

1RU HIGH 48V, 24V and 12V INTEGRATED DC POWER SYSTEMS



GRAVITAS X75 BASE SYSTEM

DESCRIPTION

Gravitas X75 is an ultra-compact, integrated DC power system. The base system is a 1RU shelf holding up to three hot-swap rectifier modules. This system produces up to 1958 watts output at -54.4, +27.2 or +13.6VDC. It can also be operated as a 2+1 redundant system with up to 1305 watts output. The expanded system consists of a base shelf plus an expander shelf with a 2RU total height. This system holds up to six rectifier modules with up to 3916 watts output; it can be operated as a 5+1 redundant system with up to 3264 watts output. Each rectifier module is cooled by a fan that operates at a speed which is a function of load and temperature.

There are up to five circuit-breaker protected DC outputs or up to 10 GMT fuse protected outputs on the base system. A battery string breaker and a low-voltage battery disconnect are standard features. The expander shelf comes with a ribbon cable and connectors to link the signals between the two units at their rear panels. It also comes with bus bar links to parallel the rectifier output bus bars.

The system can also be operated as a battery backup, single feed power system (without load circuit breakers or fuses).

The remote access controller monitors the system parameters and has alarms for system failures. There are six red LED alarms which indicate a failure: Major Alarm, Minor Alarm, Rectifier Alarm, AC Input Alarm, Overtemperature Alarm and Overvoltage Alarm. A green LED indicates that the controller is operating. Four Form C relay outputs give alarms: Major Alarm, Minor Alarm, Rectifier Alarm and AC Input Alarm. The controller is programmed by means of a remote PC webpage display. Communication is by Ethernet LAN with an SNMP (Simple Network Management Protocol) alarm option. It also has provision for temperature compensated charging of an external battery using a supplied TC probe.



KEY FEATURES

- ◆ 1RU High Base System
- ◆ 1RU High Expander Shelf
- ◆ Remote Monitoring & Control
- ◆ Fully Integrated System
- ◆ Hot-Swap Rectifier Modules
- ◆ Up to 72A at -54.4VDC
- ◆ Up to 75A at +27.2VDC
- ◆ Up to 75A at +13.6VDC
- ◆ Wide Range AC Input
- ◆ Up to 10 DC Load Circuits
- ◆ Quick and Easy Installation

SAFETY STANDARDS

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

TWO-YEAR WARRANTY



GRAVITAS X75 SUMMARY FEATURES

- ◆ -48, +24, or +12VDC Rectifiers
- ◆ Hot-Swap Rectifiers Modules
- ◆ Power Factor Corrected
- ◆ Class B EMI Input Filter
- ◆ Base and Expander Shelves
- ◆ N+1 Redundant Operation
- ◆ Up to 10 DC Load Circuits
- ◆ Circuit Breakers or GMT Fuses
- ◆ Battery String Breaker
- ◆ LV Battery Disconnect
- ◆ Remote Monitoring & Control
- ◆ Quick, Easy Installation
- ◆ 19 or 23-Inch Rack Mounting
- ◆ SNMP Alarm Option

GRAVITAS X75 CAPABILITY GUIDE

SYSTEM CAPABILITY

SYSTEM CAPABILITY	X75-48		X75-24		X75-12	
	BASE SYSTEM	EXPANDED SYSTEM	BASE SYSTEM	EXPANDED SYSTEM	BASE SYSTEM	EXPANDED SYSTEM
System Voltage	-54.4VDC	-54.4VDC	+27.2VDC	+27.2VDC	+13.6VDC	NOT AVAILABLE
System Max. Current	36.0A	72.0A	55.2A	75.0A	75.0A	
System Current, N+1 Redundant	24.0A	60.0A	36.8A	73.5A	66.0A	
No. of Rectifiers, Max.	3	6	3	5	3	
Battery String Breaker	Standard					
Low Voltage Disconnect	Standard					
Total No. DC Loads, Max.	10					
Option A - miniature breakers	1-30A x 5					
Option B - GMT fuses	0.5A-12A x 10					
Controller Features						
Alarm Outputs	4					
External Digital Inputs	1					
Temp. Compensation	Standard					
Communications						
Ethernet TCP/IP	Standard					
SNMP	Optional					
Shelf Height	1RU, Base Shelf and Expansion Shelf					
Mounting Width, Inches	19 or 23 (universal reversible mounting brackets)					

Notes:

- The expander shelf allows up to 3 additional rectifier modules to be connected to the rectifier bus for additional power capability. The rectifiers are paralleled to the system bus via bus bars and expansion interface connections.
- For applications not requiring battery support consult UNIPOWER sales office about using Front-End power modules instead of rectifier modules.

RECTIFIER MODULES vs. SYSTEM CAPACITIES

MODULE MODEL NO.	OUTPUT VDC	OUTPUT AMPS	NO. SYST. MODULES		MAX. SYST. AMPS		NO. N+1 MODULES		N+1 SYST. AMPS	
			BASE	EXP.	BASE	EXP.	BASE	EXP.	BASE	EXP.
RSJ48/12-Z	-54.4VDC	12.0	3	6	36.0	72.0	2+1	5+1	24.0	60.0
RSG48/10-Z	-54.4VDC	10.1	3	6	30.3	60.6	2+1	5+1	20.2	50.5
RSF48/7-Z	-54.4VDC	7.4	3	6	22.2	44.4	2+1	5+1	14.8	37.0
RSG24/18-Z	+27.2VDC	18.4	3	5	55.2	75.0	2+1	4+1	36.8	73.6
RSF24/13-Z	+27.2VDC	12.9	3	5	38.7	75.0	2+1	4+1	25.8	51.6
RSG12/33-Z	+13.6VDC	33.0	3		75.0		2+1		66.0	
RSF12/22-Z	+13.6VDC	22.1	3		66.3		2+1		44.2	

RECTIFIER MODULE SPECIFICATIONS

INPUT

Voltage Range _____ 85-264VAC
 Power Factor _____ 0.99
 Total Harmonic Distortion, Max. _____ 5%
 Frequency _____ 47-63Hz
 Inrush Current Limiting _____ 30A Peak
 EMI Filter, Conducted _____ FCC20780 pt. 15J Curve B
 _____ EN55022 Curve B

Input Current, max.

RSJ _____ 3.2A/230VAC, 6.2A/120VAC
 RSG _____ 2.7A/230VAC, 5.2A/120VAC
 RSF _____ 2.0A/230VAC, 3.8A/120VAC

Input Immunity, Conducted

Fast Transients, Line-Line ± 2 kV (EN61000-4-4 Level 3)
 Surges, Line-Line ± 2 kV (EN61000-4-5 Level 3)
 Surges, Line-Ground ± 4 kV (EN61000-4-5 Level 4)

OUTPUT

Current & Voltage _____ see table
 Voltage Adjustment Range, 48V Nominal _____ 45-58VDC
 24V Nominal _____ 22-29VDC
 12V Nominal _____ 11-14.5VDC

Total Regulation, Max. _____ 2%
 Holdup Time _____ 10msec.
 Overvoltage Protection, 48V Nominal _____ 58V
 24V Nominal _____ 29V
 12V Nominal _____ 14.5V
 Filtering: Wideband Noise, 20Mhz BW, P-P _____ 1.0%
 Voice Band Noise _____ <32dBmC
 Current Limit _____ 105% Rated Current
 Efficiency _____ 85-90%

SAFETY STANDARDS

UL 60950-1, CSA22.2-60950-1, EN60950-1

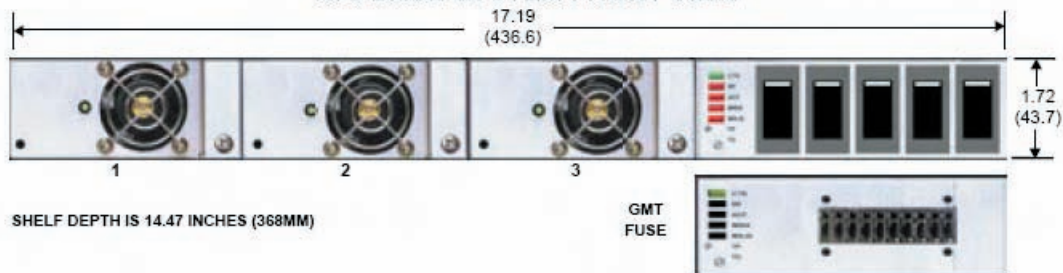
STATUS INDICATOR

DC Good _____ Green LED

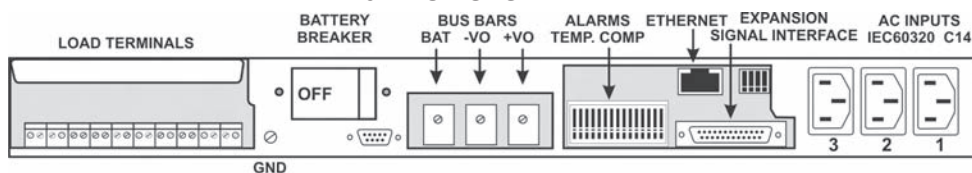
ENVIRONMENTAL

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
 Cooling _____ Internal Fan

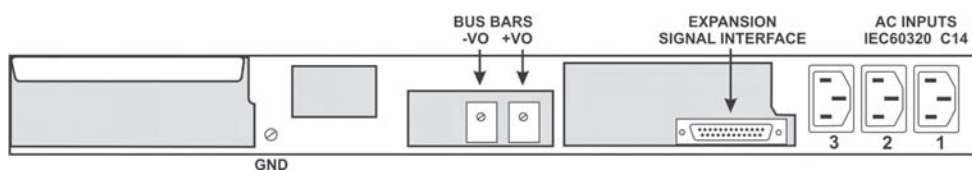
X75 BASE SYSTEM FRONT VIEW



X75 BASE SYSTEM REAR VIEW



ES75 EXPANDER REAR VIEW



CONFIGURATION 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.

BASE SYSTEM OUTPUT, MAX.	BASE SYSTEM OUTPUT, N+1	RECTIFIER MODULES CHECK TYPE REQ.	NO. MODULES REQUIRED	SYSTEM UNIT BASE NUMBER
-54.4VDC@36.0A -54.4VDC@30.3A -54.4VDC@22.2A	-54.4VDC@24.0A -54.4VDC@20.2A -54.4VDC@14.8A	<input type="checkbox"/> RSJ48/12-Z <input type="checkbox"/> RSG48/10-Z <input type="checkbox"/> RSF48/7-Z	_____	X75-48
+27.2VDC@55.2A +27.2VDC@38.7A	+27.2VDC@36.8A +27.2VDC@25.8A	<input type="checkbox"/> RSG24/18-Z <input type="checkbox"/> RSF24/13-Z	_____	X75-24
+13.6VDC@75.0A +13.6VDC@66.3A	+13.6VDC@66.0A +13.6VDC@44.2A	<input type="checkbox"/> RSG12/33-Z <input type="checkbox"/> RSF12/22-Z	_____	X75-12

2. If the required capacity initially or in the future exceeds the capability of the base system check against the same rectifier type as above and fill in the number of additional rectifiers required. This defines that an expansion unit needs to be ordered.

TOTAL SYSTEM OUTPUT, MAX.	TOTAL SYSTEM OUTPUT, N+1	RECTIFIER MODULES CHECK TYPE REQ.	NO. MODULES REQUIRED	EXPANSION UNIT NUMBER
-54.4VDC@72.0A -54.4VDC@60.6A -54.4VDC@44.4A	-54.4VDC@60.0A -54.4VDC@50.5A -54.4VDC@37.0A	<input type="checkbox"/> RSJ48/12-Z <input type="checkbox"/> RSG48/10-Z <input type="checkbox"/> RGF48/7-Z	_____	X75-ES
+27.2VDC@75.0A +27.2VDC@75.0A	+27.2VDC@73.6A +27.2VDC@51.6A	<input type="checkbox"/> RSG24/18-Z <input type="checkbox"/> RSF24/13-Z	_____	

3. Check either option A or option B for DC distribution. For option A fill in the rating and code for each breaker to be installed. For option B fill in the number of fuses for each value required including spares.

DC DISTRIBUTION

- OPTION A:** Up to 5 Breakers Total, maximum 30A each.
1. Breaker ___ A, code ___ 3. Breaker ___ A, code ___ 5. Breaker ___ A, code ___
 2. Breaker ___ A, code ___ 4. Breaker ___ A, code ___

Enter rating & code above: 1A(F), 2.5A(G), 5A(H), 10A(I), 15A(J), 20A(K), 25A(L) & 30A(M), Not required(X).

- OPTION B:** Up to 10 GMT Fuses Total. Enter the number required below.

AMPS	BUSSMAN NO.	COLOR	NO. REQ'D
0.5A	GMT - 1/2	Red	
0.75	GMT - 3/4	Brown	
1	GMT - 1	Gray	
1.33	GMT - 1 1/3	White	
2	GMT - 2	Orange	

AMPS	BUSSMAN NO.	COLOR	NO. REQ'D
3	GMT - 3	Blue	
5	GMT - 5	Green	
10	GMT - 10	Red-White	
12	GMT - 12	Green-Yel	
0	GMT - Dummy	Orange	

4. Check any options/accessories required and fill in the number of line cords if checked.

OPTIONS & ACCESSORIES

- Additional Temperature Probe (One supplied as standard) SNMP - Simple Network Management Protocol

AC Line Cords: 6ft. (2.8m) with IEC60320 C-13 connector, one per rectifier position in use.

- 125VAC with NEMA 5-15 plug. 3x14AWG OR 205VAC with NEMA 6-15 plug. 3x14AWG OR 205VAC unterminated 3 x 18AWG
- Qty. _____ Pt. No. 364-1412-0000 Qty. _____ Pt. No. 364-1414-0000 Qty. _____ No. 364-1421-0000

5. Send the completed form to the relevant UNIPOWER sales office and we will issue a configuration Model Number which will use the following format.

- System unit Option A: **X75-vv-A-bbbbbb-ST**
- System unit Option B: **X75-vv-B-ST**
- Expansion unit: **X75-ES** (voltage independent, no options available)

Key:
 vv = system voltage.
 b = breaker code, five characters total.
 S = SNMP option fitted. (add as suffix)
 T = additional Temp. probe. (add as suffix)

NOTE: Fuses, rectifiers, accessories and the expansion unit are supplied as separate items from the main system unit and will be detailed separately in quotations, proposals and Sales Order documentation.