

# Features

## Regulated Converters

- Compact AC-DC Power Supply
- 20 Watt PCB Mount Package
- Universal Input Voltage Range
- 3000VAC Isolation
- Low Output Ripple and Noise
- Short Circuit Protected
- High Efficiency
- UL Certified, CE Marked

### Description

Compact universal input voltage switching power module for PCB or DIN-rail mounting available with single, dual or triple output voltages

### Selection Guide

| Part Number  | Input Range (VAC) | Output Voltage (VDC) | Output Current (mA) | Efficiency (%) | Capacitive Load (max) |
|--------------|-------------------|----------------------|---------------------|----------------|-----------------------|
| RAC20-3.3SA  | 90-264            | 3.3                  | 4500                | 75             | 25000µF               |
| RAC20-05SA   | 90-264            | 5                    | 4000                | 79             | 13000µF               |
| RAC20-09SA   | 90-264            | 9                    | 2230                | 82             | 1100µF                |
| RAC20-12SA   | 90-264            | 12                   | 1670                | 83             | 920µF                 |
| RAC20-15SA   | 90-264            | 15                   | 1340                | 83             | 820µF                 |
| RAC20-24SA   | 90-264            | 24                   | 840                 | 84             | 600µF                 |
| RAC20-05DA   | 90-264            | ±5                   | ±2000               | 79             | ±4300µF               |
| RAC20-12DA   | 90-264            | ±12                  | ±833                | 82             | ±560µF                |
| RAC20-15DA   | 90-264            | ±15                  | ±677                | 82             | ±220µF                |
| RAC20-0512TA | 90-264            | 5/±12                | 2800/±250           | 81             | 3500/±200µF           |
| RAC20-0515TA | 90-264            | 5/±15                | 2800/±200           | 81             | 3500/±150µF           |

\*add suffix "-ST" for screw terminal module e.g. RAC20-05SA-ST, RAC20-05DA-ST, RAC20-0512TA-ST

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

|                                                                                 |                                                     |                           |
|---------------------------------------------------------------------------------|-----------------------------------------------------|---------------------------|
| Input Voltage Range                                                             | 90-264VAC or 100-375VDC                             |                           |
| Rated Power                                                                     | 20 Watts max                                        |                           |
| Input Frequency Range (for AC Input)                                            | 47-440Hz                                            |                           |
| Input Current (full load)                                                       | 115VAC/230VAC                                       | 400mA/ 230mA max.         |
| No Load Power Consumption                                                       | 115VAC/230VAC                                       | 470mW max.                |
| Inrush Current (<2ms)                                                           | 115VAC/230VAC                                       | 30A/ 50A max.             |
| Leakage Current                                                                 | 0.25mA max                                          |                           |
| Output Voltage Accuracy (Full load)                                             | ±2% max                                             |                           |
| Line Voltage Regulation (low line, high line at full load)                      | - Single /Dual Output                               | ±0.5% max                 |
|                                                                                 | - Triple Output                                     | ±1% / ±5% max             |
| Load Voltage Regulation (10% to 100% symmetric load)                            | - Single                                            | ±1% max                   |
|                                                                                 | - Dual                                              | ±3% max                   |
|                                                                                 | - Triple                                            | ±2% / ±5% max             |
| Output Ripple and Noise <sup>(1)</sup>                                          | Noise                                               | <0.9% Vout + 50mVp-p max. |
|                                                                                 | Ripple                                              | <0.2% Vout + 40mVp-p max. |
| Minimum Load                                                                    | Single/Dual = 0%, Triple = 10% main /20% auxilliary |                           |
| Operating Frequency                                                             | 100kHz typ                                          |                           |
| RMS Isolation Voltage (input to output)                                         | 3kVAC / 1 minute                                    |                           |
| Temperature Coefficient                                                         | ±0.02%/°C typ                                       |                           |
| Over-Current Protection                                                         | 105% typ                                            |                           |
| Short Circuit Protection                                                        | Continuous, Automatic Restart                       |                           |
| Over-Voltage Protection                                                         | Zener Diode Clamp                                   |                           |
| Operating Temperature Range (free air convection, with derating) <sup>(3)</sup> | -25°C to +70°C                                      |                           |
| Storage Temperature Range                                                       | -40°C to +85°C                                      |                           |

continued on next page

## POWERLINE

### AC/DC-Converter

with 3 year Warranty

RECOM

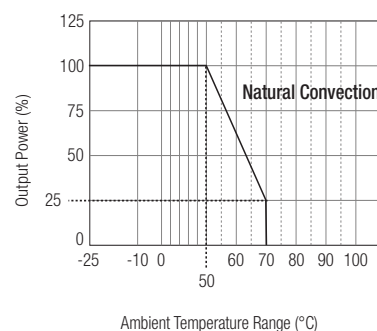
## 20 Watt Single/Dual & Triple Output



UL-60950-1 Certified

## RAC20-A

## Derating-Graph (Ambient Temperature)



Refer to Application Notes

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

|                  |                                                  |
|------------------|--------------------------------------------------|
| Humidity         | 95% RH max.                                      |
| Case Material    | Epoxy with Fibreglass (UL94V-0)                  |
| Package Weight   | 110g                                             |
| Packing Quantity | 3 pcs (-ST Version: 1 pc)                        |
| EMC              | EN 55022 Class B / EN 55024                      |
| MTBF (+25°C)     | using MIL-HDBK-217F >200 x 10 <sup>3</sup> hours |

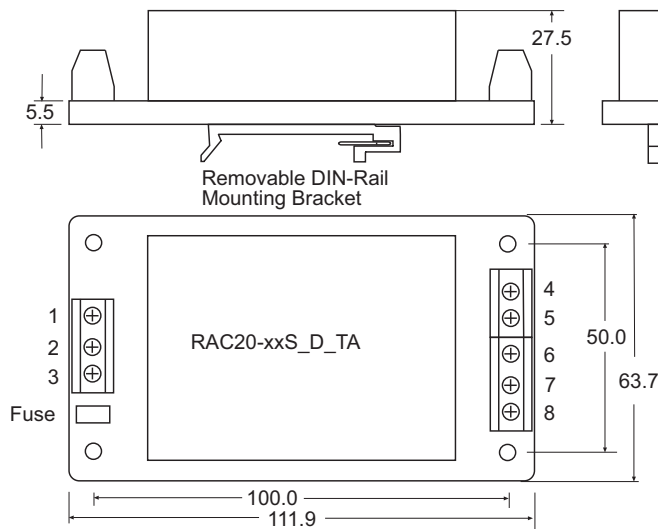
### Notes:

Note 1: Ripple & Noise measured with 20MHz BW probe and 0.1μF + 47μF capacitors in parallel across the outputs.

Note 2: Suggested input fuse rating 2A Slow Blow

Note3: Start up only is guaranteed at temperatures down to -25°C. Other specifications may not be met.

## Screw Terminal Module Option (suffix -ST)

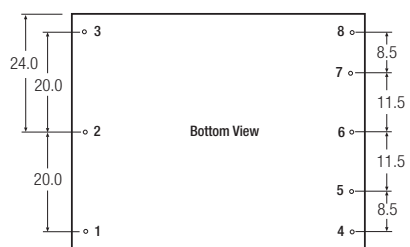
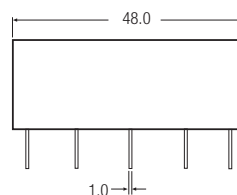
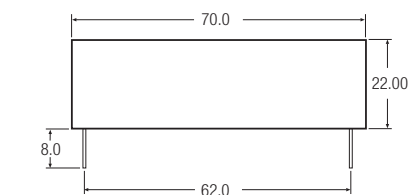


### Pin Connections

| Pin # | Single Out | Dual Out   | Triple Out |
|-------|------------|------------|------------|
| 1     | FG         | FG         | FG         |
| 2     | VAC in (N) | VAC in (N) | VAC in (N) |
| 3     | VAC in (L) | VAC in (L) | VAC in (L) |
| 4     | NC         | NC         | -VDC out   |
| 5     | -VDC Out   | -VDC Out   | Com        |
| 6     | NC         | Com        | -VDC out   |
| 7     | +VDC out   | +VDC out   | +5V Rtn    |
| 8     | NC         | NC         | +5Vout     |

NC = No Connection

## Package Style and Pinning



XX.X ± 0.5 mm  
XX.XX ± 0.25 mm

### Pin Connections

| Pin # | Single Out | Dual Out   | Triple Out     |
|-------|------------|------------|----------------|
| 1     | FG         | FG         | FG             |
| 2     | VAC in (N) | VAC in (N) | VAC in (N)     |
| 3     | VAC in (L) | VAC in (L) | VAC in (L)     |
| 4     | No Pin     | No Pin     | -VDC Out       |
| 5     | -VDC Out   | -VDC Out   | Com            |
| 6     | No Pin     | Com        | + VDC Out      |
| 7     | + VDC Out  | + VDC Out  | + 5V Rtn (Com) |
| 8     | No Pin     | No Pin     | + 5V Out       |