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

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

2MOPP
250VAC

IEC/EN60601 certified
ANSI/AAMI ES60601 certified
EN55011 Certified
CISPR11
FCC Part 15

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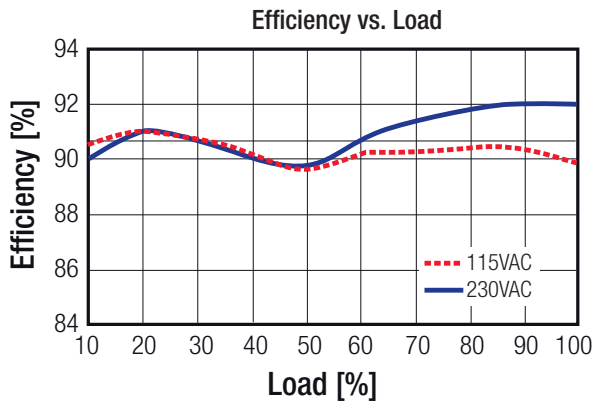
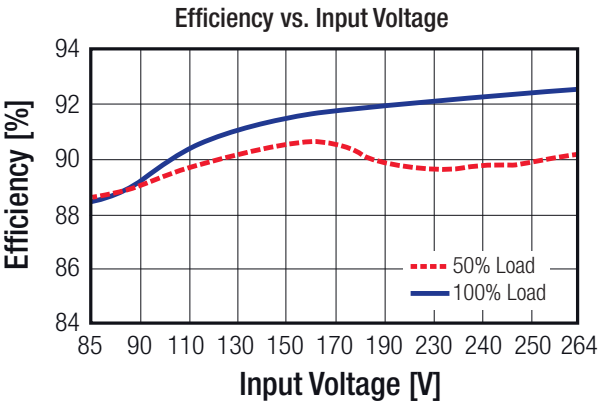
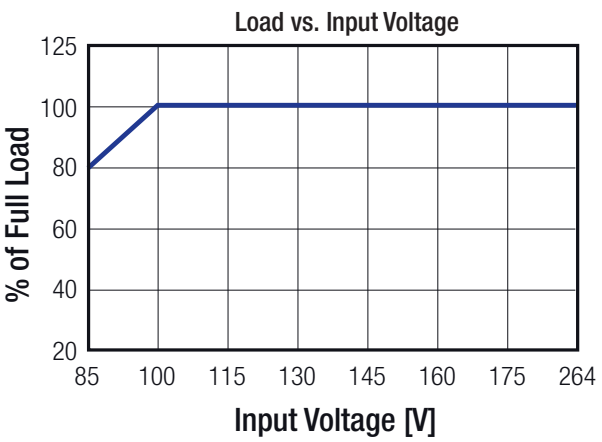
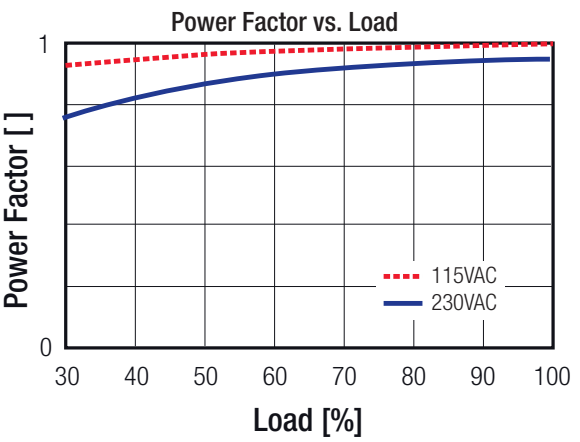
Specifications (measured @ ta= 25°C, 250VAC, full load and after warm-up)

Parameter	Condition		Min.	Typ.	Max.
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	±1.0%
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.

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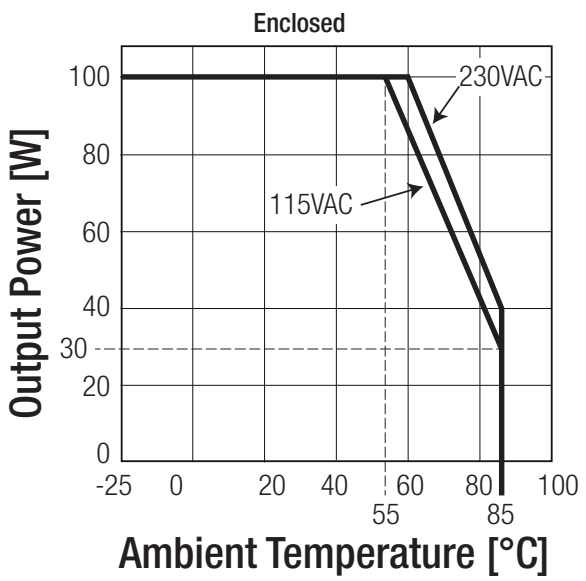
Specifications (measured @ ta= 25°C, 250VAC, full load and after warm-up)

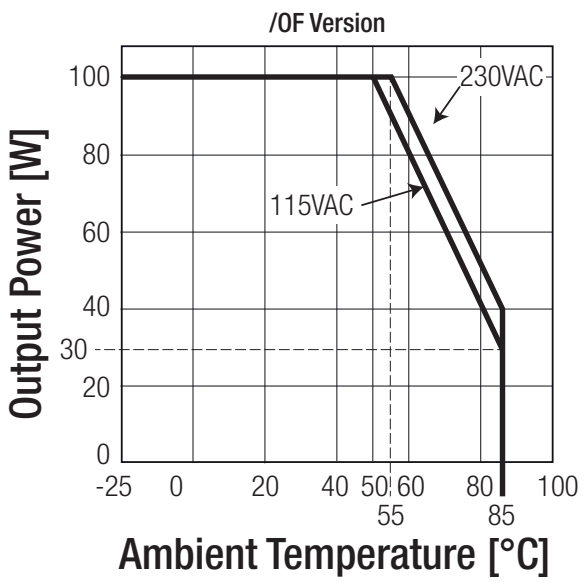
Parameter	Condition	Value
Isolation Voltage	I/P to O/P I/P to Chassis O/P to Chassis working voltage	4kVAC / 1 minute 1.5kVAC / 1 minute 1.5kVAC / 1 minute 250VAC / continuous
Means of Protection		2MOPP
Leakage Current	264VAC	75µA max.
Medical Device Classification		suitable for use in B and BF applications
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.
Thermal Shock			MIL-STD-810F
Shock			IEC60068-2-27
Vibration			IEC60068-2-6
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)





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

SAFETY AND CERTIFICATIONS		
Certificate Type (Safety)	**Report / File Number**	**Standard**
Medical Electric Equipment, General Requirements for Safety and Essential Performance	E314885	CAN/CSA-C22.2 No. 60601-1:14 ANSI/AAMI ES60601-1:2005 + A2:2010
Medical Electric Equipment, General Requirements for Safety and Essential Performance (CB Scheme)	151101302	IEC60601-1:2005 + C2:2007, 3rd Edition EN60601-1:2006

Certificate Type (Others)	**Conditions**	**Standard / Criterion**
Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic compatibility - Requirements and tests		EN60601-1-2:2015
Industrial, scientific and medical equipment - Radio frequency disturbance characteristics - Limits and methods of measurement		CISPR11:2009 +A1:2010 EN55011:2009 +A1:2010 — Class B conducted & Class A radiated
ESD Electrostatic discharge immunity test	Air ±15kV; Contact ±8kV	IEC61000-4-2:2008
Radiated, radio-frequency, electromagnetic field immunity test	20V/m (80-2700MHz) 27V/m (385MHz) 28V/m (810MHz)	IEC61000-4-3:2006 + A2:2010
Fast Transient and Burst Immunity	AC Port: ±2kV	IEC61000-4-4:2012
Surge Immunity [6]	AC Port: L-L= ±1kV, L-GND= ±2kV	IEC61000-4-5:2014
Immunity to conducted disturbances, induced by radio-frequency fields	6Vr.m.s	IEC61000-4-6:2013
Power Frequency Magnetic Field	50Hz, 30A/m	IEC61000-4-8:2009
Voltage Dips and Interruptions	Dips: >95%; 30% Interruptions >95%	IEC61000-4-11:2004
Harmonic Current		IEC61000-3-2:2005, A2:2009, Class D
Voltage Flicker		IEC61000-3-3:2013
Limitations on the amount of electromagnetic intererence allowed from digital & electronic devices		47CFR FCC Part 15 Subpart B, Class B
Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz		ANSI C63.4:2009
Limitations on the amount of electromagnetic intererence allowed from digital and electronics devices, industrial, scientific, and medical equipment		47 CFR FCC Part 18 2007, Class B

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

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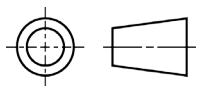
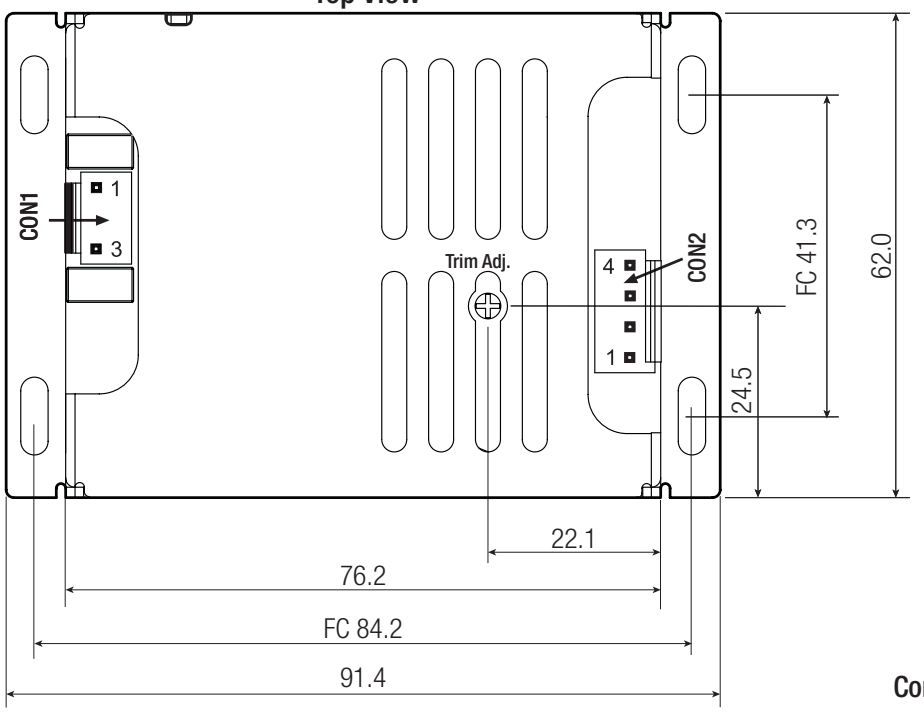
Specifications (measured @ ta= 25°C, 250VAC, full load and after warm-up)

Dimension Drawing Enclosed (mm)

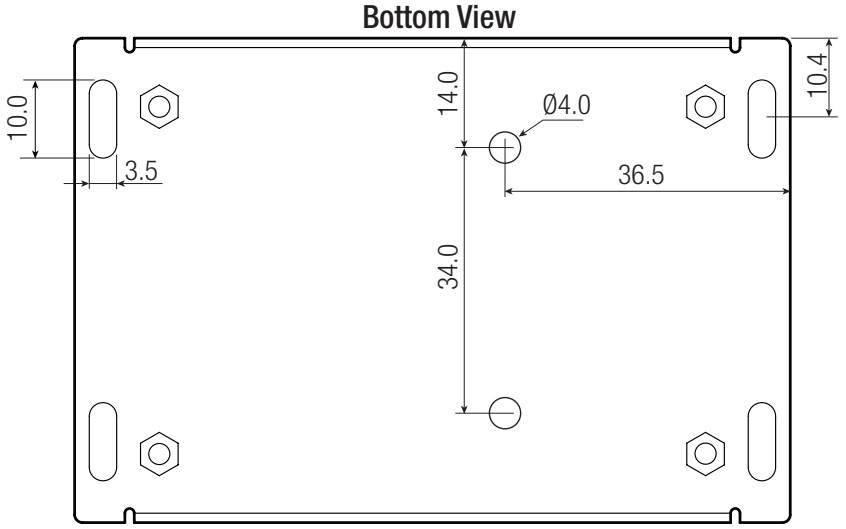


Top View



Side View

Bottom View



Connection via Connector

AC Input (CON1)

Pin #	Pin Header
1 AC/L 3 AC/N	SVH-21T-P1.1

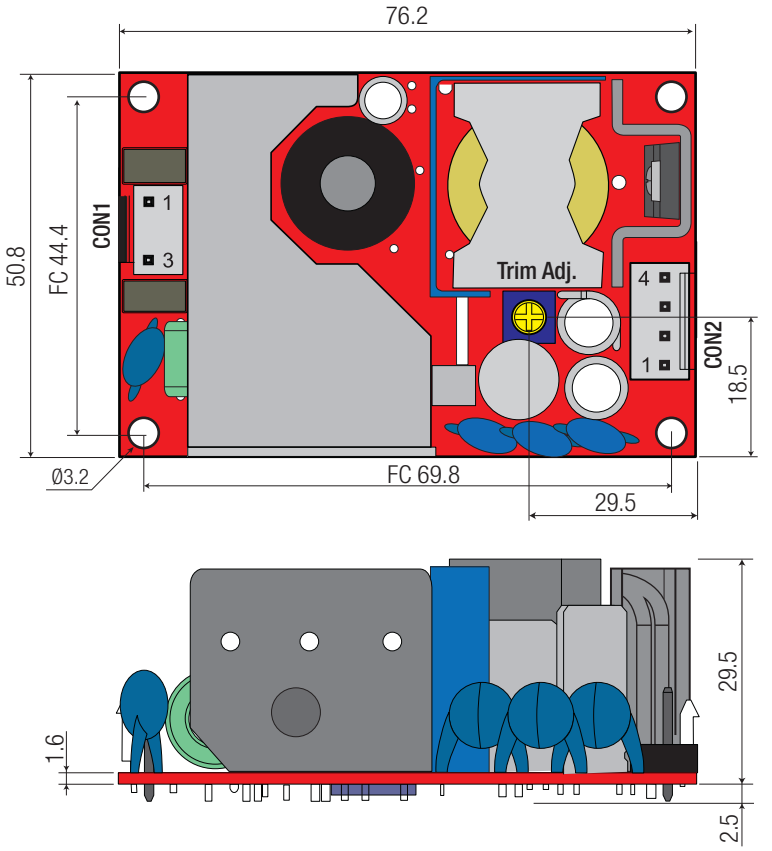
DC Output Connector (CON2)

Pin #	Pin Header
1,2 -Vout 3,4 +Vout	SVH-21T-P1.1

FC= fixing centers
Crimp Terminal AWG Range: 18-22AWG
Suggested Plug: RECOM Connector SET OF
Tolerance: ±0.5mm

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

Dimension Drawing Open Frame (mm)



Connection via Connector

AC Input (CON1)

Pin #	Pin Header
1 AC/L 3 AC/N	SVH-21T-P1.1

DC Output Connector (CON2)

Pin #	Pin Header
1,2 -Vout 3,4 +Vout	SVH-21T-P1.1

FC= fixing centers
Crimp Terminal AWG Range: 18-22AWG
Suggested Plug: RECOM Connector SET OF
Tolerance: ±0.5mm

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
Storage Humidity	non-condensing		5% to 95% RH