

# 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

## 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

## Specifications (measured at TA= 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, full 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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**RECOM**  
AC/DC Converter

## RACM100

100 Watt  
Enclosed  
Case Style  
Single Output

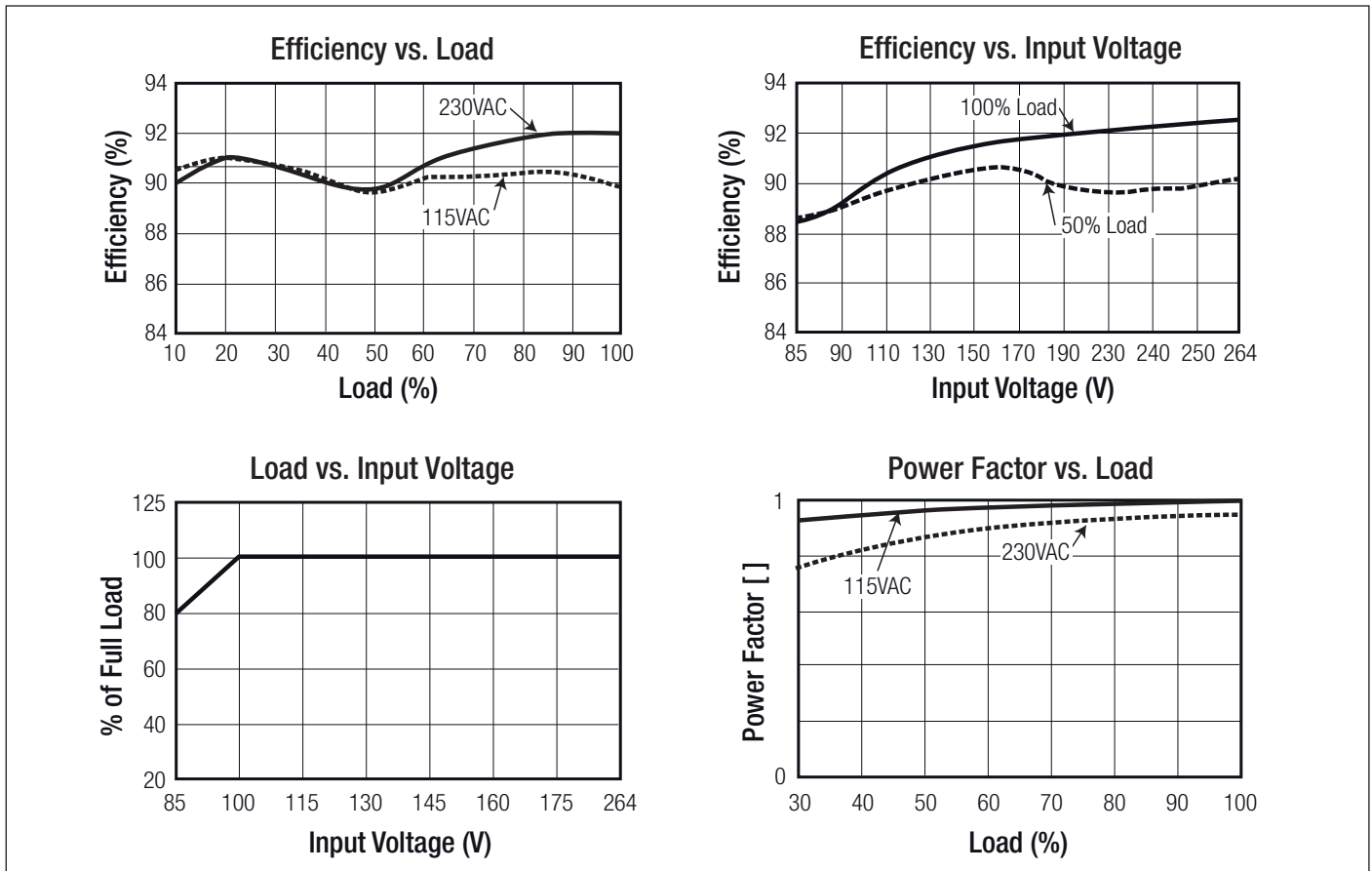


2MOPP  
250VAC



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

Specifications (measured at  $T_A = 25^\circ\text{C}$ , 250VAC, full load and after warm-up)



## REGULATIONS

Parameter	Condition	Value
Output Voltage Accuracy	230VAC, full load	$\pm 1\%$
Line Voltage Regulation	low line to high line, full load	$\pm 0.2\%$
Load Voltage Regulation	0% to 100% load	$\pm 0.5\%$ max.
	10% to 100% load	$\pm 0.4\%$ max.
Output Voltage Trim		$\pm 10\%$
Transient Peak Deviation	load step from 50% - 75% change at 2.5A/ $\mu\text{s}$	3% $V_{out}$ max.
Transient Recovery Time	load step from 50% - 75% change at 2.5A/ $\mu\text{s}$	500 $\mu\text{s}$ 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 $I_{out}$ rated	Hiccup Mode, 115% min. / 150% max.
Over Voltage Protection (OVP)	% of $V_{out}$ nominal	Latch Mode, 115% min. / 135% max.
Isolation Voltage	I/P to O/P	4kVAC / 1 minute
	I/P to Chassis	1.5kVAC / 1 minute
	O/P to Chassis	1.5kVAC / 1 minute
	working voltage	250VAC / continuous
Means of Protection		2MOPP
Leakage Current	264VAC	75 $\mu\text{A}$ max.
Medical Device Classification		Type BF applied device

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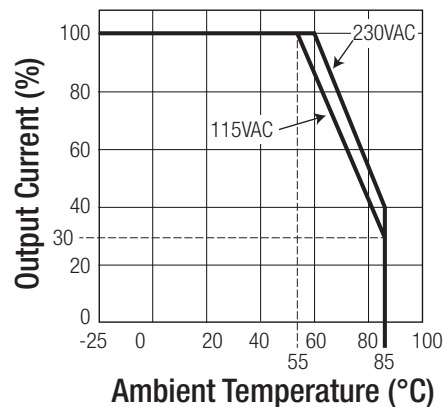
**Specifications** (measured at  $T_A= 25^{\circ}\text{C}$ , 250VAC, full load and after warm-up)

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

**ENVIRONMENTAL**

Parameter	Condition	Value
Relative Humidity	non-condensing	5% to 95% RH
Temperature Coefficient		$\pm 0.02\%$ / $^{\circ}\text{C}$
Operating Temperature Range	with derating	$-25^{\circ}\text{C}$ to $+85^{\circ}\text{C}$
Operating Altitude		5000m max.
MTBF ( $+25^{\circ}\text{C}$ )	according to MIL-HDBK-217F, full load	$790.3 \times 10^3$ 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 Management	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 $\pm 8\text{kV}$ ; Contact $\pm 6\text{kV}$	EN61000-4-2, Criteria A	
Radiated Immunity	20V/m	EN61000-4-3, Criteria A	
Fast Transient	$\pm 2\text{kV}$	EN61000-4-4, Criteria A	
Surge	L-N $\pm 1\text{kV}$ and L-PE/N-PE $\pm 2\text{kV}$	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 A

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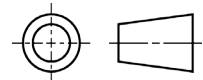
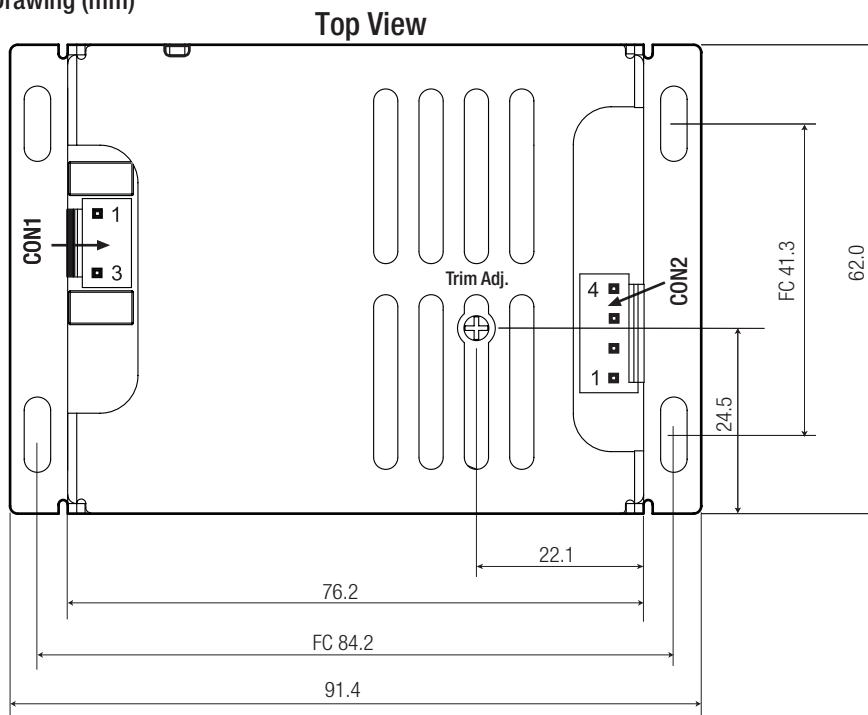
**Specifications** (measured at  $T_A = 25^\circ\text{C}$ , 250VAC, full load and after warm-up)

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)



**AC Input Connector CON1**

- Pin1** Line
- Pin3** Neutral

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

**DC Output Connector CON2**

- Pin1,2** -Vout
- Pin3,4** +Vout

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

Tolerance:  $\pm 0.5\text{mm}$   
FC: fixing center

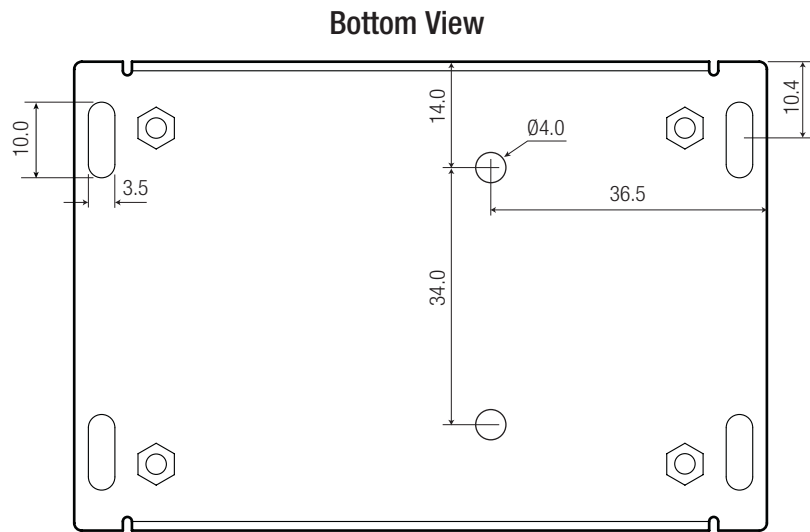
Side View



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Specifications (measured at  $T_A = 25^\circ\text{C}$ , 250VAC, full load and after warm-up)

Dimension Drawing (mm)



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