

# Features

# Regulated Converter

- Built-in active PFC
- Efficiency up to 88%
- Isolated output 3kVAC / 1 minute
- SCP, OVP, OLP, OTP protection
- Operating temperature range -20°C to +70°C
- Universal input 90-264VAC / 120VDC-370VDC
- Conformal coating



# RACG150

## 150 Watt Single Output



### Description

These industrial grade power supplies have been designed to give many years of trouble-free life. Despite their low cost, they use high grade electrolytic capacitors to ensure heavy industry performance levels, working reliably over an extended temperature and world-wide input voltage range. The RACG series are more compact than the standard industry size, yet offer higher performance with full output protection (SCP, OVP, OTP, OLP), active power factor correction and improved input surge, hold-up time and efficiency ratings. The power supplies can be mounted horizontally or vertically and are certified to CE, UL and Class B EMC standards. Typical uses are industrial, commercial and high reliability applications. The RACG series come with a 3 year warranty.

### Selection Guide

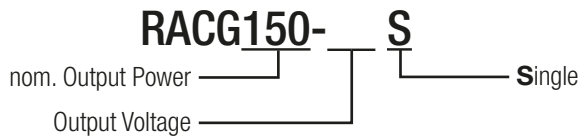
Part Number	Input Voltage Range [VAC]	Input Current max. [A]	nom. Output Voltage [VDC]	Adj. Output Voltage <sup>(1)</sup> [VDC]	Output Current max. [A]	Efficiency typ. <sup>(2)</sup> [%]
RACG150-12S	90-264	1.9	12	10.8-13.2	12.5	86
RACG150-24S	90-264	1.9	24	21.6-26.4	6.3	87
RACG150-48S	90-264	1.9	48	43.2-52.8	3.2	88

#### Notes:

- Note1: For detail information please refer to graph on page PA-2  
 Note2: Efficiency is tested at 230VAC and full load at +25°C ambient



### Model Numbering



#### Ordering Examples:

RACG150-12S	150 Watt	12Vout	Single Output
RACG150-48S	150 Watt	48Vout	Single Output

EN60950 certified  
 CAN/CSA-C22.2 No. 60950 certified  
 UL No. 60950 certified  
 EN55032 compliant  
 EN55024 compliant

### Specifications (measured at Ta= 25°C, nom. Vin (115/230VAC), full load and after warm-up)

BASIC CHARACTERISTICS					
Parameter	Condition		Min.	Typ.	Max.
Input Voltage Range <sup>(3)</sup>	nom. Vin = 230VDC		90VAC 120VDC		264VAC 370VDC
Inrush Current	cold start at +25°C	115VAC			30A
		230VAC			45A
No load Power Consumption				3W	
Input Frequency Range			47Hz		63Hz
Minimum Load				0%	
Power Factor	115VAC			0.98	
	230VAC			0.95	
Set-up Time	115VAC				3s
	230VAC				2s
Hold-up Time	230VAC			18ms	

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**Specifications** (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

**BASIC CHARACTERISTICS**

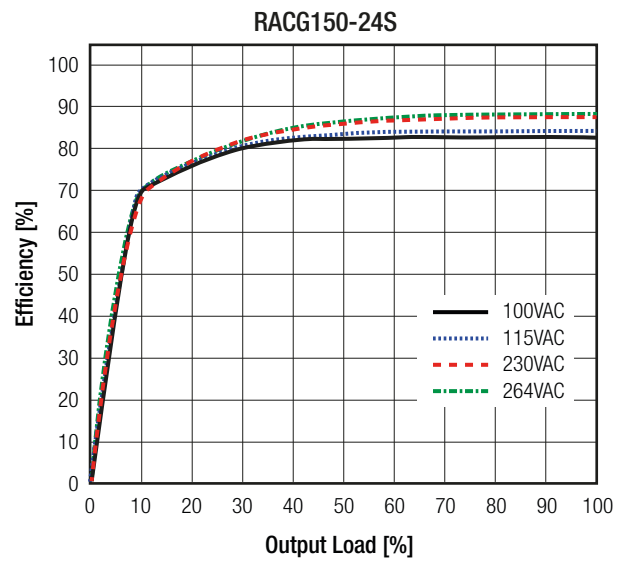
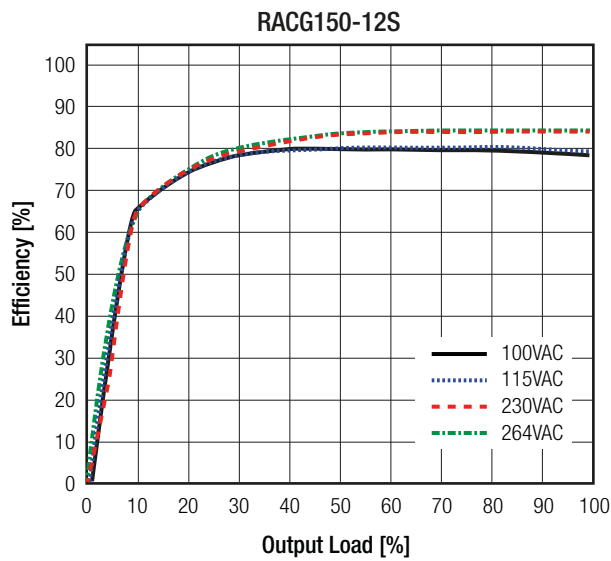
Parameter	Condition	Min.	Typ.	Max.
Output Voltage Adjustability			±10%	
Output Ripple and Noise <sup>(4)</sup>	0°C to +70°C -20°C to 0°C		100mVp-p 200mVp-p	

**Notes:**

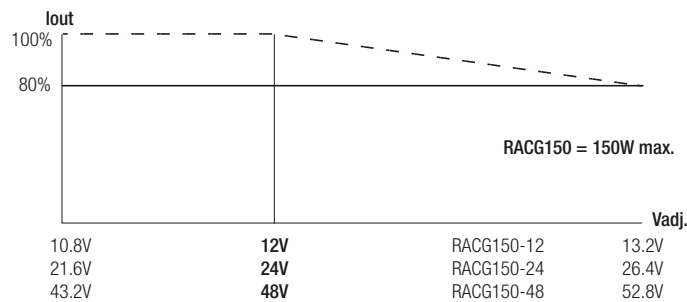
Note3: The products were submitted for safety files at AC-Input operation

Note4: Measured @ 20MHz Bandwidth with a 0.1µF parallel capacitor

**Efficiency vs. Load**



**Output Voltage Adjustability Derating**



**REGULATIONS**

Parameter	Condition	Value
Output Accuracy		±2.0% max.
Line Regulation	low line to high line, full load	±0.5% max.
Load Regulation	12Vout	2.0% max.
	24Vout, 48Vout	1.0% max.

**Specifications** (measured @ Ta= 25°C, nom. Vin (115/230VAC), full load and after warm-up)

**PROTECTIONS**

Parameter	Type	Value	
Input fuse <sup>(5)</sup>	internal	T5A, slow blow	
Short Circuit Protection (SCP)		continuous, hiccup and auto recovery	
Over Voltage Protection (OVP)		115% - 150% of rated output voltage, continuous, hiccup and auto recovery	
Over Current Protection (OCP)		105% - 150% of rated output voltage, continuous, hiccup and auto recovery	
Over Temperature Protection (OTP)	detected on Mosfet temperature	+105°C ±5°C auto restart after cooling down to +60°C	
Isolation Voltage	tested for 1 minute	I/P to O/P	3kVAC
		I/P to case	1.5kVAC
		I/P to case	500VAC
Isolation Resistance		100MΩ min.	
Leakage Current	I/P to O/P	0.25mA max.	
	I/P to case	3.5mA max.	

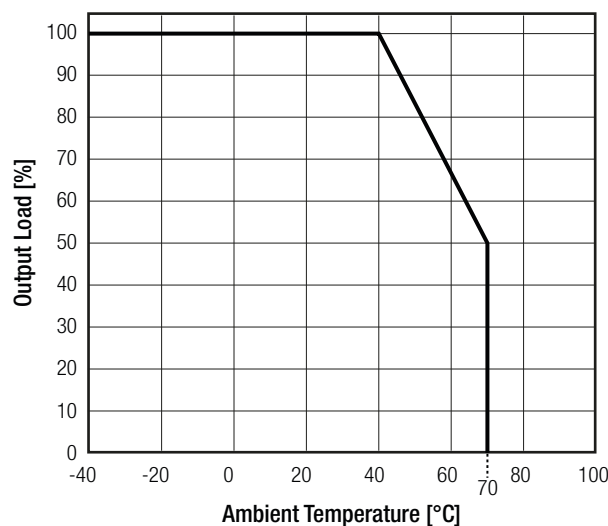
**Notes:**

Note5: Refer to local safety regulations if input over-current protection is also required

**ENVIRONMENTAL**

Parameter	Condition	Value
Operating Temperature Range	full load	-20°C to +40°C
	refer to derating graph	-20°C to +70°C
Temperature Coefficient		0.03%/K
Operating Altitude		5000m
Operating Humidity	non-condensing	20% - 90% RH max.
MTBF	according to MIL-HDBK-217F, G.B. +25°C	200 x 10 <sup>3</sup> hours

**Derating Graph**



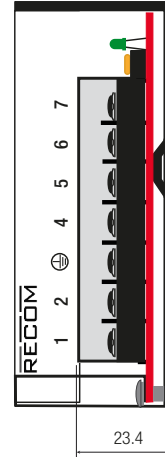
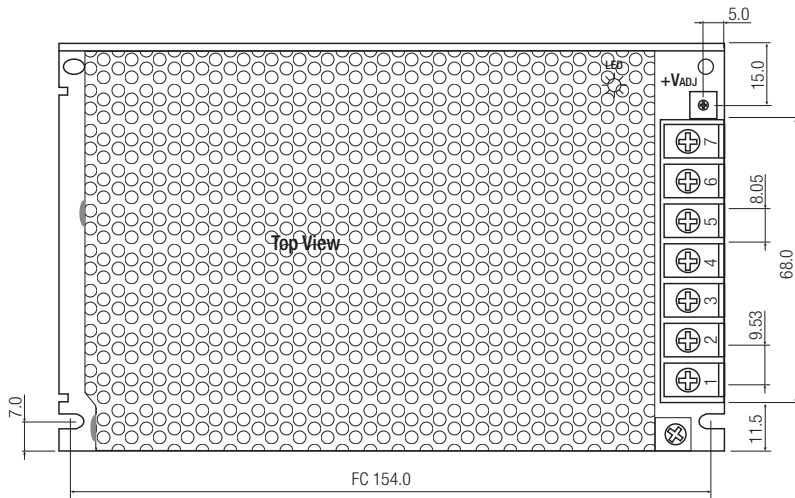
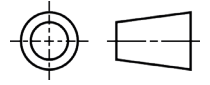
**Specifications** (measured @ Ta= 25°C, nom. Vin (115/230VAC), full load and after warm-up)

<b>SAFETY AND CERTIFICATIONS</b>		
<b>Certificate Type (Safety)</b>	<b>Report / File Number</b>	<b>Standard</b>
Information Technology Equipment, General Requirements for Safety	E196683	CAN/CSA-C22.2 No. 60950-1 UL No. 60950-1
Information Technology Equipment, General Requirements for Safety		EN60950-1:2006 + A2:2013
EAC Safety of Low Voltage Equipment	RU-AT.49.09571	TP TC 004/2011
RoHS2+		RoHS-2011/65/EU + AM-2015/863
<b>EMC Compliance</b>	<b>Condition</b>	<b>Standard / Criterion</b>
Electromagnetic compatibility of multimedia equipment – Emission Requirements		EN55032:2015; Class B
Information technology equipment - Immunity characteristics - Limits and methods of measurement		EN55024:2010 + A1:2015
ESD Electrostatic discharge immunity test	contact $\pm 2.0, 4.0kV$	EN61000-4-2:2009; Criteria A
Radiated, radio-frequency, electromagnetic field immunity test	3V/m	EN61000-4-3:2006 + A2:2010; Criteria A
Fast Transient and Burst Immunity	AC Power Port: $\pm 1.0kV$	EN61000-4-4:2012; Criteria A
Surge Immunity	AC Power Port: L-N $\pm 1.0kV$ L-PE, N-PE $\pm 2.0kV$	EN61000-4-5:2014; Criteria B
Immunity to conducted disturbances, induced by radio-frequency fields	AC Power Port 3V	EN61000-4-6:2014; Criteria A
Power Magnetic Field Immunity	50Hz, 1.0A/m	EN61000-4-8:2010; Criteria A
Voltage Dips and Interruption	Voltage Dips >95% Voltage Dips 30% Voltage Interruptions > 95%	EN61000-4-11:2004; Criteria A EN61000-4-11:2004; Criteria A EN61000-4-11:2004; Criteria C
Limits of Harmonic Current Emissions		EN61000-3-2:2014, Class A
Limits of Voltage Fluctuations & Flicker		EN61000-3-3:2013

<b>DIMENSION AND PHYSICAL CHARACTERISTICS</b>		
<b>Parameter</b>	<b>Type</b>	<b>Value</b>
Material	case	aluminium
Dimension (LxWxH)		160.0 x 98.0 x 38.0mm
Weight		610g typ.
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Specifications (measured @ Ta= 25°C, nom. Vin (115/230VAC), full load and after warm-up)

Dimension Drawing (mm)



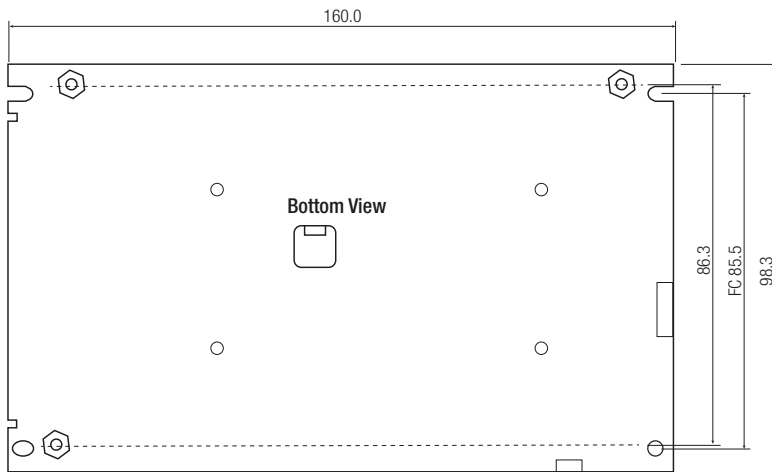
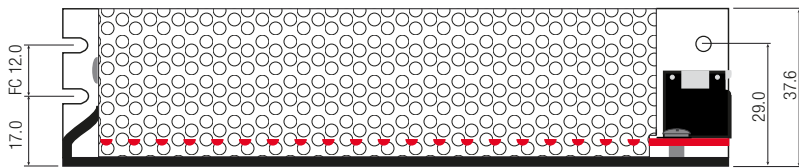
**Connections**

Pin #	Single
1	VAC in (L)
2	VAC in (N)
3	GND
4	-Vout
5	-Vout
6	+Vout
7	+Vout

FC: fixing center

Tolerance: xx.x= ±0.5mm  
xx.xx= ±0.35mm

Wire diameter: 0.75 to 3.0mm<sup>2</sup>



**PACKAGING INFORMATION**

Parameter	Type	Value
Packaging Dimension (LxWxH)	cardboard box	170.0 x 102.0 x 45.0mm
Packaging Quantity		1pcs
Storage Temperature Range		-30°C to +85°C
Storage Humidity	non-condensing	10% - 90% RH max.

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