

Features

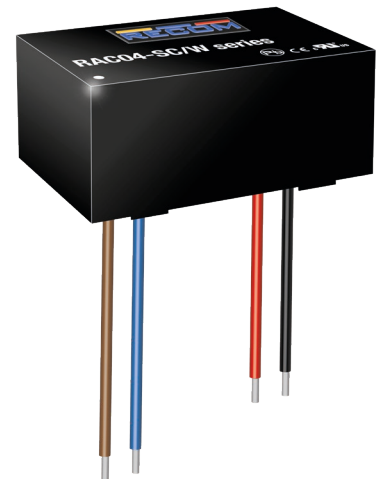
- Compact AC-DC power supply
- Universal input 80-264VAC or 115-370VDC
- Class II power supply with 3kVAC isolation
- Low cost AC/DC power supply
- Short circuit & over current protected
- IEC/EN/UL60950 certified

Regulated Converters



RAC04-C/W

4 Watt
Single
Output



Description

The compact wired RAC04-C/W modules are available with output voltages of 3.3, 5, 9, 12, 15, and 24V, and the input-to-output isolation is approximately 3kVAC/1min. With a standby consumption of 100mW typical, the mini power supplies are particularly suitable for energy-saving sleep mode and standby applications. Because of its compact design (height <17 mm), it is a versatile solution for home automation and other similar applications. Complete with an integrated input filter, the series has enhanced EMI performance and complies with EN55032, class B. The mini power supplies are also protected against short circuit with fully automatic restart after the error has been solved. The converters are EN/UL60950-1 certified and come complete with a 3 year warranty.

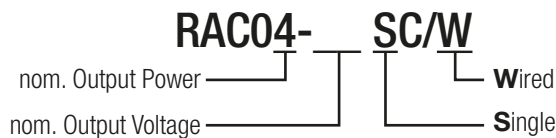
Selection Guide

| Part Number | Input Voltage Range [VAC] | Output Voltage [VDC] | Output Current [mA] | Efficiency typ ⁽¹⁾ [%] | Max. Capacitive Load ^(2,3) [µF] |
|---------------|---------------------------|----------------------|---------------------|-----------------------------------|--|
| RAC04-3.3SC/W | 80-264 | 3.3 | 1200 | 67 | 3000 |
| RAC04-05SC/W | 80-264 | 5 | 800 | 72 | 1600 |
| RAC04-09SC/W | 80-264 | 9 | 444 | 76 | 850 |
| RAC04-12SC/W | 80-264 | 12 | 333 | 77 | 150 |
| RAC04-15SC/W | 80-264 | 15 | 267 | 77 | 100 |
| RAC04-24SC/W | 80-264 | 24 | 167 | 79 | 82 |

Notes:

- Note1: Efficiency is tested at nominal input and full load at +25°C ambient
 Note2: Measured @ 230VAC / 50Hz / Ta=25°C with constant resistant mode at full load
 Note3: If used @ 115VAC / 60Hz with full load, max. capacitive load is less, please contact RECOM Techsupport for detailed information

Model Numbering



Ordering Examples:

| | | | |
|--------------|--------|--------|---------------|
| RAC04-05SC/W | 4 Watt | 5Vout | Single Output |
| RAC04-12SC/W | 4 Watt | 12Vout | Single Output |



IEC/EN60950-1 certified
 CAN/CSA-C22.2 No. 60950 certified
 UL60950-1 certified
 EN55032 compliant
 EN55024 compliant

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

| BASIC CHARACTERISTICS | | | | |
|--------------------------------------|-----------------------------|------------------|------|------------------|
| Parameter | Condition | Min. | Typ. | Max. |
| Input Voltage Range ^(4,5) | nom. Vin = 230VAC | 80VAC 115VDC | | 264VAC 370VDC |
| Input Current | 115VAC 230VAC | | | 110mA 72mA |
| Inrush Current | <0.5ms, cold start at +25°C | 115VAC 230VAC | | 30A 60A |
| No load Power Consumption | 80-264VAC | | | 200mW |
| Input Frequency Range | AC Input | 47Hz | | 63Hz |
| Minimum Load ⁽⁷⁾ | | 10% | | |

continued on next page

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

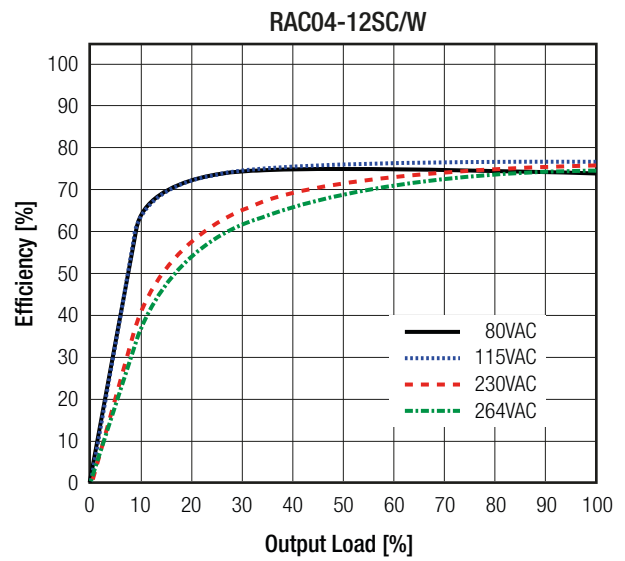
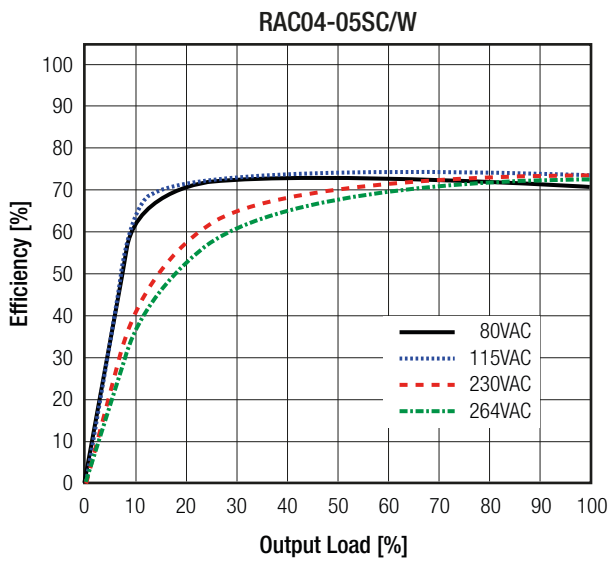
BASIC CHARACTERISTICS

| Parameter | Condition | | Min. | Typ. | Max. |
|--|--------------------------|---------------|------|-------|----------|
| Internal Operating Frequency | 100% load at nominal Vin | | | 40kHz | |
| Output Ripple and Noise ⁽⁷⁾ | 20MHz BW | 115VAC/230VAC | | | 200mVp-p |

Notes:

- Note4: The products were submitted for safety files at AC-Input operation
- Note5: Refer to line derating graph on page PA-3
- Note6: Operation below 10% load will not harm the converter, but specifications may not be met
- Note7: Measurements are made with a 0.1µF MLCC across output (low ESR)

Efficiency vs. Load



REGULATIONS

| Parameter | Condition | Value |
|--------------------------------|-----------------------|------------------------|
| Output Accuracy | | ±2.0% typ./ ±5.0% max. |
| Line Regulation | low line to high line | ±0.5% typ./ ±1.0% max. |
| Load Regulation ⁽⁸⁾ | 10% to 100% load | 1.5% typ./ 5.0% max. |

PROTECTIONS

| Parameter | Type | | Value |
|--------------------------------|-------------|---------------------|---------------------------------|
| Short Circuit Protection (SCP) | below 100mΩ | | Hiccup mode, automatic recovery |
| Over Voltage Category | | | OVCII |
| Over Current Limit | | | 105% - 155% |
| Isolation Voltage | I/P to O/P | tested for 1 minute | 3kVAC |
| Isolation Resistance | | | 1GΩ min. |
| Isolation Capacitance | | | 1000pF typ. |
| Leakage Current | | | 0.85mA max. |

Notes:

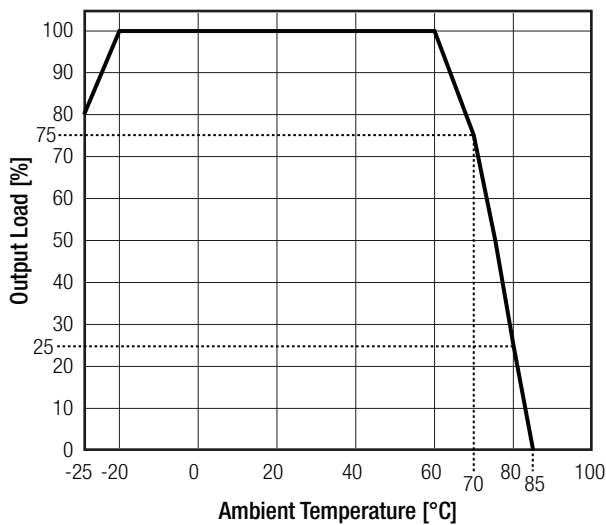
- Note8: Refer to local wiring regulations if input over-current protection is also required. Recommended fuse: slow blow type

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

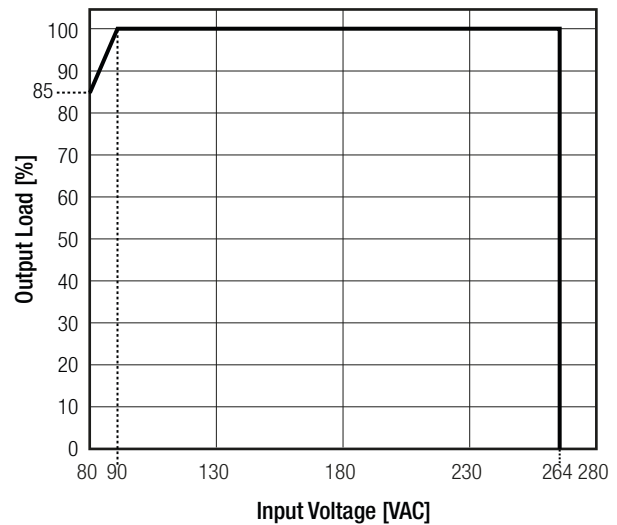
| ENVIRONMENTAL | | | | |
|-----------------------------|----------------------------------|-------------------------|----------------|-----------------------------|
| Parameter | Condition | | Value | |
| Operating Temperature Range | @ natural convection 0.1m/s | full load | -25°C to +60°C | |
| | | refer to derating graph | -25°C to +85°C | |
| Maximum Case Temperature | | | +100°C | |
| Operating Humidity | non-condensing | | 95% RH max. | |
| MTBF | according to MIL-HDBK-217F, G.B. | 115VAC | +25°C | 820 x 10 ³ hours |
| | | 230VAC | | 735 x 10 ³ hours |
| | | 115VAC | +60°C | 550 x 10 ³ hours |
| | | 230VAC | | 430 x 10 ³ hours |

Derating Graph

(@ Chamber and natural convection 0.1 m/s)



Line Derating



SAFETY AND CERTIFICATIONS

| Certificate Type (Safety) | Report / File Number | Standard |
|--|----------------------|--|
| Information Technology Equipment - General Requirements for Safety | SPCLVD1606038 | IEC60950-1:2005 2nd Edition + 2:2013 EN60950-1:2006 + A2:2013 |
| Information Technology Equipment - General Requirements for Safety | E224736-A5-UL | CAN/CSA-C22.2 No. 60950-1-07, 2nd Edition, 2007 UL No. 60950-1, 2nd Edition, 2007 |
| EAC Safety of Low Voltage Equipment | RU-AT.49.09571 | TP TC 004/2011 |
| RoHS2+ | | RoHS-2011/65/EU + AM-2015/863 |

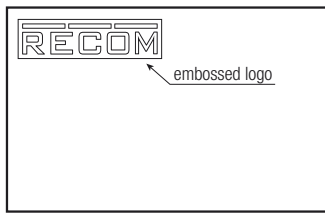
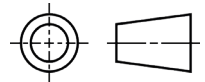
| EMC Compliance | Condition | Standard / Criterion |
|---|-----------------------------|---|
| Electromagnetic compatibility of multimedia equipment – Emission Requirements | | EN55032:2015, Class B |
| Information technology equipment - Immunity characteristics - Limits and methods of measurement | | EN55024:2010 + A1:2015 |
| ESD Electrostatic discharge immunity test | Air ±8.0kV, Contact ±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 ±1.0kV | IEC61000-4-5:2005, Criteria A |
| Immunity to conducted disturbances, induced by radio-frequency fields | AC Power Port 3.0V | IEC61000-4-6:2008, Criteria A |
| Voltage Dips and Interruptions | Voltage Dips >95% | IEC61000-4-11:2004, Criteria A |
| | Voltage Dips 30% | IEC61000-4-11:2004, Criteria A |
| | Voltage Interruptions > 95% | IEC61000-4-11:2004, Criteria C |
| Limits of Voltage Fluctuations & Flicker | | EN61000-3-3:2013 |

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

DIMENSION AND PHYSICAL CHARACTERISTICS

| Parameter | Type | Value |
|-------------------|-----------------|---|
| Material | case potting | black plastic (UL94V-0) silicone (UL94V-0) |
| Dimension (LxWxH) | | 37.8 x 23.9 x 16.4mm |
| Weight | | 32g typ. |

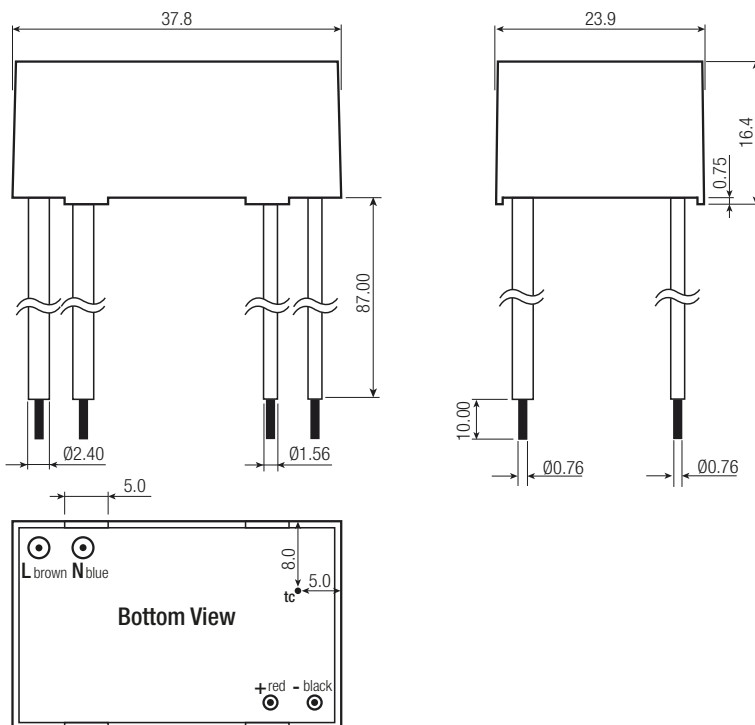
Dimension Drawing (mm)



Wired information

| # | Function | Wire color | Type | AWG |
|---|------------|------------|---------|-----|
| 1 | VAC in (L) | brown | UL-1015 | 22 |
| 2 | VAC in (N) | blue | UL-1015 | 22 |
| 3 | +VDC out | red | UL-1430 | 22 |
| 4 | -VDC out | black | UL-1430 | 22 |

Tolerance: xx.x= ±0.5mm
xx.xx= ±0.25mm



PACKAGING INFORMATION

| Parameter | Type | Value |
|-----------------------------|----------------|-------------------------|
| Packaging Dimension (LxWxH) | cardboard box | 520.0 x 195.0 x 68.0 mm |
| Packaging Quantity | | 30pcs |
| Storage Temperature Range | | -40°C to +100°C |
| Storage Humidity | non-condensing | 95% RH max. |

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