

## HIGH EFFICIENCY 48V, 24V & 12V 300A DC POWER SYSTEMS



### GRAVITAS X300 BASE SYSTEM

#### DESCRIPTION



LVD2006/95/EC

#### KEY FEATURES

- ◆ 92% Efficiency Rectifiers
- ◆ 300A 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
- ◆ LCD Display/Touchpad
- ◆ Easy Installation

#### SAFETY COMPLIANCE

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

#### TWO-YEAR WARRANTY



Gravitas X300 is an ultra-compact, integrated DC power system. The base system is a 2RU shelf, expandable to 3RU, to provide output loads to 300A. 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 300A 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. 2 additional breakers, fitted as standard can be configured as additional load circuits at 100A or alternatively for battery protection rated at 125A each with non-pluggable breakers. A low voltage battery disconnect (LVD) is provided as standard with LVD override or battery emergency power off (EPO) available as options. 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 web page display. Communication is by Ethernet LAN with SNMP (Simple Network Management Protocol) including alarm trapping. It also has provision for temperature compensated charging of an external battery using a supplied TC probe. An LCD Display/Touchpad is included for local metering, status, and setup.

[www.unipowerco.com](http://www.unipowerco.com)

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## GRAVITAS X300 CAPABILITY GUIDE

SYSTEM FEATURES / CAPABILITIES	48V		24V		12V
	Base System	Expanded System	Base System	Expanded System	System
System Designation	X300-48	X300-48R	X300-24	X300-24R	X300-12
System Voltage	-54.4VDC	-54.4VDC	+27.2VDC	+27.2VDC	+13.6VDC
Max. Load Rating	148A	296A	240A	300A	300A
Max. Load Rating, (N+1)	111A	259A	180A	300A	300A
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	8	4	6	4
System Height	2RU	3RU	2RU	3RU	2RU
Chassis Mounting Width	19"	19"	19"	19"	19"
Low Battery Voltage Disconnect (LVD)	300A	300A	300A	300A	300A
No. DC Loads, CBs, Pos1-10 (5A-60A) Pluggable	10	10	10	10	10
2 load CBs, positions 11 & 12 - 100A or 2 Battery CBs, Positions 11 & 12 - 125A	Standard	Standard	Standard	Standard	Standard
Remote Access Controller: - Comm. - Ethernet TCP/IP, SNMP - 4 Relay Alarm Outputs - LEDs (Pwr, Maj, Min, ACF, RFA) - 1 Ext. Digital Input - 1 Bat. Temp. Comp. (1 TC Probe Provided) - LCD Display/Key Touchpad	Standard	Standard	Standard	Standard	Standard
<b>OPTIONS &amp; ACCESSORIES</b>					
LVD Override Battery Emergency Power Off (EPO)	Option	Option	Option	Option	Option
External temperature probe (TC Probe 2m length provided as standard) 2m length - Order code 009-1003-0000 3m length - Order code 009-1003-0010	Accessory	Accessory	Accessory	Accessory	Accessory

### RECTIFIER MODULES vs. SYSTEM CAPACITIES

MODULE MODEL NO.	INPUT VOLTAGE <sup>1</sup>	INPUT CURRENT <sup>2</sup>	OUTPUT VOLTAGE	OUTPUT CURRENT	NO. RECTIFIER MODULES		MAX. SYSTEM CURRENT	
					BASE	EXP.	BASE	EXP.
RBSR48/37	180-264VAC	10.0A	54.4VDC	37A	4	8	148A	296A
RBSR48/28	85-264VAC	14.0A/7.5A	54.4VDC	28A	4	8	112A	224A
RBSR24/60	180-264VAC	8.2A	27.2VDC	60A	4	5	240A	300A
RBSR24/54	85-264VAC	13.5A/7.6A	27.2VDC	54A	4	6	216A	300A
RBSR12/100	85-264VAC	12.5A/7.0A	13.6VDC	100A	3		300A	

**Notes:**

- Models showing two output current levels with dual AC input ranges will operate over the full range from 85VAC to 264VAC, automatically limiting output current according to the actual input voltage range applied.
- Input currents shown are nominal values at 120VAC/240VAC as appropriate.

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

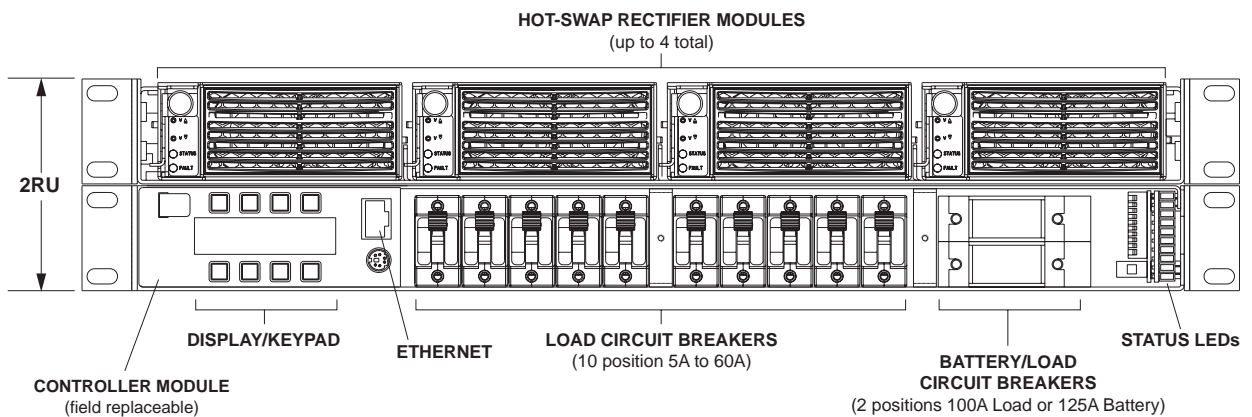
### INDICATORS

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

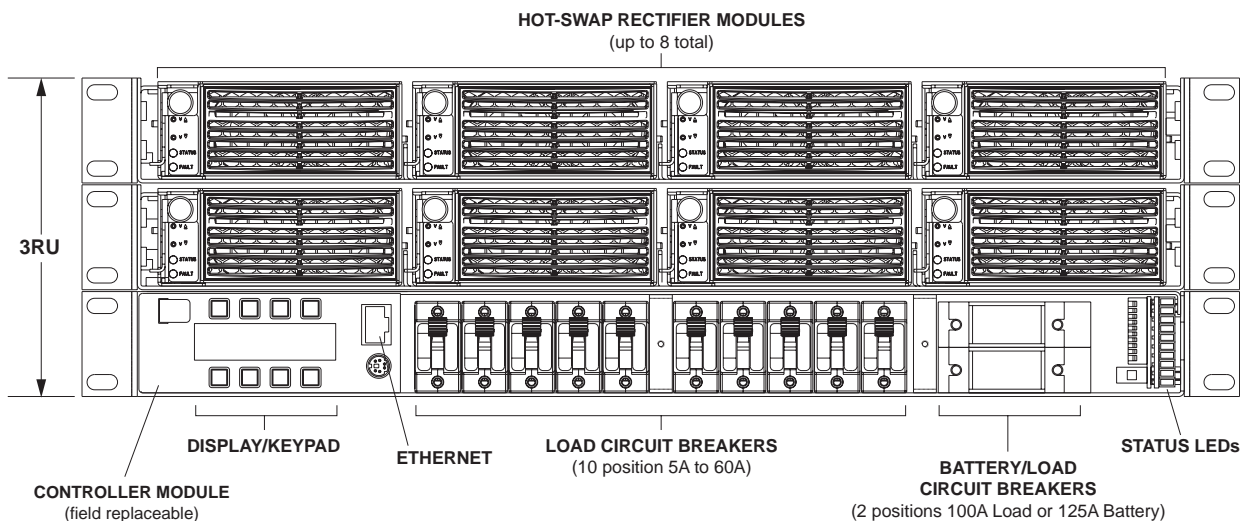
### ENVIRONMENTAL

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, 35°C (Bellcore) \_\_\_\_\_ 200,000 Hours  
 Cooling \_\_\_\_\_ Integral Ball Bearing Fans

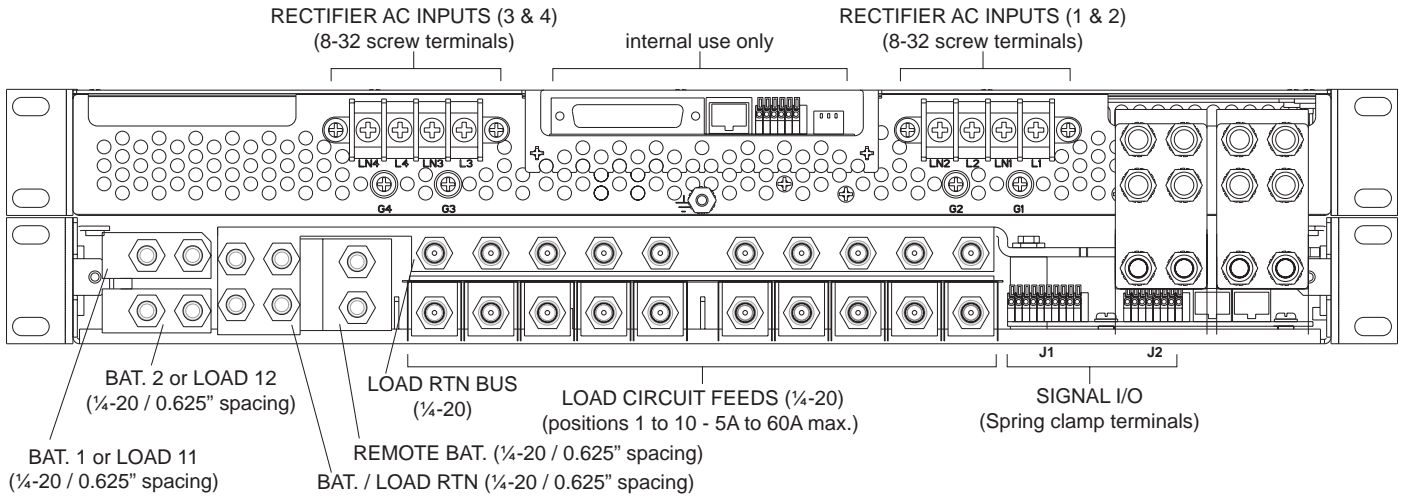
## X300 BASE SYSTEM FRONT VIEW



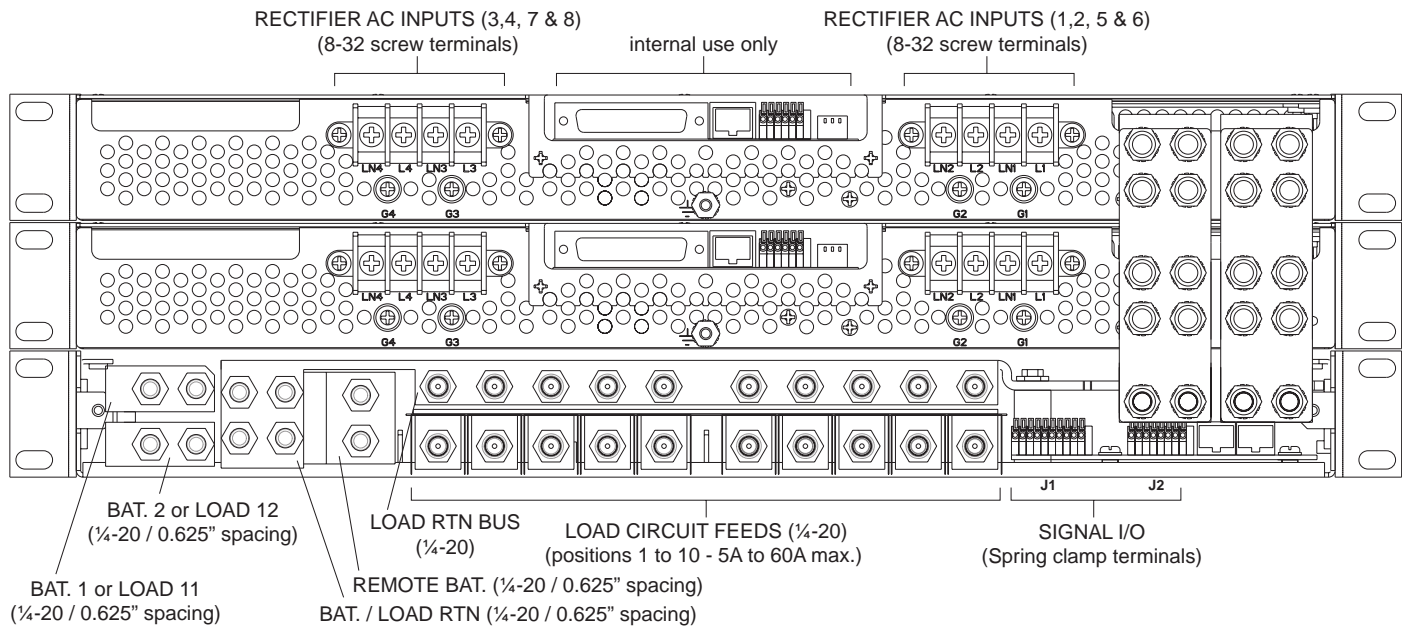
## X300 EXPANDED SYSTEM FRONT VIEW



### X300 BASE SYSTEM REAR VIEW



### X300 EXPANDED SYSTEM REAR VIEW



### WEIGHTS & DIMENSIONS

UNIT	UNIT				PACKAGED				
	Width	Height	Depth	Weight	Width	Height	Depth	Weight	# in box
Base Chassis	17.34 (440.4)	<2RU	18.04 (458.2)	34lbs (15.5kg)	24 (610)	7 (178)	28 (711)	48lbs (21.8kg)	1
Expanded Chassis		<3RU		47lbs (21.4kg)		8 (203)		56lbs (25.5kg)	
Rectifier Module	4.00 (101.6)	1.60 (40.64)	13.96 (354.6)	4.8lbs (2.2kg)	19 (485)	6.5 (165)	7.5 (190)	16lbs (7.3kg)	2

Dimensions in inches (mm)

## 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	X300-48 <input type="checkbox"/>	RBSR48/37
-54.4VDC@296A	-54.4VDC@185A		X300-48R <input type="checkbox"/>	
-54.4VDC@112A	-54.4VDC@84A	85-264V	X300-48 <input type="checkbox"/>	RBSR48/28
-54.4VDC@224A	-54.4VDC@140A		X300-48R <input type="checkbox"/>	
+27.2VDC@240A	+27.2VDC@180A	180-264V	X300-24 <input type="checkbox"/>	RBSR24/60
+27.2VDC@300A	+27.2VDC@200A		X300-24R <input type="checkbox"/>	
+27.2VDC@216A	+27.2VDC@162A	85-264V	X300-24 <input type="checkbox"/>	RBSR24/54
+27.2VDC@300A	+27.2VDC@200A		X300-24R <input type="checkbox"/>	
+13.6VDC@300A	+13.6VDC@148A	85-264V	X300-12 <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 quantity for each rating of breaker that you require for load positions 1 to 10 (maximum 10 total).

<b>5A</b> (pt. no. 348-1437-0000) qty _____	<b>20A</b> (pt. no. 348-1437-0030) qty _____	<b>40A</b> (pt. no. 348-1437-0060) qty _____
<b>10A</b> (pt. no. 348-1437-0010) qty _____	<b>25A</b> (pt. no. 348-1437-0040) qty _____	<b>50A</b> (pt. no. 348-1437-0070) qty _____
<b>15A</b> (pt. no. 348-1437-0020) qty _____	<b>30A</b> (pt. no. 348-1437-0050) qty _____	<b>60A</b> (pt. no. 348-1437-0090) qty _____

Note that these are to be ordered as a separate line item using the listed part number and will be shipped separately.

Check one option for factory installed breaker positions 11 & 12:

2 x 125A battery breakers - Code BB.

2 x 100A load breakers - Code RR.

**3. Check one combination of options required. (Leave blank if none required)**

Low Voltage Disconnect Override - Option code Y.

Battery Emergency Power Off (EPO) - Option code E.

**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 for LVD override - Y or E.  
Option Code for Battery Breakers / load circuit positions 11 & 12 - BB or RR.  
System Code

Example: X300-48R-RR-Y is a 48V expanded system with 2 x 100A load breakers in positions 11 & 12 and LVD override.

**Rectifiers, load breakers for positions 1 to 10 and accessories are supplied as separate items from the main system unit and will be detailed separately in quotations, proposals and Sales Order documentation.**

Dummy modules for empty rectifier slots are available. Order part number 775-1501-0000.  
Rear support bracket kit (required when system is front mounted). Order part number 775-1511-0000.

## BATTERY & DC CABLE SETS

BATTERY CABLE KIT - 1 to 2 LUG 30"	Part No.: 775-1497-1230	Start Lug	End Lug
Pair of Black / Red #4AWG copper cable (600V 125A) 30" (76cm) with lug terminations and heat shrink. Hole size 0.25", tongue width 0.55", spacing 0.625".			
BATTERY CABLE KIT - 1 to 2 LUG 84"	Part No.: 775-1497-1284	Start Lug	End Lug
One pair Black / Red #4AWG copper cable (600V 125A) 84" (213cm) with lug terminations and heat shrink. Hole size 0.25", tongue width 0.55", spacing 0.625".			
DC LOAD CABLE KIT - 2 to 2 LUG 30"	Part No.: 775-1497-2230	Start Lug	End Lug
One pair Black / Red #4AWG copper cable (600V 125A) 30" (76cm) with lug terminations and heat shrink. Hole size 0.25", tongue width 0.55", spacing 0.625".			