

USER MANUAL

Model 1001RP Series
Redundant AC/DC
Rack Mount Power System



PA PATTON
Electronics Co.



An ISO-9001
Certified Company

Part# 07M1001RPR-C
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1.0 WARRANTY INFORMATION

Patton Electronics warrants all Model 1001RP Series components to be free from defects, and will—at our option—repair or replace the products should they fail within one year from the first date of shipment. This warranty is limited to defects in workmanship or materials, and does not cover customer damage, abuse or unauthorized modification. If these products fail or do not perform as warranted, your sole recourse shall be repair or replacement as described above. Under no condition shall **Patton Electronics** be liable for any damages incurred by the use of these products. These damages include, but are not limited to, the following: lost profits, lost savings and incidental or consequential damages arising from the use of or inability to use this product. **Patton Electronics** specifically disclaims all other warranties, expressed or implied, and the installation or use of this product shall be deemed an acceptance of these terms by the user.

1.1 RADIO AND TV INTERFERENCE

The Model 1001RP Series units generate and use radio frequency energy, and if not installed and used properly—that is, in strict accordance with the manufacturer's instructions—may cause interference to radio and television reception. They have been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection from such interference in a commercial installation. However, there is no guarantee that interference will not occur in a particular installation. If these products do cause interference to radio or television reception, which can be determined by turning off the unit, the user is encouraged to try to correct the interference by one or more of the following measures: moving the computing equipment away from the receiver, re-orienting the receiving antenna and/or plugging the receiving equipment into a different AC outlet (such that the computing equipment and receiver are on different branches).

1.2 CE NOTICE

The CE symbol on your Patton Electronics equipment indicates that it is in compliance with the Electromagnetic Compatibility (EMC) directive and the Low Voltage Directive (LVD) of the European Union. A Certificate of Compliance is available by contacting Technical Support.

2.0 GENERAL INFORMATION

Thank you for your purchase of these Patton Electronics products. They have been thoroughly inspected and tested and are warranted for One Year parts and labor. If any questions or problems arise during installation or use of these products, please do not hesitate to contact Patton Electronics Technical Support at (301) 975-1007.

1.3 SERVICE

All warranty and non-warranty repairs must be returned freight pre-paid and insured to Patton Electronics. All returns must have a Return Materials Authorization number on the outside of the shipping container. This number may be obtained from Patton Electronics Technical Service at

Tel: (301) 975-1007
Email: support@patton.com
www: <http://www.patton.com>

NOTE: Packages received without an RMA number will not be accepted.

Patton Electronics' technical staff is also available to answer any questions that might arise concerning the installation or use of your Model 1001RP Series. Technical Service hours: **8AM to 5PM EST, Monday through Friday.**

Warning: This product was designed for use in the Patton Electronics 1001R14P Redundant Rack System and is only intended for use with Patton Electronics equipment. Use in any other manner nullifies all compliance/warranties, and is strongly discouraged.

2.1 FEATURES

- Low-Profile mid-plane architecture design
- Provides redundant DC power for Patton rack cards
- Compatible with most Patton rack cards. The few that are **not compatible** are: 1000CC, 1000RC/222NRC, 1010ARC, 1018ARC, 1045RC, 1060RC, 1070RC, 1080ARC, 1110RC/1110ARC, and 1140RC
- Plugs into Patton Electronics Redundant Rack Chassis (Model 1001RP)
- Redundant supply serves up to 14 function cards
- Single supply serves up to 16 function cards
- Easily replaceable front and rear modules
- LED Indicators; 12V, Fail, and Temperature

2.2 DESCRIPTION

There are two 1001 series power supplies: (1) Model 1001RPEM-RVDC is a rear power entry card that is used in conjunction with Model 1001RPSM-R48V front power supply card, and (2) Model 1001RPEM-RAC is a rear power entry card that is used in conjunction with Model 1001RPSM-RUI front power supply card. Using two Model 1001RP supply modules, system operations won't crunch to a standstill if one supply fails. The second supply simply takes over! CSU/DSUs, Baseband modems, and G.703 modems plugged into a Model 1001RP continue to operate as normal.

Full redundancy is provided using two front power supply modules and two rear power entry modules. That's only two slots in a Patton 1001RP chassis. The remaining 14 slots can provide high speed G.703 access, router links or short haul modem hook-ups. When redundancy is not required, a single power supply may be used to power a full rack of 16 function cards.

3.0 INSTALLATION

Warning: No user serviceable parts inside. Hazardous voltages exist in the primary circuits. Installation and service must be done by qualified personnel. Refer to the 1001R14P service manual for installation and servicing details.

4.0 OPERATION

Once the Model 1001RP Series power supply module is properly installed, you are ready to operate the unit. Figure 1 (below) shows the location of LED indicators.

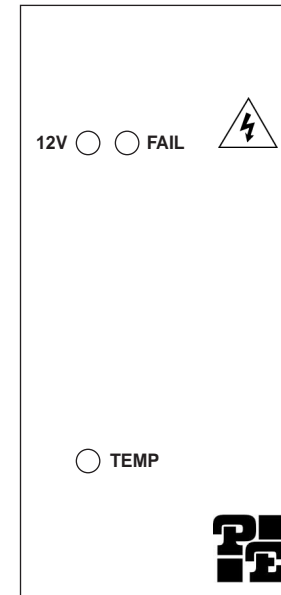


Figure 1. Models 1001RPSM-R48V & 1001RPSM-RUI front panel location of LEDs.

4.1 LED STATUS MONITOR(S)

The power supply modules features three LEDs on the front panel that indicate the status of the unit. The following describes the LED status monitors.

- | | |
|-------------|---|
| 12V | Green LED lights when the module is operating normally and is supplying 12 VDC to the rack mid-plane. |
| FAIL | Red LED lights when the module fails, overheats or input power is lost. |
| TEMP | Red LED lights when maximum module operating temperature has been exceeded, due to fan failure, overload or extremely high ambient temperature. During an over temperature condition, module output power is drastically reduced. After the module has sufficiently cooled, normal operation is restored. |

APPENDIX A

PATTON ELECTRONICS MODELS 1001RPSM-R48V plus 1001RPEM-RVDC, 48VDC SPECIFICATIONS

4.2. ALARM CONNECTORS

The rear panels (figure 2 below) feature a 3 position, screw type terminal plug for the alarm connections. Both normally-open (NO) and normally-closed (NC) relay contacts are provided. Choose the appropriate set of contacts as required in your application. The following describes the “NO” and “NC” functions:

“NO” Contacts: The “NO” (normally-open) contacts are open for normal operating conditions and close when a fault condition occurs (loss of input power, overheating or module failure).

“NC” Contacts: The “NC” (normally-closed) contacts are closed for normal operating conditions.

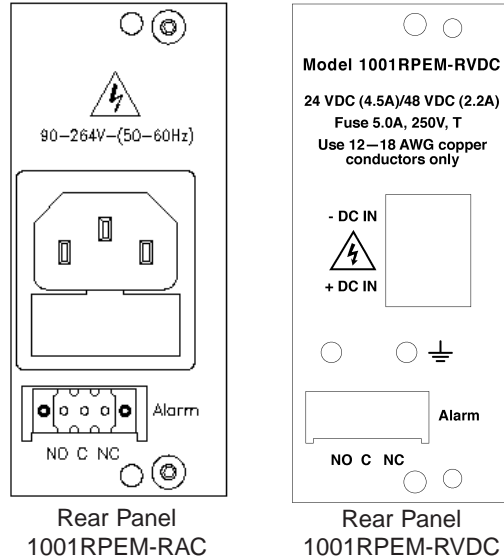


Figure 2. Models 1001RPEM-RAC & 1001RPEM-RVDC rear panel

Reference: For contact ratings and alarm specifications, please refer to **Appendix A** or **B**.

Spare terminal plugs may be obtained directly from Patton Electronics, by ordering part number 10-00003.

Input Specifications

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Input Voltage - DC	Reverse polarity protected.	42	48	60	VDC
Brown out Protection	Lowest DC input voltage that regulation is maintained with full rated load.	36			VDC
Input Current	42 VDC, 72W load		2.2		A
Input Protection	User-replaceable, internally located DC Input line fuse				
Input Surge Suppression	TVS		75		VDC

Output Specifications

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Output Voltage	Output voltage to midplane bus. (75% load).	12.3	12.4	12.5	VDC
Output Power	Continuous output power.			72	Watts
Turn-on Delay	Time required for initial output stabilization.			3	Sec
Turn-on Rise Time	Time required for output voltage to rise from 10% to 90%.		1		Sec
Transient Response	Recovery time to within 1% of initial set point due to a 30-100% load change.			250	us
Load Sharing Accuracy	Two Supplies, 72W load.		1	5	%
Efficiency	Full load, 48VDC in.	78		88	%

**APPENDIX A
(continued)**

**PATTON ELECTRONICS MODELS 1001RPSM-R48V plus
1001RPEM-RVDC, 48VDC SPECIFICATIONS**

Interface Signals and Internal Protection

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Indicators	GREEN indicator for normal operating mode. RED indicators for power fail and excessive internal temperatures.				
Power Fail Warning (TTL compatible)	Logic LOW to 1000MC control card (denotes power fail detected).			0.7	VDC
	Logic HIGH with internal pull-up to output.		10		k ohm
	Output low voltage trip point.	11.6	11.8	12.0	VDC
	Power fail trip point, maximum load, decreasing input.	30	36	38	VDC
	Time before regulation dropout, full load, due to loss of input power.		200		us
Alarm Contacts	Normally-open and normally closed contacts via 3-position terminal block (1A@30V). Contacts operate upon power failure detection.				
Overtemperature Indication	RED indicator. Shifts power fail signal to a logic LOW state.				
	Output voltage during overtemperature condition	4	4.5	5	VDC
User Controls	Single jumper to select "maintenance mode." (No alarm if PS is removed).				

Safety, Regulatory and EMI Specifications

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Agency Approvals	NRTL US UL/1950, CAN CSA/950 EN60950 CE Listing FCC part 15, Class A			Recognized	
Dielectric Withstand Voltage	Input to output, 1 second	3000			VRMS
	Input to chassis, 1 second	1500			VRMS

**APPENDIX A
(continued)**

**PATTON ELECTRONICS MODELS 1001RPSM-R48V plus
1001RPEM-RVDC, 48VDC SPECIFICATIONS**

Safety, Regulatory and EMI Specifications

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Operating Temperature	Derate linearly above 50°C by 2.5% per °C.	At 100% load. 0 At 50% load.		50 70	°C °C
Storage Temperature		-40		85	°C
Relative Humidity	Non-condensing			90	%RH
Weight			0.7		lbs.

APPENDIX B

PATTON ELECTRONICS MODEL 1001RPSM-RUI plus 1001RPEM-RAC, UNIVERSAL AC INPUT SPECIFICATIONS

Input Specifications

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Input Voltage - AC	Universal input, Auto ranging.	90	115/230	264	VAC
Input Frequency	AC Input.	47		63	Hz
Brown Out Protection	Lowest AC input voltage that regulation is maintained with full rated load.	90			VAC
Hold-up Time	Nominal AC input voltage.	72W load. 15 36W load. 30			ms ms
Input Current	90 VAC, 72W load.		1.8		ARMS
Input Protection	User-replaceable, externally located AC input line fuse.				
Inrush Surge Current	Internally limited by thermistor. Vin = 264 VAC (one cycle) 25°C.			38	APK
Input Surge Suppression	Line-to line via MOV		300		VAC

Output Specifications

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Output Voltage	Output voltage to midplane bus. (75% load).	12.3	12.4	12.5	VDC
Output Power	Continuous output power.			72	Watts
Turn-on Delay	Time required for initial output stabilization.			3	Sec
Turn-on Rise Time	Time required for output voltage to rise from 10% to 90%.		1		Sec
Transient Response	Recovery time to within 1% of initial set point due to a 30-100% load change.			250	us
Load Sharing Accuracy	Two Supplies, 72W load.		1	5	%
Efficiency	Full load, 115VAC in.	78		88	%

APPENDIX B (continued)

PATTON ELECTRONICS MODEL 1001RPSM-RUI plus 1001RPEM-RAC, UNIVERSAL AC INPUT SPECIFICATIONS

Interface Signals and Internal Protection

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Indicators	GREEN indicator for normal operating mode. RED indicators for power fail and excessive internal temperatures.				
Power Fail Warning (TTL compatible)	Logic LOW to 1000MC control card (denotes power fail detected).			0.7	VDC
	Logic HIGH with internal pull-up to out-put.		10		k ohm
	Output low voltage trip point.	11.6	11.8	12.0	VDC
	Power fail trip point, maximum load, decreasing input.	85	90	94	VAC
	Time before regulation dropout, full load, due to loss of input power.	5			ms
Alarm Contacts	Normally-open and normally closed contacts via 3-position terminal block (1A@30V). Contacts operate upon power failure detection.				
Overtemperature Indication	RED indicator. Shifts power fail signal to a logic LOW state.				
	Output voltage during overtemperature condition	4	4.5	5	VDC
User Controls	Single jumper to select "maintenance mode." (No alarm if PS is removed).				

Safety, Regulatory and EMI Specifications

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Agency Approvals	NRTL US UL/1950, CAN CSA/950 EN60950 CE Listing FCC part 15, Class A			Recognized	
Dielectric Withstand Voltage	Input to output, 1 second Input to chassis, 1 second	3000 1500			VRMS VRMS
Leakage Current	264 VAC			1	mA

**APPENDIX B
(continued)**

**PATTON ELECTRONICS MODEL 1001RPSM-RUI plus
1001RPEM-RAC, UNIVERSAL AC INPUT SPECIFICATIONS**

Safety, Regulatory and EMI Specifications

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Operating Temperature	Derate linearly above 50°C by 2.5% per °C.	At 100% load.	0	50	°C
		At 50% load.		70	°C
Storage Temperature		-40		85	°C
Relative Humidity	Non-condensing			90	%RH
Weight			0.7		lbs.

APPENDIX C

**PATTON MODEL 1001RP FACTORY REPLACEMENT
PARTS AND ACCESSORIES**

<u>Patton Model #</u>	<u>Description</u>
1001RPSM-R48V	Redundant 48-VDC Front Power Supply Module
1001RPSM-RUI	Redundant Universal AC Input Front Power Supply Module
1001RPEM-RVDC	Redundant 48VDC Input Rear Power Entry Module
1001RPEM-RAC	Redundant Universal AC Input Power Entry Module
1001R14P	2U 14 Slot Redundant Rack Chassis
05R16FP440W	Front Spacer
05R16BP440W	Rear Spacer
10-00003	Terminal Plug For Alarm Connection
07M1001RPR	User Manual
07M1001RPSVC	Service Manual
05R16PL	Plenum