

Features

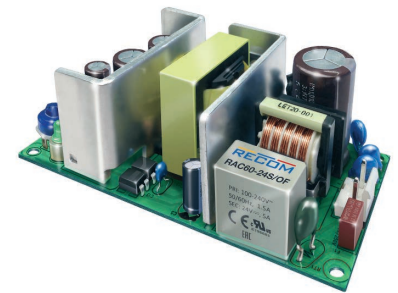
- Class II power supply
- Universal input voltage range
- Compact 4" x 2" size

Regulated Converter

- 3kVAC Isolation
- OCP, OVP, SCP
- Standby power ErP conform (<0.5W)

RAC60/OF

60 Watt Single Output, Open Frame



Description

The RAC60/OF series offers compact AC/DC open frame power supplies with universal AC input (90-264VAC) and fully protected DC outputs which are trimmable to compensate for voltage drops on the output connections. The power supplies are UL, and CE certified and ErP conform. Uses include industry controls, test and measurement systems and energy efficient products.

Selection Guide

| Part Number | Input Voltage Range [VAC] | Output Current Range [A] | Output Voltage [VDC] | Voltage Adj. Range [VDC] | Output Power [W] | Efficiency typ. (1) [%] | Max. Cap. Load (2) [µF] |
|--------------|---------------------------|--------------------------|----------------------|--------------------------|------------------|-------------------------|-------------------------|
| RAC60-05S/OF | 90-264 | 0-10 | 5 | 4.8-5.2 | 50 | 80 | 18800 |
| RAC60-12S/OF | 90-264 | 0-5 | 12 | 11.4-12.6 | 60 | 83 | 18800 |
| RAC60-15S/OF | 90-264 | 0-4 | 15 | 14.2-16 | 60 | 84 | 12700 |
| RAC60-24S/OF | 90-264 | 0-2.5 | 24 | 23-25 | 60 | 85 | 4700 |

Notes:

- Note1: Efficiency is tested at nominal input and full load at +25°C ambient
Note2: Max Cap Load is tested at nominal input and full resistive load



Model Numbering



Ordering Examples:

- RAC60-12S/OF 12Vout Single Output Open Frame
RAC60-24S/OF 24Vout Single Output Open Frame



CAN/CSA-C22.2 No. 60950-1 certified
UL no. 60950-1 certified
IEC/EN60950-1 certified
EN55032 compliant
EN55024 compliant

Specifications (measured @ Ta= 25°C, nom. Vin)

| BASIC CHARACTERISTICS | | | | |
|---------------------------|-----------------------|------------------|------------|------------------|
| Parameter | Condition | Min. | Typ. | Max. |
| Input Voltage Range (3,4) | nom. Vin = 230VDC | 90VAC 127VDC | | 264VAC 370VDC |
| Input Current | 115VAC 230VAC | | | 1.5A 1A |
| Inrush Current | cold start at 25°C | 115VAC 230VAC | 30A 60A | |
| No load Power Consumption | | | | 0.5W |
| Input Frequency Range | AC Input | 47Hz | | 63Hz |
| Start-up Time | 115VAC/230VAC | | 500ms | |

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PREFERRED ALTERNATIVES
Please consider these alternatives:

RACM60-K/OF Series

Specifications (measured @ Ta= 25°C, nom. Vin = 230VAC)

| BASIC CHARACTERISTICS | | | | | |
|---|------------------|---------------------------------|------|--------------|---|
| Parameter | Condition | | Min. | Typ. | Max. |
| Rise Time | | | | | 30ms |
| Hold-up Time | 115VAC 230VAC | | | 13ms 60ms | |
| Internal Operating Frequency | | | | 65kHz | |
| Output Ripple and Noise ⁽⁵⁾ | 20MHz BW | 5VDC 12VDC 15VDC 24VDC | | | 80mVp-p 120mVp-p 150mVp-p 200mVp-p |
| Notes: Note3: The products were submitted for safety files at AC-Input operation Note4: Refer to "Line Derating" Note5: Measurements are made with a 1.0µF MLCC across output (low ESR) | | | | | |

| REGULATIONS | | |
|--|-----------------------|--------------------------|
| Parameter | Condition | Value |
| Output Accuracy ⁽⁶⁾ | 5, 12, 15VDC 24VDC | ±2.0% max. ±1.0% max. |
| Notes: Note6: Includes Line-, Load Regulation and Set-up Tolerance | | |

| PROTECTIONS | | | |
|---|------------------------|--------------------------------------|--|
| Parameter | Type | | Value |
| Short Circuit Protection (SCP) | | | Hiccup mode, automatic restart |
| Over Voltage Protection (OVP) | re-power on to recover | 5VDC 12VDC 15VDC 24VDC | latch mode 5.75-6.5VDC 13.5-15.0VDC 16.9-18.75VDC 27.0-30.0VDC |
| Over Current Protection (OCP) | rated output power | | 115% - 150%, Hiccup mode, automatic restart |
| Isolation Voltage | tested for 1 minute | I/P to O/P I/P to FG O/P to FG | 3.0kVAC 1.5kVAC 0.5kVAC |
| Isolation Resistance | 500VDC | | 100MΩ |
| Leakage Current | 240VAC | | 0.75mA max. |
| Notes: Note7: Refer to local safety regulations if input over-current protection is also required | | | |

| ENVIRONMENTAL | | | |
|-----------------------------|-----------------------------|-------------------------|-------------------|
| Parameter | Condition | | Value |
| Operating Temperature Range | @ natural convection 0.1m/s | full load | -20°C to +50°C |
| | | refer to derating graph | -20°C to +70°C |
| Operating Humidity | non-condensing | | 20% - 90% RH max. |

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Specifications (measured @ Ta= 25°C, nom. Vin = 230VAC)

| ENVIRONMENTAL | | |
|---------------|--|--|
| Parameter | Condition | Value |
| Vibration | | 10-500Hz, 2G, 10 Min. along X, Y and Z |
| MTBF | according to MIL-HDBK-217F, G.B. +25°C | >450 x 10 ³ hours |

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

| SAFETY AND CERTIFICATIONS | | |
|---|----------------------|---|
| Certificate Type (Safety) | Report / File Number | Standard |
| Information Technology Equipment, General Requirements for Safety | E196683 | CAN/CSA-C22.2 No. 60950-1 UL No. 60950-1 |
| | 11037315 001 | EN60950-1:2006 + A2:2013 IEC60950-1:2005 2nd Edition + A2:2013 |
| EAC Safety of Low Voltage Equipment | RU-AT.49.09571 | TP TC 004/2011 |
| RoHS2 | | RoHS-2011/65/EU + AM-2015/863 |

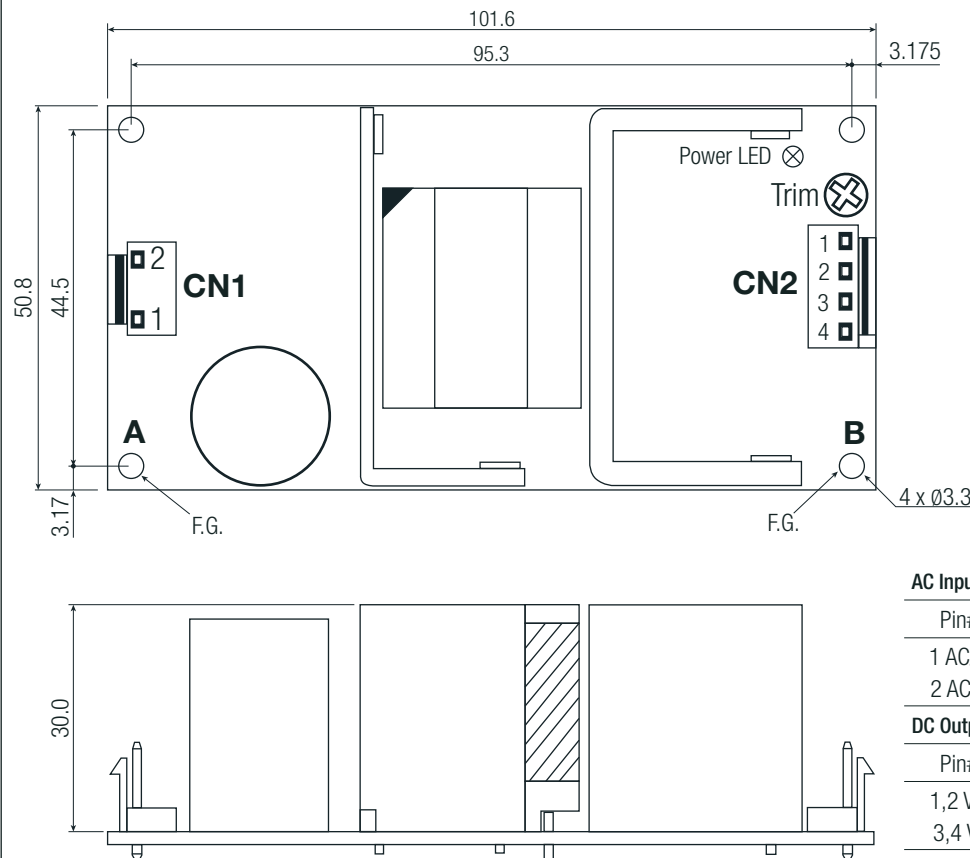
| EMC Compliance ⁽⁸⁾ | Condition | Standard / Criterion |
|---|---|--|
| Electromagnetic compatibility of multimedia equipment – Emission Requirements | | EN55032; Class B |
| Information technology equipment - Immunity characteristics - Limits and methods of measurement | | EN55024 |
| ESD Electrostatic Discharge Immunity Test | air ±2.0, 4.0, 8.0kV contact ±2.0,4.0kV | IEC61000-4-2:2008; Criteria A |
| Radiated, Radio-Frequency, Electromagnetic Field Immunity Test | 3V/m | IEC61000-4-3:2006 + A2:2010; Criteria A |
| Fast Transient and Burst Immunity | AC Power Port: ±1.0kV | IEC61000-4-4:2012; Criteria A |
| Surge Immunity | AC Power Port: L-N ±0.5, 1.0kV L-PE, N-PE ±0.5, 1, 2.0kV | IEC61000-4-5:2014; Criteria A |
| Immunity to Conducted Disturbances, Induced by Radio-Frequency Fields | AC Power Port 3.0V | IEC61000-4-6:2013; Criteria A |
| Power Magnetic Field Immunity | 50Hz, 1A/m | IEC61000-4-8:2009; Criteria A |
| Voltage Dips and Interruption | Voltage Dips > 95% | IEC61000-4-11:2004; Criteria A |
| | Voltage Dips > 30% | IEC61000-4-11:2004; Criteria B |
| | Voltage Interruptions > 95% | IEC61000-4-11:2004; Criteria B |
| Limits of Harmonic Current Emissions | | EN61000-3-2:2014, Class A |
| Limits of Voltage Fluctuations & Flicker | | EN61000-3-3:2013 |
| Limitations on the amount of electromagnetic interference allowed from digital and electronic devices | | 47 CFR FCC Part 15 Subpart B 2010-01-07, Class B |

Specifications (measured @ Ta= 25°C, nom. Vin = 230VAC)

DIMENSION AND PHYSICAL CHARACTERISTICS

| Parameter | Type | Value |
|-------------------|------|-----------------------|
| Dimension (LxWxH) | | 101.6 x 50.8 x 30.0mm |
| Weight | | 145.0g typ. |

Dimension Drawing (mm)



AC Input Connector (CN1)

| Pin# | Terminal | Mating Housing |
|--------|----------------|----------------|
| 1 AC/N | WST I39606PS-2 | WST P3-I39606 |
| 2 AC/L | or equivalent | or equivalent |

DC Output Connector (CN2)

| Pin# | Terminal | Mating Housing |
|--------|----------------|----------------|
| 1,2 V+ | WST I39606PS-2 | WST P4-I39606 |
| 3,4 V- | or equivalent | or equivalent |

Detail information about the connectors on www.wst.com.tw

Notes:

Note9: Mounting holes A,B must be grounded for EMI (Filter Ground)

PACKAGING INFORMATION

| Parameter | Type | Value |
|-----------------------------|----------------|-------------------------|
| Packaging Dimension (LxWxH) | carton | 325.0 x 270.0 x 220.0mm |
| Packaging Quantity | | 30pcs |
| Storage Temperature Range | | -40°C to +80°C |
| Storage Humidity | non-condensing | 10% - 90% RH max. |

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