

NOT RECOMMENDED FOR NEW DESIGNS!

LAST TIME BUY: 30TH OCT 2020, 3.3SA, 09SA, 15SA, 0512DA

LAST TIME BUY: 30TH OCT 2020, "/277" VERSION EXCEPT 05 & 12 VOUT

Features

Regulated Converters

- Ultracompact AC-DC Power Supply
- 4 Watt PCB Mount Package
- Universal Input Voltage Range including 277VAC
- 3kVAC Isolation (Class II)
- Very Low No Load Input Current
- Dual output version for standby relay circuits
- Short Circuit Protected
- EN/UL Certified, CE Marked.

Selection Guide

| Part Number | Input Range (VAC) | | Output Voltage (VDC) | Output Current (mA) | Efficiency (%) | Max Capacitive Load |
|-------------|-------------------|--------|----------------------|---------------------|----------------|---------------------|
| | (Std) | (/277) | | | | |
| RAC04-05SA* | 90-264 | 90-305 | 5 | 800 | 72 | 8000µF |
| RAC04-12SA* | 90-264 | 90-305 | 12 | 333 | 76 | 1000µF |
| RAC04-24SA | 90-264 | 90-305 | 24 | 167 | 77 | 220µF |

* add suffix /277 for 90-305VAC input. High input voltage converters are identified by omitting pin 1.

NRND (Last time buy: 30th Oct 2020)

| Part Number | Input Range (VAC) | | Output Voltage (VDC) | Output Current (mA) | Efficiency (%) | Max Capacitive Load |
|--------------|-------------------|--------|----------------------|---------------------|----------------|---------------------|
| | (Std) | (/277) | | | | |
| RAC04-3.3SA | 90-264 | 90-305 | 3.3 | 1200 | 68 | 14000µF |
| RAC04-09SA | 90-264 | 90-305 | 9 | 444 | 75 | 2400µF |
| RAC04-15SA | 90-264 | 90-305 | 15 | 267 | 76 | 700µF |
| RAC04-0512DA | 90-264 | 90-305 | 5/12 | 120/250 | 75 | 4700/330µF |

Specifications (typical at 25°C and after warm up time unless otherwise specified)

| | | |
|--|--|--|
| Input Voltage Range | standard /277 versions | 90-264VAC or 120-370VDC 90-305VAC or 120-430VDC |
| Rated Power | | 4 Watts max |
| Input Frequency Range (for AC Input) | | 47-440Hz |
| Input Current (full load) | 115/230VAC /277 | 95/65mA max. 75/55mA max. |
| No Load Power Consumption | 115/230/277VAC | 150/210/220mW typ. |
| Inrush Current (<0.5ms) | 115/230VAC | 15/25A max. |
| Leakage Current | | 0.25mA max |
| Output Voltage Accuracy (full load) | single outputs 3.3V (/277 Version) | ±2% ±0.5% |
| Dual output version | 5V/12V | ±5%/±2% |
| Line Voltage Regulation (low line, high line at full load) | | ±0.2% typ |
| Dual output version | 5V/12V | ±3%/±0.2% typ |
| Load Voltage Regulation (0% to 100% full load) | 3.3V output All others | ±1% typ (±0.5% typ |
| Dual output version | 5V/12V | ±5%/±0.5% typ |
| Output Ripple and Noise (measured @ 20MHz of bandwidth with 0.1µF & 47µF parallel capacitor) | 3.3V output 5V output All others | <250mVp-p max. <200mVp-p max. 100mVp-p max |
| Operating Frequency | | 132kHz typ |
| Hold-up time | | 15ms min. |
| Minimum Load | single outputs 5V/12V | 0% 25% |
| RMS Isolation Voltage (input to output) | | 3kVAC / 1 minute |
| Temperature Coefficient | | ±0.02%/°C typ |
| Isolation Resistance | | 100 MΩ max |
| Short Circuit Protection | | Hiccup, Automatic Restart |
| Output Overvoltage Protection | | Zener Clamping Diode |
| Operating Temperature Range (natural convection, with derating) | All others Dual output version | -40°C to +70°C -40°C to +70°C |
| Storage Temperature Range | | -40°C to +85°C |
| Humidity | | 95% RH max |

continued on next page

POWERLINE

AC/DC-Converter

with 3 year Warranty

RECOM

4 Watt Single/Dual Output

PREFERRED ALTERNATIVES

Please consider these alternatives:

RAC04-GB Series

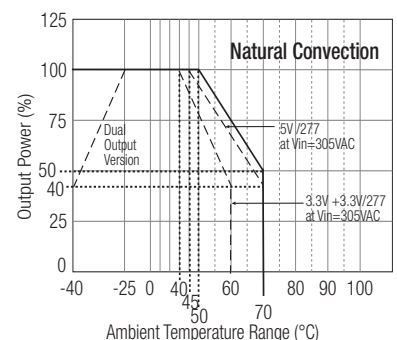
RAC04-K/277 Series



EN 55022/55024 Certified
UL-60950-1 Certified

RAC04-A

Derating Graph (Ambient Temperature)



Refer to Application Notes

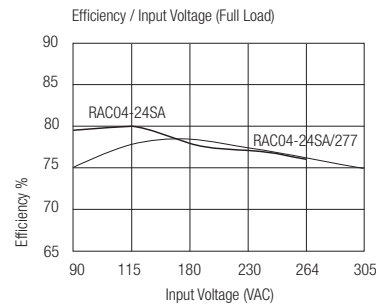
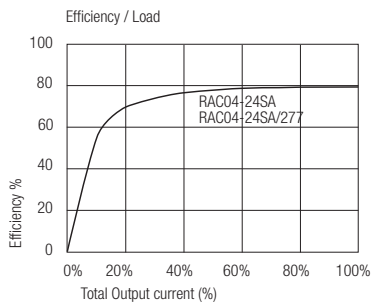
POWERLINE
 AC/DC-Converter

RAC04-SA
 Series

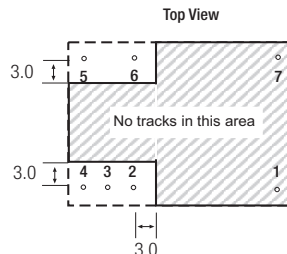
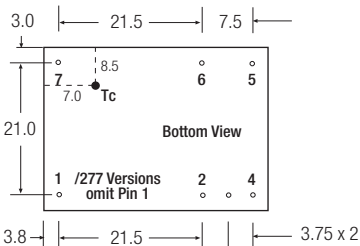
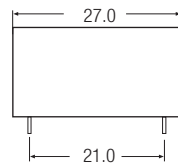
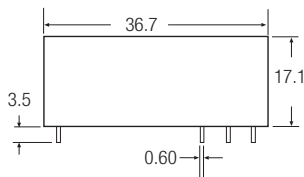
Specifications (typical at 25°C and after warm up time unless otherwise specified)

| | | | |
|------------------|---------------------------------|------------------------------|--|
| Case Material | Epoxy with Fibreglass (UL94V-0) | | |
| Package Weight | 26g | | |
| Packing Quantity | 12 pcs | | |
| EMC | Conducted and Radiated | EN 55022 Class B | |
| | Noise Immunity | EN 55024 | |
| MTBF (+25°C) | using MIL-HDBK-217F | >350 x 10 ³ hours | |

Typical Characteristics



Standard Package Style and Pinning



Pin Connections

| Pin # | Single Output | Dual Output | /277 Versions |
|-------|---------------|-------------|---------------|
| 1 | NC | NC | No Pin |
| 2 | +VDC out | +12V | same |
| 3 | -VDC out | Com | same |
| 4 | NC | +5V | same |
| 5 | VAC in (L) | VAC in (L) | VAC in (L) |
| 6 | VAC in (N) | VAC in (N) | VAC in (N) |
| 7 | NC | NC | NC |

NC = No Connection

XX.X ± 0.5 mm
 XX.XX ± 0.25 mm

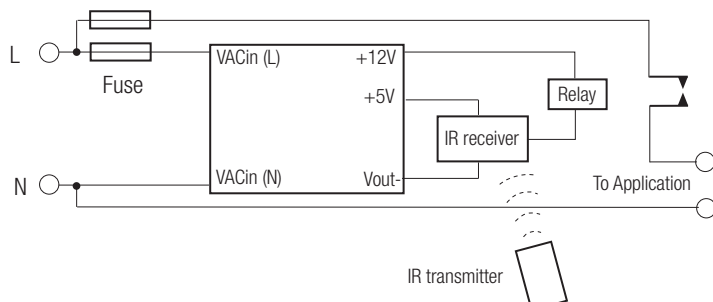
It is recommended to additionally bond the /277 version of the converter to the PCB if the application is subject to vibration or mechanical shock.

Standard Application Circuit

Standby Relay Application

With 110VAC supply and 10mA standby load, the circuit consumes typically only 150mW.

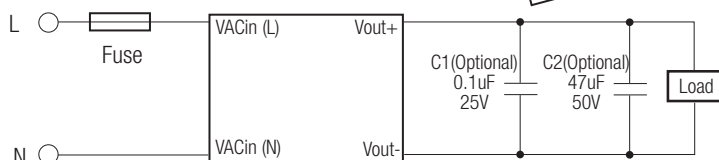
Once activated by the remote handset, the standard 12V relay can switch a 16A load.



Compact single output regulated power supply

Suggested fuse rating:

1A Slow Blow



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RAC04