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
- Active Power Factor Correction
- Connector Set available

RECOM
AC/DC Converter

RACM100

100 Watt Enclosed Case Style Single Output

Description

The RACM100 is a compact 3.6"x2.44" 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 -25°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 RACM100 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 five year warranty.



Selection Guide

Part Number	Input Voltage Range (VAC)	Output Voltage (VDC)	Output Current (A)	Input Power @ No Load (W)	Efficiency typ. (%)
RACM100-12S	85-264	12	8.34	0.3	91
RACM100-15S	85-264	15	6.67	0.3	92
RACM100-24S	85-264	24	4.17	0.3	92
RACM100-48S	85-264	48	2.09	0.3	91

2MOPP
250VAC

E314885

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)

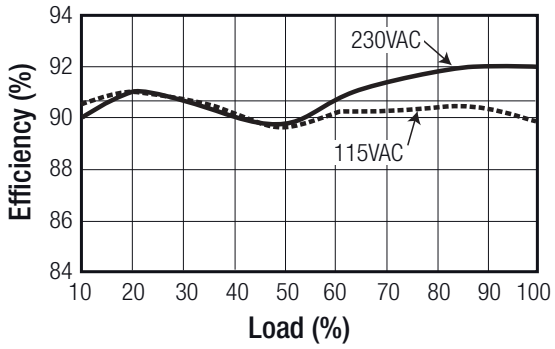
BASIC CHARACTERISTICS				
Parameter	**Condition**	**Min.**	**Typ.**	**Max.**
Input Voltage		85VAC 120VDC		264VAC 370VDC
Input Current	115VAC, fulll load 230VAC, full load			1.15A 0.55A
Absolute max. Input Current	cold start, 230VAC			60A
Input Frequency Range	AC Input	47Hz		63Hz
Start-up Time				1 Second
Rise Time			20ms	
Hold up Time	115VAC, full load	16ms		
Minimum Load				0%
Power Factor		0.95		
Operating Frequency			60kHz	
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		120mVp-p 150mVp-p 160mVp-p 340mVp-p	

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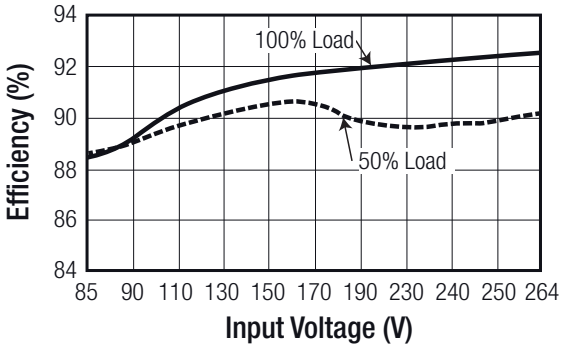
Refer to Applications Notes

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

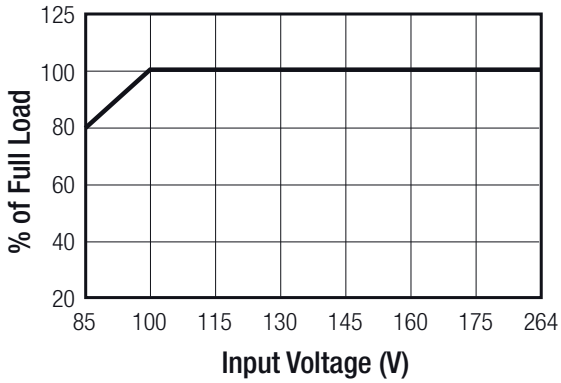
Efficiency vs. Load



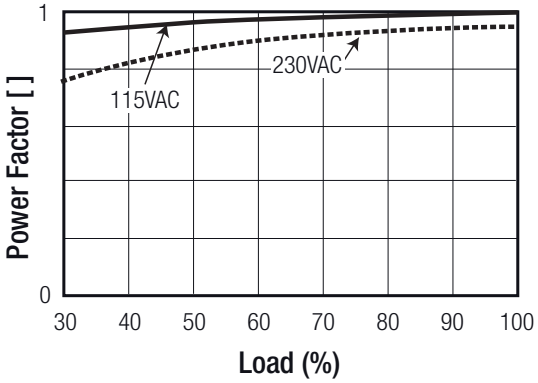
Efficiency vs. Input Voltage



Load vs. Input Voltage



Power Factor vs. Load



REGULATIONS		
Parameter	**Condition**	**Value**
Output 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 100% 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	500µs typ.

PROTECTIONS		
Parameter	**Condition**	**Value**
Input Fuse	internal line and neutral	T3.15A / 250VAC, slow blow type
Short Circuit Protection (SCP)		continuous, auto-recovery
Over Load Protection (OLP)	% of Iout rated	Hiccup Mode, 115% min. / 150% max.
Over Voltage Protection (OVP)	% of Vout nominal	Latch Mode, 115% min. / 135% max.
Isolation Voltage	I/P to O/P I/P to Chassis O/P to Chassis working voltage	4kVAC / 1 minute 1.5kVAC / 1 minute 1.5kVAC / 1 minute 250VAC / continuous
Means of Protection		2MOPP
Leakage Current	264VAC	75µA max.
Medical Device Classification		Type BF applied device

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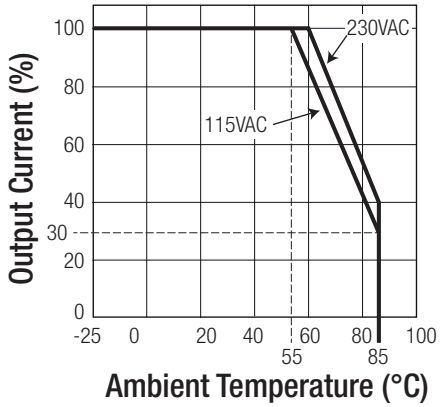
Specifications (measured at T_A= 25°C, 250VAC, full load and after warm-up)

Internal Clearance Creepage	I/P to O/P I/P to O/P	8mm min. 8mmmin.
Isolation Resistance	500VDC	100MΩ min.
Insulation Grade		Reinforced Insulation

ENVIRONMENTAL

Parameter	Condition	Value
Relative Humidity	non-condensing	5% to 95% RH
Temperature Coefficient		±0.02% / °C
Operating Temperature Range	with derating	-25°C to +85°C
Operating Altitude		5000m max.
MTBF (+25°C)	according to MIL-HDBK-217F, full load	790.3 x 10^3 hours

Derating Graph



SAFETY AND CERTIFICATIONS

Certificate Type (Safety)	Report / File Number	Standard
IEC/EN Medical Safety (CB Scheme)	1408016004	IEC/EN-60601-1
ANSI/AAMI Medical Safety		ES60601-1
CAN/CSA Medical Safety		C22.2 No. 60601-1
Risk Managment	1408016005	Medical Report + ISO14971 Risk Assessment

EMC Compliance	Conditions		Standard / Criterion
EMI	Conducted		CISPR 11, EN-55011, Class B
	Radiated		CISPR 11, EN-55011, Class A
	Conducted and Radiated		FCC18, Class B
ESD	Air ±8kV; Contact ±6kV		EN61000-4-2, Criteria A
Radiated Immunity	20V/m		EN61000-4-3, Criteria A
Fast Transient	±2kV		EN61000-4-4, Criteria A
Surge	L-N ±1kV and L-PE/N-PE ±2kV		EN61000-4-5, Criteria A
Conducted Immunity	20Vr.m.s		EN61000-4-6, Criteria A
Power Frequency Magnetic Field	10A/m		EN61000-4-8, Criteria A
Voltage Dip and Interruptions	100/230VAC, 50Hz	30% 500ms	EN61000-4-11, EN60601-1-2, Criteria A
		>95% 10ms	EN61000-4-11, EN60601-1-2, Criteria A
		>95% 5000ms	EN61000-4-11, EN60601-1-2, Criteria B

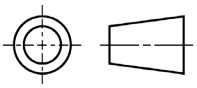
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Specifications (measured at T_A= 25°C, 250VAC, full load and after warm-up)

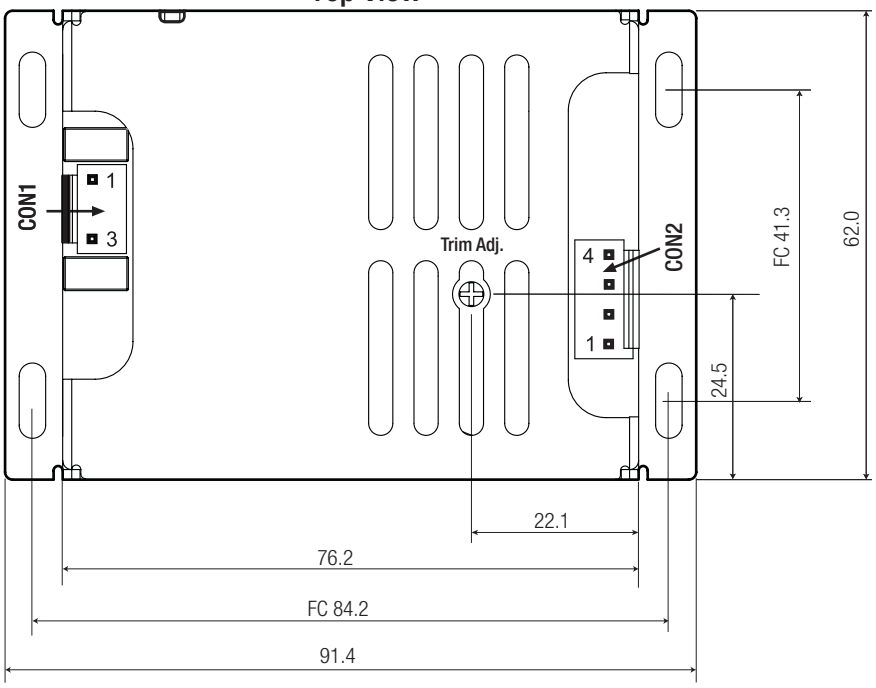
Harmonic Current	full load	EN61000-3-2; Class D
Voltage Flicker		EN61000-3-3, PASS
Thermal Shock		MIL-STD-810F
Shock		IEC60068-2-27
Vibration		IEC60068-2-6

DIMENSION and PHYSICAL CHARACTERISTICS		
Parameter	**Type**	**Value**
Case Material		Aluminum
Package Dimension (LxWxH)		91.4 x 62.0 x 39.2mm
Package Weight		210g

Dimension Drawing (mm)



Top View



Side View



AC Input Connector CON1

Pin1 Line
Pin3 Neutral
Mates with
JST housing: VHR-3N
JST crimp terminals: SVH-21T-P1.1

DC Ouptut Connector CON2

Pin1,2 -Vout
Pin3,4 +Vout
Mates with
JST housing: VHR-4N
JST crimp terminals: SVH-21T-P1.1

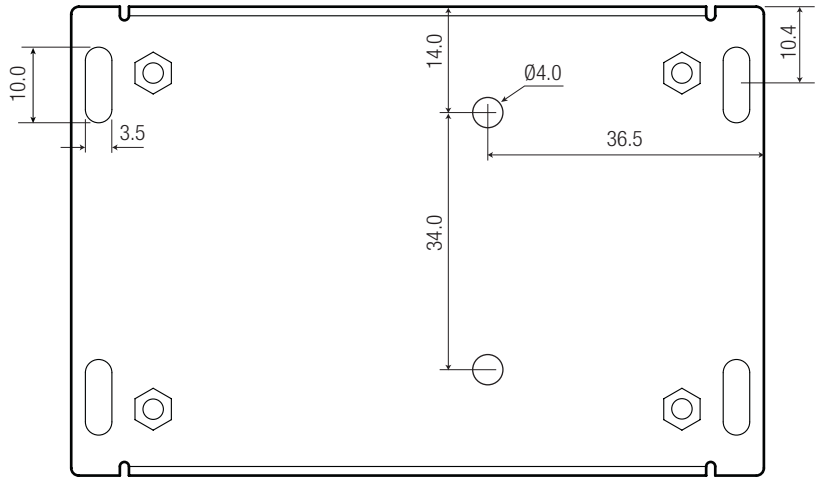
Tolerance: ±0.5mm
FC: fixing center

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

Dimension Drawing (mm)

Bottom View



PACKAGING INFORMATION		
Parameter	**Type**	**Value**
Packaging Dimension (LxWxH)	Cardboard Box	418 x 258 x 105mm
Packaging Quantity		10pcs
Storage Temperature Range		-40°C to +85°C

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.