DuraComm® POWER SUPPLIES
A Benny Lee Company

PRODUCT USER GUIDE

RM-5024 / RM-5024M

Heavy Duty AC to DC Power Supply

Owners Guide

(These instructions are intended for use by a technician familiar with electronic products)

- Continuous duty 27.5 VDC output power supply
- 80% efficiency
- Thermostatically controlled fans
- Selectable 110 or 220 VAC inputs
- Modular design provides "N+1" redundancy
- Adjustable output voltage
- Optional metering for voltage & current (Model with "M" suffix)
- 3 year warranty

DESCRIPTION

The RM series is a heavy duty AC to DC power supply with 80 percent efficiency and has a selectable 110 of 220 VAC inputs with adjustable output voltage. Both the RM-5024 and the RM-5024M are continuous duty 27.5 VDC output power supply.

SPECIFICATIONS

Output Voltage	27.5 VDC
Output Voltage Tolerance	+/- 1 %
Output amperage, max continuous	36 Amps
Maximum Output Amperage	Single Surge 50 Amps
Maximum Power, continuous	1000 Watts
Output Voltage Adjustment	+10 pct, -15 %t
Maximum ripple and noise	150 mV p-p max, 10 mV RMS typical
Input voltage range (switch selectable)	90-130 or 180-280 VAC
Input frequency range	47-63 Hz
Maximum AC current	15 Amps/120 VAC; 8 Amps/240 VAC
Typical Efficiency	80 %
Max inrush current, single cycle	35 Amps
Short Circuit protection	Foldback Limiting
Overload Protection (operates)	typical 110-120 %
Line Regulation	50 mV
Load Regulation	100 mV (20-100 pct load)
Fan Control	Heat sink temp >140 F (60 C) = ON
Over Temperature	>195 F (90 C) auto output shutdown
Rise Time following ON	50 mS
Hold Time following OFF	10 mS
Working Temperature range	-4 - 140 F (-20 - +60 C)
Storage Temperature	-40 - 185 F (-40 - +85 C)
Withstand Voltage*	1.5 KV @ 10 ma(I/P-O/P, I/P-FG)/1 min
(Continued)	500 V @ 10 ma(O/P-FG)/1 min
Dimensions	7.0 H x 19 W x 7.5 D inches, nominal
Weight	17.5 lbs, nominal

METER CIRCUITS for meter equipped units

The panel meter is switched to provide DC output voltage measurement and individual output load current measurement for each individual module.

When set to the VOLT position (Top Scale), the full scale reading is 30 volts. When set to the AMP position (Bottom Scale), the full scale reading is 15 amps.

The meter and associated circuitry accuracy is 10 percent of full scale deflection. Since full scale is 15 amps, a 10amp current load can vary from 9 to 11 amps. To prevent unnecessary output voltage drops, the meter circuits use the voltage drop of the parallel black #16 AWG negative return to the module as a 50 mV shunt. The parallel #16 AWG wires provide a nominal 50 mV drop at 15 amps. The panel meter sensitivity is 50 mV for full scale.

The 30K ohm resistor is used as the meter multiplier for voltage measurement. The meter sensitivity for voltage measurement is 1000 ohms per volt.

INSTALLATION WARNING

The individual user should take care to determine, prior to use or installation, whether this device is suitable, adequate or safe for the use intended. Since individual applications are subject to great variation, DuraComm makers no representation or warranty as to the merchantability, suitability or fitness of these units for any specific application.

The precision regulated power supplies operate internally from voltages in excess of 12/24/48 volts. In rare cases, voltage spikes or transients on the AC power line, or overheating, may cause a component failure in the power supply. Overloading the output will cause the over current feature to operate. In either case, the cause must be determined and corrected.

Failures require investigation as to cause and/or repair of the unit.

THERE ARE NO USER SERVICEABLE PARTS INSIDE. HAZARDOUS VOLTAGES EXIST INSIDE THE UNIT. SERVICE AND REPAIR MUST BE REFERRED TO QUALIFIED FACTORY PERSONNEL.

INSTALLER NOTES

The outputs are NOT referenced to the chassis. The Modular System can be used either positive or negative ground. Using the provided short jumper, run the jumper from the FG terminal to the -V or +V terminal, as desired.

DO NOT block any of the cooling vents on the sides and always allow adequate ventilation by not installing the unit inside tightly closed spaces. Physical mounting position is not critical but the cooling vents and the thermostatically controlled cooling fan must not be blocked.

Make certain the input voltage switch is set to the correct voltage BEFORE applying AC power to the module(s).

The RM-series is constructed using SM-series modules. Input and output connections of the SM-series are via a 9 place screw type barrier terminal strip.

Connection Labels and Meaning / Use. Starting from the left:

L ..... Line Input in 120 VAC systems or A leg in 240 VAC
N ..... System Neutral in 120 VAC systems or B leg in 240 VAC
FG ..... Chassis or frame ground (system safety ground)
NC ..... No Connection
P ..... Parallel Connection feed back, unit to unit load share
-V ..... Negative Output terminals
+V ..... Positive Output terminals
V ADJ ..... Output Voltage Adjustment
Green LED ..... Output Indicator LED

BATTERY BACK-UP INSTALLATIONS

DuraComm has a battery backup accessory, Model RMBC, for the RM-series of power supplies. The RMBC mounts directly to the rear panel of the RM-series and provides auto-change to battery power. Model RMBC provides a trickle charge to the battery. Do NOT connect a lead-acid battery directly across the 24.0 VDC output. This will over-charge the battery resulting out-gassing and loss of electrolyte and failure of the battery

CONDUCTOR PRETREATMENT

All kinds of copper conductors can be clamped without treatment. DO NOT solder tin stranded conductors. The solder yields and fractures under high pressure. The result is increased contact resistance and excessive temperature rise. Additionally, corrosion has been observed due to the fluxes. Notch fractures at the transition from the rigid tinned part to the flexible conductors are also possible. Ferrules can be used as a protection when wiring stranded conductors. Copper ferrules prevent the current transfer from being influenced by dissimilar metals and remove the risk of corrosion. Always use the correct tool to crimp the ferrule.

RECOMMENDED COPPER WIRE SIZE FOR CURRENT CAPACITY

(Insulated Wire, Single Conductor in free air)

Current Level in Amperes	***Wire Size***
<7 AMPERES	*20 AWG Up to 5 feet* *18 AWG Up to 10 feet*
14 AMPERES	*18 AWG Up to 5 feet* *16 AWG Up to 10 feet*
20 AMPERES	*16 AWG Up to 5 feet* *14 AWG Up to 10 feet*
30 AMPERES	*14 AWG Up to 5 feet* *12 AWG Up to 10 feet*
40 AMPERES	*12 AWG Up to 5 feet* *10 AWG Up to 10 feet*
50 AMPERES	*10 AWG Up to 5 feet* *8 AWG Up to 10 feet*
70 AMPERES	*8 AWG Up to 5 feet* *6 AWG Up to 10 feet*
100 AMPERES	*6 AWG Up to 5 feet* *4 AWG Up to 10 feet*

LIMITED WARRANTY

DuraComm warrants to the initial end user, each power supply manufactured by DuraComm to be free from defects in material and workmanship, when in normal use and service for a period of three year from the date of purchase, from an authorized DuraComm dealer.

Should a product manufactured by DuraComm fail or malfunction due to manufacturing defect, or faulty component, DuraComm, at its option, will repair or replace the faulty product or parts thereof, which, after examination by DuraComm, prove to be defective or not operational according to specifications in effect at the time of sale to the initial end user. The product that is replaced or repaired under the provisions of this warranty, will be warranted for the remainder of the original warranty period, only, and will not extend into a new three year warranty period.

The limited warranty does not extend to any DuraComm product which has been subject to misuse, accidental damage, neglect, incorrect wiring not associated with manufacture, improper charging voltages, or any product which has had the serial number removed, altered, defaced, or changed in any way.

DuraComm reserves the right to change, alter, or improve the specifications of its products at any time, and by so doing, incurs no obligation to install or retrofit any such changes or improvements in or on products manufactured prior to inclusion of such changes.

DuraComm requires any product needing in or out of warranty service to be returned to DuraComm. All requests for warranty service must be accompanied by proof of purchase, such as bill of sale with purchase date identified. DuraComm is not responsible for any expenses or payments incurred for the removal of the product from its place of use, transportation or shipping expenses to the place of repair, or return expenses of a repaired or replacement product to its place of use.

The implied warranties which the law imposes on the sale of this product are expressly LIMITED, in duration, to the three (3) year time period specified herein. DuraComm will not be liable for damages, consequential or otherwise, resulting from the use and operation of this product, or from the breach of this LIMITED WARRANTY.

Some states do not allow limitations on the duration of the implied warranty or exclusions or limitations of incidental or consequential damages, so said limitations or exclusions may not apply to you. This warranty gives you specific legal rights which vary from state to state.

This warranty is given in lieu of all other warranties, whether expressed, implied, or by law. All other warranties, including WITHOUT LIMITATION, warranties of merchantability and fitness or suitability for a particular purpose, are specifically excluded. DuraComm reserves the right to change or modify its warranty and service programs without prior notice.

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