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Features

Regulated Converters

- Long 5 Year Warranty
- 2MOPP/250VAC
- Suitable for built in Class II Applications
- Wide Input Voltage Range (85-264VAC)
- Low Leakage Current (<75µA)
- 5000m Operation
- -40°C to +85°C Operating Temperature
- Connector Set available

RECOM

AC/DC Converter

RACM40

40 Watt Enclosed Case Style Single Output

5 YEAR 5 warranty

Description

The RACM40 is a compact 3.6"x2.38" high efficiency AC/DC power supply with 2xMOPP safety approval for medical applications. These space saving enclosed power supplies have an universal input voltage range (85-264VAC), 4kVAC isolation, require no minimum load and can be used at ambient temperatures of between -40°C and +85°C. The 12V, 15V, 24V or 48V output voltages are fully protected and have tolerances of less than ±0.2% over the entire input voltage range and less than ±0.5% over the entire load range. The RACM40 series is certified to medical safety standard IEC/ES/EN-60601-1 3rd Edition and feature BF rated outputs with less than 75µA leakage current. It has a built-in Class B EMI filter and comes with a 5 year warranty.

Selection Guide

Part Number	Input Voltage Range (VAC)	Output Voltage (VDC)	Output Current (A)	Input Power @ No Load (W)	Efficiency typ. (%)
RACM40-12S	85-264	12	3.34	0.15	92
RACM40-15S	85-264	15	2.67	0.15	92
RACM40-24S	85-264	24	1.67	0.15	92
RACM40-48S	85-264	48	0.84	0.15	93



2MOPP 250VAC

EN-55011 Certified
EN-55022 Certified
ES-60601 Certified
IEC/EN-60601 Certified

Specifications (measured at T_A= 25°C, 250VAC, full load and after warm-up)

BASIC CHARACTERISTICS				
Parameter	**Condition**	**Min.**	**Typ.**	**Max.**
Input Voltage		85VAC 120VDC		264VAC 370VDC
Input Current	115VAC, fulll load 230VAC, full load			0.9A 0.5A
Inrush Current	cold start, 230VAC			60A
Input Frequency	AC Input	47Hz	50Hz	63Hz
Start-up Time				1 Second
Rise Time			20ms	
Hold up Time	115VAC, full load		25ms	
Minimum Load				0%
Switching Frequency	230VAC		120kHz	
Output Ripple and Noise (measured @ 20MHz BW)	12VDC, with 10µF/25V MLCC 15VDC, with 10µF/25V MLCC 24VDC, with 1µF/50V MLCC 48VDC, with 0.1µF/100V MLCC		75mVp-p 75mVp-p 75mVp-p 150mVp-p	

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Refer to Applications Notes

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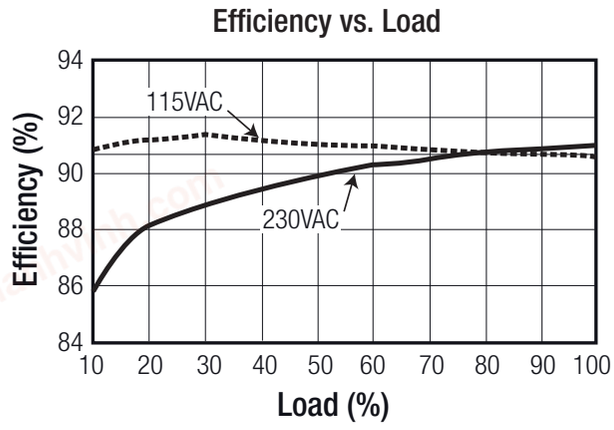
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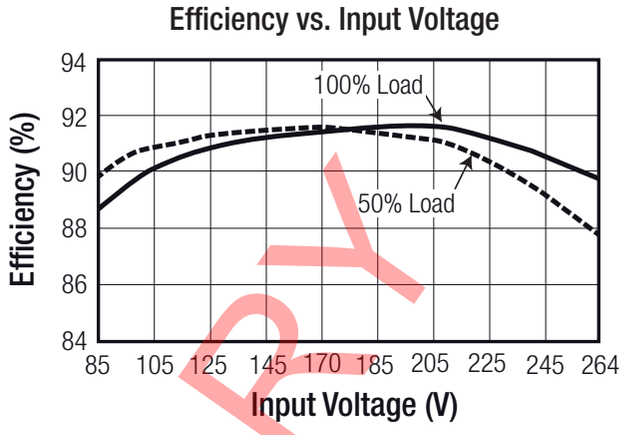
AC/DC Converter

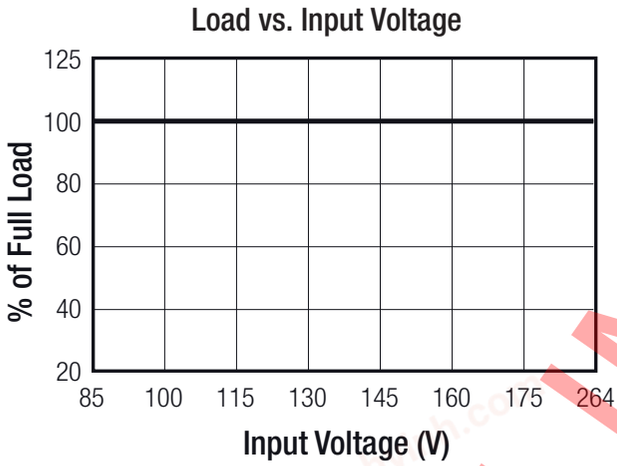
RACM40 Series

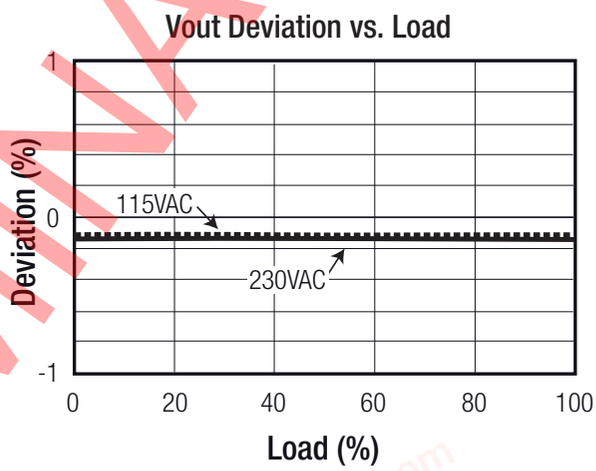
Specifications (measured at T_A= 25°C, 250VAC, full load and after warm-up)

RACM40-24









REGULATIONS		
Parameter	**Condition**	**Value**
Set Voltage Accuracy	230VAC, full load	±1%
Line Voltage Regulation	low line to high line, full load	±0.2%
Load Voltage Regulation	0% to 100% load 10% to 90% load	±0.5% max. ±0.4% max.
Output Voltage Trim		±10%
Transient Peak Deviation	load step from 50% - 75% change at 2.5A/µs	3% Vout max.
Transient Recovery Time	load step from 50% - 75% change at 2.5A/µs	600µs typ.

PROTECTIONS		
Parameter	**Condition**	**Value**
Input Fuse	internal line and neural	T3.15A / 250VAC, slow blow type
Short Circuit Protection (SCP)		continuous, auto-recovery
Over Load Protection (OLP)	% of Iout rated (Hiccup)	115% min. / 145% typ. / 150% max.
Over Voltage Protection (OVP)	% of Vout nominal (Latch off)	125% min / 140% max.
Isolation Voltgage (2MOPP insulation)	I/P to O/P I/P to Chassis, O/P to Chassis working voltage	4kVAC / 1 minunte 2.5kVAC / 1 minute 250VAC / continuous

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PRELIMINARY

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AC/DC Converter

RACM40 Series

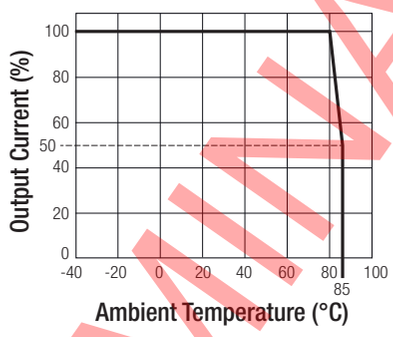
Specifications (measured at T_A= 25°C, 250VAC, full load and after warm-up)

Leakage Current	264VAC	75µA max.
Clearance Creepage	I/P to O/P I/P to O/P	6.5mm 8mm
Isolation Resistance	500VDC	100MΩ min.

ENVIRONMENTAL

Parameter	Condition	Value
Relative Humidity	non-condensing	5% to 95% RH
Temperature Coefficient		±0.02% / °C
Operating Temperature Range	with derating	-40°C to +85°C
Storage Temperature Range		-40°C to +85°C
Operating Altitude		5000m max.
MTBF (+25°C)	according to MIL-HDBK-217F, full load	3010 x 10^6 hours

Derating Graph



SAFETY AND CERTIFICATIONS

Certificate Type	Report / File Number	Standard
IEC/EN Medical Safety	TBD	IEC/EN-60601-1 Medical Report + ISO14971 Risk Assessment
ANSI/AAMI Medical Safety	TBD	ES60601-1
CAN/CSA Medical Safety	TBD	C22.2 No. 60601-1

Certificate Type (Environmental)	Conditions	Standard / Criterion
EMI Standard	Conducted	EN-55011 + EN-55022, Class B
	Radiated	EN-55011 + EN-55022, Class B
ESD	Air ±8kV; Contact ±6kV	EN-61000-4-2, Criteria A
Radiated Immunity	20V/m	EN-61000-4-3, Criteria A
Fast Transient	±2kV	EN-61000-4-4, Criteria A
Surge	DM ±1kV and CM ±2kV	EN-61000-4-5, Criteria A
Conducted Immunity	20Vr.m.s	EN-61000-4-6, Criteria A
Power Frequency Magnetic Field	10A/m	EN-61000-4-8, Criteria A
Harmonic Current	full load	EN-61000-3-2; Class A and D
Voltage Flicker		EN-61000-3-3, PASS
Shock		IEC-68-2-27
Vibration		IEC-68-2-6
Dip and Interruptions, 230VAC 50Hz	30% 500ms 60% 100ms >95% 10ms >95% 5000ms	EN-60601-1-2, Criteria A EN-60601-1-2, Criteria A EN-60601-1-2, Criteria A EN-60601-1-2, Criteria B

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AC/DC Converter

RACM40 Series

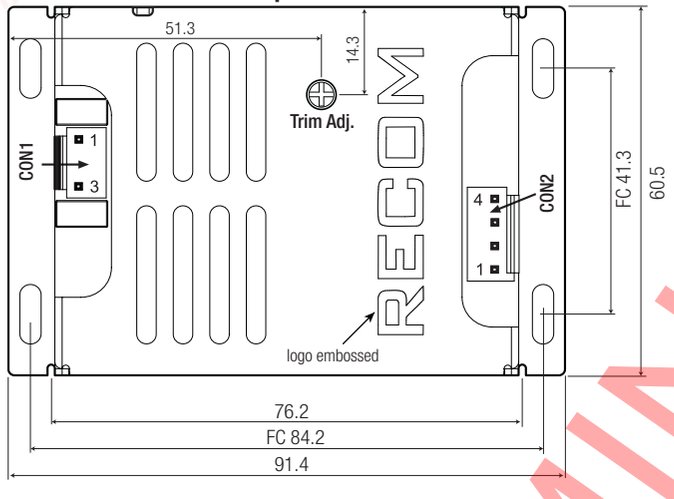
Specifications (measured at T_A= 25°C, 250VAC, full load and after warm-up)

DIMENSIONS and PHYSICAL CHARACTERISTICS

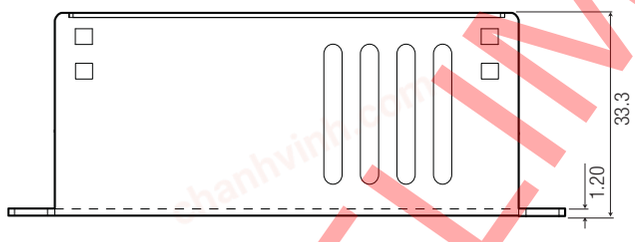
Parameter	Type	Value
Package Dimensions (LxWxH)		91.4 x 60.5 x 33.3mm
Package Weight		172g
Material	Case	Aluminum

Mechanical Dimensions (mm)

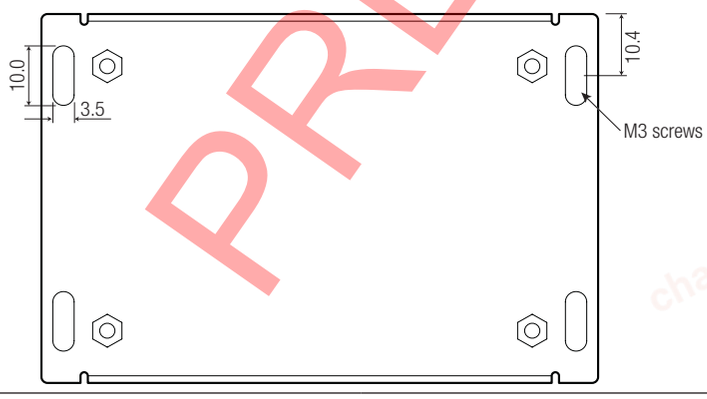
Top View



Side View



Bottom View



CON1 - Input

Pin1 Line
Pin3 Neutral

Mates with
JST housing: VHR-3N
JST crimp terminals: SVH-21T-P1.1

CON2 - Output

Pin1,2 -Vout
Pin3,4 +Vout

Mates with
JST housing: VHR-4N
JST crimp terminals: SVH-21T-P1.1

Tolerance: ±0.5mm
FC: fixing center

PRELIMINARY

PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimensions (LxWxH)	Cardboard Box	418 x 258 x 110mm
Packaging Quantity	Cardboard Box	10pcs

The product information and specifications are subject to change without prior notice. RECOM products are not authorized for use in safety-critical applications (such as life support) without RECOM's explicit written consent. A safety-critical application is defined as an application where a failure of a RECOM product may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The buyer shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.