

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



LVD2006/95/EC

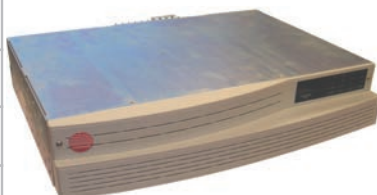
KEY FEATURES

- ◆ Compact, 2RU High
- ◆ Fully Integrated System
- ◆ Hot-Swap Rectifier Modules
- ◆ Remote Access Controller
- ◆ Up to 100A at +13.6VDC
- ◆ Up to 99A at +27.2VDC
- ◆ Up to 66A at -54.4VDC
- ◆ Flexible Configuration
- ◆ Quick-Connect Terminals
- ◆ Wide Range AC Input
- ◆ SNMP Reporting & Alarms

SAFETY STANDARDS

UL60950-1 2nd Ed.
CSA22.2 No. 60950-1 2nd Ed.
EN60950-1 2nd Ed.

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 up to 66 amperes at -54.4VDC, 99 amperes at +27.2VDC or 100 amperes at +13.6VDC. In 2+1 redundant operation the output current is up to 44 amperes at -54.4VDC, 66 amperes at +27.2VDC or 100 amperes at +13.6VDC.

The system has a configurable DC distribution panel with options of up to 10 load circuits protected either by GMT fuses or circuit breakers. Two battery breakers and a low-voltage battery disconnect are included as standard. The system also has a temperature probe for temperature compensated output from the rectifiers and an optional second probe can be used to monitor external temperature.

The intelligent control and supervisory unit communicates directly with the rectifiers to monitor and control their function. The system can be controlled by software from a remote PC via the Ethernet LAN port, using an on-board WEB server which can be accessed by any standard Java enabled WEB browser.

The complete Gravitas X100 is only 2RU high (3.47inches or 88.1mm) and is easily installed by a qualified technician. All connections are at the rear to terminal blocks. The unit may be mounted in a 19 or 23 inch rack.

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NORTH AMERICA CALL: +1-954-346-2442 • EUROPE CALL: +44 (0)1903 768200

GRAVITAS X100 SUMMARY FEATURES

- ◆ Hot-Swap Rectifiers
- ◆ Universal AC Input
- ◆ Power Factor Corrected
- ◆ Up to 66A at -54.4VDC
- ◆ Up to 99A at +27.2VDC
- ◆ Up to 100A at +12VDC
- ◆ 2+1 Redundant Operation
- ◆ 2 Battery Strings
- ◆ 2 Battery String Breakers
- ◆ Flexible Distribution
- ◆ LV Battery Disconnect
- ◆ Intelligent Controller
- ◆ Ethernet Communication
- ◆ SNMP Reporting & Alarms
- ◆ Quick, Easy Installation
- ◆ Modular Design
- ◆ Only 2RU (3.47 Inches) High
- ◆ 19- or 23-Inch Rack Mounting

SYSTEM CAPABILITY

CAPABILITY	X100-48	X100-24	X100-12
System Voltage	-54.4VDC	+27.2VDC	+13.6VDC
System Max. Current	66A	99A	100A
System Current, 2+1	44A	66A	50A
No. of Rectifiers, Max.	3	3	2
Battery String Breakers Low Voltage Disconnect ¹	2 Standard Standard		
Total No. DC Loads, Max.	10		
Option A - miniature breakers	1-30A x 8		
Option B - GMT fuses	0.5A-12A x 10		
Option C - bulk feed breakers	1-50A x 4		
Controller Features			
Alarm Outputs	4		
External Digital Inputs	1		
Temp. Compensation ²	Standard		
Communications			
Ethernet TCP/IP	Standard		
SNMP	Standard		
Shelf Height	2RU		
Mounting Width, Inches ³	19		

RECTIFIER MODULES

MODULE MODEL NO.	OUTPUT VDC	OUTPUT AMPS	NO. SYST. MODULES	MAX. SYST. AMPS	NO. N+1 MODULES	N+1 SYST. AMPS	INPUT VAC
RPCP48/22-Z	-54.4VDC	22	3	66	3	44	90-264
RPCM48/15-Z	-54.4VDC	15	3	45	3	30	85-264
RPCP24/33-Z	+27.2VDC	33	3	99	3	66	85-264
RPCM24/25-Z	+27.2VDC	25	3	75	3	50	85-264
RPCP12/50-Z	+13.6VDC	50	2	100	2	50	85-264
RPCM12/45-Z	+13.6VDC	45	2	90	2	45	85-264

X100 FRONT VIEW WITH FASCIA PANEL FITTED



NOTES:

1. Battery disconnect.
2. One Temperature probe supplied as standard.
3. 23-Inch mounting brackets can be supplied.

RECTIFIER MODULE SPECIFICATIONS

INPUT		STATUS INDICATORS	
Voltage Range.....	See Model Table	AC GOOD	Green LED
Power Factor	>0.99	DC GOOD	Green LED
Total Harmonic Distortion, Max.....	5%	ALARM SIGNALS (Logic LO, TTL compatible)	
Frequency.....	47-63Hz	ACOK	AC present, 5V standby operating
Inrush Current Limiting, Max.	50A Peak	DCOK	output within -10% of nominal @ 48, 24 or 12VDC
EMI Filter, Conducted	FCC20780 pt. 15J Curve B	SERIAL COMMUNICATIONS	
	EN55022 Curve B	PC	Optional, append add -Z to model number
Fast Transients	EN61000-4-4	ENVIRONMENTAL	
Surges	EN61000-4-5	Operating Temp. Range	-20°C to +70°C
Remote Adjust	0 to +5V		-40°C start-up, reduced performance
Input Protection ¹	Internal Fuse, 20A	Output Current Derating	2.5%/°C, 50°C to 70°C
OUTPUT		Storage Temp. Range.....	-40°C to + 85°C
Current & Voltage	See Table	Environment	Pollution Degree 2
Output Power.....	600-1360W	Humidity.....	0% to 95%, Non-Condensing
Voltage Adjustment Range	±5%	ESD	Bellcore GR-1089-Core and EN61000-4-2
Standby Output.....	+5V @250mA	MTBF, 35°C (Bellcore).....	200,000 Hours
Line & Load Regulation, Max.	2%	Cooling	Integral Ball Bearing Fans
Holdup Time	20msec.	Acoustic Noise @ 1m (module) ²	70dB
Overvoltage Protection.....	Latch Off	PHYSICAL SPECIFICATIONS	
Filtering: Wideband Noise, 20MHz BW		Case Material	Aluminum
48V/54.4V.....	500mV pk-pk	Case Dimensions, Inches (mm) ^{3,4}	1.60 H x 5.00 W x 10.00 D (40.6 x 127.0 x 254.0)
24V/27.2V.....	250mV pk-pk	Weight	3.15 lbs. (1.43 kg.)
12V/13.6V.....	125mV pk-pk	Notes:	
Current Limit	105-110% Rated Current	1. External protection required when operating from HVDC.	
Efficiency	80-87%	2. Except RPCQ48/25.	
SAFETY STANDARDS UL60950-1 2 nd Ed., CSA22.2 No. 60950-1 2 nd Ed., EN60950-1 2 nd Ed.		3. RPCQ48/25 depth is 10.32" (262mm).	
		4. RPCQ48/25 protrudes ~0.32" (~8.1mm) plus handle at front of shelf.	

CONTROLLER FUNCTIONS & FEATURES

PRIMARY FUNCTIONS

- ◆ Controls System Rectifiers
- ◆ Controls Low Voltage Disconnect
- ◆ Monitors System Operating Parameters
- ◆ Provides System Alarms
- ◆ Provides Remote Access

VISUAL DISPLAYS

- ◆ 16 LED Indicators
- ◆ 7 Segment LED Display of Load Current
- ◆ PC WEB page via Ethernet TCP/IP

RECTIFIER CONTROL FUNCTIONS

- ◆ Battery Float Voltage
- ◆ Battery Equalise Voltage
- ◆ Battery Voltage Temp. Compensation

RECTIFIER MONITORING DATA

- ◆ AC OK (Input)
- ◆ DC OK (Output)
- ◆ Internal Temperature / Thermal Warning
- ◆ Running
- ◆ Inventory Data

MAJOR SYSTEM PARAMETERS DISPLAYED

- ◆ Bus Voltage
- ◆ Battery Current
- ◆ Rectifier Current
- ◆ Load Current
- ◆ Battery, External and Internal Temperatures

ALARM PARAMETERS

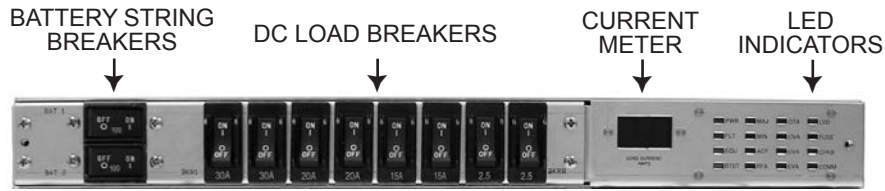
- ◆ Overvoltage
- ◆ Undervoltage
- ◆ End Voltage
- ◆ Battery Overtemperature
- ◆ External Overtemperature
- ◆ Internal Overtemperature
- ◆ Break/Fuse/Digital Input
- ◆ Rectifier Failure
- ◆ AC Power Failure
- ◆ LVD Failure

ALARM OUTPUTS

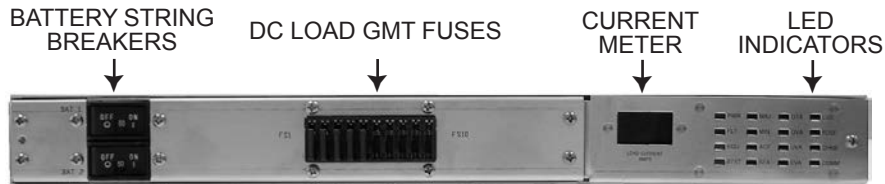
- ◆ 4 x Form-C Relay Contacts
- ◆ LED Matrix
- ◆ E-mail
- ◆ SNMP

DISTRIBUTION & CONTROLLER SECTION

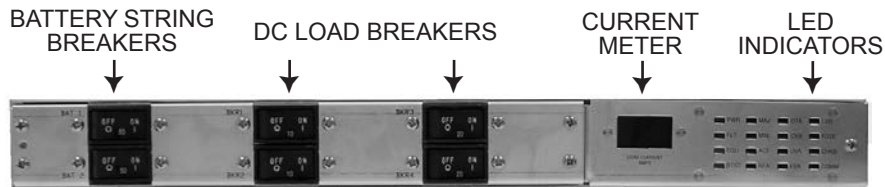
OPTION A - MINIATURE CIRCUIT BREAKERS



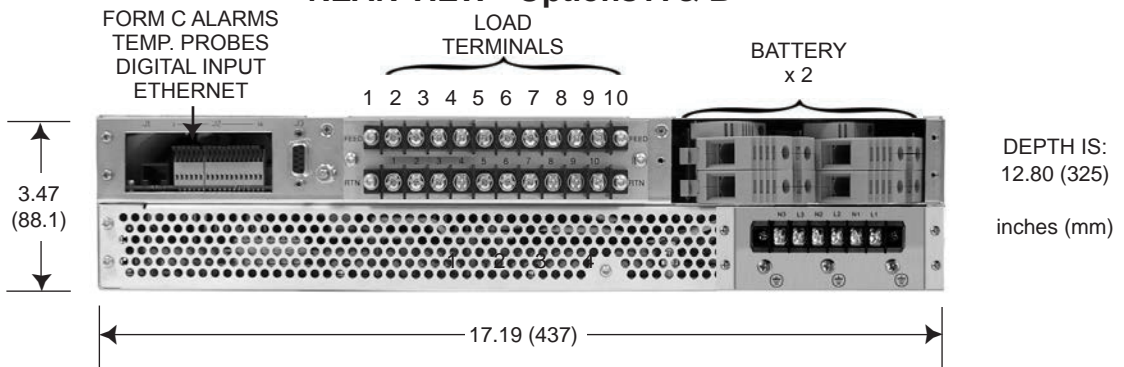
OPTION B - GMT FUSES



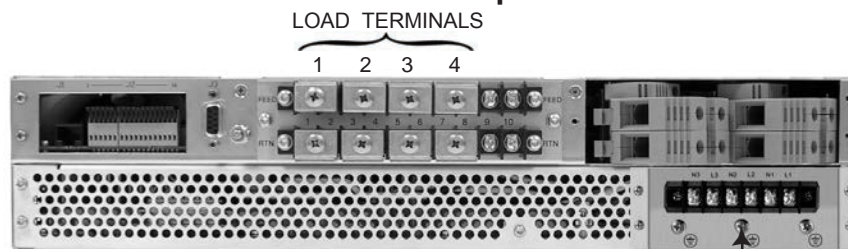
OPTION C - BULK FEED CIRCUIT BREAKERS



REAR VIEW - Options A & B



REAR VIEW - Option C



System weight is 18.7lbs (8.5kg) excluding the rectifier modules.

AC INPUT TERMINALS
ONE SET PER RECTIFIER

J2 CONNECTIONS

Term.	Function	Term.	Function
1	Batt. Temp. Probe +	10	Min. Alarm N/O
2	Batt. Temp. Probe -	11	Min. Alarm Common
3	Ext. Temp. Probe +	12	Min. Alarm N/C
4	Ext. Temp. Probe -	13	K3 Alarm N/O
5	Aux. 3 Contact	14	K3 Alarm Common
6	Aux. 3 Contact	15	K3 Alarm N/C
7	Maj. Alarm N/O	16	K4 Alarm N/O
8	Maj. Alarm Common	17	K4 Alarm Common
9	Maj. Alarm N/C	18	K4 Alarm N/C

SHIPPING WEIGHTS & DIMENSIONS

	Width	Height	Depth	Weight
System Unit	21 (533)	7 (178)	15 (381)	23lbs (10.5kg)
Rectifier Module	7 (178)	5 (127)	15 (381)	8lbs (3.6kg)

Dimensions in inches (mm)

CONFIGURATION GUIDE

SYSTEM MODEL NO.	SYSTEM OUTPUT, MAX.	INPUT, VAC	RECTIFIER MODULES	NO. MODULES ORDERED
<input type="checkbox"/> X100-48/66	-48VDC@66A	90-264VAC	RPCP48/22-Z	_____
<input type="checkbox"/> X100-48/45	-48VDC@45A	85-264VAC	RPCM48/15-Z	_____
<input type="checkbox"/> X100-24/99	+24VDC@99A	85-264VAC	RPCP24/33-Z	_____
<input type="checkbox"/> X100-24/75	+24VDC@75A	85-264VAC	RPCM24/25-Z	_____
<input type="checkbox"/> X100-12/100	+12VDC@100A	85-264VAC	RPCP12/50-Z	_____
<input type="checkbox"/> X100-12/90	+12VDC@90A	85-264VAC	RPCM12/45-Z	_____

Check the System Model No. and indicate the number of Rectifier Modules ordered, including spares. Maximum number of operating rectifier modules for 48V or 24V systems is three and for 12V systems is two.

DC DISTRIBUTION OPTIONS

- OPTION A:** Up to 8 Breakers Total, maximum 30A each.

1. Breaker ___ A, code ___	5. Breaker ___ A, code ___
2. Breaker ___ A, code ___	6. Breaker ___ A, code ___
3. Breaker ___ A, code ___	7. Breaker ___ A, code ___
4. Breaker ___ A, code ___	8. Breaker ___ A, code ___
- OPTION B:** Up to 10 GMT Fuses Total
- OPTION C:** Up to 4 Bulk Breakers Total, maximum 50A each.

1. Breaker ___ A, code ___	3. Breaker ___ A, code ___
2. Breaker ___ A, code ___	4. Breaker ___ A, code ___

BREAKERS & FUSES AVAILABLE

Breakers: 1A(F), 2.5A(G), 5A(H), 10A(I), 15A(J), 20A(K), 25A(L), 30A(M), 40A(N), & 50A(O) (Enter rating and code in option A or C above.)

GMT Fuses for Option B: Enter the number required. Maximum total current is 80A.

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 1/3	White		12	GMT - 12	Green-Yel	
2	GMT - 2	Orange		0	GMT - Dummy	Orange	

OPTIONS

- Additional Temperature Probe (One supplied as standard)

A configuration Model Number in the below format will be issued based on the completed configuration guide, which should be returned to the relevant sales office.

Option A: **X100-vv/iii-r-Abbbbbbbb-ST**

Option B: **X100-vv/iii-r-B-ST**

Option C: **X100-vv/iii-r-Cbbbb-ST**

Key:
 vv = voltage, iii = current, r = # rectifiers fitted.
 b = breaker code (insert 'X' if not fitted).
 S = SNMP fitted as standard. (always add suffix)
 T = additional Temp. probe supplied. (add as suffix)

Note that Fuses (Option B) are always supplied as separate items.
 Rectifiers may be included or supplied separately.

Optional decorative fascia: Order kit number 009-4004-0000, supplied loose for fitting after installation.

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