

# RSW 1500 Railway Sinewave Inverter

RoHS Compliant  
Directive 2002/95/EC



Pure sinewave



High frequency technology



Light weight, compact size



Full electronic protection



Extended temperature range



Designed for rolling applications according to EN50155



Remote inhibit (Standby)



Output fail alarm (Form B)

## Applications

- Railway Applications
- Industrial Controls
- Telecom Power Plants
- Marine & other rugged environments
- Electric Utilities and Substations
- Base Station Power

# Sinewave Inverter

Series RSW1500

## Description

The RSW1500 consists of sine-wave 120Vac or 230Vac output voltage DC-AC converters. The frequency can be set to 50Hz or 60Hz, and input and output are galvanically isolated.

The RSW1500 inverters consist of two cascaded converters, one DC-DC generating an intermediate output voltage from the input voltage. That intermediate voltage is inverted to supply the output voltage and frequency by means of a second DC/AC converter.

The topology for the first converter is a fixed frequency push-pull type that provides the isolation between input and output. The second converter consists of a bridge inverter also at fixed frequency and fully PWM controlled by means of microcontroller that is equipped with an LC output filter that removes the switching frequency components and delivers a sine-wave output.

The RSW1500 inverter is equipped with an input polarity protection by means external fuse. It also features maximum average power protection as well as maximum output peak current protection. This protects the semiconductors even when an output short-circuit occurs.

It also features a disable function for input undervoltage, which protects the batteries from harmful discharges.

## Features

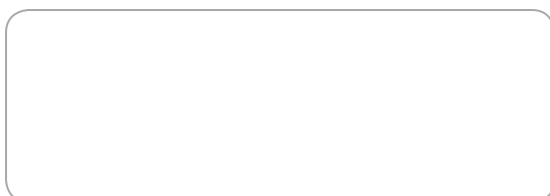
- Sine wave output voltage
- Selectable output frequency: 50/60Hz
- High input-output isolation 3000Vrms
- Remote inhibit
- Remote control via RS232
- Adjustable output voltage
- Designed for rolling applications according to EN50155
- Fire and smoke EN45545-2 approved
- Protection against overloads and short-circuits
- Protection against input undervoltage
- Output fail alarm by isolated relay contacts

## Specifications (Specifications Subject to Change Without Notice)

| Model                  | Input  | Output | Power  | Output peak current |             | Efficiency | No load input current |
|------------------------|--------|--------|--------|---------------------|-------------|------------|-----------------------|
|                        |        |        |        | 5s                  | 10ms (lopk) |            |                       |
| <b>RSW1500-12-230</b>  | 12Vdc* | 230Vac | 1200VA | 10A                 | 16A         | 87%        | <0,8A                 |
| <b>RSW1500-24-230</b>  | 24Vdc  | 230Vac | 1500VA | 10A                 | 16A         | 88%        | <0,4A                 |
| <b>RSW1500-36-230</b>  | 36Vdc  | 230Vac | 1500VA | 10A                 | 16A         | 89%        | <0,3A                 |
| <b>RSW1500-48-230</b>  | 48Vdc  | 230Vac | 1500VA | 10A                 | 16A         | 90%        | <0,2A                 |
| <b>RSW1500-72-230</b>  | 72Vdc  | 230Vac | 1500VA | 10A                 | 16A         | 90%        | <0.15A                |
| <b>RSW1500-110-230</b> | 110Vdc | 230Vac | 1500VA | 10A                 | 16A         | 91%        | <0.1A                 |
| <b>RSW1500-12-120</b>  | 12Vdc* | 120Vac | 1200VA | 20A                 | 30A         | 86%        | <0.8A                 |
| <b>RSW1500-24-120</b>  | 24Vdc  | 120Vac | 1500VA | 20A                 | 30A         | 88%        | <0.4A                 |
| <b>RSW1500-36-120</b>  | 36Vdc  | 120Vac | 1500VA | 20A                 | 30A         | 88%        | <0.3A                 |
| <b>RSW1500-48-120</b>  | 48Vdc  | 120Vac | 1500VA | 20A                 | 30A         | 89%        | <0.2A                 |
| <b>RSW1500-72-120</b>  | 72Vdc  | 120Vac | 1500VA | 20A                 | 30A         | 89%        | <0.15A                |
| <b>RSW1500-110-120</b> | 110Vdc | 120Vac | 1500VA | 20A                 | 30A         | 90%        | <0.1A                 |

|  |  |
|--|--|
| <b>INPUT</b>                                 |  |
| Input voltage range                          | -30, +25% Vin nom, (10 ... 15Vdc)*   |
| Maximum input ripple                         | 5% Vin nom (Vrms, 100Hz)   |
| <b>OUTPUT</b>                                |  |
| Output voltage                               | 120 / 230Vac sinusoidal  |
| Output frequency                             | 50 / 60Hz ± 0.25Hz   |
| Load regulation                              | < 4%   |
| Line regulation                              | < 2 % Vin -25% ... +25%<br>< 10% Vin -30% ... +30%   |
| Output wave distortion THD                   | < 2% (average of 16 samples)   |
| Output HF ripple                             | < 2.5%   |
| <b>ENVIRONMENTAL</b>                         |  |
| Storage temperature                          | -25 ... 80°C   |
| Operating temperature full load              | -25 ... 55°C (EN50155 T1)  |
| Operating temperature 50% load               | -25 ... 70°C (EN50155 T3)  |
| Relative humidity without condensation       | 5 ... 95%  |
| Cooling                                      | Controlled internal fan  |
| MTBF (MIL-HDBK-217-E; G <sub>b</sub> , 25°C) | 130.000 h  |
| <b>EMC</b>                                   |  |
| Immunity according                           | EN61000-6-2 (EN50121-3-2)  |
| Emissions according                          | EN61000-6-4 (EN50121-3-2)  |
| <b>SAFETY</b>                                |  |
| Dielectric strength: Input / output          | 3000 Vrms / 50Hz / 1min  |
| Dielectric strength: Output / ground         | 1500 Vrms / 50Hz / 1min  |
| Dielectric strength: Input / ground          | 500 Vrms / 50Hz / 1min   |
| Safety according to                          | EN60950-1  |
| Fire and smoke                               | EN45545-2  |
| <b>MECHANICAL</b>                            |  |
| Dimension                                    | 160 x 351 x 64.5mm   |
| Weight                                       | 3800 g   |
| Connections                                  | Input: M6 Screws Output: terminal block cable or solid wire max. 6mm <sup>2</sup> or AWG10 |
| <b>PROTECTIONS</b>                           |  |
| Protection against overloads < 10ms          | Current limited at lopk  |
| Protection against overloads > 10ms          | I <sup>2</sup> T limited by shutdown   |
| <b>CONTROL</b>                               |  |
| Output OK LED                                | Green  |
| Alarm LED                                    | Red  |
| Output failure alarm                         | Isolated contact relay open when alarm (< 0.3A at 150Vcc)                                  |
| Remote OFF                                   | 4 ... 24 Vdc   |
| Status and programming                       | RS232 port   |

Available from:



**RIPEnergy**

The power conversion company

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