

## HIGH EFFICIENCY 48V, 24V & 12V 200A DC POWER SYSTEMS



### GRAVITAS X200 BASE SYSTEM

#### DESCRIPTION



#### KEY FEATURES

- ◆ 92% Efficiency Rectifiers
- ◆ 200A Capacity in 2RU System
- ◆ Remote Monitoring & Control
- ◆ Field Replaceable Controller
- ◆ Ethernet Comm. with SNMP
- ◆ 3 LEDs for Alarm Indicators
- ◆ 4 Form-C Relay Alarm Contacts
- ◆ Up to 12 Pluggable Load Breakers
- ◆ Up to 2 Battery Breakers
- ◆ Optional LCD Display/Touchpad
- ◆ Easy Installation

#### SAFETY STANDARDS

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

#### TWO-YEAR WARRANTY

Gravitas X200 is an ultra-compact, integrated DC power system. The base system is a 2RU shelf, expandable to 3RU, to provide output loads to 200A. These systems hold up to 4 high efficiency hot-swap rectifiers in the 2RU systems and up to 8 rectifiers in the 3RU expanded systems. Standard output voltage ratings are -54.4VDC, +27.2VDC, and +13.6VDC. Loads up to 200A are available with either non-redundant or redundant(N+1) systems. The 92% high efficiency rectifiers are internally fan cooled with speed control which is a function of load and temperature, keeping acoustic noise to a minimum.

The DC output circuits can provide up to 10 loads which utilize pluggable circuit breakers rated up to 60A each, and 2 additional pluggable high current breakers rated to 100A which can be used for either load circuits or battery protection circuits. Battery protection rating can be increased to 125A each with non-pluggable breakers. Two internal battery string breakers can be provided as an option. A low voltage battery disconnect(LVD) is provided as an option. An unprotected battery feed output is provided as standard for applications where battery protection is provided externally.

The remote access controller monitors system parameters, controls rectifier output, and provides alarms for system failures. The Controller Module is also pluggable for easy field replacement in case of failure. There are 2 LED alarm indicators which indicate failures, Major Alarm and Minor Alarm. A third green LED indicates the controller is working properly. Four form-C relay outputs provide the alarms for remote use. The system can be programmed by means of a remote PC webpage display. Communication is by Ethernet LAN with an SNMP (Simple Network Management Protocol) option. It also has provision for temperature compensated charging of an external battery using a supplied TC probe. An LCD Display/Touchpad is provided as an option for local metering, status, and setup.



## GRAVITAS X200 CAPABILITY GUIDE

SYSTEM FEATURES / CAPABILITIES	48V		24V		12V
	Base System	Expanded System	Base System	Expanded System	System
System Designation	X200-48	X200-48R	X200-24	X200-24R	X200-12
System Voltage	-54.4VDC	-54.4VDC	+27.2VDC	+27.2VDC	+13.6VDC
Max. Load Rating	148A	200A	200A	200A	200A
Max. Load Rating, (N+1)	111A	200A	180A	200A	200A
Rectifier Modules (see following table for system capacities)	RBSR48/28 or RBSR48/37		RBSR24/54 or RBSR24/60		RBSR12/100
No. Rectifier Slots	4	8	4	8	4
Min. No. of Rectifiers, (N+1, for max. load)	4	7	4	5	3
System Height	2RU	3RU	2RU	3RU	2RU
Chassis Mounting Width	19"	19"	19"	19"	19"
No. DC Loads, CBs, Pos1-10 (5A-60A) Pluggable	10	10	10	10	10
Remote Access Controller: - Comm.-Ethernet TCP/IP - 4 Relay Alarm Outputs - LEDs (Pwr, Maj, Min, ACF, RFA) - 1 Ext. Digital Input - 1 Bat. Temp. Comp. (1 TC Probe Provided)	Standard	Standard	Standard	Standard	Standard
<b>OPTIONS</b>					
SNMP Communication	Option	Option	Option	Option	Option
1 additional Ext. Temp. Input (1 TC Probe 2m length Provided) Temp. probe 2m length - Order code 009-1003-0000 Temp. probe 3m length - Order code 009-1003-0010	Option	Option	Option	Option	Option
LCD Display/Key Touchpad	Option	Option	Option	Option	Option
Low Bat. Voltage Disconnect (LVD)	Option	Option	Option	Option	Option
2 Additional load CBs, Load Pos. 11, 12, 60A - 100A, Field Pluggable. (Note: Cannot be provided if Bat. CB option is selected)	Option	Option	Option	Option	Option
2 Internal Bat. CBs, 100A, Load Pos. 11, 12, Pluggable. (Note: Cannot be provided if the "additional load CB" option is selected)	Option	NA	Option	NA	Option

### RECTIFIER MODULES vs. SYSTEM CAPACITIES

MODULE MODEL NO.	OUTPUT VDC	INPUT AC	OUTPUT AMPS	NO. RECTIFIER MODULES		MAX. SYST. AMPS	
				BASE	EXP.	BASE	EXP.
RBSR48/37	-54.4VDC	180-264	37	4	6	148	200
RBSR48/28	-54.4VDC	85-264	28	4	6	112	168
RBSR24/60	-27.2VDC	180-264	60	4	5	200	200
RBSR24/54	-27.2VDC	85-264	54	4	5	200	200
RBSR12/100	+13.6VDC	85-264	100	3		200	

## RECTIFIER MODULE SPECIFICATIONS

### INPUT

Voltage Range \_\_\_\_\_ See Capacity Table  
 Power Factor \_\_\_\_\_ >0.98  
 Total Harmonic Distortion, Max. \_\_\_\_\_ 5%  
 Frequency \_\_\_\_\_ 47-63Hz  
 Inrush Current Limiting, Max. \_\_\_\_\_ 50A Peak  
 EMI Filter, Conducted \_\_\_\_\_ FCC20780 pt. 15J Curve B  
 EN55022 Curve B  
 Fast Transients \_\_\_\_\_ EN61000-4-4  
 Surges \_\_\_\_\_ EN61000-4-5  
 Input Protection \_\_\_\_\_ Internal Fuse, 25A

### OUTPUT

Current & Voltage \_\_\_\_\_ See Capacity Table  
 Voltage Adjustment Range  
 54.4V \_\_\_\_\_ 30-60V  
 27.2V \_\_\_\_\_ 15-30V  
 13.6V \_\_\_\_\_ 7.5-15V  
 Line & Load Regulation, Max. \_\_\_\_\_ 0.3%  
 Holdup Time \_\_\_\_\_ 10msec.  
 Overvoltage Protection \_\_\_\_\_ Latch Off  
 Filtering: Wideband Noise, 20MHz BW \_\_\_\_\_ 200mV

Current Limit \_\_\_\_\_ 105-115% Rated Current  
 (Programmable)

Efficiency (54.4VDC @ 2000W rated)  
 100% Load \_\_\_\_\_ to 91.6%  
 75% Load \_\_\_\_\_ to 92.0%  
 40% Load \_\_\_\_\_ to 91.0%

**SAFETY STANDARDS** \_\_\_\_\_ UL60950-1  
 CSA22.2 No. 60950-1  
 EN60950-1

### INDICATORS

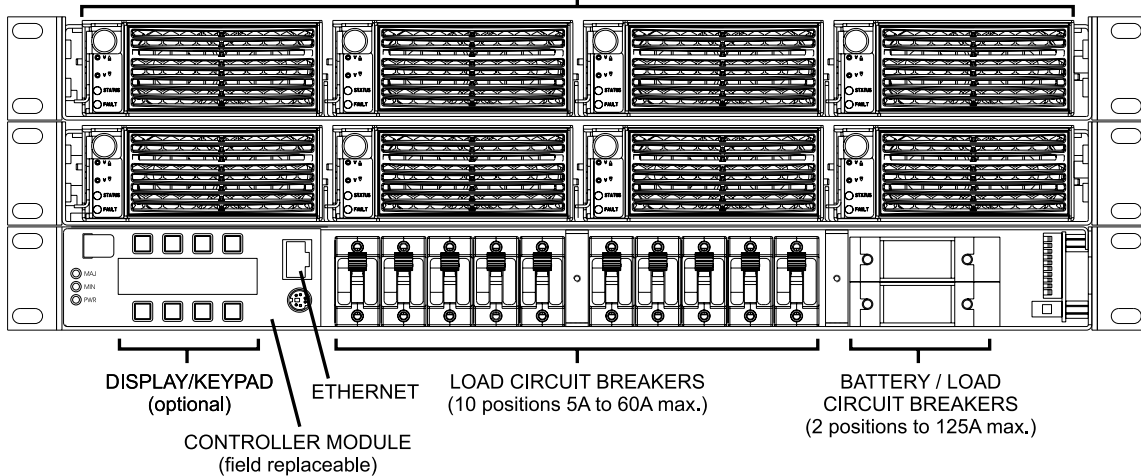
STATUS \_\_\_\_\_ Green LED  
 FAULT \_\_\_\_\_ Red LED

### ENVIRONMENTAL

Operating Temp. Range \_\_\_\_\_ -20°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  
 MTBF, 35oC (Bellcore) \_\_\_\_\_ 200,000 Hours  
 Cooling \_\_\_\_\_ Integral Ball Bearing Fans

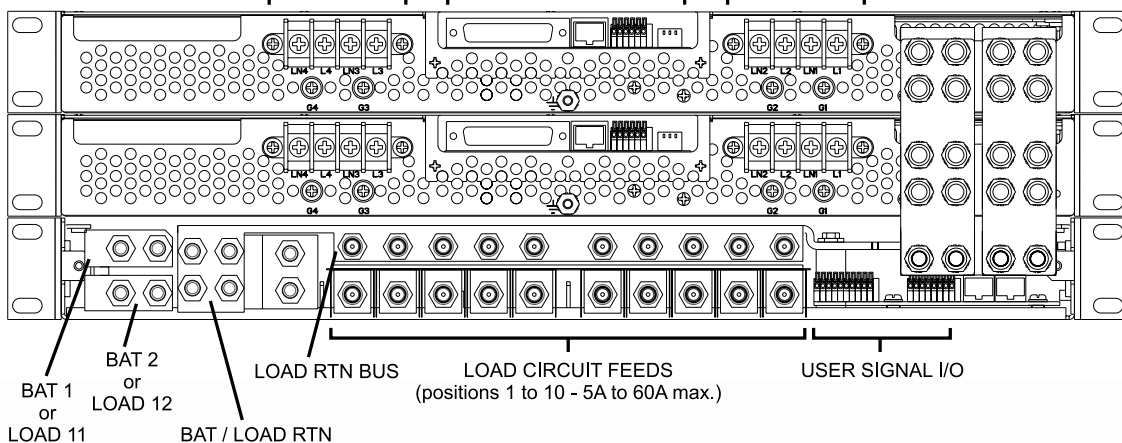
## X200 EXPANDED SYSTEM FRONT VIEW

HOT-SWAP RECTIFIER MODULES  
 (up to 4 in base system, up to 8 in expanded system)



## X200 EXPANDED SYSTEM REAR VIEW

RECTIFIER AC INPUTS (positions 3, 4, 7 & 8)      RECTIFIER SIGNAL I/O      RECTIFIER AC INPUTS (positions 1, 2, 5 & 6)



## CONFIGURATION & ORDERING GUIDE

1. Determine the capacity of the system desired, taking into account future expansion, then check the type of rectifier required and fill in the initial quantity to be ordered including spares. This will determine the system unit base number.

SYSTEM OUTPUT, MAX.	SYSTEM OUTPUT, N+1	AC INPUT RANGE	SYSTEM UNIT BASE NUMBER	RECTIFIER MODULES USED
-54.4VDC@148A	-54.4VDC@111A	180-264V	X200-48 <input type="checkbox"/>	RBSR48/37
-54.4VDC@200A	-54.4VDC@185A		X200-48R <input type="checkbox"/>	
-54.4VDC@112A	-54.4VDC@84A	85-264V	X200-48 <input type="checkbox"/>	RBSR48/28
-54.4VDC@168A	-54.4VDC@140A		X200-48R <input type="checkbox"/>	
+27.2VDC@200A	+27.2VDC@180A	180-264V	X200-24 <input type="checkbox"/>	RBSR24/60
+27.2VDC@200A	+27.2VDC@200A		X200-24R <input type="checkbox"/>	
+27.2VDC@200A	+27.2VDC@162A	85-264V	X200-24 <input type="checkbox"/>	RBSR24/54
+27.2VDC@200A	+27.2VDC@200A		X200-24R <input type="checkbox"/>	
+13.6VDC@148A	+13.6VDC@148A	85-264V	X200-12 <input type="checkbox"/>	RBSR12/100

2. Determine the number load circuits that are required now and in the future.

### DC DISTRIBUTION & BATTERY BREAKERS

Enter the letter code for the rating of each of load breaker that you require to be fitted in load positions 1 to 10. Note that these will be installed in ascending order by rating from left to right when viewed from the front:

\_\_\_\_\_

5A (Code H), 10A (Code I), 15A (Code J), 20A (Code K), 25A (Code L),  
30A (Code M), 40A (Code N), 50A (Code O), 60A (Code P), Not required (Code X)

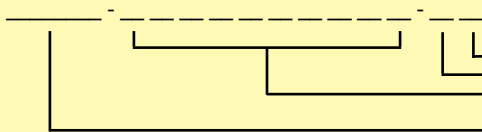
Check one option for breaker positions 11 & 12: (If no breakers are required in these positions leave this section blank)

- 2 x 100A battery breakers, factory installed (field replaceable). Code A.
- 2 x 125A battery breakers, factory installed. Code B.
- 2 x 60A to 100A load breakers, field pluggable: (choose only one of the following codes)
  - 60A (code P) or  80A (code Q) or  100A (code R).

3. Check one combination of options required. (Leave blank if none required and enter '0' into configured model number below)

- LVD - Low Voltage Disconnect. Option code L.
- LCD - Front panel Display/Keypad. Option code D.
- SNMP - Simple Network Management Protocol. Option code S.

4. Fill in the matrix below to create your unique configured model number and send the completed form to the relevant UNIPOWER sales office to obtain price and delivery information.



Option Codes (up to 3 characters total)  
Option Code for Battery Breakers / load circuit positions 11 & 12 (enter '0' if none required)  
Options Codes for up to 10 breaker codes for load circuit positions 1 to 10  
(enter 'X' for positions not required)  
System Code

Example: X200-48R-HHJJKLLLL-ALDS is a 48V expanded system with 2 x 5A, 2 x 15A, 2 x 20A & 4 x 25A load breakers, 2 x 100A factory installed/field replaceable battery breakers, LVD, LCD/Display and SNMP options.

**Rectifiers and accessories are supplied as separate items from the main system unit and will be detailed separately in quotations, proposals and Sales Order documentation.**

**Any Rectifier positions not occupied should be fitted with a dummy module part number 775-1501-0000. These must be ordered separately.**