



RT15 450V 67A 30kW HRE Rectifier Specification

The RT15 450V 67A 30kW HRE Rectifier is a high reliability and high efficiency switched mode AC-DC module that converts 3-phase 400VAC to 450VDC at 30kW output. It is suitable for high reliability applications such as vehicle chargers. The RT15 delivers a power saving peak efficiency of > 96%.

The compact size of the RT15 allows high power density in 600mm x 600mm footprint racks.

The addition of a charging controller and other peripherals allows sophisticated vehicle charging management with network connectivity and advanced rectifier sleep mode functionality for additional power savings.



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Detailed specifications at 400VAC in, 450VDC out, 25°C, unless otherwise stated

Input 400VAC

Voltage requirement:

Three phase, 4 wire (no neutral) nominal range: 323 – 480VAC;
Voltage tolerance: 285 – 530VAC;
Full output power available above 323VAC;
Frequency: 50/60Hz ± 10%;
Voltage distortion: 5%;
Phase imbalance: <10%

Current drawn at full load:

46A RMS max at 400 VAC;
57A RMS max below 323VAC;

Power factor: Type 1

Greater than 0.99 at full load; 0.98 at half load;
0.95 at 30% load

Harmonic distortion of input current: Type 1

Less than 5% at full load; 10% at half load;

Voltage withstand test:

2800VDC input to chassis for 1 minute;

Protection:

Overvoltage: operates to 530VAC typically and will sustain 720VAC without damage;
Undervoltage: operates at reduced power to 155VAC typically;
Surge protection to 6kV/3kA;

Startup and hot plug:

Inrush less than 100% input current;
Soft start approx 10 seconds to match diesel generator start-up characteristics;

Output 450VDC (maximum)

Voltage:

Output adjustment range: 20 – 450V;
Precision: <±0.5%;

Current limit:

Range 10 - 73A;
Precision: <±1%;

Power limit:

Current limit is automatically reduced to limit output power to 30kW;

Available current: 73A at < 410V
67A at 450V

Voltage withstand test:

2800VDC output to chassis for 1 minute;

Static regulation:

< ±0.5% of demanded voltage under constant voltage condition;
< ±1% of demanded current under constant current condition;

Dynamic regulation:

±5% for 25/50/25% and 50/75/50% step load change;
±0.5% of final value within 200µs of step change;





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Noise: < 0.5% peak to peak (0 - 20MHz);

Protection: Overcurrent: can sustain short circuit at output terminals indefinitely;

Inrush: no voltage dip on bus on hot plug;
Surge protection to 5kV/2.5kA;
Overshoot: less than 0.1% at start-up

General

Isolation: Input and output are isolated; all components that cross the isolation barrier are tested to 4000VAC or 5600VDC or higher;

Efficiency: >96% peak efficiency;
>95% typical from 20 – 73A;

Standards

Product: Designed to be used as part of a vehicle charger IEC 61851-23:2014;

Safety: Designed to **IEC60950-1, Second Edition (2005)**;

EMC Emissions and Immunity: Designed to IEC 61851-22:2014

Mechanical

Module:		Acoustic Noise:	
Width:	482.6mm	≤ 55dB (A Weighted);	
Height:	130mm (3U)		
Depth:	440mm	Magazine:	
Mass:	< 31kg	Width	19 inch standard;
		Height	132mm (3U);

Environment

Operating range: -5°C to +40°C, 90% RH;

Storage and transport: -40°C to +70°C, 95% RH;

Vibration: 10-55Hz, 0.35mm sine;

Altitude: 1000m without de-rating;

Connections

Input, Output, and Communications:

Two hot-plug connectors are mounted on the back of the rectifier module that carry the AC, DC and communications lines. Matching connectors are located at the back of the rack-mounted magazine.

