



RT15 240V 100A 29kW HRE Rectifier Specification Preliminary

The RT15 240V 100A 29kW HRE Rectifier is a high reliability and high efficiency switched mode rectifier (SMR) module that converts 3-phase 4-wire 380VAC to 240VDC at 100A output. It is suitable for high reliability applications such as Internet Data Centres (IDC) and DC UPS. The RT15 is fully compliant with China YD/T-2378-2011 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, 270VDC out, 25°C, unless otherwise stated

Input 380VAC

Voltage requirement:

Three phase, 4 wire (no neutral) nominal range: 323 – 419VAC;
Voltage tolerance: 285 – 476VAC;
Full output power available above 323VAC;
Frequency: 50Hz ± 5Hz;
Voltage distortion: ≤ 5%;

Current drawn at full load:

46A RMS max at 380 VAC;
55A RMS max below 323VAC;

Power factor: Type 1

Greater than 0.99 at full load; 0.98 at half 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 520VAC 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 240VDC

Voltage:

Float adjustment range: 204 – 290V;
Equalise adjustment range: 204 – 300V;
Precision: <±0.5%;

107A at 270V
100A at 288V

Current limit:

Range 20 - 110A;
Precision: <±1%;

Power limit:

Current limit is automatically reduced to limit output power to 29kW;

Available current: 110A at 204V
110A at 240V

Voltage withstand test:

2800VDC output to chassis for 1 minute;

Static regulation:

Load: terminal voltage drops by 2.5V ± 0.2V from zero to 100A 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;
± 0.5% of final value within 200us of step change;





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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: 2% max 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 YD/T-2378-2011;

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: < 33kg

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 magazine. Reliable mating is ensured by a fastener in the magazine that mechanically secures the rectifier.

