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 & Open Frame Case Style Single Output





2MOPP
250VAC

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

Description

The RACM100 is a compact 3" x 2" high efficiency AC/DC power supply with 2xMOPP 3rd Ed. safety approval for medical applications. The range has now been extended to include open frame models (/OF suffix). Like the original enclosed versions, the RACM100/OF series are space-saving universal input voltage power supplies (85-264VAC), with 4kVAC isolation, PFC, 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/OF 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 (1)	85-264	12	8.34	0.3	91
RACM100-15S (1)	85-264	15	6.67	0.3	92
RACM100-24S (1)	85-264	24	4.17	0.3	92
RACM100-48S (1)	85-264	48	2.09	0.3	91

Model Numbering

RACM100- __ S/ __

Output Power
Output Voltage
Case Option (1)
Single

Notes:

Note1: add suffix "/OF" for Open Frame Package
without suffix, standard enclosed case package

Ordering Examples:

RACM100-12S = 12Vout, Standard Enclosed Case Package
RACM100-24S/OF = 24Vout, Open Frame Version

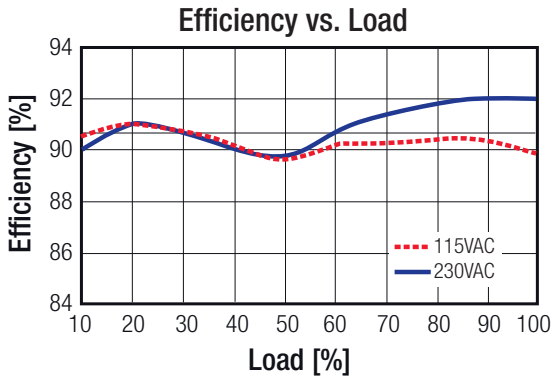
Specifications (measured @ ta= 25°C, 250VAC, full load and after warm-up)

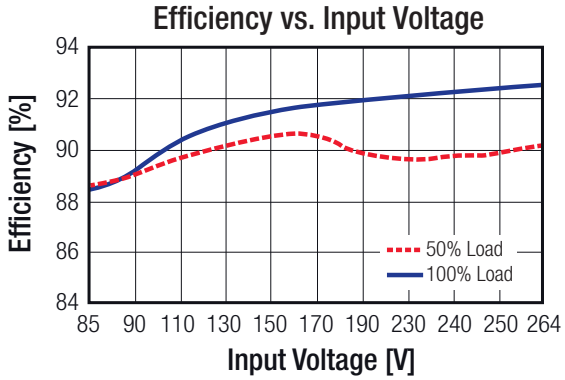
BASIC CHARACTERISTICS				
Parameter	**Condition**	**Min.**	**Typ.**	**Max.**
Input Voltage		85VAC		264VAC
		120VDC		370VDC
Input Current	115VAC, fulll load 230VAC, full load			1.15A 0.55A
Inrush Current	cold start, 230VAC			60A
Input Frequency Range	AC Input	47Hz		63Hz
Output Voltage Trimming				±10%
Start-up Time				1 Second
Rise Time			20ms	
Hold up Time	115VAC, full load	16ms		
Minimum Load				0%

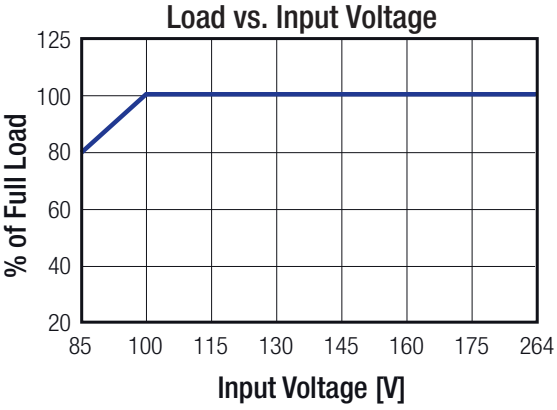
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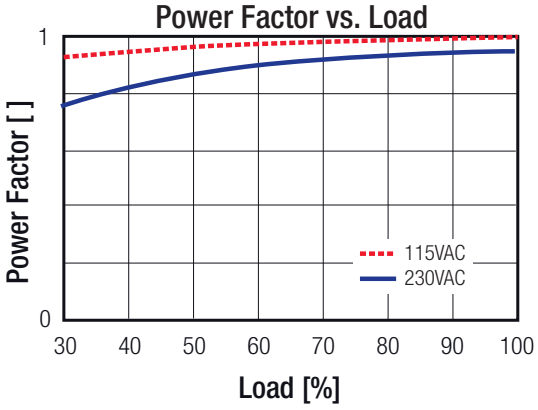
Specifications (measured @ ta= 25°C, 250VAC, full load and after warm-up)

Power Factor			0.95		
Internal Operating Frequency				60kHz	
Output Ripple and Noise	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	









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.
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

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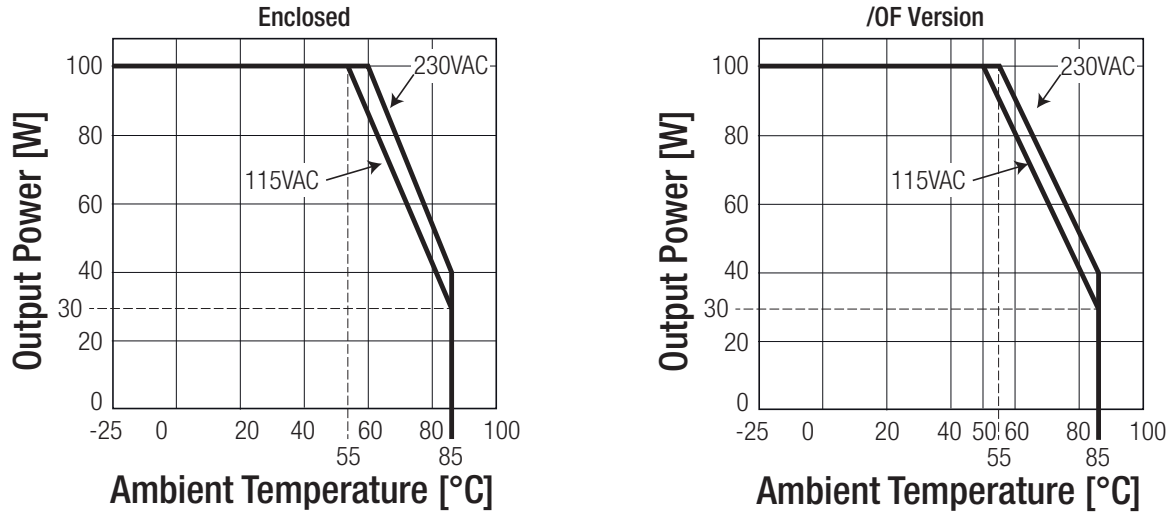
Specifications (measured @ ta= 25°C, 250VAC, full load and after warm-up)

Means of Protection		2MOPP
Leakage Current	264VAC	75µA max.
Medical Device Classification		Type BF applied device
Internal Clearance Creepage	I/P to O/P I/P to O/P	8mm min. 8mm min.
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
	without derating, 230VAC	enclosed	-25°C to +60°C
		open frame	-25°C to +55°C
Operating Altitude			5000m max.
MTBF (+25°C)	according to MIL-HDBK-217F, full load		790.3 x 10^3 hours

Derating Graph
(@ Chamber and natural convection 0.1m/s)



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

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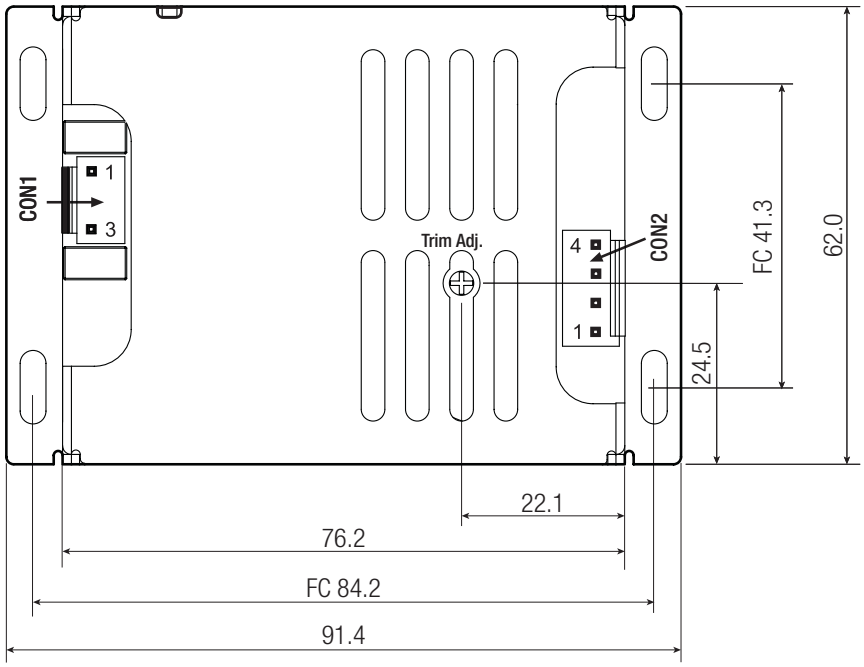
Surge	L-N ±1kV and L-GND/N-GND ±2kV		EN61000-4-5, Criteria A
Conducted Immunity	20Vr.m.s		EN61000-4-6, Criteria A
Power Frequency Magnetic Field	10A/m		EN61000-4-8, Criteria A
Voltage Dip and Interruptions	100/230VAC, 50Hz	30% 500ms	EN61000-4-11, EN60601-1-2, Criteria A
		>95% 10ms	EN61000-4-11, EN60601-1-2, Criteria A
		>95% 5000ms	EN61000-4-11, EN60601-1-2, Criteria B
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

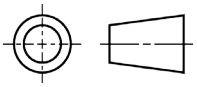
DIMENSION and PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Case Material	enclosed	Aluminum
Package Dimension (LxWxH)	enclsoded open frame	91.4 x 62.0 x 39.2mm 76.2 x 50.8 x 32.0mm
Package Weight	enclosed open frame	210g 150g

Dimension Drawing Enclosed (mm)

Top View





AC Input Vonnector (CON1)

Pin#	Terminal	Mating Housing
1 AC/L 3 AC/N	SVH-21T-P1.1	VHR-3N

DC Output Connector (CON2)

Pin#	Terminal	Mating Housing
1,2 -Vout 3,4 +Vout	SVH-21T-P1.1	VHR-4N

Tolerance: ±0.5mm
FC: fixing center

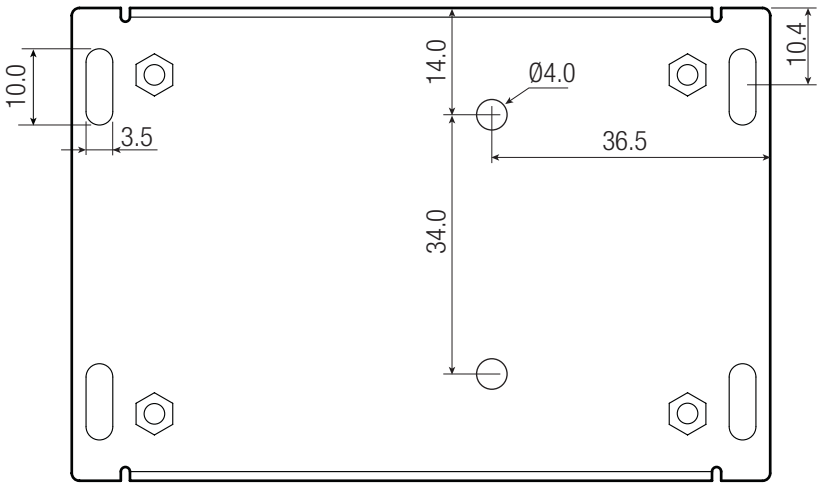
Side View



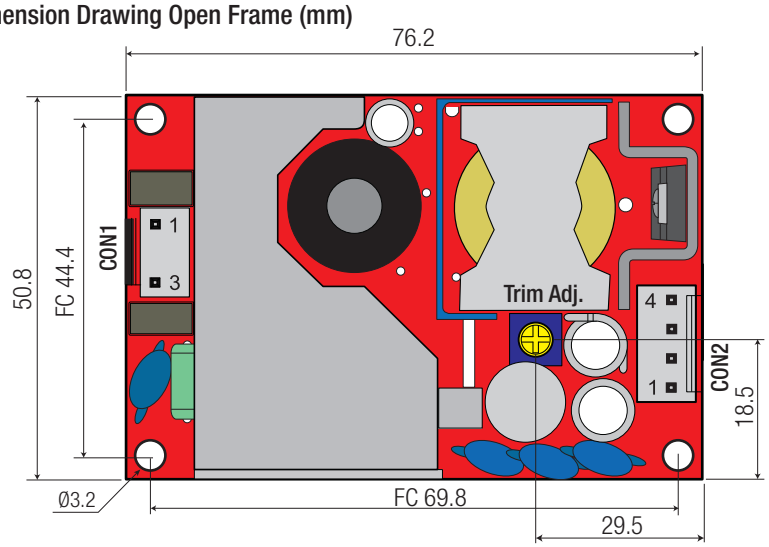
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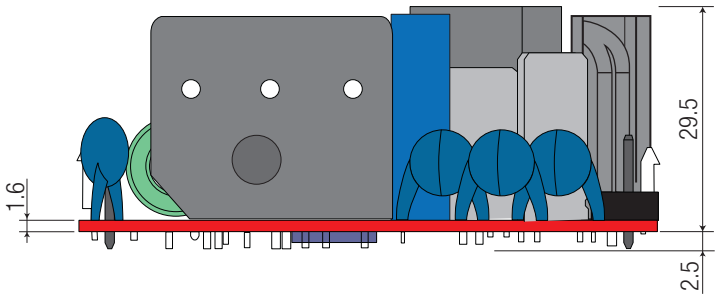
Specifications (measured @ ta= 25°C, 250VAC, full load and after warm-up)

Bottom View



Dimension Drawing Open Frame (mm)





AC Input Vonnector (CON1)

Pin#	Terminal	Mating Housing
1 AC/L 3 AC/N	SVH-21T-P1.1	VHR-3N

DC Output Connector (CON2)

Pin#	Terminal	Mating Housing
1,2 -Vout 3,4 +Vout	SVH-21T-P1.1	VHR-4N

Tolerance: ±0.5mm
FC: fixing center

PACKAGING INFORMATION

Parameter	Type		Value
Packaging Dimension (LxWxH)	cardboard box	enclosed case	418.0 x 258.0 x 105.0mm
		open frame	494.0 x 250.0 x 95.0mm
Packaging Quantity	enclosed case		10pcs
	open frame		25pcs
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.