

RT15 400V 75A 30kW HRE

Rectifier Specification



The RT15 400V 75A 30kW HRE Rectifier is a high reliability and high efficiency switched mode rectifier (SMR) module that converts 3-phase 380VAC to 378VDC at 30kW output. It is suitable for high reliability applications such as Internet Data Centres (IDC) and DC UPS. The RT15 is compliant with China QB-H-007-2012 and it 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 MCSU-4 controller allows sophisticated power system management with network connectivity and advanced rectifier sleep mode functionality for additional power savings.



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Detailed specifications at 380VAC in, 378VDC out, 25°C, unless otherwise stated:

Input

Voltage requirement	3 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	48A RMS max at 380 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;

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Output 336VDC

Voltage	Float adjustment range:300 – 392V; Equalise adjustment range: 350 – 400V; Precision: $\pm 0.5\%$;
Current limit	Range: 14 - 83A; Precision: $\pm 1\%$;
Power limit	Current limit is automatically reduced to limit output power to 29kW; Available current: <ul style="list-style-type: none">• 83A at 280V• 83A at 336V• 79A at 378V• 75A at 400V
Voltage withstand test	2800VDC output to chassis for 1 minute;
Static regulation	Load: terminal voltage drops by $3.5V \pm 0.2V$ from zero to 75A load (for passive current sharing) for stand-alone units, or regulates to better than $\pm 0.05\%$ for MCSU-4 controlled units;
Dynamic regulation	$\pm 5\%$ for 25/50/25% and 50/75/50% step load change; $\pm 0.5\%$ of final value within 200 μ s of step change;
Noise	<math>< 0.5\%</math> peak to peak (0 - 20MHz);
Load Sharing	Better than $\pm 5\%$ of full scale with active current sharing from MCSU;
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 30 – 100A;

Standards

Product	Designed to QB-H-007-2012
Safety	Designed to IEC60950-1, Second Edition (2005)
EMC Emissions and Immunity	Designed to IEC61000-6-4:2006; IEC61000-6-2:2005

Mechanical

Dimensions	Width: 482.6mm Height: 130mm (3U) Depth: 440mm
Weight	<math>< 31\text{kg}</math>
Acoustic Noise	$\leq 55\text{dB}$ (A Weighted);
Magazine	Width: 19 inch standard; Height: 132mm (3U);

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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 magazine.

