

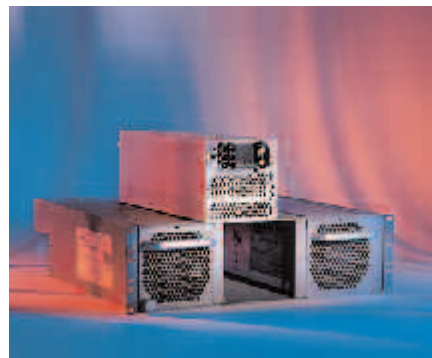
Section 21

3U POWER SHELF PRODUCT SERIES

A TRUE HOT PLUG REDUNDANT POWER SYSTEM 19", 23" & 30" POWER SHELF

DESCRIPTION

- ◆ Pioneer Magnetics' True Hot Plug Power System eliminates down time by providing glitch-free, continuous operation for critical systems that must not fail. A standard line of high reliability switching power supplies is combined with an industry standard 19" or 23" rack to create an advanced hot plug system.
- ◆ True Hot Plug eliminates all switches and breakers. The system never shuts down. Less than 10 seconds is required to remove and replace a supply. Power supplies can be swapped at full system power by simply pulling any unit out of the rack and plugging in a replacement.
- ◆ With a common 5" x 5" cross-section, Pioneer power supplies are available from 1kW Watts to 8.1kW. Standard output voltages are 12VDC to 60VDC. All supplies offer Power Factor Correction to 99.9% in Single Phase AC input or 95% in Three Phase AC input. Built-in single wire paralleling gives excellent load division among supplies, regardless of the number of active supplies. Load is automatically distributed as supplies are removed or added. Wireless (Droop) current sharing provides greater reliability.
- ◆ The PM1450 rack series offers unusual flexibility and capacity, while providing a complete power system solution. Up to three 5" x 5" supplies are housed in a 19" rack, and up to four supplies in the 23" rack. This means that four 8100-watt supplies can provide 32.4kW of power in a single 23" rack. Stacking up five shelves can supply 162kW Watts of redundant power in just 31.5" of rack height. Custom system expansion and future upgrade capacity are readily available.

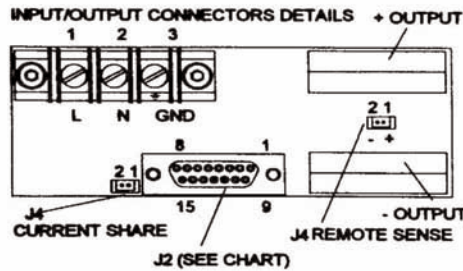
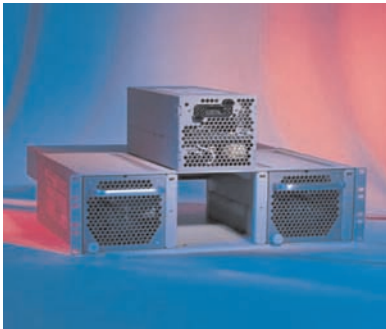
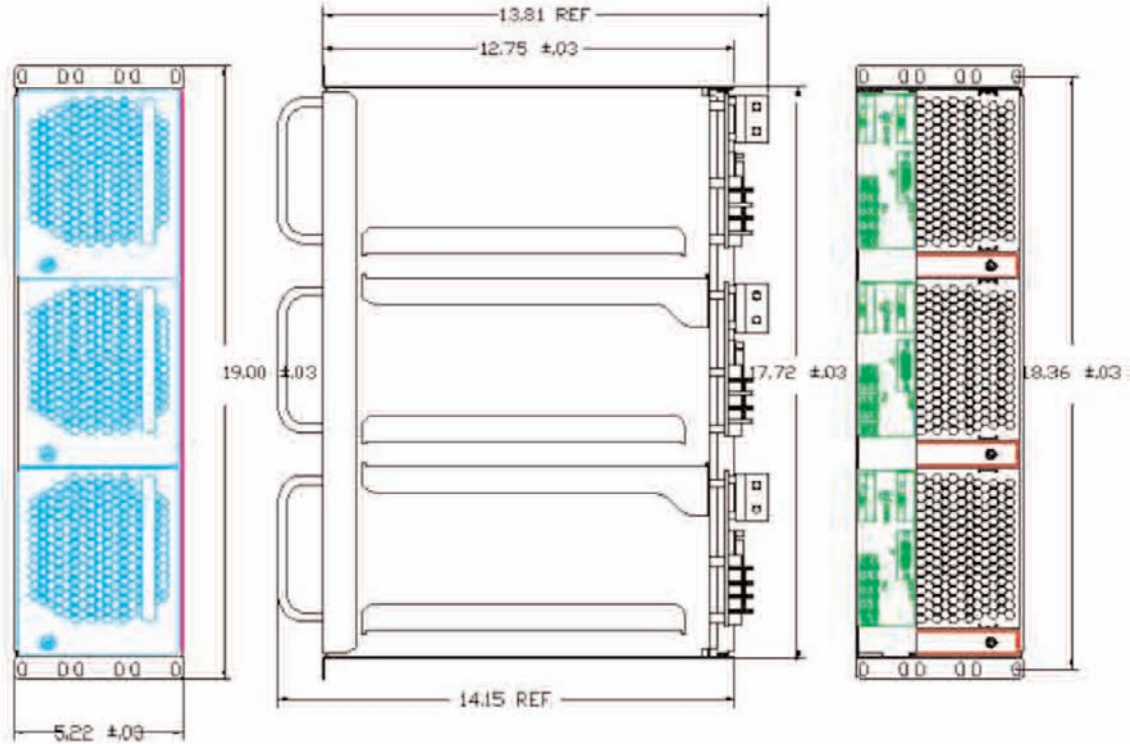


KEY FEATURES OF TRUE HOT PLUG

- ◆ The guarantee of practically unlimited freedom from shut down. A single Pioneer power supply has a DMTBF of about ½ million hours. Redundancy gives a System DMTBF of over 100 million hours or 10,000 years.
- ◆ A Redundant System (Each supply can carry the full load, or share the load with a second or third supply).
- ◆ No Switches or Circuit Breakers on the Input or Output side.
- ◆ No deviation or loss of Output Bus Voltage during insertion or removal of units.
- ◆ Zero Down Time.
- ◆ A special customized design combination of Pioneer Magnetics' Hot Plug Power Supply and Elcon Top or Lower Drawer Connector.
- ◆ High Power Density to 21watts/in³.

**Ideal For
Fault Tolerant
Applications**

19", Shelf with Elcon Lower Drawer Connector 9kW Max Power



J2 pin Definitions

- Pin 1 Remote Sense (+)
- Pin 2 Margin
- Pin 3 DC Power Good
- Pin 4 Remote Sense (-)
- Pin 5 AC Power Fail
- Pin 6 Logic Inhibit
- Pin 7 Current Monitor
- Pin 9 Unit Present
- Pin 10 Unit Present
- Pin 14 Logic Return

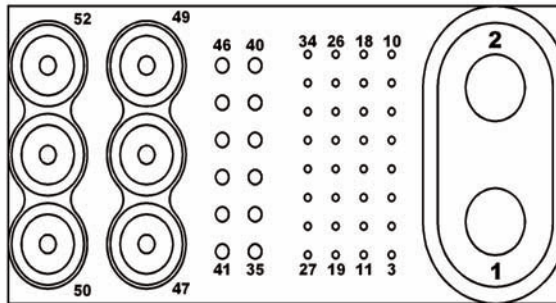
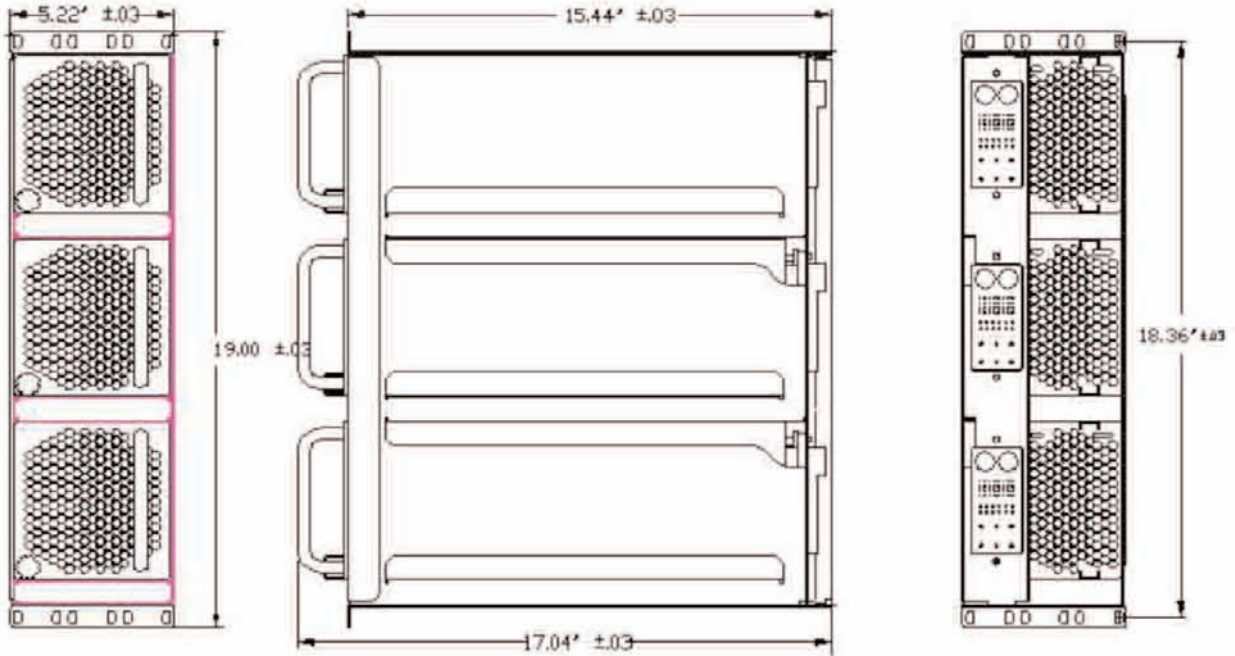
Each position is provided with a I/O PCB that contains DC bus bars, AC terminal block, Control and alarm connector J2 and current share connector J4. Common DC bus bar for all three positions is available as an option.

Product Table: 1kW to 9kW Power Systems

Rectifier Model, Power	Output Voltage	Output Current Per Rectifier	Shelf	Redundant Power (N+1)	System Power
PM3326BP, 1kW	48V	21A	PM1452AF, 2 Pos	1kW (1+1)	2kW
PM3326BP, 1kW	48V	21A	PM1453AF, 3 Pos	2kW (2+1)	3kW
PM3329BP, 2kW	48V	42A	PM1452AF, 2 Pos	2kW (1+1)	4kW
PM3329BP, 2kW	48V	42A	PM1453AF, 3 Pos	4kW (2+1)	6kW
PM33211BP, 3kW	48V	62.5A	PM1452AF, 2 Pos	3kW (1+1)	6kW
PM33211BP, 3kW	48V	62.5A	PM1453AF, 3 Pos	6kW (2+1)	9kW

Notes: Facial plates are available for empty position

19", Shelf with Elcon Top Drawer Connector 9kW Max Power



Pin	Description
1	Output (+)
2	Output (-)
3	Remote Sense (+)
11	Remote Sense (-)
16	Voltage Programming
17	Current Programming
20	AC Power Fail
21	DC OK
22	Logic Inhibit
23	Current Sharing
24	Current Monitor
27	Logic Return
50	Chassis Ground
51	AC Input (Line)
52	AC Input (Neutral)

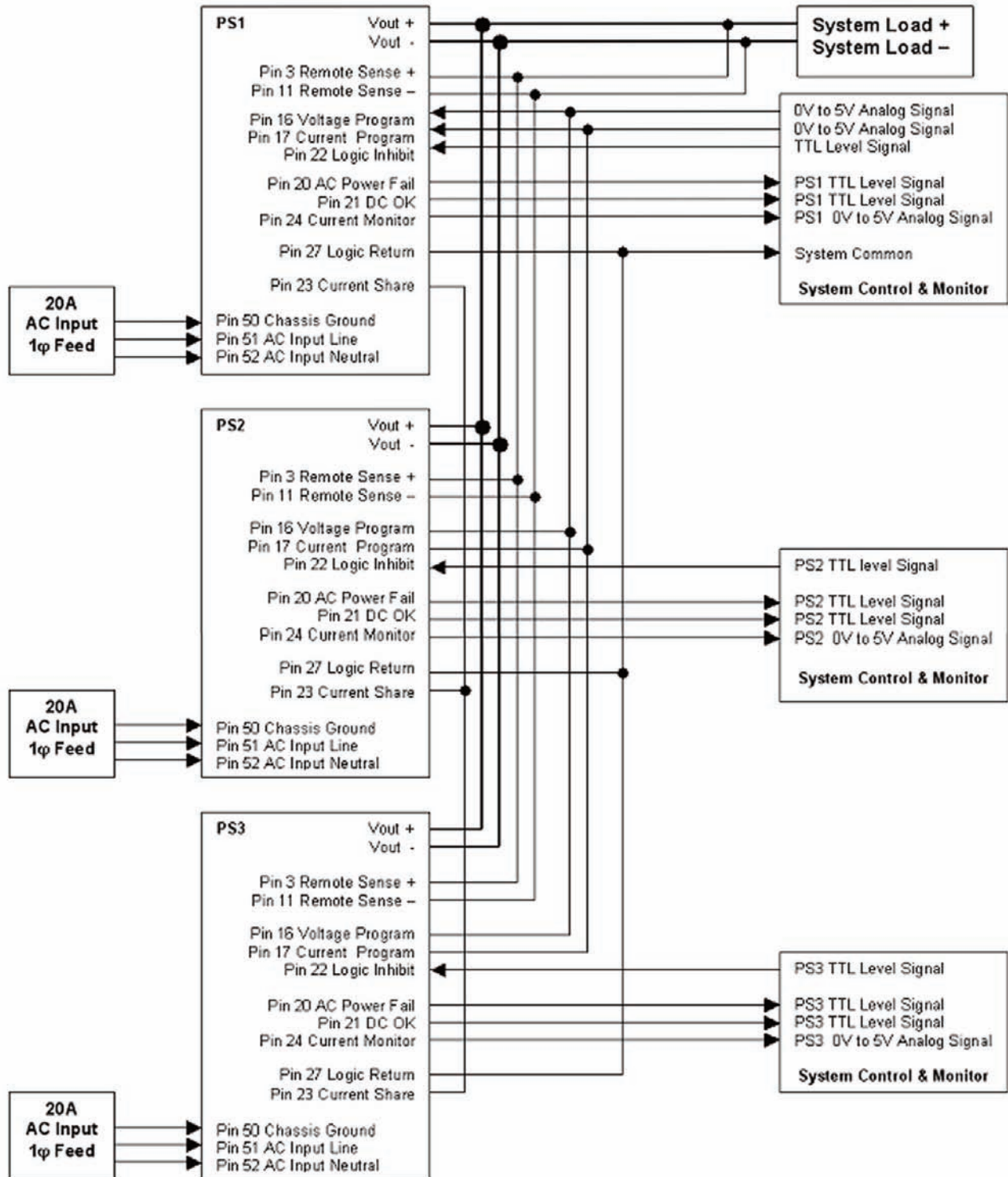
Each position is provided with Elcon Top Drawer Mate connector with flying leads for the DC output, AC input and option signals. Also available as an option with common DC bus bars, IEC AC input connector and DB25 for option signals.

Product Table: 1kW to 9kW Power Systems

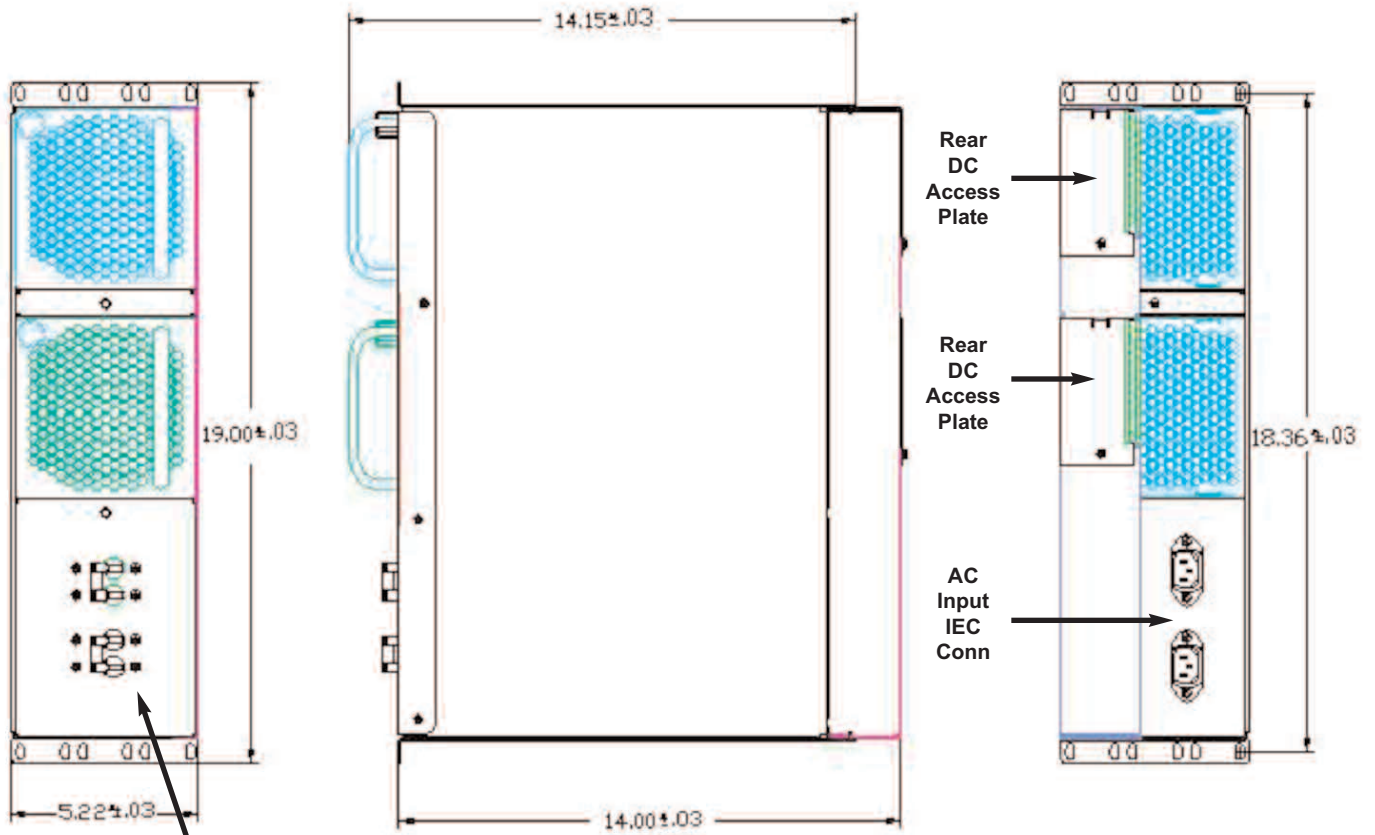
Rectifier Model, Power	Output Voltage	Output Current Per Rectifier	Shelf	Redundant Power (N+1)	System Power
PM3326BP, 1kW	12V/24V	83/42A	PM1452AF, 2 Pos	1kW (1+1)	2kW
PM3326BP, 1kW	12V/24V	83A/42A	PM1453AF, 3 Pos	2kW (2+1)	3kW
PM3329BP, 2kW	12V/24V	166A/83A	PM1452AF, 2 Pos	2kW (1+1)	4kW
PM3329BP, 2kW	12V/24V	166A/83A	PM1453AF, 3 Pos	4kW (2+1)	6kW
PM33211BP, 3kW	12V/24V	250A/125A	PM1452AF, 2 Pos	3kW (1+1)	6kW
PM33211BP, 3kW	12V/24V	250A/125A	PM1453AF, 3 Pos	6kW (2+1)	9kW

Notes: Facial plates are available for empty position

I/O Interface Block Diagram for Elcon Top Drawer Connector



19" Custom Shelf #1, with AC Breakers 4kW Max Power



Front Access AC
Circuit Breakers



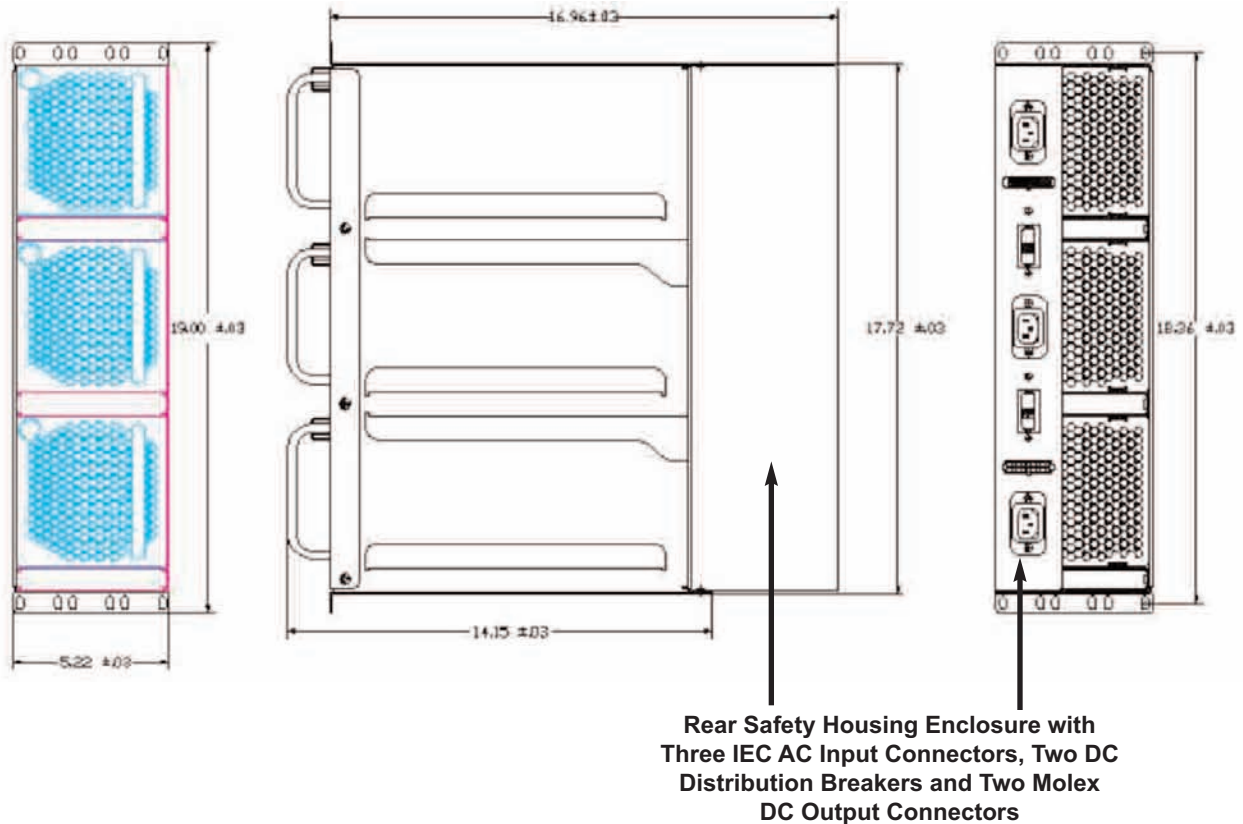
Facial Plate

Product Table: 1kW to 4kW Power Systems

Rectifier Model, Power	Output Voltage	Output Current Per Rectifier	Shelf	Redundant Power (N+1)	System Power
PM3326BP, 1kW	48V	21A	PM1452AF, 2 Pos	1kW (1+1)	2kW
PM3329BP, 2kW	48V	42A	PM1452AF, 2 Pos	2kW (1+1)	4kW

Notes: Facial plates are available for empty position

**19" Custom Shelf #2, with AC & DC Breakers
4.5kW Max Power**

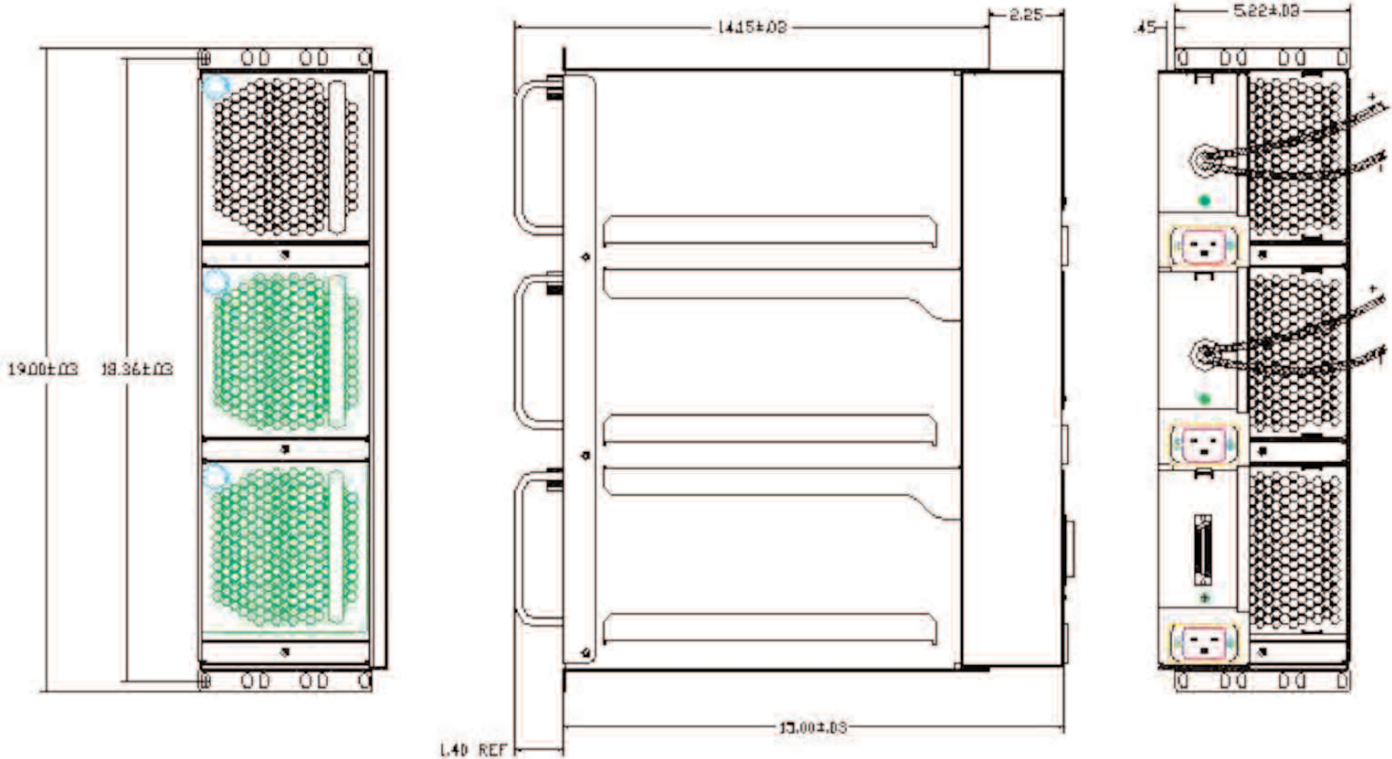


Product Table: 1kW to 4.5kW Power Systems

Rectifier Model, Power	Output Voltage	Output Current Per Rectifier	Shelf	Redundant Power (N+1)	System Power
PM3326BP, 1kW	48V	21A	PM1453AF, 2 Pos	1kW (1+1)	2kW
PM3326BP, 1kW	48V	21A	PM1453AF, 3 Pos	2kW (2+1)	3kW
PM3328BP, 1.5kW	48V	32A	PM1453AF, 2 Pos	1.5kW (1+1)	3kW
PM3328BP, 1.5kW	48V	32A	PM1453AF, 3 Pos	3kW (2+1)	4.5kW

Notes: Facial plates are available for empty position

19" Custom Shelf #3 6kW max Power



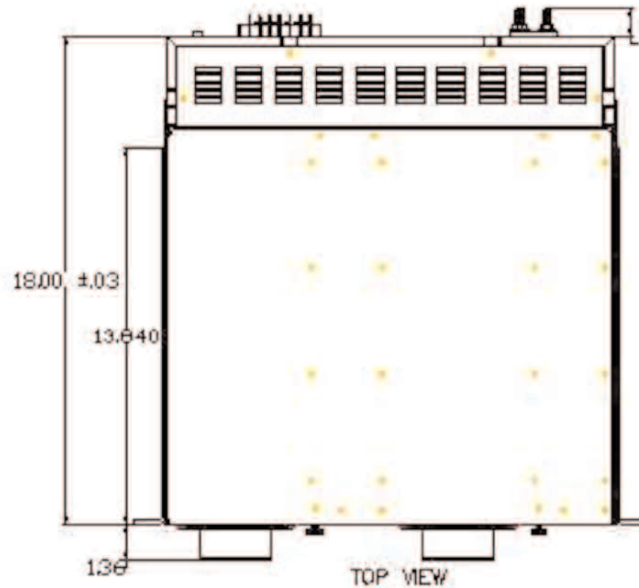
Rear Safety Housing Enclosure with Three IEC AC Input Connectors, Two sets of flying DC leads and DB25 pin Connector for Alarms and Controls.

Product Table: 1kW to 6kW Power Systems

Rectifier Model, Power	Output Voltage	Output Current Per Rectifier	Shelf	Redundant Power (N+1)	System Power
PM3326BP, 1kW	48V	21A	PM1452AF, 2 Pos	1kW (1+1)	2kW
PM3326BP, 1kW	48V	21A	PM1453AF, 3 Pos	2kW (2+1)	3kW
PM3328BP, 1.5kW	48V	32A	PM1452AF, 2 Pos	1.5kW (1+1)	3kW
PM3328BP, 1.5kW	48V	32A	PM1453AF, 3 Pos	3kW (2+1)	4.5kW
PM3329BP, 2kW	48V	42A	PM1452AF, 2 Pos	2kW (1+1)	4kW
PM3329BP, 2kW	48V	42A	PM1453AF, 3 Pos	4kW (2+1)	6kW

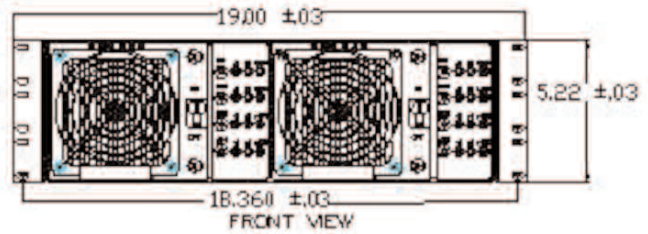
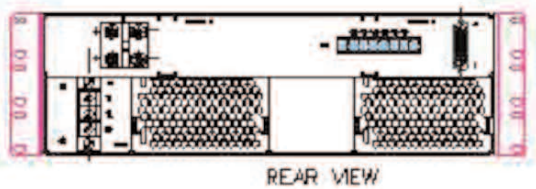
Notes: Facial plates are available for empty position

**19" Custom Shelf #4 - Multiple Outputs
2.4kW Max Power**



Output Voltages

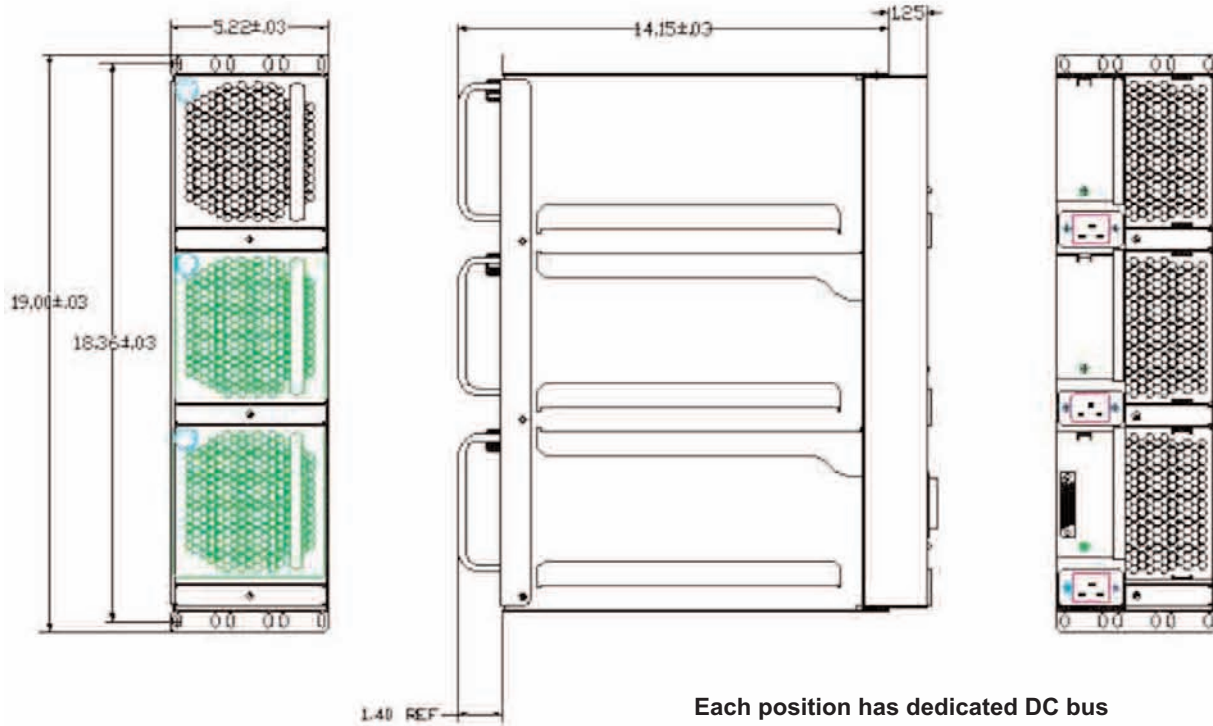
- CH1 5.15D180
- CH2 15D10
- CH3 12D4
- CH4 12D4



Output Studs for the Primary Channel, DC Terminal Block for the Secondary Channels, AC Terminal Block for the AC Input and the Alarms and Controls on the DB25

Front Access for Voltage Adjust for each output. Test Points for each output and LED Indicators for each output

19" Custom Shelf #5 9kW Max Power



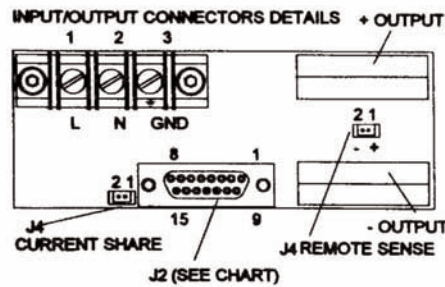
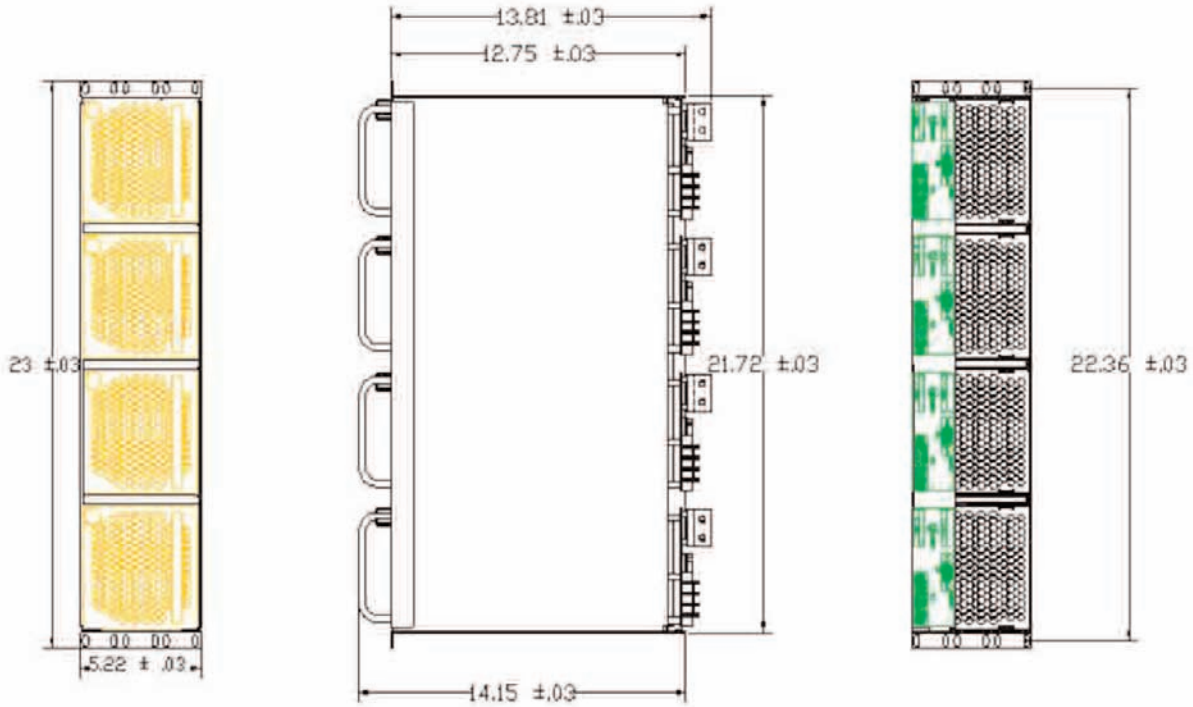
Each position has dedicated DC bus bars, AC input IEC connectors and DB25 pin connector for alarms and controls

Product Table: 1kW to 9kW Power Systems

Rectifier Model, Power	Output Voltage	Output Current Per Rectifier	Shelf	Redundant Power (N+1)	System Power
PM3326BP, 1kW	48V	21A	PM1452AF, 2 Pos	1kW (1+1)	2kW
PM3326BP, 1kW	48V	21A	PM1453AF, 3 Pos	2kW (2+1)	3kW
PM3329BP, 2kW	48V	42A	PM1452AF, 2 Pos	2kW (1+1)	4kW
PM3329BP, 2kW	48V	42A	PM1453AF, 3 Pos	4kW (2+1)	6kW
PM33211BP, 3kW	48V	62.5A	PM1452AF, 2 Pos	3kW (1+1)	6kW
PM33211BP, 3kW	48V	62.5A	PM1453AF, 3 Pos	6kW (2+1)	9kW

Notes: Facial plates are available for empty position

23" Standard Shelf with I/O PCB 12kW Max Power



J2 pin Definitions

- Pin 1 Remote Sense (+)
- Pin 2 Margin
- Pin 3 DC Power Good
- Pin 4 Remote Sense (-)
- Pin 5 AC Power Fail
- Pin 6 Logic Inhibit
- Pin 7 Current Monitor
- Pin 9 Unit Present
- Pin 10 Unit Present
- Pin 14 Logic Return

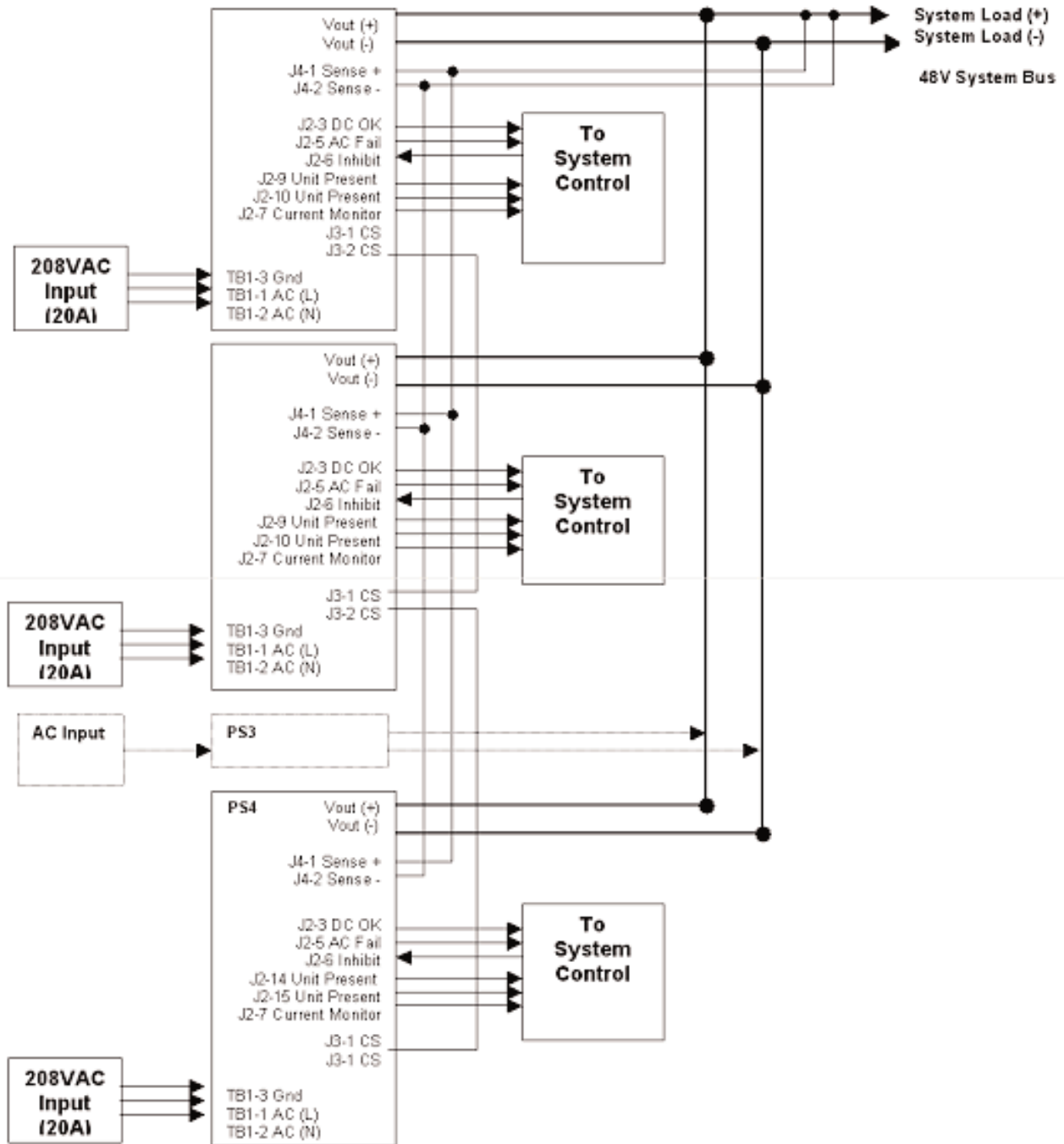
Each position is provided with a I/O PCB that contains DC bus bars, AC terminal block, Control and alarm connector J2 and current share connector J4. Common DC bus bar for all three positions is available as an option.

Product Table: 2kW to 12kW Power Systems

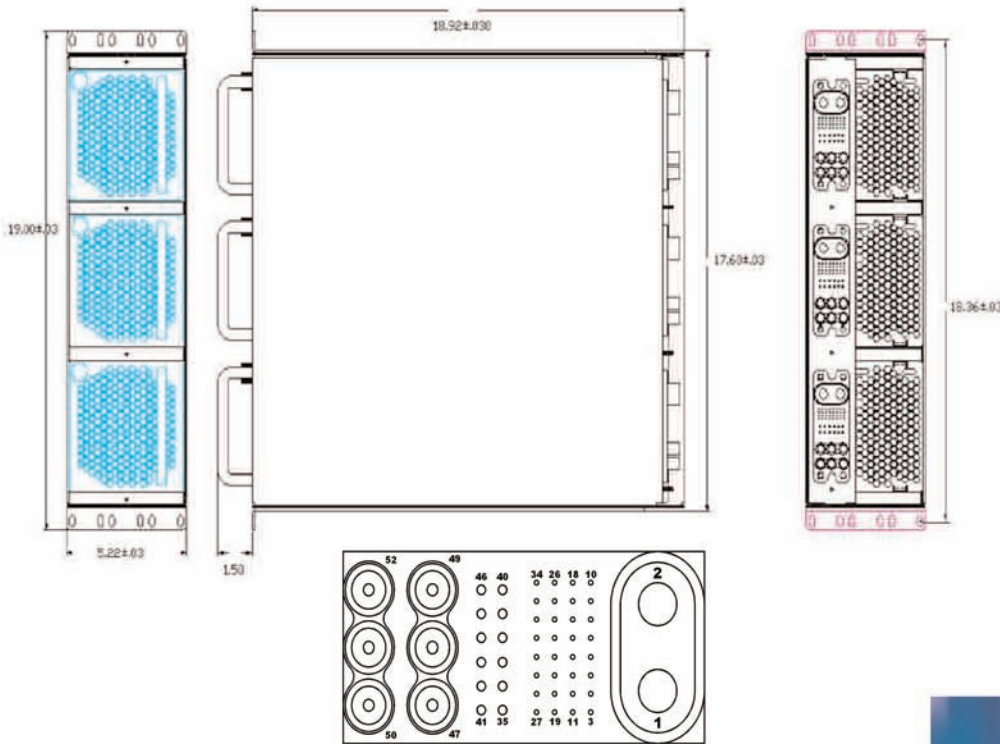
Rectifier Model, Power	Output Voltage	Output Current Per Rectifier	Shelf	Redundant Power (N+1)	System Power
PM3326BP, 1kW	48V	21A	PM1453AF, 3 Pos	2kW (2+1)	3kW
PM3326BP, 1kW	48V	21A	PM1454AF, 4 Pos	3kW (3+1)	4kW
PM3329BP, 2kW	48V	42A	PM1452AF, 3 Pos	4kW (2+1)	6kW
PM3329BP, 2kW	48V	42A	PM1453AF, 4 Pos	6kW (3+1)	8kW
PM33211BP, 3kW	48V	62.5A	PM1452AF, 3 Pos	6kW (2+1)	9kW
PM33211BP, 3kW	48V	62.5A	PM1453AF, 4 Pos	9kW (3+1)	12kW

Notes: Facial plates are available for empty position

I/O PCB Interface Block Diagram 4 Rectifiers

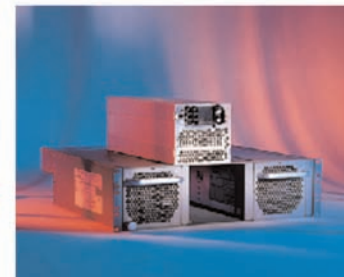


19", Standard Shelf with Top Drawer Connector 24.3kW Max Power



Pin	Description
1	Output (+)
2	Output (-)
3	Remote Sense (+)
11	Remote Sense (-)
16	Voltage Programming
17	Current Programming
20	AC Power Fail
21	DC OK
22	Logic Inhibit
23	Current Sharing
24	Current Monitor
27	Logic Return
50	Chassis Ground
51	AC Input (Line)
52	AC Input (Neutral)

Each position is provided with Elcon Top Drawer Mate connector with flying leads for the DC output, AC input and option signals.

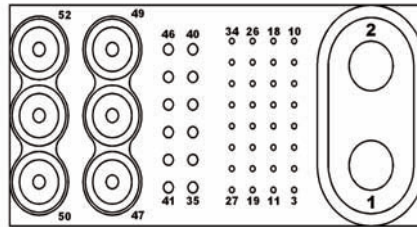
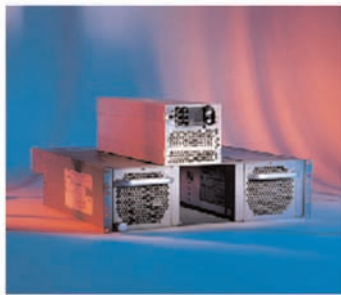
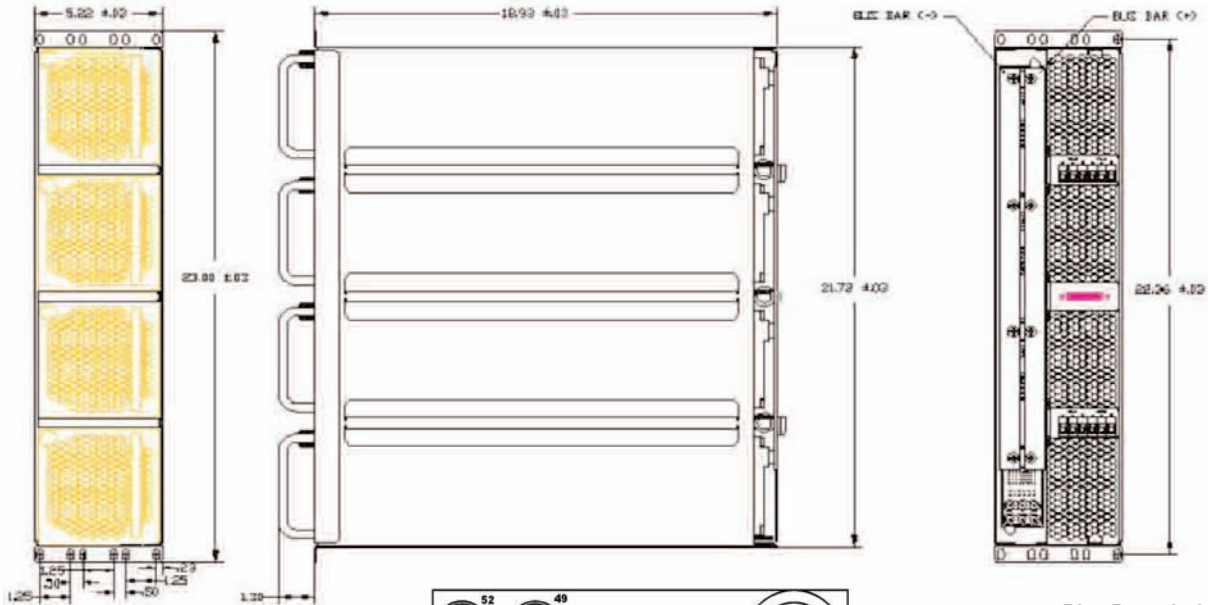


Product Table: 4kW to 24.3kW Power Systems

Rectifier Model, Power	Output Voltage	Output Current/Rectifier	Shelf	Redundant Power (N+1)	System Power
PM33213BP, 4kW	12V/24V/48V	333A/167A/83A	PM1452AL, 2 Pos	4kW (1+1)	8kW
PM33213BP, 4kW	12V/24V/48V	333A/167A/83A	PM1453AL, 3 Pos	8kW (2+1)	12kW
PM33215BP-5kW	12V/24V/48V	400A/208A/104A	PM1452AL, 2 Pos	5kW (1+1)	10kW
PM33215BP-5kW	12V/24V/48V	400A/208A/104A	PM1453AL, 3 Pos	10kW (2+1)	15kW
PM33216BP-5.6kW	12V/24V/48V	400A/233A/116A	PM1452AL, 2 Pos	5.6kW (1+1)	11.2kW
PM33216BP-5.6kW	12V/24V/48V	400A/233A/116A	PM1452AL, 2 Pos	11.2kW (1+1)	16.8kW
PM33217BP-6.5kW	12V/24V/48V	400A/270A/135A	PM1452AL, 2 Pos	6.5kW (1+1)	13kW
PM33217BP-6.5kW	12V/24V/48V	400A/270A/135A	PM1453AL, 3 Pos	13kW (2+1)	19.5kW
PM33218BP-7.5kW	12V/24V/48V	400A/312A/156A	PM1452AL, 2 Pos	7.5kW (1+1)	15kW
PM33218BP-7.5kW	12V/24V/48V	400A/312A/156A	PM1453AL, 3 Pos	15kW (2+1)	22.5kW
PM33219BP-8.1kW	12V/24V/48V	400A/337A/168A	PM1452AL, 2 Pos	8.1kW (1+1)	16.2kW
PM33219BP-8.1kW	12V/24V/48V	400A/337A/168A	PM1453AL, 3 Pos	16.2kW (2+1)	24.3kW

Notes: Facial plates are available for empty position

23", 32.4kW Max Power, DC Bus Bars



Pin	Description
1	Output (+)
2	Output (-)
3	Remote Sense (+)
11	Remote Sense (-)
16	Voltage Programming
17	Current Programming
20	AC Power Fail
21	DC OK
22	Logic Inhibit
23	Current Sharing
24	Current Monitor
27	Logic Return
50	Chassis Ground
51	AC Input (Line)
52	AC Input (Neutral)

Each position is provided with Elcon Top Drawer. A common DC output bus bars. Euro type AC input terminal blocks. DB25 is used for alarms and controls.

Product Table: 8kW to 32.4kW Power Systems

Rectifier Model, Power	Output Voltage	Output Current/Rectifier	Shelf	Redundant Power (N+1)	System Power
PM33213BP, 4kW	12V/24V/48V	333A/167A/83A	PM1453AL, 3 Pos	8kW (2+1)	12kW
PM33213BP, 4kW	12V/24V/48V	333A/167A/83A	PM1454AL, 4 Pos	12kW (3+1)	16kW
PM33215BP-5kW	12V/24V/48V	400A/208A/104A	PM1453AL, 3 Pos	10kW (2+1)	15kW
PM33215BP-5kW	12V/24V/48V	400A/208A/104A	PM1454AL, 4 Pos	15kW (3+1)	20kW
PM33216BP-5.6kW	12V/24V/48V	400A/233A/116A	PM1453AL, 3 Pos	11.2kW (2+1)	16.8kW
PM33216BP-5.6kW	12V/24V/48V	400A/233A/116A	PM1454AL, 4 Pos	16.8kW(3+1)	22.4kW
PM33217BP-6.5kW	12V/24V/48V	400A/270A/135A	PM1453AL, 3 Pos	13kW (2+1)	19.5kW
PM33217BP-6.5kW	12V/24V/48V	400A/270A/135A	PM1454AL, 4 Pos	19.5kW (3+1)	26kW
PM33218BP-7.5kW	12V/24V/48V	400A/312A/156A	PM1453AL, 3 Pos	15kW (2+1)	22.5kW
PM33218BP-7.5kW	12V/24V/48V	400A/312A/156A	PM1454AL, 4 Pos	22.5kW (3+1)	30kW
PM33219BP-8.1kW	12V/24V/48V	400A/337A/168A	PM1453AL, 3 Pos	16.2kW (2+1)	24.3kW
PM33219BP-8.1kW	12V/24V/48V	400A/337A/168A	PM1454AL, 4 Pos	24.3kW 32+1)	32.4kW

Notes: Facial plates are available for empty position