



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 380VAC

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:

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;

Output 336VDC (378V normally)

Voltage:

Float adjustment range: 300 – 392V;
Equalise adjustment range: 350 – 400V;
Precision: <±0.5%;

79A at 378V
75A at 400V

Current limit:

Range 14 - 83A;
Precision: <±1%;

Power limit:

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

Available current: 83A at 280V
83A at 336V

Voltage withstand test:

2800VDC output to chassis for 1 minute;

Static regulation:

Load: terminal voltage drops by 3.5V ± 0.2V from zero to 75A load (for passive current sharing) for stand-alone units, or regulates to better than ±0.05% for MCSU-4 controlled units;

Dynamic regulation:

± 5% for 25/50/25% and 50/75/50% step load change;





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± 0.5% of final value within 200µs of step change;

Noise:

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

Load sharing:

Better than ± 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 20 – 83A;

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

Module:

Width: 482.6mm
Height: 130mm (3U)
Depth: 440mm
Mass: < 31kg

Acoustic Noise:

≤ 55dB (A Weighted);

Magazine:

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.

