

PowerCassette®: 1U HIGH RACK-MOUNT DC/DC CONVERTERS

24VDC to 48VDC or 54.4VDC at 1000 and 1200 Watts with Hot Swap

FEATURES

- Isolated 5V, ¼ A Standby Output
- Hot-Swap Operation
- 48 or 54.4 VDC Output
- Remote Output Adjustment
- Up to 3600 Watts System Output
- Wide Range 20 to 30VDC Input
- Integral LED Status Indicators
- -20°C to +70°C Operating
- I²C Serial Data Bus Option
- 12.5 Watts/Cubic Inch Power Density
- Low Profile IU: 1.6 Inches High
- Single Hot-Swappable Connector
- Staged Pin Engagement
- ORing Diode on Output
- 1U, 19" Rack/Shelf Holds 3 Units
- 19- or 23-Inch Rack Mounting
- Active Current Sharing
- Optimized Thermal Management
- No Minimum Load
- Control & Monitoring Features



1U High

TPCMQ24 Series

1.6" x 5" x 10"
(41 x 127 x 254 mm)



Three-Unit Rack/Shelf
TPCMQR1U3-24



2006/95/EC

TWO-YEAR WARRANTY

Patent Protected

STANDARD MODULES

MAX. OUTPUT POWER	MAX. OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT VOLTAGE	MODEL
1200W	48VDC	25.0A	20-30VDC	TPCPQ24-48/25
1000W 1000W	54.4VDC 48VDC	18.4A 20.8A	20-30VDC 20-30VDC	TPCMQ24-54/18 TPCMQ24-48/20

NOTE: The table does not show the independent 5V, ¼A standby output which is standard on all models.

SYSTEM RACK/SHELF (See page 3)

MODEL	WIDTH	HEIGHT	NO. OF MODULES
TPCMQR1U3-24	19" (483 mm)	1.72" (43.7 mm)	3

NOTE: System rack and hot-swap modules must be ordered separately.
Reversible bracket mounts in both 19 and 23" rack/shelf.

OPTIONS

CODE	DESCRIPTION
Z	I ² C Serial Data Bus

NOTE: Add Option Code as suffix no. on both module and rack/shelf. Contact factory on availability of Option Z.

SAFETY STANDARDS

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

www.unipowercorp.com or www.powercassette.com

SPECIFICATIONS, TPCMQ24 SERIES DC/DC CONVERTERS

Typical at Nominal 24VDC Input, Full Load and 25°C Unless Otherwise Noted.

OUTPUT SPECIFICATIONS

Total Output Power, Continuous, Max. See Model Table
 Voltage Adjustment Range, Min. -25% to +10%
 Total Regulation¹,2.0%
 Total Regulation, Standby Supply5.0%
 Ripple & Noise, Pk-Pk² 200mV
 Voice Band Noise <32dBnC
 Dynamic Response³300µS
 Temperature Coefficient±0.02%/°C
 Minimum Load0A
 Current Limit..... 105% Rated Current
 Overload Protection..... Auto Recovery
 Overvoltage Protection..... Latched Shutdown
 Remote Sense.....Up to 0.25V Per Wire
 Current Share..... ±10% Full Load Rating
 Standby Output..... +5V, 250mA
 Output Power Good Signal.....Logic Low
 Input Power Fail Signal..... Logic High
 Inhibit.....Logic Low
 EnableLogic Low
 Thermal WarningLogic High

INPUT SPECIFICATIONS

Input Voltage Range20-30VDC
 Inrush Current Limiting 100A Peak
 Input EMI Filter Standard
 Analog Voltage Adjust..... 0 to +5V
 Input Immunity, Conducted
 Fast Transients, Line-Line±500V (EN61000-4-4)
 Surges, Line-Line±500V (EN61000-4-5)
 Surges, Input Ground±500V (EN61000-4-5)
 Input Protection Internal Fuse, 100A

GENERAL SPECIFICATIONS

Efficiency⁴89% at Full Load
 Switching Frequency, 210kHz Nominal
 Isolation, Class I, min.⁵
 Input-Output 2121VDC
 Input-Ground 1000VDC
 Output-Ground 100VDC
 MTBF (Bellcore) 200,000 Hours
 Safety Standards..... EN60950-1, UL6950-1, CSA22.2 No.950-1

ENVIRONMENTAL SPECIFICATIONS

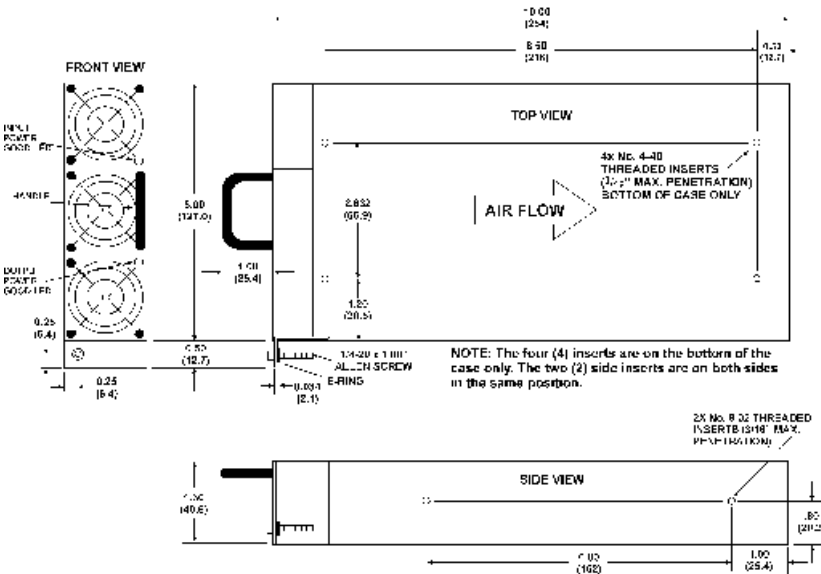
Operating Temperature.....-20°C to 70°C Ambient
 Derating..... 2.5% / °C, 50°C to 70°C
 Storage Temperature-40°C to +85°C
 Cooling Integral Ball Bearing Fans

PHYSICAL SPECIFICATIONS

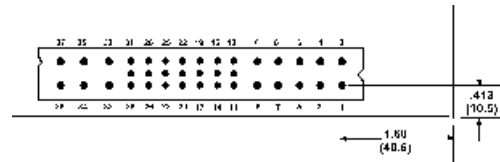
Case Material, Module & Rack/Shelf.....Aluminum
 Dimensions, Inches(mm), Module1.6 H x 5.0 W x 10.0 D
 (40.6 x 127 x 254)
 Rack/Shelf1.72 H x 19.00 W x 11.56 D
 (44 x 483 x 294)
 Weight, Module3.15 lbs. (1.43 kg.)
 Rack/Shelf4.15 lbs. (1.88 kg.)

- NOTES:**
1. No load to full load, including line regulation and load regulation.
 2. Whichever is greater. 20MHz bandwidth. Measure with 0.1µF ceramic and 10µF tantalum capacitors in parallel across the output.
 3. <4% deviation recovering to within 1% for 25% load change.
 4. Typical efficiency is at low end of range for 12V output and at high end of range for 24V output.
 5. Input-output isolation figure is for isolation components only. 100% production Hipot tested input to ground.

CASE OUTLINE



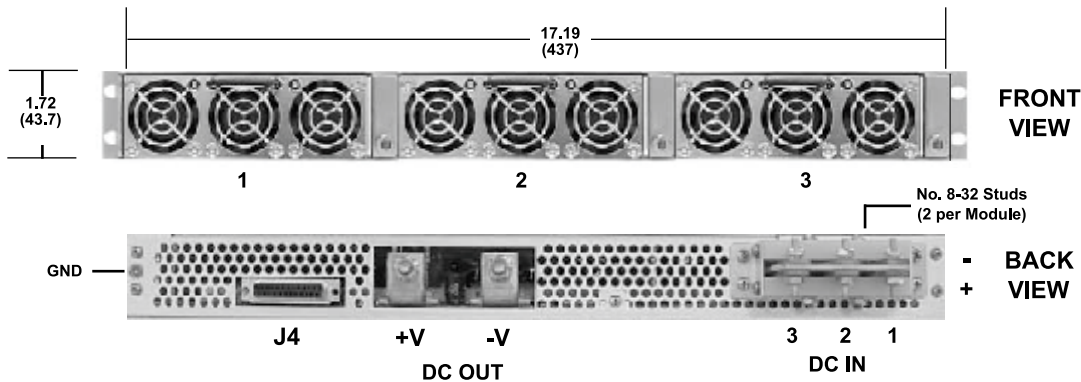
CONNECTOR: POSITRONICS PCIM37W16RM400A1 MATE: PCIM37W16RF400A1



PIN CONNECTIONS			
PIN	FUNCTION	PIN	FUNCTION
1	-DC Input	20	Module Present
2	-DC Input	21	N.C.
3	-DC Input	22	Input Power Fail
4	-DC Input	23	N.C.
5	+DC Input	24	GA2
6	+DC Input	25	GA1
7	+DC Input	26	SCL
8	+DC Input	27	SDA
9	Chassis Ground	28	GAO
10	Chassis Ground	29	V. Adjust
11	N.C.	30	-Sense
12	Standby Return	31	+Sense
13	+5V Standby	32	-V Out
14	Output Power Good	33	-V Out
15	Overtemp. Warning	34	-V Out
16	Inhibit	35	+V Out
17	Enable	36	+V Out
18	Current Share	37	+V Out
19	Current Monitor		

*NOTES: For unit to operate, pin 17 must be at logic LO or shorted to pin 30. For proper operation the following pins must be connected together: All +V Out pins (35-37); all -V Out pins (32-34). Pins 24-28 carry I²C functions when the I²C option is fitted.

SPECIFICATIONS, TPCMQR1U3-24 RACKS/SHELVES



J4 SIGNAL CONNECTOR



Standard 25-Pin
Subminiature D Connector

J4 PIN CONNECTIONS			
PIN	FUNCTION	PIN	FUNCTION
1	Inhibit	14	Input Power Fail - 1
2	Overtemp. Warning - 1*	15	Output Power Good - 1*
3	Current Monitor - 1*	16	Input Power Fail - 2
4	Overtemp. Warning - 2*	17	Output Power Good - 2*
5	Current Monitor - 2*	18	Input Power Fail - 3
6	Overtemp. Warning - 3*	19	Output Power Good - 3*
7	Current Monitor - 3*	20	Module Present - 1
8	+5V Standby	21	Module Present - 2
9	SDA	22	Module Present - 3
10	Current Share	23	- Sense
11	+Sense	24	Remote Adjust - 1
12	Remote Adjust - 2	25	Remote Adjust - 3
13	SCL		

NOTE: Standby return is connected to -Sense lead. Current rating of +5V standby is 250mA per installed module. All signals are referenced to -Sense lead. Pins 9 and 13 are I²C outputs when that option is present.

MAXIMUM RATED OUTPUT FOR 3 MODULES

MODULES	NON-REDUNDANT	2+1 REDUNDANT
TPCPQ24-48/25	48VDC@ 75.0A	48VDC@ 50.0A
TPCPQ24-54/18	54.4VDC@ 54.0A	54.4VDC@ 36.0A

RACK ACCESSORIES

Relay Alarm Adaptor:

Plugs into rear mounted signal connector and converts DC Good output for each module into Form-C relay contact output.	Pt. No. 009-1005-0000
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NOTES:

- All connections are made to the rear of the rack/shelf. The modules are 1, 2, 3, from left to right as seen from the front of the rack/shelf.
- All module outputs are connected in parallel in the rack/shelf with active current sharing between them.
- There is a separate DC input for each module, but the inputs may be paralleled by means of two shorting bars. Order kit no. 775-1462-0000 for the two bars.
- The Module Present outputs (J4 pins 20, 21 & 22) are grounded (to -Sense) when the module is plugged in and open when the module is out.
- For details on the I²C function (option Z), contact the factory.

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