Technical Data Sheet

RACA100/RACA150 Series ◊ AC/DC Power Supply

100W / 150W ◊ Input: 100V-240VAC

RECOM
AC/DC Converter

FEATURES

- 90-264VAC Wide range input
- IEC320 Inlet: -C14, Class I or -C8, Class II
- Built-in active PFC power factor correction
- No load power consumption<0.15W
- DOE Energy efficiency level VI & level VII compliant
- 2 x MOPP certified to UL60601, meets BF limits
- Protections: Short circuit / Overload / Temperature
- 3 year warranty



APPLICATIONS



SAFETY & EMC

RoHS² compliant 10 from 10 | Reach compliant | CE | cULus E224736

DESCRIPTION

RACA100 and RACA150 are desktop power supply series designed and manufactured for versatile use from industrial to medical 2MOPP applications. Both power classes of 100 and 150 watts differ in design by only 3 mm in height and are based on the same compact footprint of 75 x 155 cm. Built in active PFC and latest high efficiency topologies lead to high grade of reliability in long term use and meet requirements of latest energy efficiency standards DOE VI and the upcoming DOE VII. Variations of different output connectors are available on request, and IEC320 input sockets C14 for Class I and C8 for Class II applications are available from stock.

SELECTION GUIDE

Part Number	Input Voltage Range [VAC]	Output Voltage nom. [VDC]	Output Current rated [mA]	Efficiency typ. (2) [%]	rated Output Power [W]
RACA100-12 (1)	90-264	12	8340	90	100
RACA100-24 (1)	90-264	24	4170	90.5	100
RACA150-12 (1)	90-264	12	12500	90	150
RACA150-24 (1)	90-264	24	6250	92.5	150

Note1: Different Input/Output connector variants available, refer to **„Model Numbering“**
Note2: Tested at nominal input (230VAC) and full load at +25°C ambient

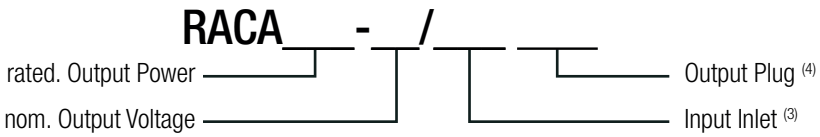
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RACA100/RACA150 Series ◊ AC/DC Power Supply

100W / 150W ◊ Input: 100V-240VAC

RECOM AC/DC Converter

MODEL NUMBERING



Note3: add suffix "/C8" = Input C8 ; Class-II safety approvals
add suffix "/C14" = Input C14 ; Class-I safety approvals

Note4: add suffix "BCP" = 5.5*2.5 O-type plug
add suffix "MD4" = Mini DIN 4 pin with lock

ORDERING INFORMATION

Model	Output Power	Output Voltage	Input & Output connector combinations			
			C8 inlet MD4 output plug	C14 inlet MD4 output plug	C8 inlet BCP output plug	C14 inlet BCP output plug
RACA100-12	100W	12VDC	y	y	y	y
RACA100-24	100W	24VDC	y	y	y	y
RACA150-12	150W	12VDC	y	y	N/A	N/A
RACA150-24	150W	24VDC	y	y	N/A	N/A

y= standard portfolio; on request= MOQ may apply on project base; N/A= not available

BASIC CHARACTERISTICS (measured @ T_{AMB}= 25°C, nom. V_{IN}, full load and after warm-up unless otherwise stated)

Parameter	Condition	Min.	Typ.	Max.
Nominal Input Voltage	50/60Hz	100VAC		240VAC
Operating Range	47-63Hz	90VAC		264VAC
Input Current	V_{IN}= 100VAC	0.6A		1.4A
	V_{IN}= 240VAC		600mA	
Inrush Current	No Component Damage (<Fuse/Bridge diode I^2t)			
No Load Power Consumption				150mW
Input Frequency Range		47Hz		63Hz
Minimum Load		0%		
Power Factor	V_{IN}= 100-240VAC	0.9		
Start-up time				3s
Rise time				50ms
Hold-up time	V_{IN}= 115VAC	20ms		
Output Ripple and Noise (5)	20MHz BW			1%Vout

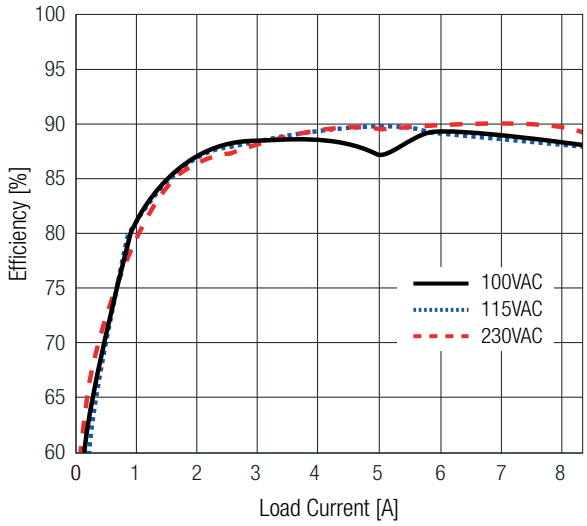
Note5: Measurements are made with a 0.1µF MLCC & 47µF tantalum capacitor in parallel across output (low ESR)

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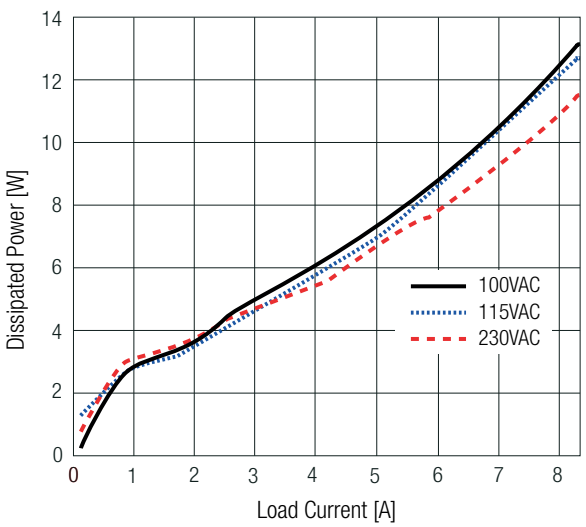
BASIC CHARACTERISTICS (measured @ T_{AMB}= 25°C, nom. V_{IN}, full load and after warm-up unless otherwise stated)

RACA100-12

Efficiency vs. Load

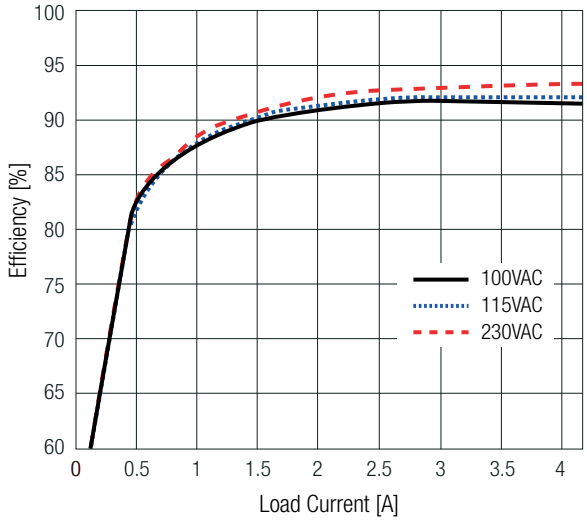


Power Dissipation vs. Load

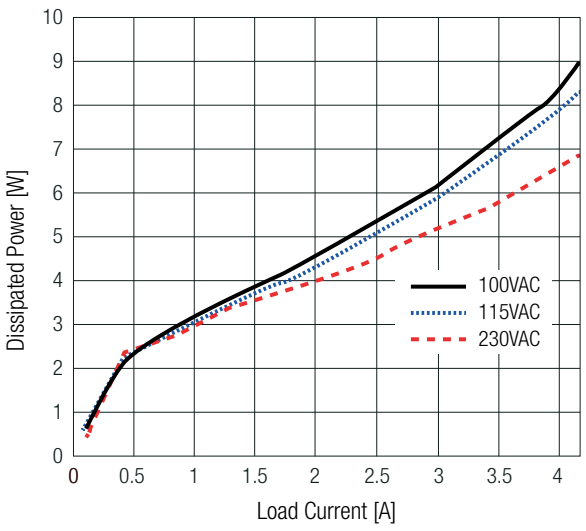


RACA100-24

Efficiency vs. Load

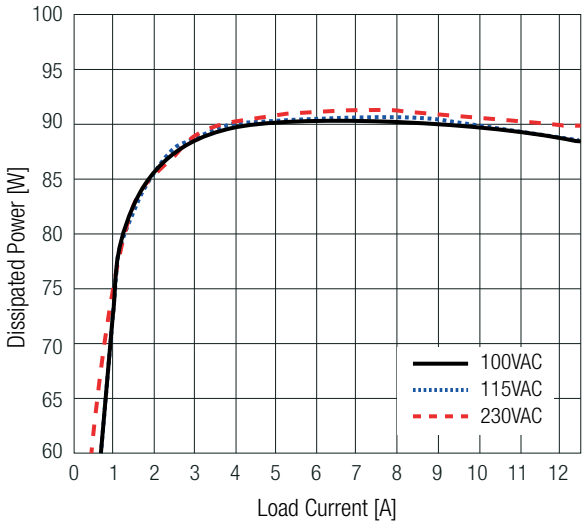


Power Dissipation vs. Load

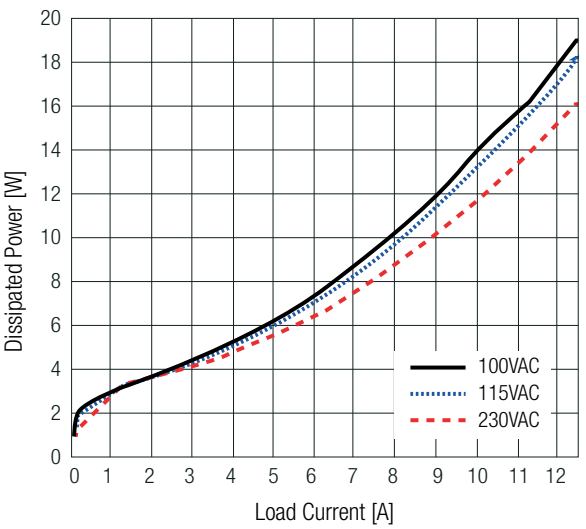


RACA150-12

Efficiency vs. Load



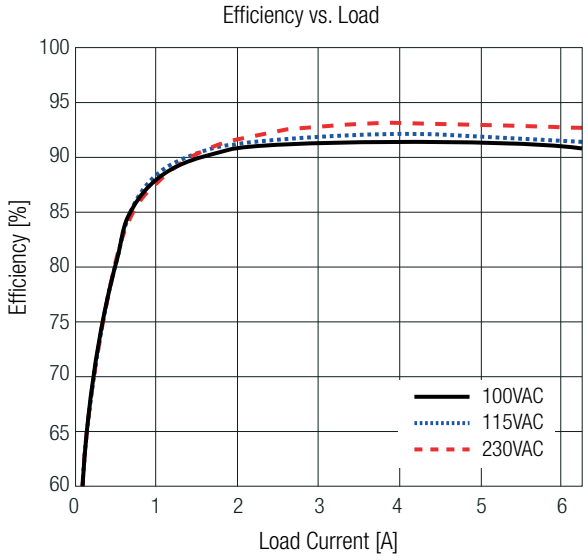
Power Dissipation vs. Load

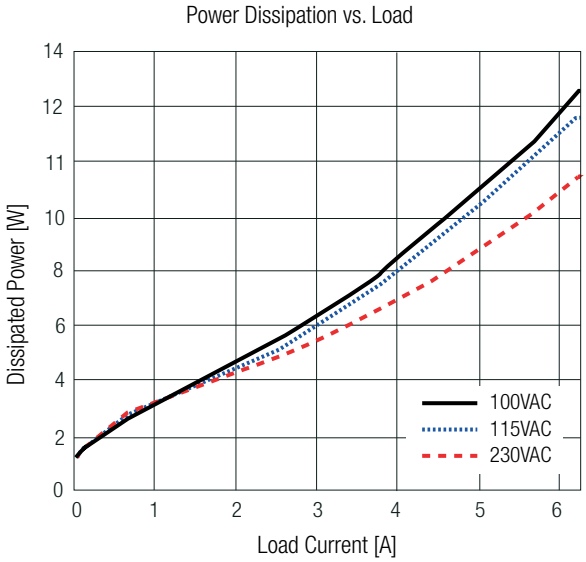


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BASIC CHARACTERISTICS (measured @ T_{AMB}= 25°C, nom. V_{IN}, full load and after warm-up unless otherwise stated)

RACA150-24





REGULATIONS (measured @ T_{AMB}= 25°C, nom. V_{IN}, full load and after warm-up unless otherwise stated)

Parameter	Condition	Value
Output Accuracy		±5% typ.
Line Regulation		±1% typ.
Load Regulation		±5% typ.
Transient Response		±10% typ.
Recovery Time	50%~70% load change	500µs typ.

PROTECTIONS (measured @ T_{AMB}= 25°C, nom. V_{IN}, full load and after warm-up unless otherwise stated)

Parameter	Type			Value
Internal Input Fuse	RACA100			T3.15A / 250VAC slow-blow type
	RACA150			T4A / 250VAC slow-blow type
Short Circuit Protection (SCP)				latch off
Over Voltage Protection (OVP)				140% of rated Voltage, latch off
Over Current Protection (OCP)				105%~150% of Rated Current, latch off
Over Voltage Category (OVC)	according to 62368-1			OVC II (5000m)
Over Temperature Protection (OTP)				auto-recovery
Thermal Shutdown				no damage, auto-recovery
Class of Equipment	with C8 inlet			Class II
	with C14 inlet			Class I
Isolation Voltage (6)	1 minute	safety tested acc. to 62368-1	I/P to O/P	4kVDC
Isolation Resistance	V_{ISO} = 500VDC			10MΩ min.
Isolation Capacitance				1000pF max.
Insulation Grade				reinforced
Means of Protection	250Vr.m.s. working voltage			1MOOP / 2MOOP
Touch Current	264VAC/63Hz		normal condition	<100µA
			single fault	<500µA
Earth Leakage Current	264VAC/63Hz		normal condition	<500µA
			single fault	<1000µA

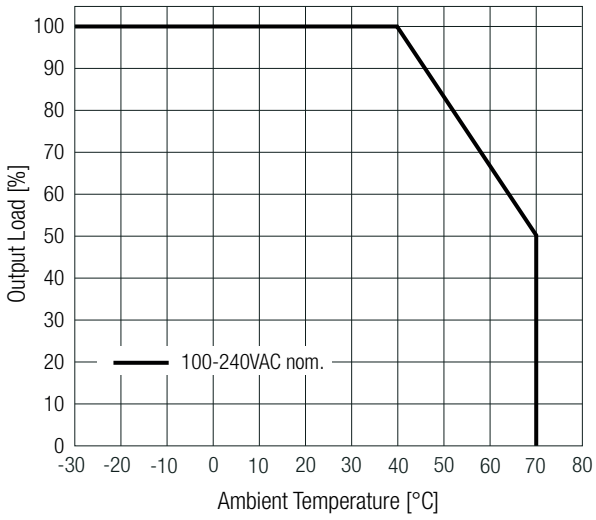
Note6: For repeat Hi-Pot testing, reduce the time and/or the test voltage

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ENVIRONMENTAL (measured @ T_{AMB}= 25°C, nom. V_{IN}, full load and after warm-up unless otherwise stated)

Parameter	Condition		Value
Operating Ambient Temperature Range	refer to **„Thermal Derating“**		-30°C to +70°C
Maximum Case Temperature			+86°C
Operating Altitude	according to 62368-1		5000m (OVC II)
Operating Humidity	non-condensing		90% RH max.
Pollution Degree (PD)			PD2
Shock	20 G, 6 ms, half-sine, 3 shocks/direction, ±X/±Y/±Z, non-operating		according to IEC60068-2-27
Vibration	10–500 Hz, 2 Grms, 10 min/axis, X/Y/Z, non-operating		according to IEC 60068-2-64
MTBF	according to Telcordia SR-332, 100-240Vac, full load	T_{AMB}= +25°C	300 x 10^3 hours
Design Lifetime	100-240Vac, full load	T_{AMB}= +40°C	26 x 10^3 hours

Thermal Derating



Note7: “VAC nom.” values include ±10% tolerance

SAFETY & CERTIFICATIONS

Certificate Type (Safety)	Report Number	Standard
Audio/Video, information and communication technology equipment - Part1: Safety requirements 3rd Edition	E224736	UL62368-1:2019 3rd Edition
		CAN/CSA-C22.2 No. 62368-1-19 3rd Edition
Audio/Video, information and communication technology equipment - Part1: Safety requirements 3rd Ed. (CB)	CN26T4A2-001; CN26HWMS-001	IEC62368-1:2018 3rd Edition
Audio/Video, information and communication technology equipment - Part1: Safety requirements 3rd Edition		EN IEC 62368-1:2020+A11:2020
Medical electrical equipment Part 1: General requirements for basic safety and essential performance (CB)	E314885-D6007-CB-1; E314885-D6008-CB-1	IEC60601-1:2005+AM2:2020 Edition 3.2
Medical electrical equipment Part 1: General requirements for basic safety and essential performance	E314885	ANSI/AAMI ES60601-1:2005+A2:2010
		CAN/CSA-C22.2 No. 60601-1:14 3rd Edition

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SAFETY & CERTIFICATIONS

EMC Compliance according to EN60601-1-2	Condition	Standard / Criterion
Medical electrical equipment Part 1-2: General requirements for basic safety and essential performance		IEC60601-1-2:2014+A1:2020 Edition 4.1 EN60601-1-2:2015+A1:2021
ESD Electrostatic discharge immunity test	Air: ±2, 4, 8, 15kV Contact ±8kV	IEC61000-4-2:2008 EN61000-4-2:2009
Radiated, radio-frequency, electromagnetic field immunity test	10 V/m (80-2700MHz), 27V/m (385MHz), 28V/m (450MHz), 9V/m (710, 745, 780MHz), 28V/m (810, 870, 930MHz), 28V/m (1720, 1845, 1970, 2450MHz), 9V/m (5240, 5500, 5785MHz)	EN IEC 61000-4-3:2020
Fast Transient and Burst Immunity	AC Power Port: ±2kV	IEC/EN61000-4-4:2012
Surge Immunity	L-N: ±0.5, 1kV Class I: L-PE, N-PE: ±0.2, 1, 2kV	IEC/EN61000-4-5:2014+A1:2017
Immunity to conducted disturbances, induced by radio-frequency fields	3Vrms (0.15-80MHz); 6Vrms (ISM and amateur radio bands within 0.15-80MHz)	EN IEC 61000-4-6:2023
Power Magnetic Field Immunity	30A/m	IEC61000-4-8:2009 / EN61000-4-8:2010
Voltage Dips and Interruptions	Dips: 100% (0.5P, 1.0P); 30% (25P) Interruption: 100% (250P)	EN IEC 61000-4-11:2020+AC:2020
Electromagnetic Compatibility (EMC) - Part 4-39: Testing and measurement techniques - Radiated fields in close proximity - Immunity test	8A/m (30kHz) 65A/m (134.2kHz) 7.5A/m (13.56MHz)	IEC/EN61000-4-39:2017
Limits of Harmonic Current Emissions	Class A	EN61000-3-2:2014
Limits of Harmonic Current Emissions	Class A	EN IEC 61000-3-2:2019+A1:2021+A2:2024
Limits of Voltage Fluctuations & Flicker		EN61000-3-3:2013 +A1:2019+A2:2021+AC:2022

EMC Compliance according to EN35032/EN35035	Condition	Standard / Criterion
Electromagnetic compatibility of multimedia equipment – Emission Requirements	Class B	EN55032:2015+A11:2020
Electromagnetic compatibility of multimedia equipment – Immunity requirements		EN55035:2017+A11:2020
ESD Electrostatic discharge immunity test	Air: ±2, 4, 8kV Contact: ±2, 4kV	IEC61000-4-2:2008 / EN61000-4-2:2009, Criteria A
Radiated, radio-frequency, electromagnetic field immunity test	3V/m (80-1000MHz) 3V/m (1800, 2600, 3500, 5000MHz)	EN IEC 61000-4-3:2020, Criteria A
Fast Transient and Burst Immunity	AC Power Port: ±2kV	IEC/EN61000-4-4:2012, Criteria A
Surge Immunity	L-N: ±0.5, 1kV Class I: L-PE, N-PE: ±0.2, 1, 2kV	IEC/EN61000-4-5:2014+A1:2017, Criteria A
Immunity to conducted disturbances, induced by radio-frequency fields	3Vrms (0.15-80MHz), 3-1Vrms (10-30MHz), 1Vrms (30-80MHz)	EN IEC 61000-4-6:2023, Criteria A
Power Magnetic Field Immunity	1A/m	IEC61000-4-8:2009 / EN61000-4-8:2010, Criteria A
Voltage Dips	100% (0.5P, 1.0P), 30% (25P)	EN IEC 61000-4-11:2020+AC:2020 Criteria A
Voltage Interruptions	100% (250P)	EN IEC 61000-4-11:2020+AC:2020 Criteria B
Limits of Harmonic Current Emissions	Class D	EN61000-3-2:2014
Limits of Harmonic Current Emissions	Class D	EN IEC 61000-3-2:2019+A1:2021+A2:2024
Limits of Voltage Fluctuations & Flicker		EN61000-3-3:2013
Limits of Voltage Fluctuations & Flicker		EN61000-3-3:2013 +A1:2019+A2:2021+AC:2022

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RACA100/RACA150 Series ◊ AC/DC Power Supply

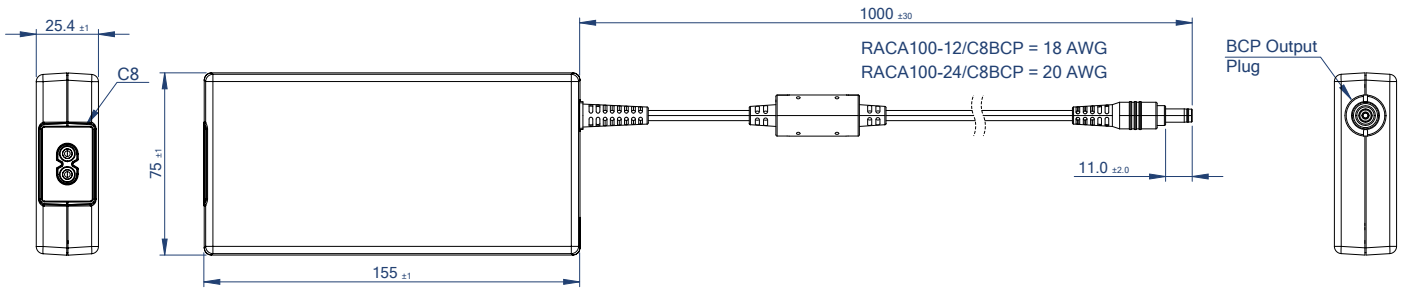
100W / 150W ◊ Input: 100V-240VAC

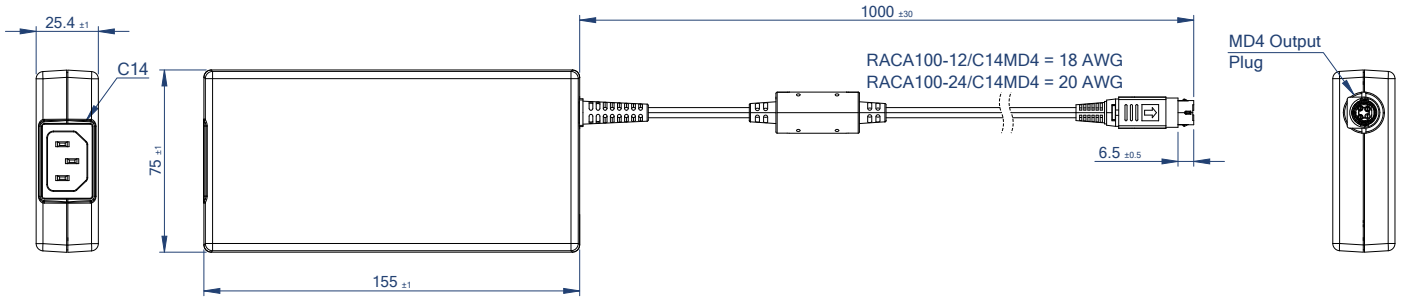
RECOM AC/DC Converter

DIMENSION & PHYSICAL CHARACTERISTICS

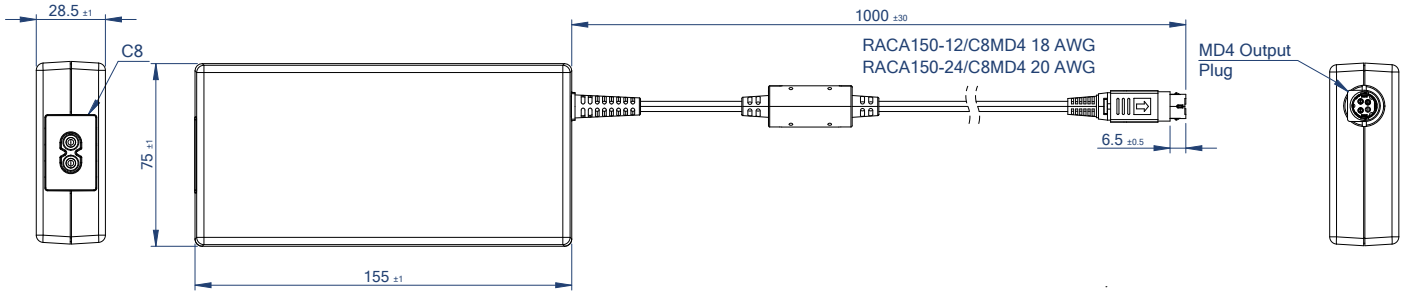
Parameter	Type		Value
Materials	case		polycarbonate, (UL94 V-0)
Dimension (LxWxH)	without output cable/connector	RACA100	155 x 75 x 25.4mm 6.10 x 2.95 x 1.0 inch
		RACA150	155 x 75 x 28.5mm 6.10 x 2.95 x 1.12 inch
Weight	RACA100		335 g typ. 0.739 lbs
	RACA150		500g typ. 1.102 lbs

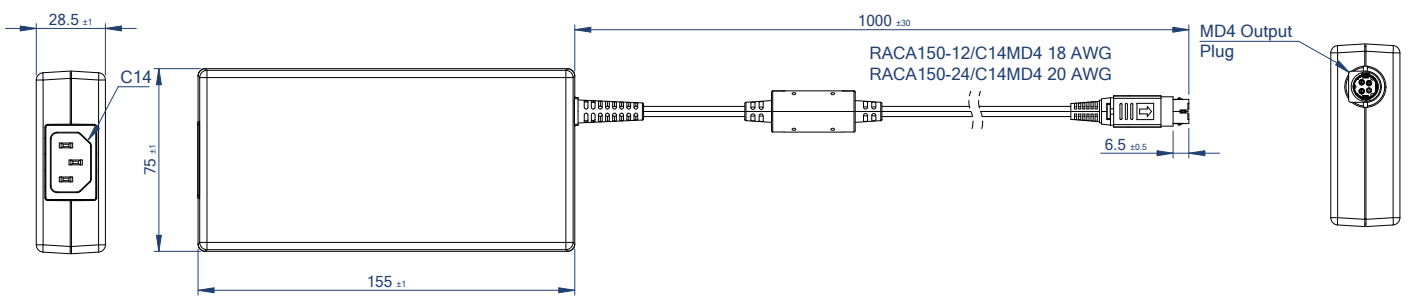
Dimension Drawing RACA100 (mm)





Dimension Drawing RACA150 (mm)

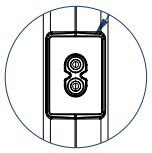
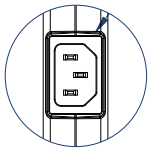
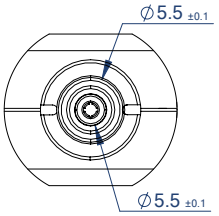
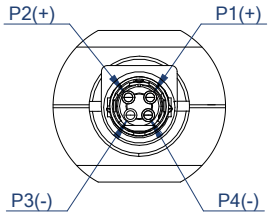




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DIMENSION & PHYSICAL CHARACTERISTICS

Connector Types

C8 Inlet (Class II)	
C14 Inlet (Class I)	
BCP output plug	
MD4 output plug	

The length of the output cable and the various connector combinations are identical for the 100W and 150W series.

PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)	cardboard box	556 x 378 x 161mm
Packaging Quantity		20pc
Storage Temperature Range		-40°C to +85°C
Storage Humidity	non-condensing	5% - 95% RH max.

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