakers</li> <li>◆ Class B EMI Input Filter</li> <li>◆ Up to 60A at -54.4VDC</li> <li>◆ Up to 99A at +27.2VDC</li> <li>◆ Up to 100A at +13.6VDC</li> <li>◆ 2+1 Redundant Operation</li> </ul> | <ul style="list-style-type: none"> <li>◆ Up to 5 DC Load Circuits</li> <li>◆ Field-Changeable Breakers</li> <li>◆ Battery String Breaker(s)</li> <li>◆ LV Battery Disconnect Option</li> <li>◆ Integral Controller</li> <li>◆ Quick, Easy Installation</li> <li>◆ Modular Design</li> <li>◆ Only 2RU (3.47 Inches) High</li> <li>◆ 19- or 23-Inch Rack Mounting</li> </ul> |
|---|--|

## SYSTEM CAPABILITY

SYSTEM CAPABILITY	X100-48P/60	X100-24P/100	X100-12P/100
System Voltage	-54.4VDC	+27.2VDC	+13.6VDC
System Max. Current	60A	99A	100A
System Current, 2+1	40A	66A	50A <sup>4</sup>
Input Range, VAC	85-264	85-264	85-264
Rectifier Model	RPCP48/20	RPCP24/33	RPCP12/50
Rectifiers Required, max.	3	3	2
Battery String Breakers	1 standard	2 standard	2 standard
Low Voltage Disconnect <sup>1</sup>	optional	optional	optional
Total No. of DC Loads, max. <sup>2</sup>	5	5	5
1A-50A Breakers (standard)	2	2	2
1A-20A Breakers (standard)	2	2	2
½A-12A GMT Fuses (option)	4	4	4
Control Features			
Alarm Outputs	4 standard	4 standard	4 standard
Temp. Compensation	optional	optional	optional
Rack Height	2RU	2RU	2RU
Rack Width, Inches <sup>3</sup>	19	19	19

**NOTES:**

1. Battery disconnect.
2. Up to 4 loads standard. Up to 5 loads with combination of breakers and optional GMT fuses.
3. 23-Inch mounting brackets can be supplied.
4. 1+1 redundant.

## INTEGRAL CONTROLLER

This controller controls the system rectifier, monitors the system parameters and has alarms for system failures. There are eight red LED alarms which indicate a failure: Major Alarm, Minor Alarm, Fuse or Breaker Alarm, Overvoltage or Undervoltage Alarm, Temperature Compensation Alarm, Rectifier Failure Alarm, and AC Input Failure Alarm.

Four Form C relay outputs give alarms: Major Alarm, Minor Alarm, Rectifier Failure Alarm and AC Input Failure Alarm. Four front-panel voltage-set adjustments are for Float Voltage, Battery Overvoltage, Battery Undervoltage and Temperature Compensation. Test points for load voltage and current permit external measurement of these values. An option for this controller includes a temperature compensated output from the rectifier.

## RPCP RECTIFIER MODULE SPECIFICATIONS

### INPUT

Voltage Range \_\_\_\_\_ 85-264VAC  
 Power Factor \_\_\_\_\_ 0.99  
 Total Harmonic Distortion, Max. \_\_\_\_\_ 5%  
 Frequency \_\_\_\_\_ 47-63Hz  
 Inrush Current Limiting \_\_\_\_\_ 50A Peak  
 EMI Filter, Conducted \_\_\_\_\_ FCC20780 pt. 15J Curve B  
 \_\_\_\_\_ EN55022 Curve B  
 Input Current, 230VAC \_\_\_\_\_ 5.6A  
 120VAC \_\_\_\_\_ 10.8A  
 Input Immunity, Conducted  
 Fast Transients, Line-Line  $\pm 2$ kV (EN61000-4-4 Level 3)  
 Surges, Line-Line \_\_\_\_\_  $\pm 2$ kV (EN61000-4-5 Level 3)  
 Surges, Line-Ground \_\_\_\_\_  $\pm 4$ kV (EN61000-4-5 Level 4)

Overvoltage Protection, 48V Nominal \_\_\_\_\_ 58V  
 24V Nominal \_\_\_\_\_ 29V  
 12V Nominal \_\_\_\_\_ 14.5V  
 Filtering: Wideband Noise, 20Mhz BW,  
 48V Nominal, P-P \_\_\_\_\_ 500mV  
 24V Nominal, P-P \_\_\_\_\_ 250mV  
 12V Nominal, P-P \_\_\_\_\_ 125mV  
 Voice Band Noise \_\_\_\_\_ <32dBnC  
 Current Limit \_\_\_\_\_ 105% Rated Current  
 Efficiency \_\_\_\_\_ 82-87%

### OUTPUT

Current & Voltage, 48V Nominal \_\_\_\_\_ 20@54.4VDC  
 24V Nominal \_\_\_\_\_ 33A@27.2VDC  
 12V Nominal \_\_\_\_\_ 50A@13.6VDC  
 Voltage Adjustment Range, 48V Nominal \_\_\_\_\_ 45-58VDC  
 24V Nominal \_\_\_\_\_ 22-29VDC  
 12V Nominal \_\_\_\_\_ 11-14.5VDC  
 Output Power, Rated 48V Nominal \_\_\_\_\_ 1,088W  
 24V Nominal \_\_\_\_\_ 898W  
 12V Nominal \_\_\_\_\_ 680W  
 Total Regulation, Max. \_\_\_\_\_ 2%  
 Holdup Time \_\_\_\_\_ 20msec.

**SAFETY STANDARDS** UL 1950, CSA22.2-950, EN60950

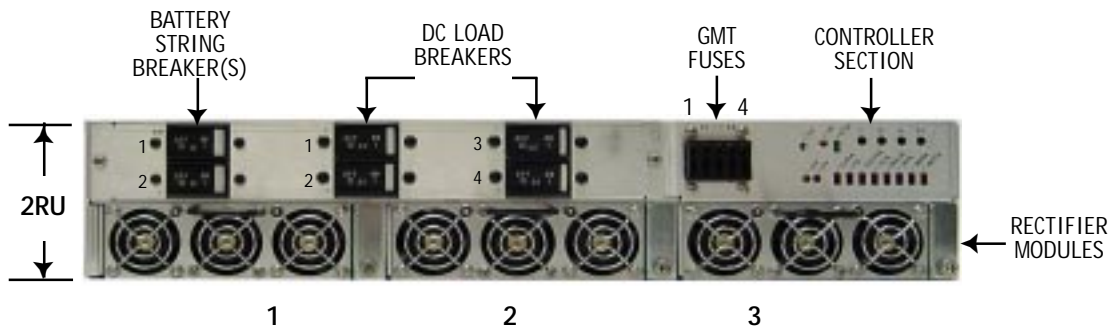
### STATUS INDICATORS

AC Good \_\_\_\_\_ Green LED  
 DC Good \_\_\_\_\_ Green LED

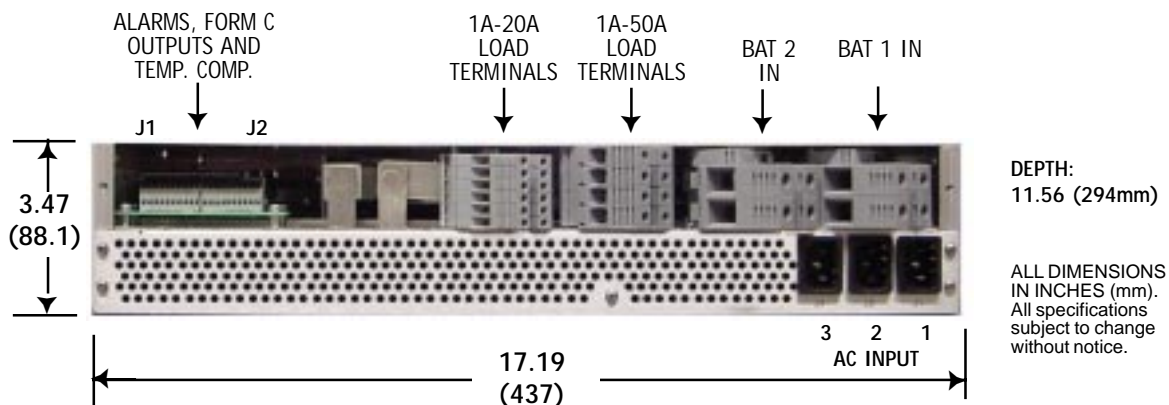
### ENVIRONMENTAL

Operating Temp. Range \_\_\_\_\_ 0°C to +70°C  
 Output Current Derating \_\_\_\_\_ 2.5%/°C, 50°C to 70°C  
 Storage Temp. Range \_\_\_\_\_ -40°C to + 85°C  
 Humidity \_\_\_\_\_ 0% to 95%, Non-Condensing  
 ESD \_\_\_\_\_ Bellcore GR-1089-Core and EN61000-4-2  
 Cooling \_\_\_\_\_ Internal Fans

### SYSTEM FRONT VIEW



### SYSTEM REAR VIEW



DEPTH: 11.56 (294mm)

ALL DIMENSIONS IN INCHES (mm). All specifications subject to change without notice.

## X100 CONFIGURATION GUIDE

SYSTEM MODEL NO.	SYSTEM OUTPUT, MAX.	INPUT, VAC	RECTIFIER MODULES	MAX. NO. OF MODULES			
<input type="checkbox"/> X100-48P/60	-54.4VDC@60A	85-264VAC	RPCP48/20	3			
<input type="checkbox"/> X100-24P/100	+27.2VDC@99A	85-264VAC	RPCP24/33	3			
<input type="checkbox"/> X100-12P/100	+13.6VDC@100A	85-264VAC	RPCP12/50	2			
<b>HOT-SWAP RECTIFIER MODULES</b>							
<input type="checkbox"/> RPCP 48/20	Number Ordered _____ (Include Spares)						
<input type="checkbox"/> RPCP 24/33	Number Ordered _____ (Include Spares)						
<input type="checkbox"/> RPCP 12/50	Number Ordered _____ (Include Spares)						
<b>BATTERY PROTECTION</b>							
<input type="checkbox"/> 1 Battery String Breaker (Standard for 48V System)							
<input type="checkbox"/> 2 Battery String Breakers (Standard for 24V and 12V System)							
<input type="checkbox"/> 1 Extra Battery String Breaker (Option for 48V System)							
<input type="checkbox"/> Low-Voltage Battery Disconnect (Option)							
<b>DC DISTRIBUTION</b>							
<b>Up to 4 Breakers (Standard) &amp; Up to 4 GMT Fuses (Option). Total of 5 Max.</b>							
1. Breaker _____ A (1A-50A)							
2. Breaker _____ A (1A-50A)							
3. Breaker _____ A (1A-20A)							
4. Breaker _____ A (1A-20A)							
<input type="checkbox"/> GMT Fuse Block (Option). Up to 4 Fuses, 48A Max.							
<b>BREAKERS &amp; FUSES AVAILABLE</b>							
<b>Breakers:</b> 1, 2.5, 5, 10, 15, 20, 25, 30, 40, & 50A							
<b>GMT Fuses:</b> Order the number required. Maximum total current is 48A.							
AMPS	BUSSMAN NO.	COLOR	NO. REQ'D	AMPS	BUSSMAN NO.	COLOR	NO. REQ'D
0.5A	GMT- 1/2	Red		3	GMT- 3	Blue	
0.75	GMT- 3/4	Brown		5	GMT- 5	Green	
1	GMT - 1	Gray		10	GMT - 10	Red-White	
1.33	GMT-1 <sup>1/3</sup>	White		12	GMT- 12	Green-Yel	
2	GMT-2	Orange		0	GMT-Dummy	Orange	
<b>CONTROLLER OPTION</b>							
<input type="checkbox"/> Temperature Compensation							
<b>BLANK COVERS (FOR UNUSED RECTIFIER SLOTS)</b>							
Cover Position: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3    (left to right)							
<b>MOUNTING BRACKETS</b>							
<input type="checkbox"/> 19-Inch <input type="checkbox"/> 23-Inch							

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