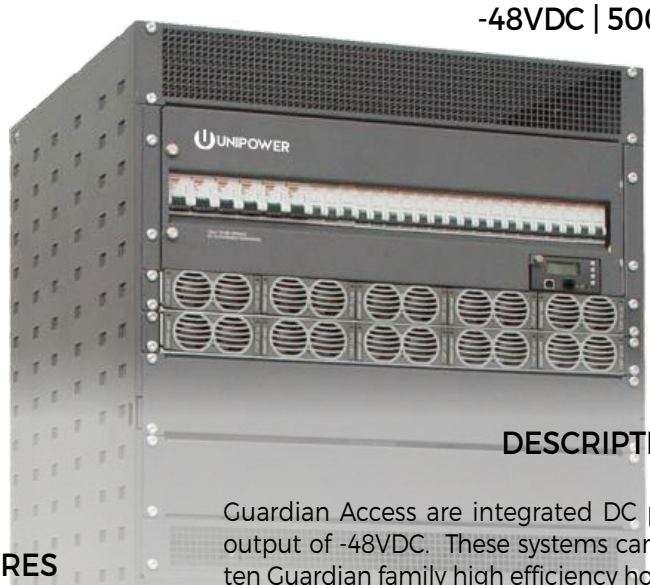
GUARDIAN ACCESS

MODELS GDN.S.48.M24 & GDN.S.48.MS32

Integrated DC Power System & Battery

-48VDC | 500A | 26.8kW



LVD2006/95/EC
EMC2004/108/EC
ROHS2011/65/EU

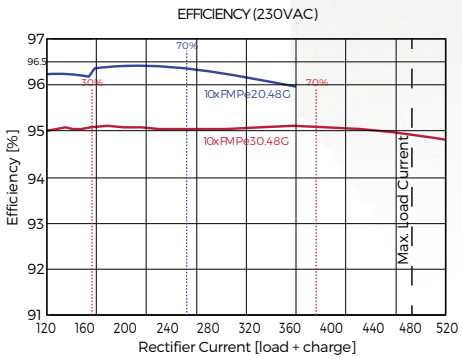
KEY FEATURES

- >96% Efficiency Rectifiers
- 500A / 26.8kW Load Capacity
- Remote Monitoring & Control
- Field Replaceable Controller
- Ethernet Comm. with SNMPv3
- 3 LED Alarm/Status Indicators
- Up to 10 Form-C Relay Alarms
- Up to 26 Load Breakers
- Up to 6 Battery Breakers
- LCD Display with Keypad
- Floor Standing or Wall Mounting

SAFETY COMPLIANCE

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

TWO-YEAR WARRANTY



DESCRIPTION

Guardian Access are integrated DC power systems providing an output of -48VDC. These systems can accommodate up to five or ten Guardian family high efficiency hot-swap rectifiers in 1.4m, 1.8m or 2m floor standing cabinets or an 18U high wall-mounted cabinet which also accommodate up to 3 battery strings. A load current of 400A (MS32) or 500A (M24) is available with battery charge current software controlled subject to an overall 542A. The 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 26 loads which utilize circuit breakers rated from 2A to 63A plus up to six 100A or 125A breakers that provide battery protection. An optional extension PDU module provides a further 24 load circuits. A programmable 500A (M24) or 400A (MS32) low voltage battery disconnect (LVD) is standard while one or two partial load disconnects (PLD), rated at 125A or 200A and also programmable, can provide non-critical load shedding when operating on batteries.

The ACC Extended 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, (RED) Alarm and (YELLOW) Message. A third green LED indicates the controller is working properly. As standard four form-C relay outputs provide the alarms for remote use. An additional 6 can be included as an option. Two digital inputs and outputs are also provided as well as a microSD card slot that accepts an up to 4GB card which is sufficient for more than 20 years data logging.

The system can be programmed by means of a remote PC web page display. Communication is by Ethernet LAN with SNMPv3 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.

The Guardian Access is compatible with UNIPOWER's free PowCom™ software which offers local and remote management through an advanced Windows GUI.

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SYSTEM SPECIFICATION & CAPABILITY GUIDE

SYSTEM DESIGNATION	GUARDIAN ACCESS - 1-M00024G / 1-MS0032G	
OUTPUT		
System Voltage	-48VDC nominal | 53.5VDC float	
Maximum Capacity @ 120VAC nominal	Load	318A
	Battery	318A discharge | s/w controlled charge
Maximum Capacity @ 230/400VAC nominal	Load	500A (M24) or 400A (MS32)
	Battery	500A (M24) or 400A (MS32) discharge | s/w controlled charge
No. Rectifier Slots	5 or 10 (see configuration guide on page 5)	
DC DISTRIBUTION		
Loads Circuits	up to 26 x 18mm (2A to 63A - see configuration guide on page 5) additional 24 x 18mm with extension PDU (2A to 25A - see configuration guide on page 5)	
Battery Circuits	1 to 6 x (80A, 100A or 125A)	
INPUT		
Voltage (nominal)	1-phase 100-120/200-240VAC (L + N + PE) 3-phase 230/400VAC (L1 L2 L3 + N + PE)	
Frequency	47-63Hz	
Maximum Input Current	200A @ 100-120VAC | 169A @ 200-240VAC | 56A per phase @ 400/230VAC	
Rectifier Power Factor	>0.98 (typical)	
Surge Protection	Optional (see configuration guide on page 5)	
MONITORING & CONTROL (ACC Extended Controller)		
Alarm Relays	4 standard, option for 10	
Local Interface	4 x 20 LCD, 4-key menu, USB / RS232, microSD card slot (4GB max,) for data logging	
Remote Interface	Ethernet / Modem using PowCom™ software package Ethernet port allows monitoring and control over a TCP/IP network. Web browser support + SNMPv3	
LED Indications	Green - System ON; Yellow - Message(s); Red LED - Alarm(s)	
External Digital I/O	2 x Inputs, 2 x Outputs (Open Collector)	
BATTERY MANAGEMENT		
Symmetry Inputs	6 or 12 (can be redefined as analog inputs up to 100VDC)	
Low Voltage Battery Disconnect (LVD)	1 x 500A (M24) or 400A (MS32) Programmable	
Partial Load Disconnect (PLD)	1 or 2 x 125A or 200A Programmable (Optional)	
Temperature Compensated Charging	Programmable	
COMPLIANCE		
EMC	EN 300 386 ; EN61000-6-3 (Emission) ; EN61000-6-2 (Immunity)	
Safety	IEC60950-1:2005 2 Ed. +A1:2009	
ENVIRONMENTAL		
Operating Temperature	-40°C to +55°C	
Storage Temperature	-40°C to +85°C	

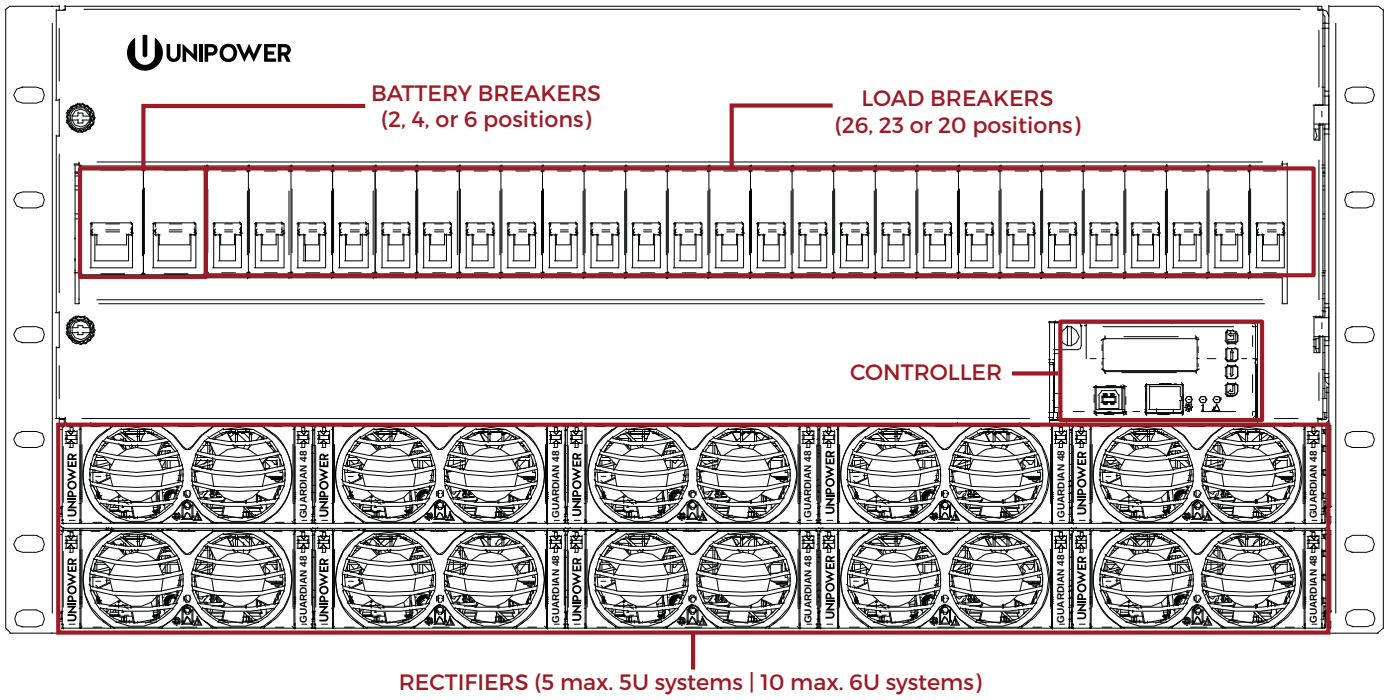
RECTIFIER MODULES vs. SYSTEM CAPACITIES

RECTIFIER MODULES (float voltage 53.5V)						SYSTEM CAPACITY (500A LVD)			
MODEL NUMBER	EFFICIENCY[1]	INPUT VOLTAGE[2]	INPUT CURRENT[3]	OUTPUT POWER	OUTPUT CURRENT	MAX. LOAD CURRENT 5RU		MAX. LOAD CURRENT 6RU	
						TOTAL	4+1[5]	TOTAL	9+1[5]
FMP20.48[6] FMPe20.48G	>92.5% >96.0%	85-180VAC	9.6A	1100W[4]	20.6A[4]	103A[4]	82A[4]	206A[4]	185A[4]
		180-275VAC	11.6A	2000W	37.4A	187A[4]	150A[4]	374A[4]	337A[4]
FMP25.48G[6]	>92.5%	85-180VAC	14.4A	1400W[4]	26.2A[4]	131A[4]	105A[4]	262A[4]	236A[4]
		180-275VAC	16.8A	2500W	46.7A	187A[4]	187A[4]	467A[4]	420A[4]
FMPe30.48C[6] FMPe30.48G	>95.0%	85-180VAC	15.7A	1700W[4]	31.8A[4]	234A[4]	127A[4]	318A[4]	286A[4]
		180-275VAC	17.0A	2900W	54.2A	271A[4]	217A[4]	500A[4]	488A[4]

Notes:

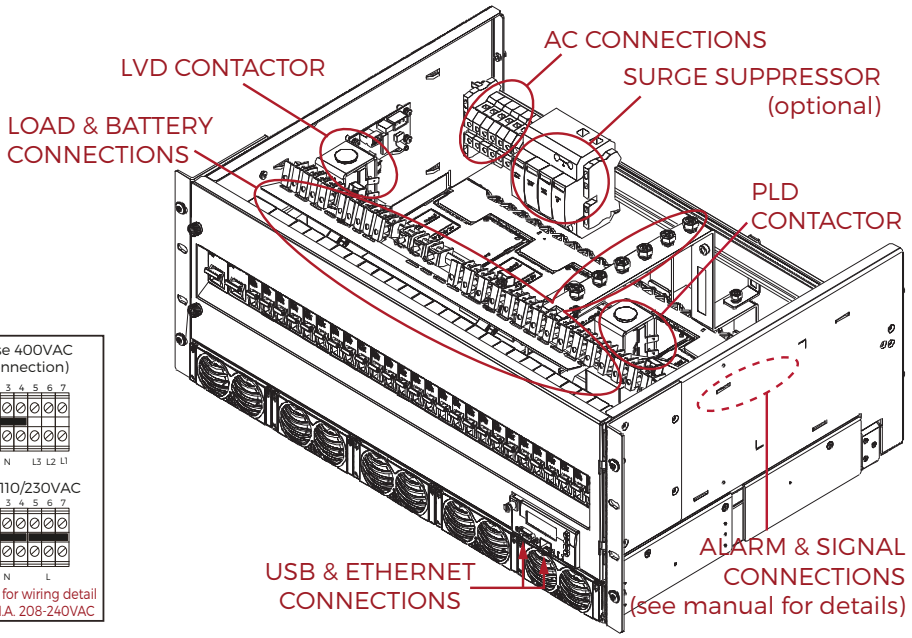
1. When operating at 230VAC.
2. All models will operate over the full range, automatically limiting output current/power according to the actual input voltage range applied.
3. Input currents shown are expected maximums at 85VAC/180VAC as appropriate
4. Figures quoted are at 110VAC input. Derating is linear from 180VAC to 85VAC. See separate rectifier datasheets for details
5. May required reduction in maximum charge current when batteries not fully charged.
6. Rectifier model FMP25.48G is not a preferred model for new requirements. It remains available for existing programmes. Rectifier models FMP20.48 and FMPe30.48C are available in the Asia/Pacific (APAC) region only.

SYSTEMS MODULE FRONT PANEL DESCRIPTION

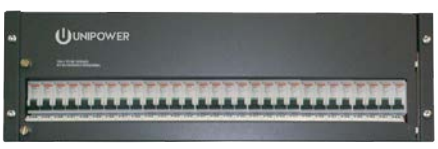


SYSTEM MODULE PERSPECTIVE FRONT VIEW

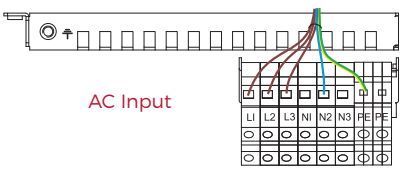
Note that the exact positioning of system components will vary for different configurations.

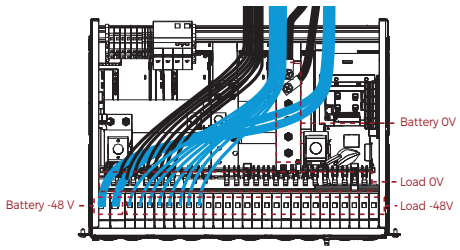


EXTENSION PDU



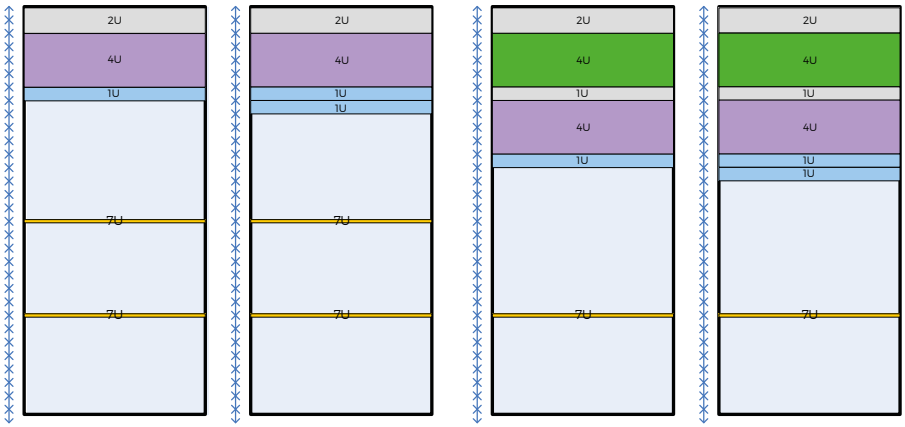
CABLE ROUTING



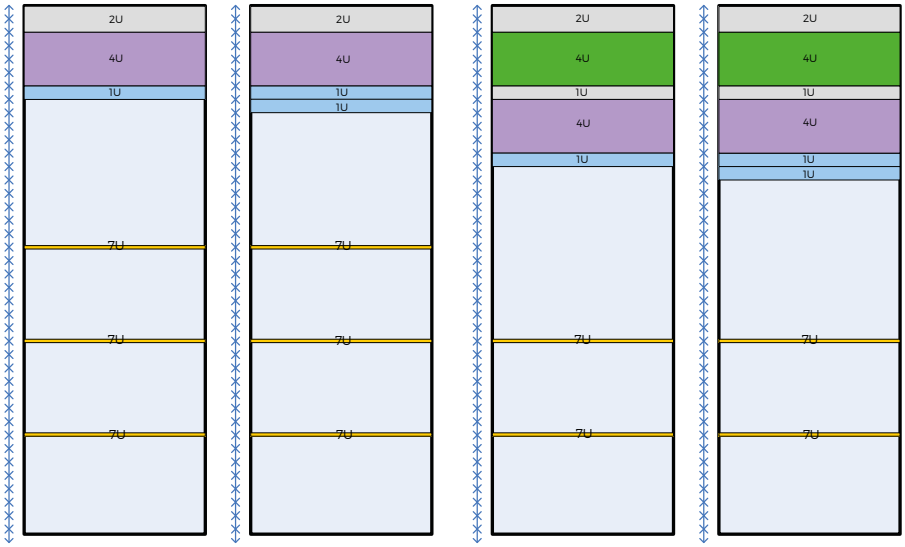


FLOOR STANDING CABINET CONFIGURATIONS - 7U BATTERY SPACING

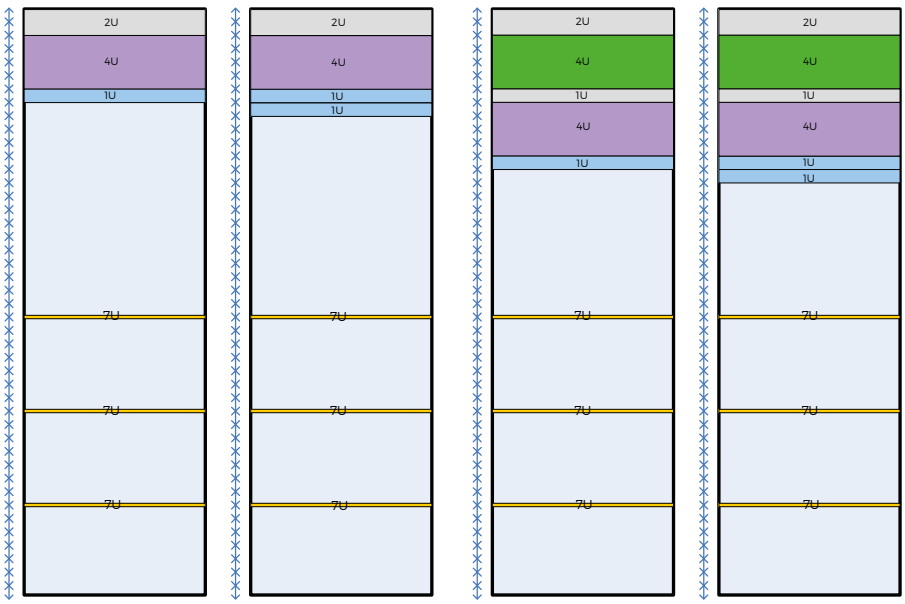
55.5"/1.4m x 23.6"/600mm x 23.6"/600mm - 30RU internal



70.9"/1.8m x 23.6"/600mm x 23.6"/600mm - 39RU internal



78.7"/2.0m x 23.6"/600mm x 23.6"/600mm - 43RU internal

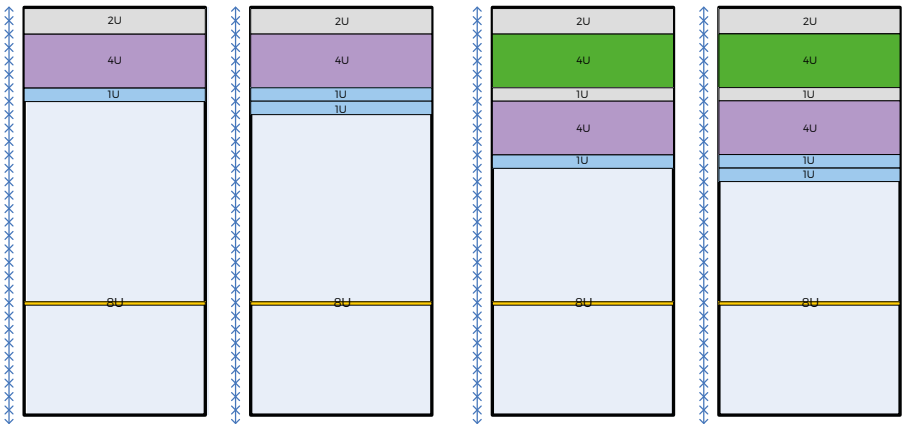


NOTE: For applications requiring more battery strings than the desired cabinet will accommodate please select a suitable matching battery cabinet when completing the ordering guide.

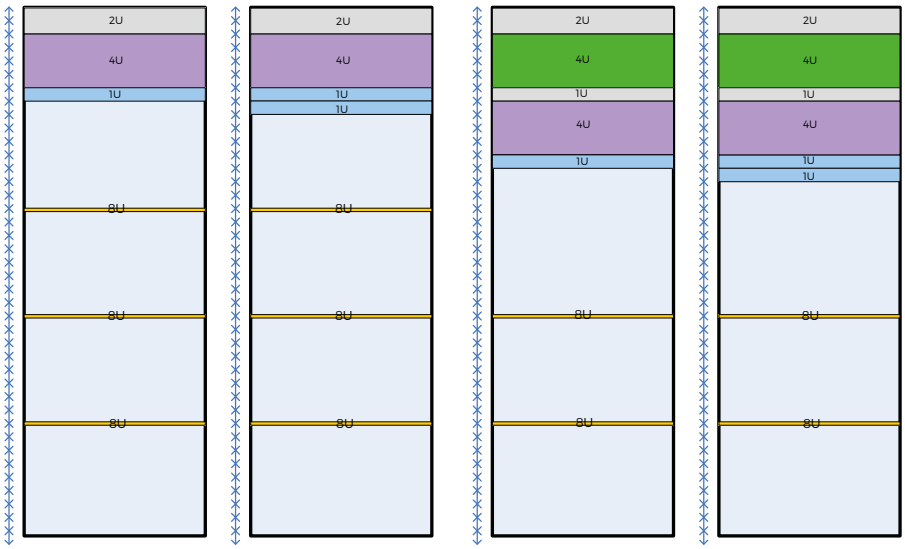
Key:

FLOOR STANDING CABINET CONFIGURATIONS - 8U BATTERY SPACING

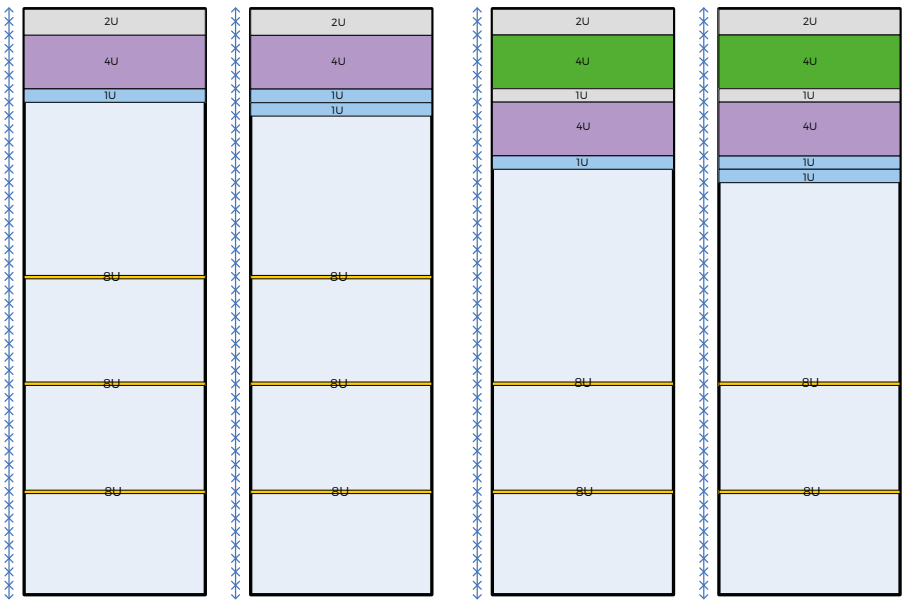
55.5"/1.4m x 23.6"/600mm x 23.6"/600mm - 30RU internal



70.9"/1.8m x 23.6"/600mm x 23.6"/600mm - 39RU internal

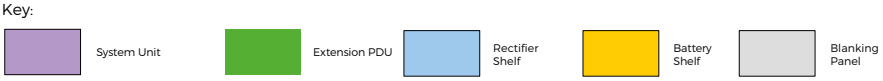


78.7"/2.0m x 23.6"/600mm x 23.6"/600mm - 43RU internal

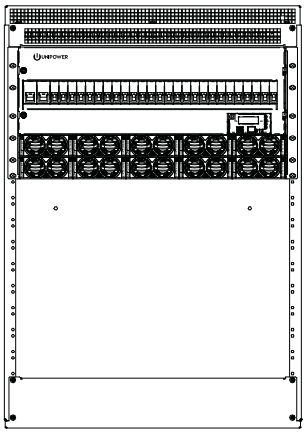


NOTE: For applications requiring more battery strings than the desired cabinet will accommodate please select a suitable matching battery cabinet when completing the ordering guide.

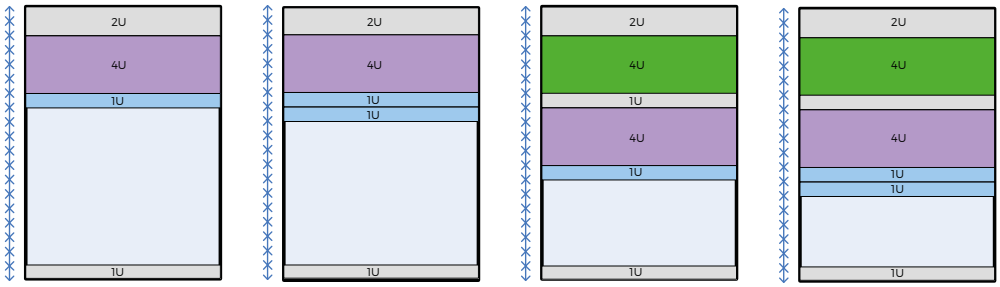
Key:



WALL-MOUNT CABINET CONFIGURATIONS



33.6"/854mm x 23.6"/600mm x 15.4"/390mm - 18RU internal



NOTE: Due to the overall depth of 15.4"/390mm, this cabinet will not accommodate large capacity (>60Ah typical) front terminal batteries. If larger batteries are going to be used please select a suitable battery cabinet when completing the ordering guide.

CONFIGURATION GUIDE

PLEASE COMPLETE THE BELOW TABLE AND SUBMIT TO UNIPOWER FOR VERIFICATION AND CONF. NO. ALLOCATION (This form is fully interactive and may be completed electronically OR it can be printed and complete by hand)	
STEP 1 - CUSTOMER DETAILS	
Company: _____ Address: _____ _____ Zip Code: _____ Country: _____	Contact Name: _____ Email Address: _____ Telephone: _____ Quantity for quotation: _____
STEP 2 - CHASSIS TYPE - Choose one version	
5 Rectifier Positions or 10 Rectifier Positions	5 Rectifiers ☐ **OR** 10 Rectifiers single input ☐ **OR** 10 Rectifiers dual input ☐
STEP 3 - RECTIFIER MODULES - Choose one type only and enter quantity between 1 and 10 - dummies will be inserted into unused slots	
FMP20.48 - 2000W - >92.5% Efficiency (APAC region only) FMPe20.48G - 2000W - >96% Efficiency FMP25.48G - 2500W - >92% Efficiency FMPe30.48G - 2900W - >95% Efficiency FMPe30.48C - 2900W - >95% Efficiency (APAC region only)	FMP20.48 ☐ **OR** FMPe20.48G ☐ **OR** FMP25.48G ☐ **OR** FMPe30.48G ☐ **OR** FMPe30.48C ☐ Quantity _____
STEP 4 - CONTROLLER & ALARM INTERFACE - Select desired controller and alarm interface	
PCC (APAC region only) ACC Extended with SD Card Slot (default configuration) ACC Extended without SD Card Slot	PCC ☐ **OR** ACC WITH SD card slot ☐ **OR** ACC WITHOUT SD card slot ☐
Alarm Interface - 4 Relays or 10 Relays or 10 Relays + PLD2	4 Relays ☐ **OR** 10 Relays ☐ **OR** 10 Relays + PLD2 ☐
STEP 5 - BATTERY LVD CONTACTOR Select 400A or 500A and 2 breaker (default), 4 breaker or 6 breaker (not available with LVLD)	
400A LVD | 2 battery breaker positions (21 load breaker positions) 400A LVD | 4 battery breaker positions (18 load breaker positions) 400A LVD | 6 battery breaker positions (15 load breaker positions) 500A LVD | 2 battery breaker positions (21 load breaker positions) 500A LVD | 4 battery breaker positions (18 load breaker positions) 500A LVD | 6 battery breaker positions (15 load breaker positions)	400A - 2 positions ☐ **OR** 4 positions ☐ **OR** 6 positions ☐ **OR** 500A - 2 positions ☐ **OR** 4 positions ☐ **OR** 6 positions ☐
STEP 6 - BATTERY BREAKERS - Choose rating and quantity based on step 5 choice or NONE (Breakers MUST be identical rating)	
OR 80A 1 pole x 1 or x 2 or x 3 or x 4 or x 5 or x 6 (APAC only) **OR** 100A 1 pole x 1 or x 2 or x 3 or x 4 or x 5 or x 6 **OR** 125A 1 pole x 1 or x 2 or x 3 or x 4 or x 5 or x 6 **OR** 80A 2 pole x 1 or x 2 or x 3 (APAC only) **OR** 100A 2 pole x 1 or x 2 or x 3 (APAC only) **OR** 125A 2 pole x 1 or x 2 or x 3 **OR** 100A 3 pole x 1 or x 2 (APAC only)	**OR** Qty 1 ☐ **OR** Qty 2 ☐ **OR** Qty 3 ☐ **OR** Qty 4 ☐ **OR** Qty 5 ☐ **OR** Qty 6 ☐ **OR** Qty 1 ☐ **OR** Qty 2 ☐ **OR** Qty 3 ☐ **OR** Qty 4 ☐ **OR** Qty 5 ☐ **OR** Qty 6 ☐ **OR** Qty 1 ☐ **OR** Qty 2 ☐ **OR** Qty 3 ☐ **OR** Qty 4 ☐ **OR** Qty 5 ☐ **OR** Qty 6 ☐ **OR** Qty 1 ☐ **OR** Qty 2 ☐ **OR** Qty 3 ☐ **OR** Qty 1 ☐ **OR** Qty 2 ☐ **OR** Qty 3 ☐ **OR** Qty 1 ☐ **OR** Qty 2 ☐ **OR** Qty 3 ☐ **OR** Qty 1 ☐ **OR** Qty 2 ☐
STEP 7 - PARTIAL LOAD DISCONNECT (PLD) - Select 125A or 200A or NO (default) - PLD2 may only be selected with correct Alarm Interface	
125A or 200A PLD1 (non-critical load / load shed disconnect) 125A or 200A PLD2 (non-critical load / load shed disconnect)	125A ☐ **OR** 200A ☐ **OR** NO ☐ 125A ☐ **OR** 200A ☐ **OR** NO ☐

CONTINUE ON NEXT PAGE

STEP 8 - LOAD BREAKERS - Choose quantity for desired ratings, total 26, 23 or 20 positions based on step 5 selection.
When the PLD options are not selected populate only LVD 'critical' circuits column. The maximum allowed PLD breakers is 12. These are shared 6 each when two PLDs are specified. [Configuration will be checked by UNIPOWER]

	LVD CIRCUITS (Critical)	PLD CIRCUITS (non Critical)	
		PLD #1	PLD #2
2A single pole (1 position)	Quantity ____	Quantity ____	Quantity ____
4A single pole (1 position)	Quantity ____	Quantity ____	Quantity ____
6A single pole (1 position)	Quantity ____	Quantity ____	Quantity ____
10A single pole (1 position)	Quantity ____	Quantity ____	Quantity ____
16A single pole (1 position)	Quantity ____	Quantity ____	Quantity ____
20A single pole (1 position)	Quantity ____	Quantity ____	Quantity ____
25A single pole (1 position)	Quantity ____	Quantity ____	Quantity ____
32A single pole (1 position)	Quantity ____	Quantity ____	Quantity ____
40A single pole (1 position)	Quantity ____	Quantity ____	Quantity ____
50A single pole (1 position)	Quantity ____	Quantity ____	Quantity ____
63A single pole (1 position)	Quantity ____	Quantity ____	Quantity ____

STEP 10 - EXTENSION PDU - Provides additional 25 load breaker positions - Choose quantity for desired ratings.
This option should only be selected if the total number of desired LVD circuits exceeds the number available after making selections in steps 5 and 7.

2A single pole (1 position)	Quantity ____
4A single pole (1 position)	Quantity ____
6A single pole (1 position)	Quantity ____
10A single pole (1 position)	Quantity ____
16A single pole (1 position)	Quantity ____
20A single pole (1 position)	Quantity ____
25A single pole (1 position)	Quantity ____

STEP 11 - SYSTEM CABINET - Choose one option from the below.
This selection will determine the number of battery cables that are installed subject to sufficient positions being selected in step 5

1.4m x 600 x 600 - Floor Standing (3 battery strings max.)	1 Shelf ☐ **OR** 2 Shelves ☐
1.8m x 600 x 600 - Floor Standing (4 battery strings max.)	**OR** 1 Shelf ☐ **OR** 2 Shelves ☐ **OR** 3 Shelves ☐
2.0m x 600 x 600 - Floor Standing (5 battery strings max.)	**OR** 1 Shelf ☐ **OR** 2 Shelves ☐ **OR** 3 Shelves ☐ **OR** 4 Shelves ☐
18U x 600 x 400 - Wall Mounting (1 <60Ah battery strings max.)	**OR** 0 Shelves ☐

STEP 12 - DOORS, BATTERY COVERS & BLANKING PANELS (only available for 1.8m and 2m floor standing cabinets.)
Select ONE only if required.

Door - DIN Lock - L/R mount	☐
Door - 331 Lock - L/R mount	**OR** ☐
Lower battery cover with 2 x 2U dummy panel	**OR** ☐
Lower battery cover with 1 x 5U dummy panel	**OR** ☐
Battery blank panel kit 2U	**OR** ☐
Battery blank panel kit 3U	**OR** ☐

STEP 13 - BATTERY CABINET - Choose one based on number of battery strings that need to be accommodated external to the system cabinet. In the case of 1.8m and 2m cabinets the option chosed in step 12 will be applied to ensure the cabinets match aesthetically.

1.4m x 600 x 600 - Floor Standing	1 Shelf ☐ **OR** 2 Shelves ☐
1.8m x 600 x 600 - Floor Standing	**OR** 1 Shelf ☐ **OR** 2 Shelves ☐ **OR** 3 Shelves ☐
2.0m x 600 x 600 - Floor Standing	**OR** 1 Shelf ☐ **OR** 2 Shelves ☐ **OR** 3 Shelves ☐ **OR** 4 Shelves ☐

STEP 14 - TEMPERATURE SENSOR - available for battery and ambient temperature measurement

Temperature Sensors - 3m (~10ft) (1 x battery | 1 x ambient)	NONE ☐ **OR** 1 ☐ **OR** 2 ☐

STEP 15 - SYMMETRY CABLES (Choose maximum 4 total end measure OR 3 mid measure)

Symmetry Cable - 1.9m (~6ft) - end measure	NONE ☐ Qty 1 ☐ Qty 2 ☐ Qty 3 ☐ Qty 4 ☐
OR - 3.0m (~10ft) - end measure	**OR** NONE ☐ Qty 1 ☐ Qty 2 ☐ Qty 3 ☐ Qty 4 ☐
OR - 2.3m (~7.2ft) - mid measure	**OR** NONE ☐ Qty 1 ☐ Qty 2 ☐ Qty 3 ☐

STEP 16 - OPTIONS & ACCESSORIES (Select required items)

Shelf Support Kit	NO ☐ **OR** YES ☐
23" Wall-Bracket Kit (for wall-mount cabinet only)	NO ☐ **OR** YES ☐
Surge Protection Kit (factory fit)	NO ☐ **OR** 1-phase ☐ **OR** 3-phase ☐
AC Monitoring Kit	NO ☐ **OR** YES ☐

STEP 17 - SUBMIT COMPLETED FORM TO UNIPOWER FOR CHECKING AND ALLOCATION OF CONFIGURATION PART NUMBER

Configuration Part Number: _____ (leave blank for completion by UNIPOWER)

UNIPOWER has carefully selected a range of batteries from 3 manufacturers for use with these systems.
For details please visit the UNIPOWER web site batteries page.

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