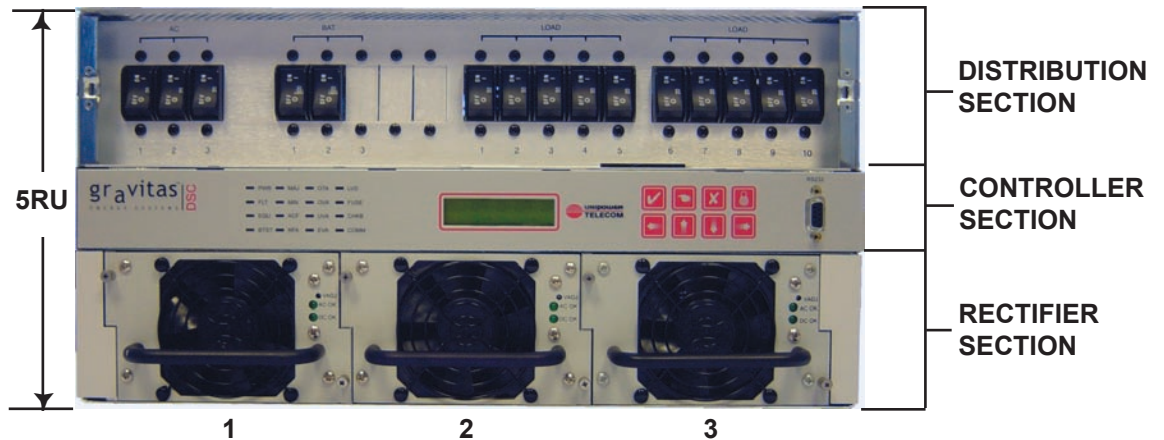


## COMPACT INTEGRATED 150A DC POWER SYSTEM



### KEY FEATURES

- ◆ -48V or +24VDC, to 150A
- ◆ Compact, 5RU High
- ◆ Fully Integrated System
- ◆ Flexible Configuration
- ◆ Hot-Swap Rectifier Modules
- ◆ Easy Installation

### SAFETY STANDARDS

UL1950  
CSA22.2 No. 950  
EN60950

### TWO-YEAR WARRANTY



### DESCRIPTION

Gravitas X150 is a compact, integrated, DC power system. It consists of up to three high power-density, hot-swap rectifier modules which can produce up to 150 amperes at either -48V or +24VDC. In 2+1 redundant operation the output current up to 100 amperes.

The system has a DC distribution panel with up to 10 load circuits which are protected by circuit breakers, GMT fuses or a combination of the two. Three AC breakers are optional, with one breaker for each rectifier input. 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. This module features a keypad and a back-lit 2 line alphanumeric display. All system parameters can be controlled by the keypad. Alternatively, 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 X150 is only 5RU high (8.65 inches or 220mm) and is easily installed by a qualified technician. All connections are at the rear to DIN-rail terminal blocks. A comprehensive operating manual explains all the details of operation and installation. The unit may be mounted in a 19 or 23 inch rack.

## GRAVITAS X150 SUMMARY FEATURES

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>◆ Hot-Swap Rectifiers</li> <li>◆ Power Factor Corrected</li> <li>◆ AC Line Breakers Option</li> <li>◆ Class B EMI Input Filter</li> <li>◆ Up to 150A at -48VDC or +24VDC</li> <li>◆ Up to 100A for 2+1 Redundant</li> <li>◆ Up to 10 DC Circuit Breakers or Fuses</li> <li>◆ 2 Battery Strings</li> <li>◆ 2 Battery String Breakers</li> </ul> | <ul style="list-style-type: none"> <li>◆ LV Battery Disconnect</li> <li>◆ Intelligent Controller</li> <li>◆ Ethernet Communication</li> <li>◆ SNMP Alarm Option</li> <li>◆ Distribution Section Cover</li> <li>◆ Distribution Section Wallet</li> <li>◆ Quick, Easy Installation</li> <li>◆ Modular Design</li> <li>◆ Only 5RU (8.65 Inches) High</li> </ul> |
|---|--|

## SYSTEM CONFIGURATION

SYSTEM CAPABILITY	X150-48R/150	X150-48R/75	X150-24R/150
System Voltage	-54.4VDC	-27.2VDC	+13.6VDC
System Max. Current	150A	75A	150A
System Current, 2+1	100A	50A	100A
Input Range, VAC	170-264	85-264	85-264
Rectifier Model	RRSI48/50-Z	RRPI48/25-Z	RRPI24/50-Z
Rectifiers Required	3 Max.	3 Max.	3 Max.
Input Breakers, AC <sup>1</sup>	3 Optional		
Battery String Breakers	2 Standard		
Low Voltage Disconnect <sup>2</sup>	Standard		
Total No. of DC Loads	10		
1-50A Breakers	4		
1-20A Breakers	6		
½-12A GMT Fuses	10		
Control Features	Standard		
Alarm Outputs	4		
External Digital Inputs	1		
Temp. Compensation <sup>3</sup>	Standard		
Communications	Standard		
Ethernet TCP/IP	Standard		
SNMP	Optional		
Rack Height	5RU		

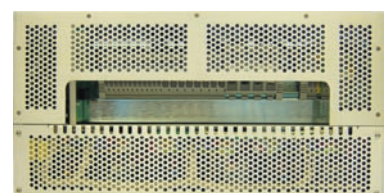
### X150 SYSTEM WITH COVERPLATES FITTED

**NOTES:**

1. One per rectifier module.
2. Battery disconnect.
3. One Temperature probe supplied as standard.
4. 23-Inch mounting brackets can be supplied.



front view



rear view

## RECTIFIER MODULE SPECIFICATIONS

### INPUT

Voltage Range  
 RRPI models \_\_\_\_\_ 85-264VAC  
 RRSI models \_\_\_\_\_ 180-264VAC  
 Power Factor \_\_\_\_\_ 0.98  
 Total Harmonic Distortion, Max. \_\_\_\_\_ 5%  
 Frequency \_\_\_\_\_ 47-63Hz  
 Inrush Current Limiting \_\_\_\_\_ 25A Peak  
 EMI Filter, Conducted \_\_\_ FCC20780 pt. 15J Curve B  
 \_\_\_\_\_ EN55022 Curve B  
 Input Immunity, Conducted  
 Fast Transients, Line-Line  $\pm 2$ kV (EN61000-4-4 Level 3)  
 Surges, Line-Line \_\_\_\_\_  $\pm 1$ kV (EN61000-4-5 Level 2)  
 Surges, Line-Ground \_\_\_\_\_  $\pm 2$ kV (EN61000-4-5 Level 3)

### OUTPUT

Output Voltage Set, Adjustment Range  
 48V out \_\_\_\_\_ 54.4VDC, 45-58VDC  
 24V out \_\_\_\_\_ 27.2VDC, 22.5-29VDC  
 Output Current \_\_\_\_\_ 100A  
 Total Regulation, Max. \_\_\_\_\_ 1.0%  
 Holdup Time \_\_\_\_\_ 20msec  
 Overvoltage Protection  
 48V Out \_\_\_\_\_ 59V  
 24V Out \_\_\_\_\_ 29V

Filtering: Wideband Noise, 20Mhz BW  
 48V Out, P-P \_\_\_\_\_ 500mV  
 24V Out, P-P \_\_\_\_\_ 250mV  
 Voice Band Noise \_\_\_\_\_ <32dBnC  
 Current Limit \_\_\_\_\_ 105% Rated Current  
 Efficiency  
 48V Out \_\_\_\_\_ 87%  
 24V Out \_\_\_\_\_ 85%

### SAFETY STANDARDS

UL 1950, CSA22.2-950, EN60950

### STATUS INDICATORS

AC Good \_\_\_\_\_ Green LED  
 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 Fans

## 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
- ◆ 16 Character x 2 Line Alphanumeric
- ◆ 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

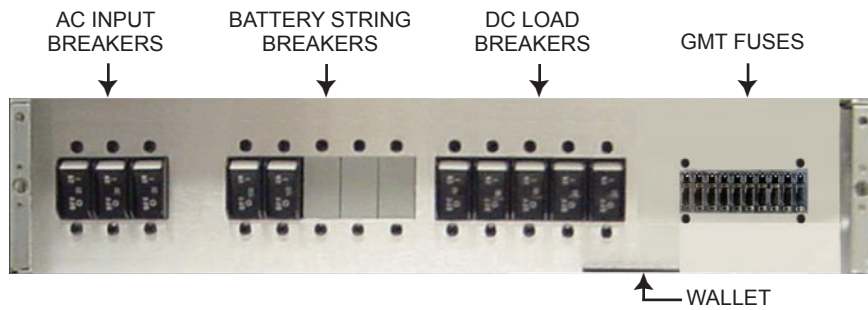
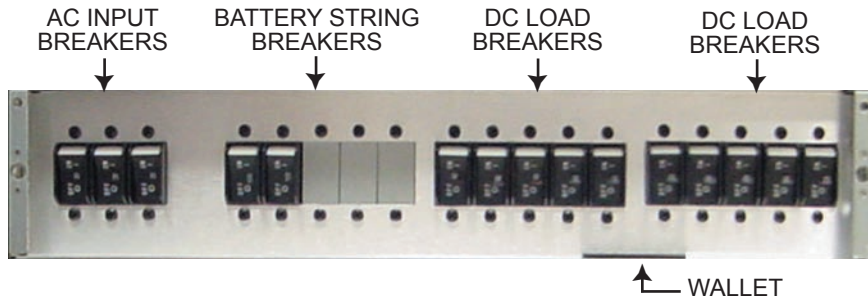
### ALARM PARAMETERS

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

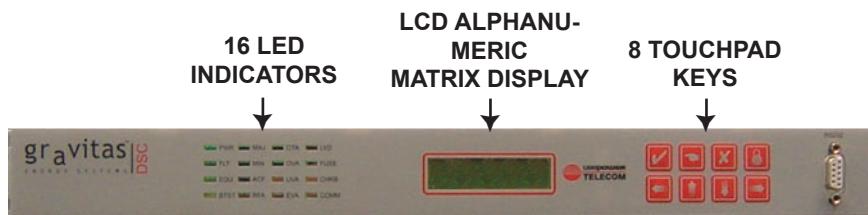
### ALARM OUTPUTS

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

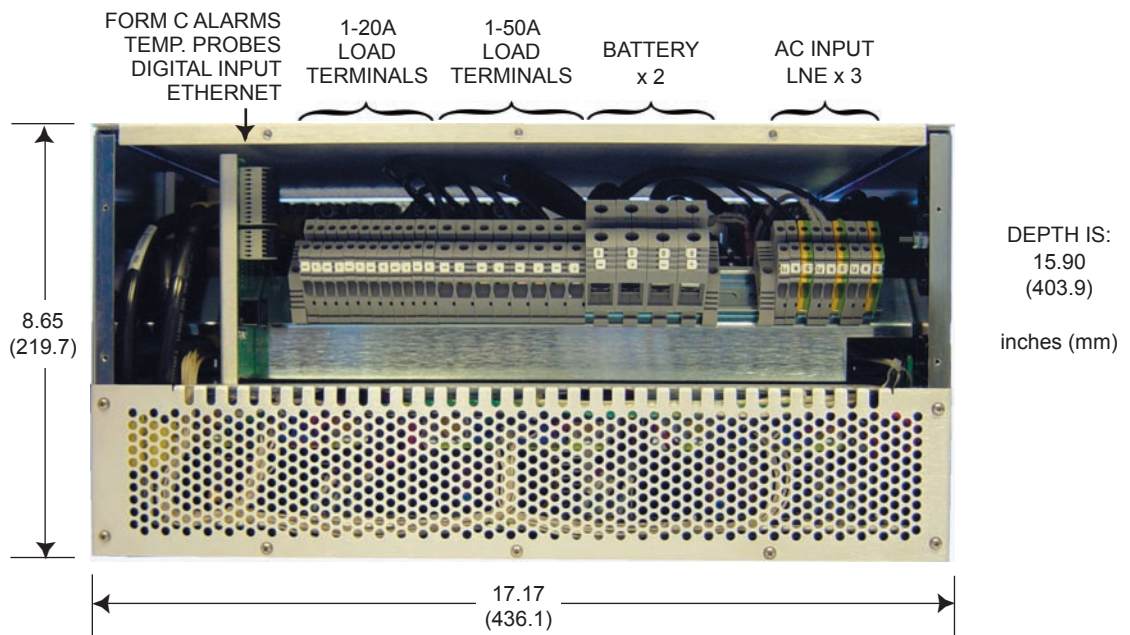
### DISTRIBUTION SECTION



### CONTROLLER



### REAR VIEW



## CONFIGURATION GUIDE

SYSTEM MODEL NO.	SYSTEM OUTPUT, MAX.	INPUT, VAC	RECTIFIER MODULES	NO. MODULES ORDERED																																																
<input type="checkbox"/> <b>X150-48R/150</b>	-48VDC@150A	170-264VAC	RRSI48/50-Z	_____																																																
<input type="checkbox"/> <b>X150-48R/75</b>	-48VDC@75A	85-264VAC	RRPI48/25-Z	_____																																																
<input type="checkbox"/> <b>X150-24R/150</b>	+24VDC@150A	85-264VAC	RRPI24/50-Z	_____																																																
<p>Check the System Model No. and indicate the number of Rectifier Modules ordered, including spares. Maximum number of operating rectifier modules per system is three.</p>																																																				
<b>INPUT PROTECTION (OPTION)</b>																																																				
<input type="checkbox"/> Circuit Breakers(1 per Rectifier)																																																				
<b>DC DISTRIBUTION (OPTIONS)</b>																																																				
<input type="checkbox"/> <b>OPTION A:</b> Up to 10 Breakers Total 1. Breaker ___ A (50A max.) 5. Breaker ___ A (20A max.) 9. Breaker ___ A (20A max.) 2. Breaker ___ A (50A max.) 6. Breaker ___ A (20A max.) 10. Breaker ___ A (20A max.) 3. Breaker ___ A (50A max.) 7. Breaker ___ A (20A max.) 4. Breaker ___ A (50A max.) 8. Breaker ___ A (20A max.)  <input type="checkbox"/> <b>OPTION B:</b> Up to 10 GMT Fuses & Up to 4 Breakers (Total of 10 Circuits) 1. Breaker ___ A (50A max.) 3. Breaker ___ A (50A max.) 2. Breaker ___ A (50A max.) 4. Breaker ___ A (50A max.)																																																				
<b>BREAKERS &amp; FUSES AVAILABLE</b>																																																				
<b>Breakers:</b> 1, 2.5, 5, 10, 15, 20, 25, 30, 40, & 50A (Enter in Option A or B above) <b>GMT Fuses:</b> Order the number required. Maximum total current is 80A.																																																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #c00000; color: white;"> <th>AMPS</th> <th>BUSSMAN NO.</th> <th>COLOR</th> <th>NO. REQ'D</th> </tr> </thead> <tbody> <tr><td>0.5A</td><td>GMT - 1/2</td><td>Red</td><td></td></tr> <tr><td>0.75</td><td>GMT - 3/4</td><td>Brown</td><td></td></tr> <tr><td>1</td><td>GMT - 1</td><td>Gray</td><td></td></tr> <tr><td>1.33</td><td>GMT - 1 1/3</td><td>White</td><td></td></tr> <tr><td>2</td><td>GMT - 2</td><td>Orange</td><td></td></tr> </tbody> </table>				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		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #c00000; color: white;"> <th>AMPS</th> <th>BUSSMAN NO.</th> <th>COLOR</th> <th>NO. REQ'D</th> </tr> </thead> <tbody> <tr><td>3</td><td>GMT - 3</td><td>Blue</td><td></td></tr> <tr><td>5</td><td>GMT - 5</td><td>Green</td><td></td></tr> <tr><td>10</td><td>GMT - 10</td><td>Red-White</td><td></td></tr> <tr><td>12</td><td>GMT - 12</td><td>Green-Yel</td><td></td></tr> <tr><td>0</td><td>GMT - Dummy</td><td>Orange</td><td></td></tr> </tbody> </table>	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	
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<input type="checkbox"/> Additional Temperature Probe (One supplied as standard) <input type="checkbox"/> SNMP - Simple Network Management Protocol																																																				
<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																																																				