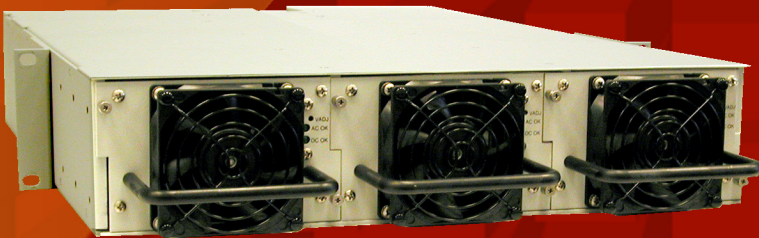


HOT-SWAP POWER SOLUTIONS



UNIPower
CORPORATION



UNIPOWER Corporation is a leader in high-density, hot-swap power solutions for telecom, datacom, network equipment, servers, data storage, industrial and medical systems.

Worldwide headquarters is located in Coral Springs, Florida, U.S.A. with design centers in Coral Springs; Westford, Massachusetts; and West Sussex, England. The company manufactures primarily in its automated 80,000 square foot plant in Coral Springs, Florida as well as in West Sussex, England.

UNIPOWER also produces a complete line of telecom power systems, including the following:

- Rectifiers and Shelves
- Distribution Panels
- Low-Voltage Disconnects
- Control and Monitoring Systems
- Inverters
- Energy Systems



For more information on these products, go to our Telecom Systems website: www.unipowertelecom.com

This product brochure features UNIPOWER's broad line of hot-swap power systems. We also produce many nonhot-swap products, as listed in the table below.

NONHOT-SWAP SINGLE-OUTPUT & FRONT ENDS

SERIES	OUTPUT POWER	OUTPUT VOLTAGES	SIZE (INCHES/MM)	WATTS/ CU. INCH	PFC
MD	250W	3.3, 5, 12, 15, 24, 28, 48	1.7 x 5.0 x 9.0 43 x 127 x 229	3.3	✓
MF	400W	3.3, 5, 12, 15, 24, 28, 48	1.7 x 5.0 x 9.0 43 x 127 x 229	5.2	✓
MG	500W	12, 24, 28, 48	2.0 x 5.0 x 9.0 51 x 127 x 229	5.6	✓
MH	600W	24, 28, 48	2.5 x 5.0 x 9.0 64 x 127 x 229	5.3	✓
ML	800W	24, 28, 48	3.25 x 5.0 x 10.5 83 x 127 x 267	4.7	✓
MN	1000W	24, 28, 48	3.25 x 5.0 x 10.5 83 x 127 x 267	5.9	✓
MP	1200W	24, 28, 48	3.25 x 5.0 x 10.5 83 x 127 x 267	7.0	✓
RP	1250W	24, 28, 48	3.3 x 4.9 x 13.1 84 x 124 x 333	5.9	✓
RR	2000W	24, 28, 48	3.3 x 4.9 x 14.2 84 x 124 x 361	8.7	✓
RS	2500W	24, 28, 48	3.3 x 4.9 x 14.2 84 x 124 x 361	10.9	✓

HOT-SWAP POWER SOLUTIONS

HOT-SWAP: SINGLE-OUTPUT & FRONT ENDS

SERIES	MODULE POWER	SYSTEM POWER	PROFILE	WATTS/ CU. INCH	PFC	EMI FILTER	DC IN OPTI
TMF	400W	1200W	1U	4.0	✓	B	
TNF	400W	1200W	2U	1.8	✓	B	✓
TMH	600W	1800W	2U	4.0	✓	B	
POWER CASSETTE	600-800W	2400W	1U	10.0	✓	B	
TMN	1000W	3000W	2U	5.5	✓	B	
TVN	1000W	5000W	2U	5.6	✓	B	
TMP	1200W	3600W	2U	6.6	✓	B	
TRP	1250W	3750W	2U	5.9	✓	B	
TRR	2000W	6000W	2U	8.7	✓	B	
TRS	2500W	7500W	2U	10.9	✓	B	

HOT-SWAP: MULTI-OUTPUT

SERIES	MODULE POWER	SYSTEM POWER	PROFILE	OUTPUTS	DUAL MAIN	PFC	EMI FILTER
TNF	400W	1200W	2U	3-4	✓	✓	B
POWER CASSETTE	600W	1800W	1U	3-6	✓	✓	B

UNIPOWER NORTH AMERICA

3900 Coral Ridge Drive
 Coral Springs, Florida 33065
 U.S.A.
 Tel: 954-346-2442
 Fax: 954-340-7901
 sales@unipower-corp.com

UNIPOWER EUROPE

Parkland Business Centre
 Chartwell Road
 Lancing, BN15 8UE, England
 Tel: +44(0) 1903 768200
 Fax: +44(0) 1903 764540
 info@unipower-europe.com



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CORPORATION

North America: 954-346-2442 • sales@unipower-corp.com
Europe: +44(0)1903 768200 • info@unipower-europe.com

TMF SERIES: 1U HOT-SWAP POWER SYSTEM

Single Output 400 Watt Modules with PFC



www.unipowercorp.com

MODULE FEATURES

- Only 1U High
- DC Good LED¹
- Integral Isolation Diodes
- Power Factor Correction
- Meets EN61000-3-2
- Single-Wire Current Sharing
- Class B EMI Filter
- High Reliability Connectors
- 3.3, 5, 12, 15, 24, 28 or 48VDC Output
- Universal AC Input: 85-264VAC
- 5V, 100mA Supervisory Output
- Overvoltage Protection
- Inhibit Control
- Front Panel Switch Option²

SYSTEM RACK FEATURES

- 1U High, Standard 19" Rack Mount
- True Hot-Swap Replacement
- 800W 2+1 Redundant
- 1200W Non-Redundant
- 5 AC Input Options

TWO-YEAR WARRANTY

HOT-SWAP MODULE ORDERING GUIDE

(Other Modules Available, Consult Factory)

Max Watts	Output Voltage	Output Current	PFC	Minimum Load	Total Regulation	M NL
200	3.3V	60.0A	✓	0A	2%	TN
300	5.0V	60.0A	✓	0A	2%	TN
400	12.0V	33.3A	✓	0A	2%	TN
400	15.0V	26.7A	✓	0A	2%	TN
400	24.0V	16.7A	✓	0A	2%	TN
400	28.0V	14.3A	✓	0A	2%	TN
400	48.0V	8.3A	✓	0A	2%	TN

Option S: Front-Panel On/Off Switch. Add "S" as suffix to the module model number.

For modified versions, call our Modification Center at 954-346-2442, Ext. 400

ORDERING GUIDE

The hot-swap modules and the mating rack-mount are separate items and must be ordered separately.

HOT-SWAP MODULES: Order quantity using model number from the table.

SYSTEM RACK: Order TMFR1U and add option suffix.

NOTES:

- AC Good LED, DC Good LED and output trim potentiometer are standard on models with output voltages from 24 to 48 VDC. Models with output voltages from 3.3 to 15VDC have only DC Good LED.
- Front panel switch option is available only on models with output voltages from 3.3 to 15VDC.
- A rear safety cover makes the case 1.44 inches deeper.

SAFETY CERTIFICATIONS

AGENCY	STANDARD
UL	UL1950
CUL	CSA22.2, No. 950
DEMKO	EN60950

SYSTEM RACK OPTIONS

CODE	OPTION
A	Standard: 2-position terminal block AC connector plus stud ground connection for 1200W max. output.
B	Option: IEC320, C14 AC connector for 800W max. output.
C	Option: IEC320, C19 AC connector for 1200W max. output with rear safety cover.
E	Option: 2-position terminal block AC connector plus stud ground connection for 1200W max. output. Also has rear safety cover.
F	Option: IEC320, C14 AC connector for 800W max. output with rear safety cover.

MATING CONNECTOR KITS

Module Evaluation Connector Kit:
For each TMF Hot-Swap Module
Order Kit No. 775-1419-0000

Rack-Mount Interconnection Kit:
For TMFR1U Rack-Mount
Order Kit No. 775-1423-0000



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North America: 954-346-2442 • sales@unipower-corp.com
Europe: +44(0)1903 768200 • info@unipower-europe.com

SPECIFICATIONS, TMF SERIES

Typical at Nominal 115/230VAC Line, Full Load and 25°C Unless Otherwise Noted.

OUTPUT SPECIFICATIONS

Total Output Power, Max 400 watts
Voltage Adjustment Range >±5%
Total Regulation¹ <±2.0%
Ripple & Noise (Pk-Pk)² <1% or 50mV
Hold-Up³ >15mS
Dynamic Response⁴ 300µS
Temperature Coefficient ±0.02%/°C
Minimum Load 0A
Overload Protection Foldback Current Limiting
Overvoltage Protection Power Shutdown
Remote Sense Up to 0.25V Per Wire

INPUT SPECIFICATIONS

Input Voltage Range 85-264VAC Single Phase
Power Factor 0.99
Input Frequency 47-63Hz
Inrush Limiting 30A Peak (Cold Start)
Input Current, Full Load 4.5A, 120VAC
2.4A, 230VAC
Input EMI Filter, Conducted EN55022 Curve B
FCC20780 pt. 15J Curve B
Harmonic Distortion EN61000-3-2
Input Immunity, Conducted
Fast Transients, Line-Line ±2kV (EN61000-4-4 Level 3)
Surges, Line-Line ±1kV (EN61000-4-5 Level 2)
Surges, Line-Ground ±2kV (EN61000-4-5 Level 3)
Input Protection Internal Fuse, 6.3A

GENERAL SPECIFICATIONS

Efficiency >75% at Full Load
Switching Frequency 150kHz Nominal
Isolation, class I⁵ >3000VAC Input - Output
>1500VAC Input - Ground
>50VDC Output - Ground
Safety Standards EN60-950, UL1950, CSA22.2-950

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature 0°C to 70°C Ambient
Derating 2.5% / °C 50°C to 70°C
Storage Temperature -40°C to +85°C
Cooling 2 Integral Ball Bearing Fans

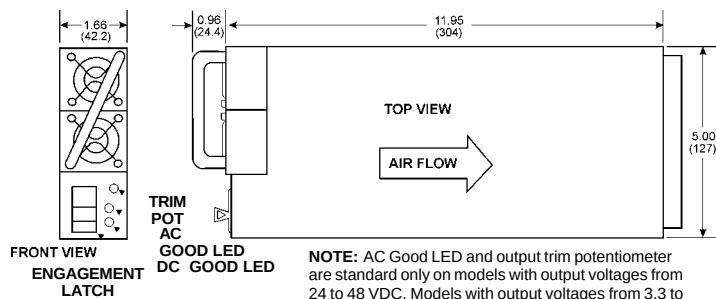
PHYSICAL SPECIFICATIONS

Case Material, Module Aluminum
Rack Steel
Rack Finish Powder Coat Gray
Dimensions, Inches (mm)
Hot-Swap Module . 1.66 (42.2)H x 5.00 (127)W x 11.95 (304)D
3-Module Rack (A & B) 1.72 (43.7) x 16.88 (429) x 16.00 (406)
3-Module Rack (C, E & F) 1.72 (43.7) x 16.88 (429) x 17.44 (443)

NOTES:

1. No Load to full load, including line regulation and load regulation.
2. Whichever is greater. 20MHz bandwidth. Measured with 0.1µF ceramic and 10µF tantalum capacitors in parallel across the output.
3. 400W output power at nominal AC line.
4. <4% deviation recovering to within 1% for 25% load change.
5. Input - output isolation figure is for isolation components only. 100% production Hipot tested.

HOT-SWAP MODULE



NOTE: AC Good LED and output trim potentiometer are standard only on models with output voltages from 24 to 48 VDC. Models with output voltages from 3.3 to 15VDC have only DC Good LED.

MODULE J1 POWER CONNECTIONS

TERMINAL	FUNCTION	TERMINAL	FUNCTION
A	Frame Ground	F	+V Output
B	AC Neutral	G	+V Output
C	AC Line	H	-V Output
D	Not Used	I	-V Output
E	Not Used		

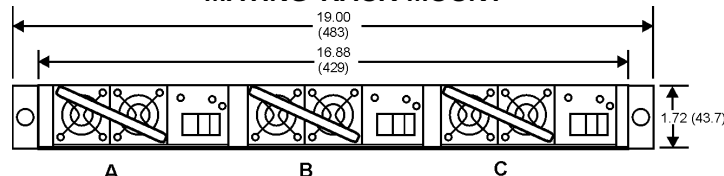
NOTE: J1 connector is an ELCON FLATPAQ™ No. 279-0320-00100.
Mating receptacle is No. 279-0320-00200.

MODULE J1 CONTROL & SUPERVISORY SIGNALS

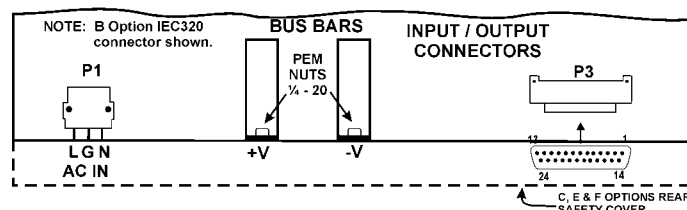
PIN	FUNCTION	PIN	FUNCTION
1	Interlock	13	Control Common
2	Remote Adjust	14	- Sense
3	Enable	20	Current Share
4	DC Good	21	5V, 100mA Aux.
9	Control Common	22	+ Sense
12	AC Power Good		

NOTE: All other pins are No Connection.

MATING RACK-MOUNT



REAR, TOP VIEW OF RACK-MOUNT



ALL DIMENSIONS IN INCHES (mm).
All specifications subject to change without notice.

RACK MOUNT P3 CONTROL & SUPERVISORY SIGNALS

PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION
1	AC Power Good-C	6	DC Power Good-B	11	Control Common
2	AC Power Good-B	7	DC Power Good-A	12	5V, 100mA Aux.
3	AC Power Good-A	8	Enable-C	13	- Sense
4	Current Share	9	Enable-B	14	+ Sense
5	DC Power Good-C	10	Enable-A	15	Not Used

NOTE:

1. A, B and C refer to the module position from left to right, viewed from the system front.
2. P3 is AMP AMPLIMATE No. 747845, 15 pos. submini 'D' connector. Mate is AMP No. 747908-2.



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TNF, TNQ SERIES: HOT-SWAP SYSTEM

1-4 Outputs, 400W Modules, AC or DC Input



www.unipowercorp.com

HOT-SWAP MODULE ORDERING GUIDE

(Other Modules Available, Consult Factory)

Max Watts	V1 Output	V2 Output	V3 Output	V4 Output	MODEL NO. (AC)	MOI NO.
SINGLE OUTPUT						
200	3.3V @ 60.0A				TNE9000	TNQE
300	5.0V @ 60.0A				TNE2000	TNQE
300	12.0V @ 25.0A				TNE3000	TNQE
350	24.0V @ 14.5A				TNE5000	TNQE
350	28.0V @ 12.5A				TNE6000	TNQE
400	48.0V @ 8.3A				TNE7000	TNQE
MULTI-OUTPUT						
400	3.3V @ 60.0A	5.0V @ 20.0A	12.0V @ 6.0A	12.0V @ 1.5A	TNF9233	TNQF
400	5.0V @ 60.0A	3.3V @ 20.0A	12.0V @ 6.0A	12.0V @ 1.5A	TNF2933	TNQF
400	5.0V @ 60.0A	12.0V @ 12.5A	12.0V @ 6.0A	-	TNF2330	TNQF
400	5.0V @ 60.0A	12.0V @ 12.5A	12.0V @ 6.0A	5.0V @ 1.5A	TNF2332	TNQF
400	5.0V @ 60.0A	12.0V @ 12.5A	12.0V @ 6.0A	24.0V @ 1.0A	TNF2335	TNQF
400	5.0V @ 60.0A	15.0V @ 10.0A	15.0V @ 6.0A	-	TNF2440	TNQF
400	5.0V @ 60.0A	15.0V @ 10.0A	15.0V @ 6.0A	5.0V @ 1.5A	TNF2442	TNQF
400	24.0V @ 12.5A	5.0V @ 20.0A	12.0V @ 6.0A	12.0V @ 1.5A	TNF5233	TNQF

Option S: Front-Panel On/Off Switch. Add "S" as suffix to the module model number.

For modified versions, call our Modification Center at 954-346-2442, Ext. 400

ORDERING GUIDE

The hot-swap modules and the mating rack-mount are separate items and must be ordered separately.

HOT-SWAP MODULES: Order quantity using model number from the table. Add option codes as suffixes.

SYSTEM RACK: Order as shown below. Select the desired output connectors from the table opposite and insert the code letter A or B in each box.

TNR2U - ☐ - ☐
or
TNRQ2U

Aux. Output (V2, V3, V4)
Connector (0 if none)
Main Output (V1)
Connector

MODULE FEATURES

- High Reliability Connectors
- Integral Isolation Diodes
- Meets EN61000-3-2
- Universal AC Input: 85-264VAC
- DC Input: 40-75VDC
- 3.3V & 24V Outputs Standard
- Class B EMI Filter
- Input Power Fail & Output Power Good
- Hot-Swap N+1
- Remote Sense on V1 & V2
- Thermal Protection
- Aux. Outputs Fully Isolated

SYSTEM RACK FEATURES

- 2U High, Standard 19" Rack Mount
- True Hot-Swap Replacement
- 800W 2+1 Redundant
- 1200W Non-Redundant

TWO-YEAR WARRANTY

MATING CONNECTOR KITS

Module Evaluation Connector Kit:
For each TN or TNQ Hot-Swap Module
Order Kit No. 775-1419-000 \$95.00

Rack-Mount Interconnection Kit:
For TNR2U or TNQR2U Rack-Mounts
Order Kit No. 775-1420-000 \$150.00

SAFETY CERTIFICATIONS

AGENCY	STANDARD
UL	UL1950
CUL	CSA22.2, No. 950
DEMKO	EN60950

SYSTEM RACK OPTIONS

CODE	OUTPUT CONNECTIONS	
	V1 OUT	AUX. OUT (V2, V3, V4)
A	BUS BARS WITH 0.25" HOLES	J2, LMI 117108-1 0.25" TAB TERM. 8-POSITION
B	J1, POSITRONICS POWER-LOK, 24 PIN PLC24M3N0A1	J3, POSITRONICS POWER-LOK, 12 PIN PLC12M3N0A1

NOTE: The rack-mount Control and Supervisory Signal Connector P3 is AMP Mini MATE-N-LOK No. 770190-1.



UNIPOWER
CORPORATION

North America: 954-346-2442 • sales@unipower-corp.com
Europe: +44(0)1903 768200 • info@unipower-europe.com

SPECIFICATIONS, TNF & TNQ SERIES

Typical at Nominal 115/230VAC Line or 48VDC Line, Full Load and 25°C Unless Otherwise Noted.

OUTPUT SPECIFICATIONS

Total Output Power, Max. 400 watts
Voltage Adjustment Range V1, V2 & V3 ±10%
V4 ±5%
Line Regulation¹ 0.2%
Load regulation¹, V1 0.2%
V2 2.0%
V3 & V4 3.0%
Ripple & Noise (Pk-Pk)² 1% or 100mV
Hold-Up³ 20mS
Dynamic Response⁴ 300µS
Temperature Coefficient ±0.02%/°C
Minimum Load⁵ 0A
Overload Protection Foldback Current Limiting
Overvoltage Protection Power Shutdown
Remote Sense⁶, V1 & V2 Up to 0.25V Per Wire

INPUT SPECIFICATIONS

AC Input (TNF Series)

Input Voltage Range 85-264VAC Single Phase
Power Factor 0.99
Input Frequency 47-63Hz
Inrush Limiting 60A Peak (Cold Start)
Input Current, Full Load 5.2A, 120VAC / 2.7A, 230VAC
Input EMI Filter, Conducted EN55022 Curve B
FCC20780 pt. 15J Curve B

Harmonic Distortion EN61000-3-2

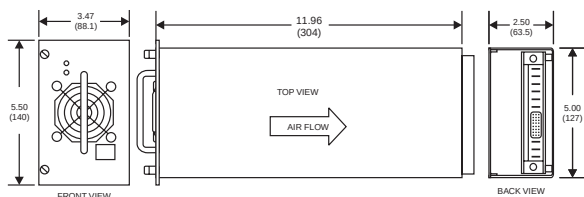
Input Immunity, Conducted

Fast Transients, Line-Line ±2kV (EN61000-4-4 Level 3)
Surges, Line-Line ±1kV (EN61000-4-5 Level 2)
Surges, Line-Ground ±2kV (EN61000-4-5 Level 3)
Input Protection Internal Fuse, 15A

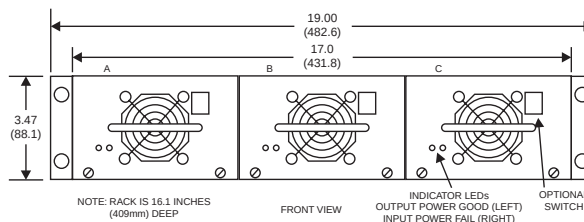
DC Input (TNQ Series)

Input Voltage Range 40-75VDC
Inrush Limiting 60A Peak (Cold Start)
Input Current, Full Load 12.8A, 48VDC
Input EMI Filter Standard
Input Protection Internal Fuse, 20A

HOT-SWAP MODULE



MATING RACK-MOUNT



ALL DIMENSIONS IN INCHES (mm).
All specifications subject to change without notice.

GENERAL SPECIFICATIONS

Efficiency 70-75% at Full Load
Switching Frequency 100kHz Nominal
Isolation, class I⁷ (AC Input Only) >3000VAC Input - Output
>1500VAC Input - Ground
>50VDC Output - Ground
Safety Standards EN60-950, UL1950, CSA22.2-950

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature 0°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 Fan

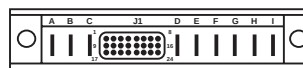
PHYSICAL SPECIFICATIONS

Case Material Aluminum
Dimensions, Inches (mm)
Hot-Swap Module . 3.47 (88.1)H x 5.50 (140)W x 11.96 (304)D
3-Module Rack. . 3.47 (88.1)H x 17.00 (432)W x 16.10 (409)D

NOTES:

- No Load to full load, including line regulation and load regulation.
- Whichever is greater. 20MHz bandwidth. Measured with 0.1µF ceramic and 10µF tantalum capacitors in parallel across the output.
- V1 on TNF Series only at 400W output power at nominal line.
- <4% deviation recovering to within 1% for 25% load change.
- For V2 on TNQ Series minimum load is 5%.
- V1 only on TNQ Series.
- Input - output isolation figure is for isolation components only. 100% production Hipot tested.

MODULE CONNECTOR



MODULE J1 POWER CONNECTIONS			
TERMINAL	FUNCTION	TERMINAL	FUNCTION
A	Frame Ground	F	+V1 Output
B	AC N / DC +V	G	+V1 Output
C	AC L / DC -V	H	-V1 Output
D	+V2 Output	I	-V1 Output
E	-V2 Output		

NOTE: J1 connector is an ELCON FLATPAQ™ No. 279-0320-00100.
Mating receptacle is No. 279-0320-00200.

MODULE J1 CONTROL & SUPERVISORY SIGNALS

PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION
1	Interlock	8	-V3 Output	16	-V3 Output
3	Inhibit	9	-Sense (V1)	20	Current Share
4	DC Good	12	AC Power Fail	21	+Sense (V2)
5	+V4 Output	13	-Sense (V2)	22	+Sense (V1)
6	-V4 Output	14	-Sense (V1)	23	+V3 Output
7	+V3 Output	15	+V3 Output	24	-V3 Output

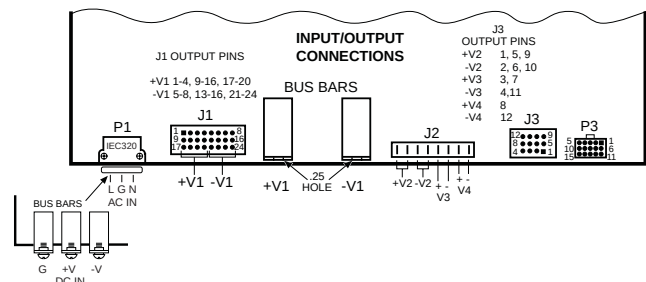
NOTE: All other pins are No Connection.

MODULE P3 CONTROL & SUPERVISORY SIGNALS

PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION
1	AC Power Fail-C	6	DC Power Good-B	11	-Sense (V2)
2	AC Power Fail-B	7	DC Power Good-A	12	+Sense (V2)
3	AC Power Fail-A	8	Inhibit-C	13	-Sense (V1)
4	V1 Current Share	9	Inhibit-B	14	+Sense (V1)
5	DC Power Good-C	10	Inhibit-A	15	Not Used

NOTE: 1. A, B and C refer to the module position from left to right, viewed from the front of the system.
2. P3 is AMP Mini MATE-N-LOK No. 770190-1.

REAR, TOP VIEW OF RACK-MOUNT





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North America: 954-346-2442 • sales@unipower-corp.com
Europe: +44(0)1903 768200 • info@unipower-europe.com

TMH SERIES: 2U BULK POWER FRONT END 600 Watt, Hot-Swap Modules with PFC



MODULE FEATURES

- 2U High
- 600 Watt Modules
- 85% Efficiency
- 24, 28 or 48VDC Output
- Integral Isolation Diodes
- Power Factor Correction
- Meets EN61000-3-2
- Hot-Swap N+1
- Single-Wire Current Sharing
- Class B EMI Filter
- High Reliability Connectors
- Universal AC Input: 85-264VAC
- 5V, 100mA Supervisory Output
- Overvoltage Protection
- Inhibit Control
- Front Panel Switch Option
- 400,000 Hours MTBF

SYSTEM RACK FEATURES

- 2U High, Standard 19" Rack Mount
- True Hot-Swap Replacement
- 1200W 2+1 Redundant
- 1800W Non-Redundant

TWO-YEAR WARRANTY

www.unipowercorp.com

HOT-SWAP MODULE ORDERING GUIDE

(Other Modules Available, Consult Factory)

Max Watts	Output Voltage	Output Current	PFC	Minimum Load	Total Regulation	M NL
600	24.0V	25.0A	✓	0A	2%	TM
600	28.0V	21.4A	✓	0A	2%	TM
600	48.0V	12.5A	✓	0A	2%	TM

Option S: Front-Panel On/Off Switch. Add "S" as suffix to the module model number.

For modified versions, call our Modification Center at 954-346-2442, Ext. 400

SAFETY CERTIFICATIONS

AGENCY	STANDARD
UL	UL1950
CUL	CSA22.2, No. 950
DEMKO	EN60950

ORDERING GUIDE

The hot-swap modules and the mating rack-mount are separate items and must be ordered separately.

HOT-SWAP MODULES: Order quantity using model number from the table.

SYSTEM RACK: Order TMHR2U and add option suffix.

MATING CONNECTOR KITS

Module Evaluation Connector Kit:

For each TMH Hot-Swap Module
Order Kit No. 775-1419-0000

Rack-Mount Interconnection Kit:

For TMHR2U Rack-Mount
Order Kit No. 775-1423-0000

SYSTEM RACK OPTIONS

CODE	OPTION
A	Standard: 2-position terminal block connector for 1800W maximum output with 85-264VAC input.
B	Optional: IEC320 AC connector for 1200W maximum output with nominal 230VAC input only.



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SPECIFICATIONS, TMH SERIES

Typical at Nominal 115/230VAC Line, Full Load and 25°C Unless Otherwise Noted.

OUTPUT SPECIFICATIONS

Total Output Power, Max 600 watts
Voltage Adjustment Range $\geq \pm 5\%$
Total Regulation¹ $< \pm 1.0\%$
Ripple & Noise (Pk-Pk)² $< 1\%$
Hold-Up³ $> 25\text{ms}$
Dynamic Response⁴ $300\mu\text{s}$
Temperature Coefficient $\pm 0.02\%/^{\circ}\text{C}$
Minimum Load 0A
Overload Protection Foldback Current Limiting
Overvoltage Protection Power Shutdown
Remote Sense Up to 0.25V Per Wire

INPUT SPECIFICATIONS

Input Voltage Range 85-264VAC Single Phase
Power Factor 0.99
Input Frequency 47-63Hz
Inrush Limiting 30A Peak (Cold Start)
Input Current, Full Load 6.7A, 120VAC
3.5A, 230VAC
Input EMI Filter, Conducted EN55022 Curve B
FCC20780 pt. 15J Curve B
Harmonic Distortion EN61000-3-2
Input Immunity, Conducted
Fast Transients, Line-Line $\pm 2\text{kV}$ (EN61000-4-4 Level 3)
Surges, Line-Line $\pm 1\text{kV}$ (EN61000-4-5 Level 2)
Surges, Line-Ground $\pm 2\text{kV}$ (EN61000-4-5 Level 3)
Input Protection Internal Fuse, 10A

GENERAL SPECIFICATIONS

Efficiency $> 85\%$ at Full Load
Switching Frequency 150kHz Nominal
Isolation, class I⁵ $> 3000\text{VAC}$ Input - Output
 $> 1500\text{VAC}$ Input - Ground
 $> 50\text{VDC}$ Output - Ground
Safety Standards EN60-950, UL1950, CSA22.2-950

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature 0°C to 70°C Ambient
Derating $2.5\% / ^{\circ}\text{C}$, 50°C to 70°C
Storage Temperature -40°C to $+85^{\circ}\text{C}$
Cooling Integral Ball Bearing Fan

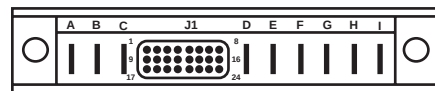
PHYSICAL SPECIFICATIONS

Case Material Aluminum
Dimensions, Inches (mm)
Hot-Swap Module .. 3.47 (88.1)H x 5.50 (140)W x 11.96 (304)D
3-Module Rack 3.47 (88.1)H x 17.00 (432)W x 16.10 (409)D

NOTES:

1. No Load to full load, including line regulation and load regulation.
2. 20MHz bandwidth. Measured with $0.1\mu\text{F}$ ceramic and $10\mu\text{F}$ tantalum capacitors in parallel across the output.
3. 600W output power at nominal AC line.
4. $< 4\%$ deviation recovering to within 1% for 25% load change.
5. Input - output isolation figure is for isolation components only.
100% production Hipot tested.

MODULE CONNECTOR



MODULE J1 POWER CONNECTIONS

TERMINAL	FUNCTION	TERMINAL	FUNCTION
A	Frame Ground	F	+V Output
B	AC Neutral	G	+V Output
C	AC Line	H	-V Output
D	Not Used	I	-V Output
E	Not Used		

NOTE: J1 connector is an ELCON FLATPAQ™ No. 279-0320-00100.
Mating receptacle is No. 279-0320-00200.

MODULE J1 CONTROL & SUPERVISORY SIGNALS

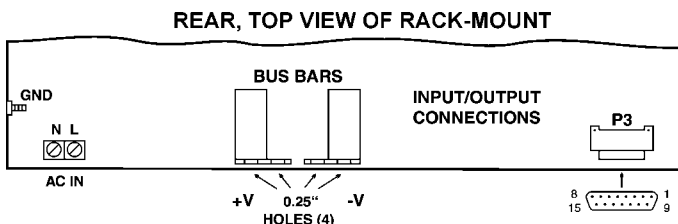
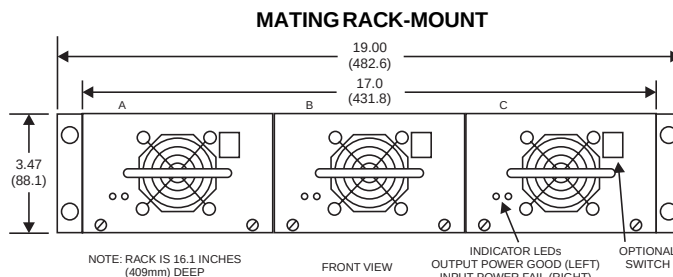
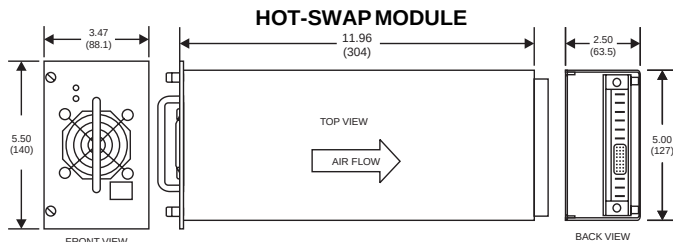
PIN	FUNCTION	PIN	FUNCTION
1	Interlock	13	Control Common
3	Inhibit	14	- Sense
4	DC Good	20	Current Share
9	Control Common	21	5V, 100mA Aux.
12	AC Power Fail	22	+ Sense

NOTE: All other pins are No Connection.

RACK MOUNT P3 CONTROL & SUPERVISORY SIGNALS

PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION
1	AC Power Fail-C	6	DC Power Good-B	11	Control Common
2	AC Power Fail-B	7	DC Power Good-A	12	5V, 100mA Aux.
3	AC Power Fail-A	8	Inhibit-C	13	- Sense
4	Current Share	9	Inhibit-B	14	+ Sense
5	DC Power Good-C	10	Inhibit-A	15	Not Used

NOTE: 1. A, B and C refer to the module position from left to right, viewed from the front of the system.
2. P3 is AMP AMPLIMATE No. 747845, 15 pos. subminiature 'D' connector.
Mating connector is AMP No. 747908-2.



ALL DIMENSIONS IN INCHES (mm).
All specifications subject to change without notice.



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PowerCassette®: NEXT GENERATION FRONT-END SWITCHER 1U High, Up to 800 Watts with PFC and Integral Hot Swap Provision

FEATURES

- Includes Isolated 5V, 1A Standby Output
- Hot-Swap or Chassis Mount Versions
- 12, 24 or 48 VDC Outputs
- Integral LED Status Indicators
- Up to 10 Watts/Cubic Inch Power Density
- Power Factor Corrected
- Low Profile: 1.6 Inches High
- Single Hot-Swappable Connector
- Staged Pin Lengths
- ORing Diode on Output*
- 1U, 19" Rack Mount Holds Three Units*
- Active Current Sharing
- Universal 85 to 264VAC Input
- Class B EMI Input Filter
- Optimized Thermal Management
- No Minimum Load
- Control & Monitoring Features

PCM Series
(Chassis Mount)

TPCM Series
(Hot-Swap)



1U HIGH
1.6" x 5" x 10"
(41 x 127 x 254 mm)

*TPCM Models

TWO-YEAR WARRANTY

www.unipowercorp.com

STANDARD MODELS

Delete "T" prefix to model no. for chassis mount version.

MAX. OUTPUT POWER	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT VOLTAGE	PFC	MODEL NUMBER
600W	12V	50.0A	85-264VAC	YES	TPCM3000
700W	24V	29.2A	85-264VAC	YES	TPCM5000
800W	48V	16.7A	85-264VAC	YES	TPCM7000

NOTE: The table does not show the independent 5V 1A standby output which is standard on all models.

AC INPUT OPTION

CODE	OPTION
E	Front Panel IEC input connector. Output power is reduced by 20%.

NOTE: Add Option Code as suffix to model no.
See picture on next page.

SAFETY CERTIFICATIONS

AGENCY	STANDARD
UL	UL1950
CUL	CSA22.2, No. 950
DEMKO	EN60950

RACK MOUNT ORDERING GUIDE:

For 1U, 19-inch rack holding three TPCM models, order TPCMR1U3 .



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SPECIFICATIONS, *PowerCassette*® PCM & TPCM SERIES FRONT ENDS

Typical at Nominal 115/230VAC Line, Full Load and 25°C Unless Otherwise Noted.

OUTPUT SPECIFICATIONS

Total Output Power, Continuous, Max 600-800 Watts
Voltage Adjustment Range, Min. ±5%
Total Regulation¹ 2.0%
Total Regulation, Standby Supply 5.0%
Ripple & Noise, Pk-Pk² 1% or 50mV
Holdup Time 20mS
Dynamic Response³ 300μS
Temperature Coefficient ±0.02%/°C
Minimum Load 0A
Overload Protection Auto Recovery
Overvoltage Protection Latched Shutdown
Remote Sense Up to 0.25V Per Wire
Current Share ±10% Full Load Rating
DC Power Good Signal TTL High
AC Power Fail Signal TTL High
Global Inhibit TTL Low
Enable TTL Low
Thermal Warning TTL Low

INPUT SPECIFICATIONS

Input Voltage Range 85-264VAC
Power Factor 0.99
Input Frequency 47-63Hz
Inrush Current Limiting 30A Peak
Input EMI Filter⁵ EN55022 Curve B
FCC20780 pt. 15J Curve B
Harmonic Distortion EN61000-3-2
Input Immunity, Conducted
Fast Transients, Line-Line ±2kV (EN61000-4-4 Level 3)
Surges, Line-Line ±2kV (EN61000-4-5 Level 3)
Surges, Line-Ground ±4kV (EN61000-4-5 Level 4)
Input Protection Internal Fuse, 20A

GENERAL SPECIFICATIONS

Efficiency⁴ 75-85% at Full Load
Switching Frequency, PFC Converter 48-110kHz
Output Converter 275kHz Nominal
Isolation, Class I, min.⁵
Input-Output 3000VAC
Input-Ground 1500VAC
Output-Ground 50VDC
MTBF (Bellcore) 200,000 Hours
Safety Standards EN60950, UL1950, CSA22.2 No.950

ENVIRONMENTAL SPECIFICATIONS

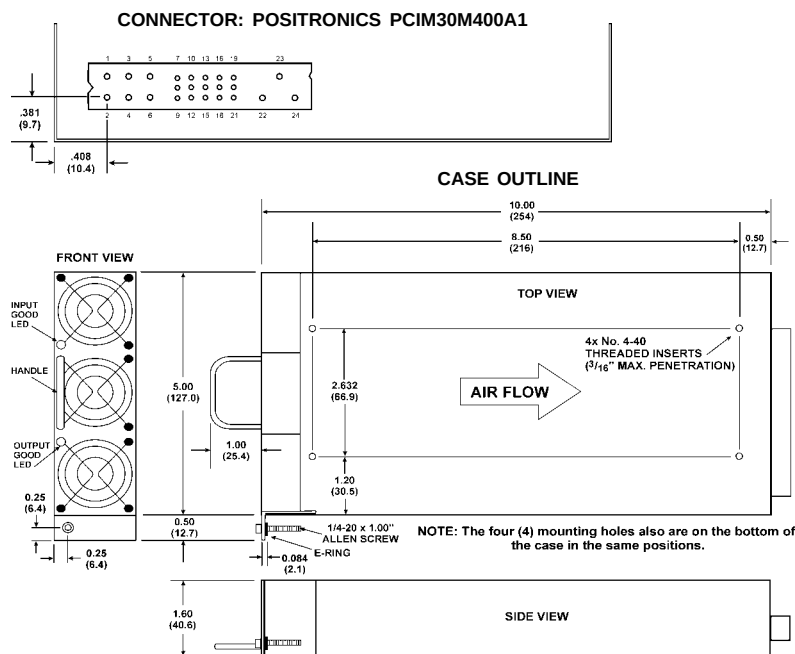
Operating Temperature 0°C to 70°C Ambient
Derating 2.5% / °C, 50°C to 70°C
Storage Temperature -40°C to +85°C
Cooling Integral Ball Bearing Fans

PHYSICAL SPECIFICATIONS

Case Material Aluminum
Dimensions, Inches(mm) 1.6 H x 5.0 W x 10.0 D
(40.6 x 127 x 254)
Weight 2.9 lbs. (1.3 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 48V output.
 5. Input-output isolation figure is for isolation components only. 100% production Hipot tested.
 6. When installed in compatible rack. Consult factory.

PIN STAGING	
PINS	LENGTH
1-6	.300"
7	.150"
8-21	.250"
22-24	.450"



PIN CONNECTIONS			
PIN	FUNCTION	PIN	FUNCTION
1	+V Out	13	Spare
2	+V Out	14	DC Power Good
3	+V Out	15	AC Power Fail
4	V Return	16	V Trim
5	V Return	17	Overtemp. Warning
6	V Return	18	Current Share
7	Enable*	19	Current Monitor
8	+ Sense	20	+5V Standby
9	- Sense	21	Standby Return
10	Inhibit	22	Chassis Ground
11	Spare	23	AC Line
12	Spare	24	AC Neutral

***NOTES:** For unit to operate, pin 7 must be at TTL LO or shorted to pin 21. For proper operation the following pins must be connected together: All V Out pins (1-3); all V Return pins (4-6).

IEC Input Version (Option E)



ALL DIMENSIONS IN INCHES (mm).
All specifications subject to change without notice.



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TMN & TMP SERIES: BULK POWER FRONT ENDS

Hot-Swap, 2U 3000W & 3600W Power Systems



KEY FEATURES

- 85% Efficiency
- Power Factor Correction to EN61000-3-2
- 6.6W/In³ Power Density
- Hot-Swap N+1 Redundant Operation
- 2U 19-inch Rack Mounting
- ±10% Output Adjustment Range
- Low Cost

OTHER FEATURES

- 24V, 28V or 48V Output
- 1000W or 1200W Module Output Power
- 3000W Total Power or 2000W 2+1
- 3600W Total Power or 2400W 2+1
- Integral Isolation Diodes
- Output Current Limiting
- Inrush Current Limiting
- BBU Operation with Direct Coupled Batteries



www.unipowercorp.com

TWO-YEAR WARRANTY

HOT-SWAP MODULE ORDERING GUIDE

Max. Watts	Output Voltage /Current	Adjustment Range	Input Voltage	Minimum Load	Line/Load Regulation	Model Number
1000	24V / 42A	21.5V - 26.5V	85VAC - 264VAC	0A	1%	TMN5000
1000	28V / 36A	25.0V - 31.0V	85VAC - 264VAC	0A	1%	TMN6000
1000	48V / 21A	43.0V - 53.0V	85VAC - 264VAC	0A	1%	TMN7000
1200	24V / 50A	21.5V - 26.5V	170VAC - 264VAC	0A	1%	TMP5000
1200	28V / 43A	25.0V - 31.0V	170VAC - 264VAC	0A	1%	TMP6000
1200	48V / 25A	43.0V - 53.0V	170VAC - 264VAC	0A	1%	TMP7000

The maximum rated power and maximum rated output current may not be exceeded for any voltage within the specified output voltage range.

For modified versions, call our Modification Center at 954-346-2442 Ext. 400

ORDERING GUIDE

The hot-swap modules and the mating rack-mount are separate items and must be ordered separately.

HOT-SWAP MODULES: Order quantity using model number from table.

SYSTEM RACK: Order RRS2U-19.

SAFETY CERTIFICATIONS

AGENCY	STANDARD
UL	UL1950
CUL	CSA22.2, No. 950
DEMKO	EN60950

MATING CONNECTOR KIT

Module Evaluation Connector Kit:
For each TMN or TMP Hot-Swap
Module Order Kit No. 775-1431-0000



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SPECIFICATIONS, TMN & TMP SERIES

Typical at Nominal 115/230VAC Line, Full Load and 25°C Unless Otherwise Noted.

OUTPUT SPECIFICATIONS

Total Output Power, Max. 1000 or 1200 Watts
Voltage Adjustment Range $\pm 10\%$
Total Regulation¹ $\pm 1.0\%$
Ripple & Noise (Pk-Pk)² 250mV, 24V & 28V Models
500mV, 48V Models
Holdup Time³ 20ms
Dynamic Response⁴ 1ms
Temperature Coefficient $\pm 0.02\%/^{\circ}\text{C}$
Minimum Load 0A
Overload Protection Constant Power Limiting
Overvoltage Protection Latched Shutdown
Active Current Share⁵ 10% Differential From Rated Current
Remote Sense Up to 0.25V Per Wire

INPUT SPECIFICATIONS

Input Voltage Range, TMN 85-264VAC
TMP 170-264VAC
Power Factor 0.99
Input Frequency 47-63Hz
Inrush Limiting 50A Peak
Input Current, TMN 9.9A@120VAC, 5.2A@230VAC
TMP 6.2A@230VAC
Input EMI Filter, Conducted EN55022 Curve B
FCC20780 pt. 15J Curve B
Harmonic Distortion EN61000-3-2
Input Immunity, Conducted
Fast Transients, Line-Line $\pm 2\text{kV}$ (EN61000-4-4 Level 3)
Surges, Line-Line $\pm 1\text{kV}$ (EN61000-4-5 Level 2)
Surges, Line-Ground $\pm 2\text{kV}$ (EN61000-4-5 Level 3)
Input Protection, Internal Fuse 20A

GENERAL SPECIFICATIONS

Efficiency 85% at Full Load
Switching Frequency 150kHz Nominal
Over Temperature Protection Power Shutdown
Isolation, Class I⁶ >3000VAC Input - Output
>1500VAC Input - Ground
>50VDC Output - Ground
Safety Standards EN60-950, UL1950, CSA22.2-950

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature 0°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 Fan

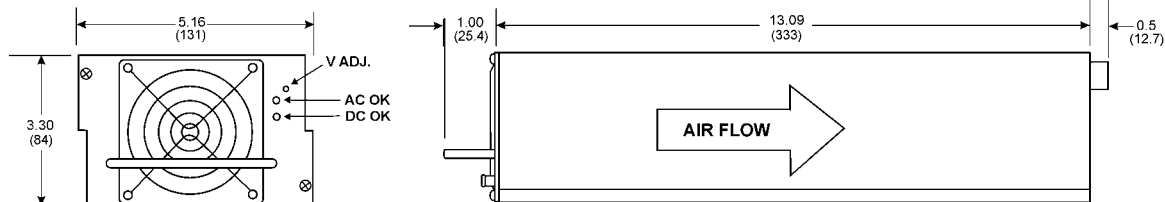
PHYSICAL SPECIFICATIONS

Case Material, Module Aluminum
Rack Mount Steel
Finish, Rack Mount Powder Coat Gray
Dimensions, Inches (mm)
Hot-Swap Module 3.3H x 4.9W x 13.1D
(84 x 124 x 333)
Rack Mount 3.5H x 17.2W x 19.9D
(89 x 437 x 505)

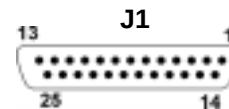
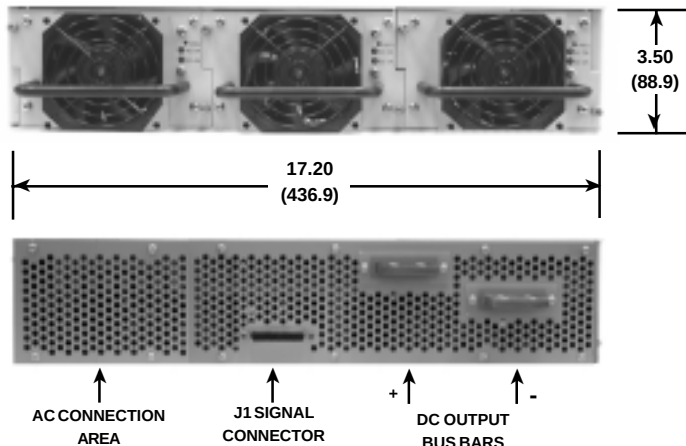
NOTES:

- At remote sense point over full line range and 0-100% load change.
- 20MHz bandwidth. Measured with 0.1μF ceramic and 10μF tantalum capacitors in parallel across the output.
- 1000W output power at nominal AC line.
- <5% deviation recovering to within 1% for 50% load change.
- Using single wire current share with remote sense connected.
- Input - output isolation figure is for isolation components only. 100% production Hipot tested.

HOT-SWAP MODULE



RACK-MOUNT



Positronic
SD25F0S500X
with FC7520D pins

J1 SIGNAL CONNECTOR

PIN	FUNCTION	PIN	FUNCTION
1	Remote Inhibit	14	AC Good-1
2	N.C.	15	DC Good-1
3	N.C.	16	AC Good-2
4	N.C.	17	DC Good-2
5	N.C.	18	AC Good-3
6	N.C.	19	DC Good-3
7	N.C.	20	N.C.
8	N.C.	21	N.C.
9	N.C.	22	Signal Common
10	Current Share	23	-Sense
11	+ Sense	24	Remote Adjust-1
12	Remote Adjust-2	25	Remote Adjust-3
13	N.C.		

ALL DIMENSIONS IN INCHES (mm).

All specifications subject to change without notice.



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VANGUARD™, TVN SERIES FRONT ENDS

Hot-Plug 2U, 3000W & 3U, 5000W Power Systems



www.unipowercorp.com

KEY FEATURES

- 85% Efficiency
- Power Factor Correction to EN61000-3-2
- 5.6W/in³ Power Density
- Hot-Swap N+1 Redundant Operation
- 2U and 3U Rack Mount Configurations
- UL Listed Rack Mount Also Available
- Wide Output Adjustment Range

OTHER FEATURES

- 24V or 48V Output
- 1000W Module Output Power
- 2U 3000W Total Power, 2000W 2+1
- 3U 5000W Total Power, 4000W 4+1
- Integral Isolation Diodes
- Power Limiting for DC/DC Converter Loads
- Inrush Current Limiting
- BBU Operation with Direct Coupled Batteries

TWO-YEAR WARRANTY

HOT-SWAP MODULE ORDERING GUIDE

Max. Watts	Output Voltage / Current	Adjustment Range	Input Voltage Range	Minimum Load	Line/Load Regulation
1000	24.0V / 42.0A	20.0V - 29.0V	85VAC - 256VAC	0A	1%
1000	48.0V / 21.0A	40.0V - 58.0V	85VAC - 256VAC	0A	1%

The maximum rated power and maximum rated output current may not be exceeded for any voltage within the specified output voltage range.

For modified versions, call our Modification Center at 954-346-2442 Ext. 400

SAFETY CERTIFICATIONS

AGENCY	STANDARD
UL	UL1950
CUL	CSA22.2, No. 950
DEMKO	EN60950

MATING CONNECTOR KITS

Module Evaluation Connector Kit:

For each TVN Hot-Swap Module
Order Kit No. 775-1424-0000

Rack-Mount Interconnection Kit:

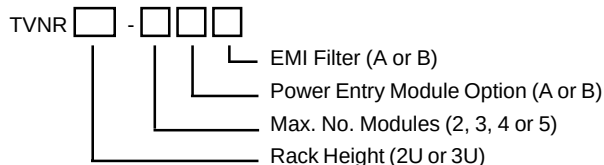
For TVNR2U Rack-Mount
Order Kit No. 775-1425-0000
For TVNR3U Rack-Mount
Order Kit No. 775-1426-0000

ORDERING GUIDE

The hot-swap modules and the mating rack-mount are separate items and must be ordered separately.

HOT-SWAP MODULES: Order quantity using model number from table. Standard modules are 2U high; for 3U high vertically mounted modules, add suffix 'V' to the model number.

SYSTEM RACK: Configure model number as shown below. Refer to Rack Model Selection Guide.



RACK MODEL SELECTION GUIDE

RACK HEIGHT	MAX. NO. MODULES	CODE	POWER ENTRY MODULE	EMI FILTER
2U	2 or 3	A	Standard: Single terminal block, rear AC entry.	A = Class A B = Class B
		B	Optional: Three IEC line cord connectors for rear AC entry. Three ON/OFF switches on front panel of Power Entry Module.	
3U	4	A	Standard: Single terminal block, rear AC entry. 220/230VAC only.	A = Class A B = Class B
		B	Optional: Dual IEC line cord connectors for rear AC entry. Two ON/OFF switches on front panel of Power Entry Module. 220/230VAC only.	
3U	5	A	Standard: No Power Entry Module. Single terminal block, rear AC entry. 220/230VAC only.	A = Class A (only)
2U	3	B	UL listed Rack Mount. Three IEC line cord connectors for rear AC entry. Three ON/OFF switches on front panel of Power Entry Module. Use L5 prefix before TVNR for 24V model and L7 for 48V model.	A = Class A (only)



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SPECIFICATIONS, TVN SERIES

Typical at Nominal 115/230VAC Line, Full Load and 25°C Unless Otherwise Noted.

OUTPUT SPECIFICATIONS

Total Output Power, Max 1000 Watts
Voltage Adjustment Range See Model Table
Total Regulation¹ <±1.0%
Ripple & Noise (Pk-Pk)² <250mV, 24V Models
..... <500mV, 48V Models
Holdup³ >20ms
Dynamic Response⁴ <1ms
Temperature Coefficient <±0.02%/°C
Minimum Load 0A
Overload Protection Constant Power Limiting
Overvoltage Protection Selective Latched Shutdown
Active Current Share⁵ 10% Differential From Rated Current
Remote Sense Up to 0.5V Per Wire

INPUT SPECIFICATIONS

Input Voltage Range 85-256VAC Single Phase
Power Factor >0.98
Input Frequency 47-63Hz
Inrush Limiting 50A Peak (cold start)
Input Current, Full Load 9.8A @ 120VAC, 5.1A @ 230VAC
Input EMI Filter, Conducted EN55022 Curve B
FCC20780 pt. 15J Curve B
Harmonic Distortion EN61000-3-2
Input Immunity, Conducted
Fast Transients, Line-Line ±2kV (EN61000-4-4 Level 3)
Surges, Line-Line ±1kV (EN61000-4-5 Level 2)
Surges, Line-Ground ±2kV (EN61000-4-5 Level 3)
Input Protection, Internal Fuse 20A

GENERAL SPECIFICATIONS

Efficiency 85% at Full Load
Switching Frequency 80kHz Nominal
Over Temperature Protection Power Shutdown
Isolation, Class I⁶ >3000VAC Input - Output
..... >1500VAC Input - Ground
..... >50VDC Output - Ground
Safety Standards EN60-950, UL1950, CSA22.2-950

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature 0°C to 70°C Ambient
Derating 2.5% / °C, 50°C to 70°C
Storage Temperature. -40°C to +85°C
Cooling Two Integral Ball Bearing Fans

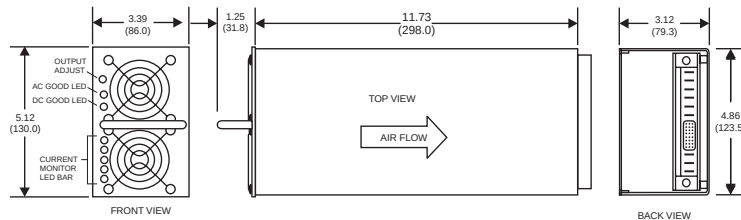
PHYSICAL SPECIFICATIONS

Case Material Aluminum
Dimensions, Inches (mm)
Hot-Swap Module 3.1 (79)H x 4.9 (124)W x 11.7 (298)D
3-Module Rack 3.4 (87)H x 17.1 (434) W x 14.7 (374)D
5-Module Rack 5.2 (132)H x 17.1 (434)W x 14.7 (374)D

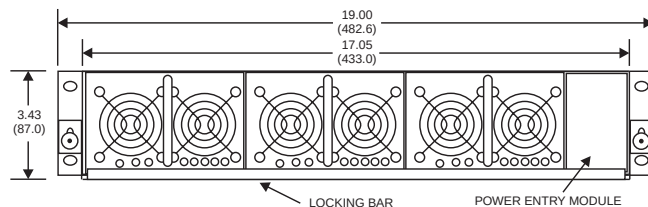
NOTES:

1. At remote sense point over full line range and 0-100% load change.
2. 20MHz bandwidth. Measured with 0.1µF ceramic and 10µF tantalum capacitors in parallel across the output.
3. 1000W output power at nominal AC line.
4. <5% deviation recovering to within 1% for 50% load change.
5. Using single wire current share with remote sense connected.
6. Input - output isolation figure is for isolation components only. 100% production Hipot tested.

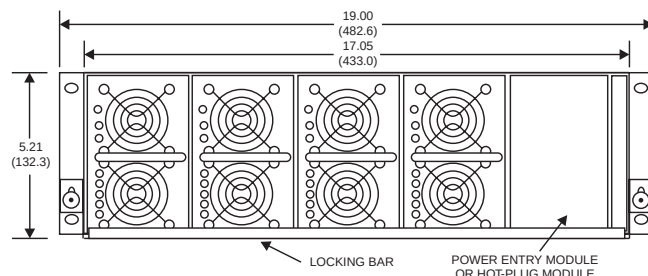
HOT-SWAP MODULE



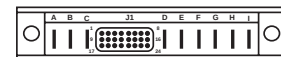
2U MATING RACK-MOUNT



3U MATING RACK-MOUNT



MODULE CONNECTOR



MODULE J1 POWER CONNECTIONS

TERMINAL	FUNCTION	TERMINAL	FUNCTION
A	AC Neutral	E	-V Output
B	AC Line	G	+V Output
C	Frame Ground	H	+V Output
D	-V Output	F & I	Not Present

NOTES: J1 connector is an ELCON FLATPAQ™ No. 279-0320-00100.
Mating receptacle is No. 279-0320-00200.

MODULE J1 CONTROL & SUPERVISORY SIGNALS

PIN	FUNCTION	PIN	FUNCTION
1	Interlock	9	DC Good
2	Remote Adjust	10	Thermal Alarm
3	Margin - High	12	Current Monitor
4	Margin - Low	16	- Sense
5	Enable	17	AC Good
6	OVP Reset	20/21	5V Aux. Return
7	+ Current Share	22/23	+5V Aux.
8	- Current Share	24	+ Sense

RACK-MOUNT INTERFACE CONTROL & SUPERVISORY SIGNALS

J4				J5	
PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION
1	Output +ve	8	Margin - Low	1	+ Sense
2	Output -ve	9	Remote Enable	2	- Sense
3	DC Good	10	OVP Reset	3	Current Share
4	Thermal Alarm	11	+5V Aux.	4	Remote Adjust
5	Current Monitor	12	5V Aux. Return	5	+V Bus
6	AC Good	13	Module Present	6	-V Bus
7	Margin - High	14	-	7	- Sense

ALL DIMENSIONS IN INCHES (mm).

All specifications subject to change without notice.



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CORPORATION

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Europe: +44(0)1903 768200 • info@unipower-europe.com

TRP/TRR/TRS SERIES: BULK POWER FRONT ENDS

Hot-Swap 2U, Up to 7500 Watts Output Power



www.unipowercorp.com

FEATURES

- 85% Efficiency
- Power Factor Correction to EN61000-3-2
- Up to 10.9W/In³ Power Density
- Hot-Swap N+1 Redundant Operation
- 2U 19-inch Rack Mounting
- ±10% Output Adjustment Range
- Low Cost
- 24V, 28V or 48V Output
- 1250, 2000 or 2500W Module Output Power
- Up to 7500W Total Power, Non-Redundant
- Up to 5000W Total Power, 2+1 Redundant
- Integral Isolation Diodes
- Output Current Limiting
- Inrush Current Limiting
- Remote Output Adjustment

TWO-YEAR WARRANTY

HOT-SWAP MODULE ORDERING GUIDE

Max. Watts	Output Voltage /Current	Adjustment Range	Input Voltage	Minimum Load	Line/Load Regulation	Model Number
1250*	24V 52.1A	±10%	85VAC - 264VAC	0A	1%	TRP5000
1250*	28V 44.6A	±10%	85VAC - 264VAC	0A	1%	TRP6000
1250*	48V 26.0A	±10%	85VAC - 264VAC	0A	1%	TRP7000
2000	24V 83.3A	±10%	170VAC - 264VAC	0A	1%	TRR5000
2000	28V 71.4A	±10%	170VAC - 264VAC	0A	1%	TRR6000
2000	48V 41.7A	±10%	170VAC - 264VAC	0A	1%	TRR7000
2500	24V 104.2A	±10%	170VAC - 264VAC	0A	1%	TRS5000
2500	28V 89.3A	±10%	170VAC - 264VAC	0A	1%	TRS6000
2500	48V 52.1A	±10%	170VAC - 264VAC	0A	1%	TRS7000

***NOTE:** Below 90VAC input, derate output power by 10%. Full rated power at 90-264VAC.

The maximum rated power and maximum rated output current may not be exceeded for any voltage within the specified output voltage range.

For modified versions, call our Modification Center at 954-346-2442 Ext. 400

ORDERING GUIDE

The hot-swap modules and the mating rack-mount are separate items and must be ordered separately.

HOT-SWAP MODULES: Order quantity using model number from table.

SYSTEM RACK: Order RRS2U-19.

SAFETY CERTIFICATIONS

AGENCY	STANDARD
UL	UL1950
CUL	CSA22.2, No. 950
DEMKO	EN60950

MATING-CONNECTOR KIT

Order Kit No.
775-1441-0000



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SPECIFICATIONS, TRP/ TRR/TRS SERIES

Typical at Nominal 230VAC Line, Full Load and 25°C Unless Otherwise Noted.

OUTPUT SPECIFICATIONS

Total Output Power, Max. 1250, 2000 or 2500 Watts
Voltage Adjustment Range $\pm 10\%$
Total Regulation¹ 1.0%
Ripple & Noise, Pk-Pk² 250mV, 24V & 28V Models
500mV, 48V Models
Holdup Time³ 20ms
Dynamic Response⁴ 1ms
Temperature Coefficient 0.05%/°C
Minimum Load 0A
Overload Protection Constant Current Limiting
Overvoltage Protection Latched Shutdown
Active Current Share⁵ 10% Differential From Rated Current
Remote Sense Up to 0.5V Per Wire

INPUT SPECIFICATIONS

Input Voltage Range See Model Table
Power Factor 0.98
Input Frequency 47-63Hz
Inrush Limiting 25A Peak
Input Current, Full Load, TRS 13.1A@230VAC
TRR 10.4A@230VAC
TRP 12.5A@120VAC
Input EMI Filter, Conducted EN55022 Curve B
FCC20780 pt. 15J Curve B
Harmonic Distortion EN61000-3-2
Input Immunity, Conducted
Fast Transients, Line-Line ± 2 kV (EN61000-4-4 Level 3)
Surges, Line-Line ± 1 kV (EN61000-4-5 Level 2)
Surges, Line-Ground ± 2 kV (EN61000-4-5 Level 3)
Input Protection, Internal Fuse 20A

GENERAL SPECIFICATIONS

Efficiency 85% at Full Load
Switching Frequency 70kHz Nominal
Overtemperature Protection Power Shutdown
Isolation, Class I⁶, min 3000VAC Input - Output
1500VAC Input - Ground
50VDC Output - Ground
Safety Standards EN60950, UL1950, CSA22.2 No.950

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature 0°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 Fan

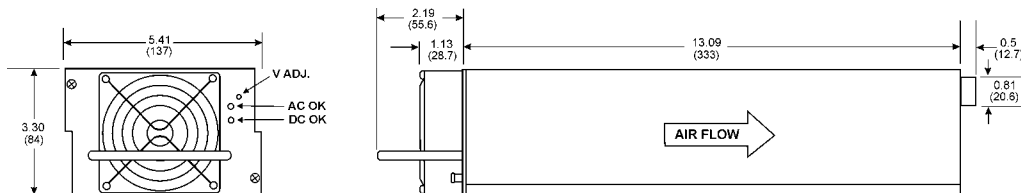
PHYSICAL SPECIFICATIONS

Case Material, Module, Aluminum & Copper
Rack Mount Steel
Finish, Rack Mount Powder Coat Gray
Dimensions, Inches (mm)
Hot-Swap Module, TRR, TRS 3.3H x 4.9W x 14.2D
(84 x 124 x 361)
Hot-Swap Module, TRP 3.3H x 4.9W x 13.1D
(84 x 124 x 333)
Rack Mount 3.50H x 17.20W x 19.88D
(89 x 437 x 505)

NOTES:

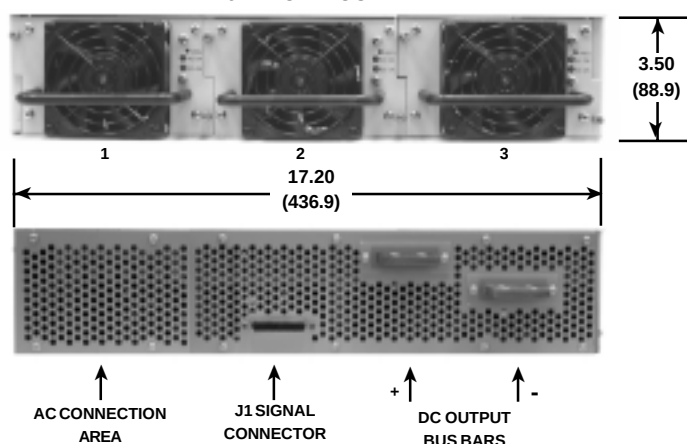
- At remote sense point over full line range and 0-100% load change.
- 20MHz bandwidth. Measured with 0.1µF ceramic and 10µF tantalum capacitors in parallel across the output.
- Full output power at nominal AC line.
- <5% deviation recovering to within 1% for 50% load change.
- Using single wire current share with remote sense connected.
- Input - output isolation figure is for isolation components only.
100% production Hipot tested.

HOT-SWAP MODULE

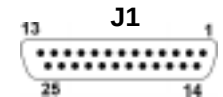


NOTE: 1250W (TRP) models are 13.1 inches (333mm) deep with internal fan only.
2000W (TRR) and 2500 (TRS) models are 14.2 inches (361mm) deep with compound (external & internal) fan.

19" RACK-MOUNT



ALL DIMENSIONS IN INCHES mm.
All specifications subject to change without notice.



AMP747846-4 Connector
AMP747912-2 Mate

J1 SIGNAL CONNECTOR

PIN	FUNCTION	PIN	FUNCTION
1	Inhibit	14	AC Good-1
2	Thermal Alarm -1	15	DC Good-1
3	Current Monitor -1	16	AC Good-2
4	Thermal Alarm - 2	17	DC Good-2
5	Current Monitor - 2	18	AC Good-3
6	Thermal Alarm - 3	19	DC Good-3
7	Current Monitor - 3	20	N.C.
8	N.C.	21	N.C.
9	N.C.	22	N.C.
10	Current Share	23	-Sense
11	+ Sense	24	Remote Adjust-1
12	Remote Adjust-2	25	Remote Adjust-3
13	N.C.		

NOTE: AC Connections are made to a terminal block behind the rear grille. There is a separate connection to each module.

PowerCassette®: NEXT GENERATION MULTI-OUTPUT SWITCHER

1U High, Up to 6 Outputs at 600 Watts with I2C Option

FEATURES

- Advanced "CellularPower"™ Architecture
- Up to 5 Outputs Plus 5V, 1A Standby
- Hot-Swap or Chassis Mount Versions
- 1.2 to 24VDC Outputs
- AC or DC Input
- Integral LED Status Indicators
- I2C Serial Data Bus Option
- 6.8 Watts/Cubic Inch Power Density
- Power Factor Corrected (AC Input)
- Low Profile: 1.6 Inches High
- Hot-Swappable Connector
- Staged Pin Lengths
- ORing Diodes on All Outputs*
- 1U, 19" Rack Mount Holds Two Units*
- Active Current Sharing on V1, V2 & V3
- Universal 85 to 264VAC Input
- Class B EMI Input Filter (AC Input)
- Wide Range 36 to 72 VDC Input
- DC Input Reverse Polarity Protected
- Optimized Thermal Management
- No Minimum Load, Any Output
- Control & Monitoring Features

*TPCH Models

PCH Series
(Chassis Mount)

TPCH Series
(Hot-Swap)



www.powercassette.com

TWO-YEAR WARRANTY

STANDARD MODELS

Other combinations of output voltage and current are readily achieved with **PowerCassette®**. These include single outputs, plus standby, up to 600 watts, as well as voltages ranging from 1.2V up to 24V. Contact factory for further details. Delete "T" prefix to model no. for chassis mount version.

MAX. TOTAL POWER	OUTPUT V1	OUTPUT V2	OUTPUT V3	OUTPUT V4	OUTPUT V5	AC MODEL NUMBER	DC MODEL NUMBER
480W	+3.3V 70A	+5V 50A				TPCH92000	TPCHQ92000
500W	+5V 70A	+3.3V 50A				TPCH29000	TPCHQ29000
500W	+12V 35A	+3.3V 50A				TPCH39000	TPCHQ39000
500W	+12V 35A	+5V 50A				TPCH32000	TPCHQ32000
600W	+3.3V 70A	+5V 50A	+12V 10A			TPCH92300	TPCHQ92300
600W	+5V 70A	+3.3V 50A	+12V 10A			TPCH29300	TPCHQ29300
600W	+12V 35A	+3.3V 50A	+5V 20A			TPCH39200	TPCHQ39200
600W	+12V 35A	+5V 50A	+3.3V 20A			TPCH32900	TPCHQ32900
600W	+3.3V 70A	+5V 50A	+12V 10A		-5V 3A	TPCH92302	TPCHQ92302
600W	+5V 70A	+3.3V 50A	+12V 10A		-5V 3A	TPCH29302	TPCHQ29302
600W	+12V 35A	+3.3V 50A	+5V 10A	-12V 3A		TPCH39230	TPCHQ39230
600W	+12V 35A	+5V 50A	+3.3V 10A	-12V 3A		TPCH32930	TPCHQ32930
600W	+3.3V 70A	+5V 50A	+12V 10A	-12V 3A	-5V 3A	TPCH92332	TPCHQ92332
600W	+5V 70A	+3.3V 50A	+12V 10A	-12V 3A	-5V 3A	TPCH29332	TPCHQ29332
600W	+12V 35A	+5V 50A	+3.3V 10A	-12V 3A	-5V 3A	TPCH32932	TPCHQ32932
600W	+12V 35A	+3.3V 50A	+5V 10A	-12V 3A	-5V 3A	TPCH39232	TPCHQ39232
600W	+12V 35A	+3.3V 50A	+5V 10A	+2.5V 3A	-5V 3A	TPCH39212	TPCHQ39212
600W	+12V 35A	+5V 50A	+3.3V 10A	+2.5V 3A	-5V 3A	TPCH32912	TPCHQ32912
600W	+12V 35A	+5V 50A	+3.3V 10A	-12V 3A	+15V 3A	TPCH32934	TPCHQ32934

NOTES: Maximum combined current or power for V1 and V2 must not exceed 120A or 500 watts. Maximum combined power for V3, V4 and V5 must not exceed 171 watts. The table does not show the sixth output which is an independent 5V 1A standby output and is standard on all models. V4 and V5 can be separately made + or - polarity. Contact factory on this.

OPTIONS

SUFFIX CODE	OPTION
D	ORing Diodes (On PCH)
Z	I2C Serial Data Bus

RACK MOUNT ORDERING GUIDE:

For 1U, 19-inch racks for 2 TPCH units, order TPCHR1U2 (AC) or TPCHQR1U2 (DC). For racks for 3 units, order TPCHR1U3 (AC) or TPCHQR1U3 (DC). See Rack Mount data sheets.

SAFETY CERTIFICATIONS

AGENCY	STANDARD
UL	UL1950
CUL	CSA22.2, No. 950
DEMKO	EN60950



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SPECIFICATIONS, PowerCassette® PCH & TPCH SERIES

Typical at Nominal 115/230VAC Line or 48VDC, Full Load and 25°C Unless Otherwise Noted.

OUTPUT SPECIFICATIONS

Total Output Power, Continuous, Max 600 Watts
Voltage Adjustment Range, Min. ±5%
Total Regulation¹, V1, V2, V3 2.0%
Total Regulation¹, V4, V5 3.0%
Ripple & Noise, Pk-Pk² 1% or 50mV
Holdup Time 20mS
Dynamic Response³ 300µS
Temperature Coefficient ±0.02%/°C
Minimum Load, Any Output 0A
Overload Protection Auto Recovery
Overvoltage Protection, V1, V2, V3 Latched Shutdown
Remote Sense, V1, V2, V3 Up to 0.25V Per Wire
Current Share, V1, V2, V3 ±10% Full Load Rating
Output Power Good Signal TTL High
Input Power Fail Signal TTL High
Global Inhibit TTL Low
Enable TTL Low
Thermal Warning TTL Low

AC INPUT SPECIFICATIONS

Input Voltage Range 85-264VAC
Power Factor 0.99
Input Frequency 47-63Hz
Inrush Current Limiting 30A Peak
Input EMI Filter⁶ EN55022 Curve B
FCC20780 pt. 15J Curve B
Harmonic Distortion EN61000-3-2
Input Immunity, Conducted
Fast Transients, Line-Line ±2kV (EN61000-4-4 Level 3)
Surges, Line-Line ±2kV (EN61000-4-5 Level 3)
Surges, Line-Ground ±4kV (EN61000-4-5 Level 4)
Input Protection Internal Fuse, 15A

DC INPUT SPECIFICATIONS

Input Voltage Range 36-72VDC
Inrush Current Limiting 10A
Input EMI Filter Standard
Input Immunity, Conducted
Fast Transients, Line-Line ±2kV (EN61000-4-4 Level 3)
Surges, Line-Line ±500V (EN61000-4-5 Level 1)
Surges, Line-Ground ±500V (EN61000-4-5 Level 1)
Input Protection Internal Fuse, 25A

GENERAL SPECIFICATIONS

Efficiency⁴ 75% at Full Load
Switching Frequency, PFC Converter (AC Input) 48-110kHz
Output Converters 275kHz Nominal
Isolation, Class I, min.⁵
Input-Output (AC Input/DC Input) 3000VAC/1500VDC
Input-Ground (AC Input/DC Input) 1500VAC/1500VDC
Output-Ground (AC Input/DC Input) 50VDC/50VDC
MTBF (Bellcore) 200,000 Hours
Safety Standards EN60950, UL1950, CSA22.2 No.950

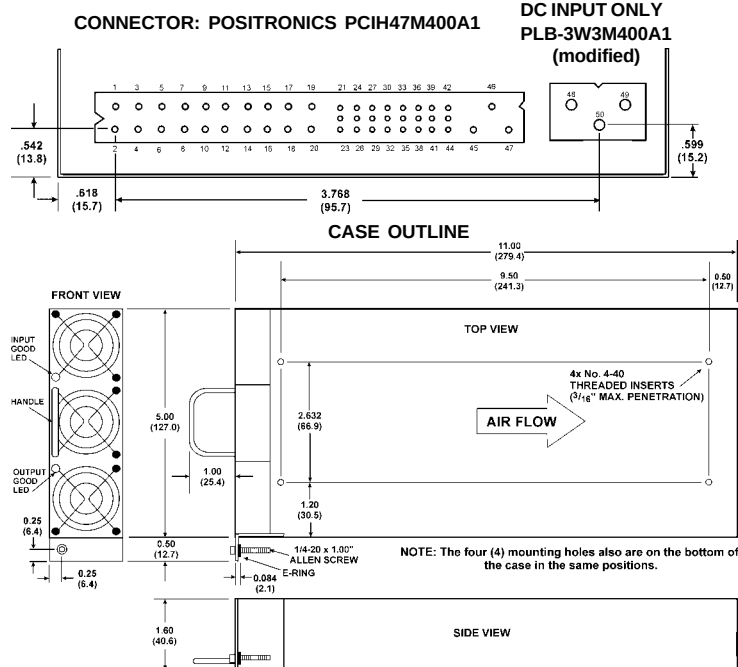
ENVIRONMENTAL SPECIFICATIONS

Operating Temperature 0°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 Aluminum
Dimensions, Inches(mm) 1.6 H x 5.0 W x 11.0 D
(40.6 x 127 x 279)
Weight 3.3 lbs. (1.5 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 for 4 output unit with one high-current output of 5V or lower. Efficiency can vary 5% or more depending on combination of outputs.
 5. Input-output isolation figure is for isolation components only. 100% production Hipot tested.
 6. When installed in compatible rack. Consult factory.



NOTE: The TPCH Model is shown. The PCH version does not have handle or mounting bracket with bolt. The AC input version does not have DC input connector (pins 48-50).

ALL DIMENSIONS IN INCHES mm.

All specifications subject to change without notice.

PIN CONNECTIONS			
PIN	FUNCTION	PIN	FUNCTION
1	+V1 Out	26	+5V, 1A Standby
2	+V1 Out	27	Enable*
3	+V1 Out	28	Spare/ADD GA1*
4	+V1 Out	29	V1 External Trim
5	+V1 Out	30	+V1 Sense
6	+V1 Out	31	-V1 Sense
7	V1 & V2 Return	32	V2 External Trim
8	V1 & V2 Return	33	+V2 Sense
9	V1 & V2 Return	34	-V2 Sense
10	V1 & V2 Return	35	V1 Current Share
11	V1 & V2 Return	36	+V3 Sense
12	V1 & V2 Return	37	-V3 Sense
13	V1 & V2 Return	38	Output Power Good/SDA*
14	+V2 Out	39	Global Inhibit
15	+V2 Out	40	Overtemp. Warning/SCLK*
16	+V2 Out	41	V2 Current Share
17	+V2 Out	42	Input Power Fail
18	+V2 Out	43	Spare/Interrupt*
19	V3 Return	44	V3 Current Share
20	+V3 Out	45	Chassis Ground
21	V4 Out	46	AC Line
22	Signal Ground	47	AC Neutral
23	V5 Out	48	+DC Input
24	V4 & V5 Return	49	-DC Input
25	Spare/ADD GA0*	50	Chassis Ground