

RACK-LEVEL GPU SIMULATION

GPU Emulator 240

Rack-level liquid cooled GPU simulator, LCLB 240

The 240 kW rack-level GPU simulator. Same format and same connection philosophy as the 160 kW unit, with half again the heat load and solid-state switching for fast, repeatable load profiling against the highest-density AI racks.

240kW
Water cooled load, 0 to 100% control

250 units
Networked from one controller

<25ms
Solid-state switching at 50 Hz

8-16°C
Delta T range

KEY FEATURES

- Up to 240 kW water cooled load on 0 to 100% control
- Adjustable pressure drop to simulate GPU hydraulic resistance
- Integrated power metering: 3 phase voltage, current, power, frequency and power factor
- Controller networks up to 250 liquid cooled load banks
- Heat rejection to liquid up to 240 kW
- Flow, pressure and temperature measurement
- Full trending and recording of all results
- Full system drainage to prevent cross contamination between projects

SOLID-STATE SWITCHES (SSR)

- PWM zero-cross switching
- Fast switching, under 25 ms at 50 Hz
- Low EMI / RFI noise
- 3 leg switching
- Optical isolation between input and output
- No moving parts, for long service life
- Compact design

APPLICATIONS

Initial commissioning
Simulate progressive load increases to verify cooling system performance and stability under controlled conditions.

Thermal testing
Run comprehensive heat load tests to find cooling system weaknesses before production deployment.

Performance validation
Verify cooling capacity meets design specification across load profiles and environmental conditions.

Ongoing certification
Maintain compliance with periodic testing and documentation of cooling system performance.

TECHNICAL SPECIFICATION

Load bank capacity	240 kW
Step load increment	Solid-state switches, 0 to 240 kW
Inlet / outlet temperature	Min inlet 14 °C, max inlet 35 °C, max outlet 50 °C
Hydronic flow rate	Minimum 70 LPM
Allowable pressure drop	100 kPa, adjustable
Pipe size	50 mm / DN50
FD83 connection size	50 mm / DN50
Power connection	6 × 63A 3P+E, 415 VAC
Dimensions (L × W × H)	2000 mm (incl. pipework) × 750 mm × 1930 mm
Weight dry / full of PG25	Approx. 640 kg / 764 kg
Delta T range	8 to 16 °C, subject to inlet temperature and flow rate
Filling capacity	125 L
Master / slave control	Master only in each 240 kW load bank

ELECTRICAL SPECIFICATION

Control voltage (DC)	3 to 32 VDC
Control current	5 to 20 mA, typical at 10 VDC
Turn-on / turn-off time	Under 25 ms at 50 Hz
Load voltage (AC)	24 to 480 VAC
Load current	360 A
Power supply	415 VAC, 50 Hz, 6 × 63A 3P+E
Switching device	SCR, for AC loads
Leakage current	10 mA or less, off state
On state voltage drop	1.2 to 1.6 V, depending on load

MECHANICAL AND ENVIRONMENTAL

Operating temperature	0 to +90 °C / 32 to 194 °F
Storage temperature	0 to +85 °C / 32 to 185 °F
Humidity	5 to 95% RH, non condensing
Dielectric strength	2500 Vrms, input to output
Insulation resistance	50 MΩ or more at 500 VDC
Dissipated heat	Approx. 350 W

PROTECTIONS

- Overcurrent: external fast-acting semiconductor fuse or MCB
- Overtemperature: 90 °C on heat sink
- Overpressure: 6 bar PRV
- Low flow alarm

CERTIFICATIONS

CE UL UKCA RoHS

HYDRAULIC ARRANGEMENT

Common internal manifolds with DN50 flow and return connections, a pressure relief safety valve, manual air vent and manual drain point. Designed to run on standard European and UK chilled water systems across a range of water quality parameters.

CONSTRUCTION AND FINISH

Heavy gauge steel with a charcoal RAL 9011 powder coated finish and a stainless steel impact protection frame, engineered for continuous indoor operation in data centre environments.

CONTROLS AND CONNECTIVITY

A colour LCD controller displays full operation of the load bank and supports TCP/IP Modbus over Ethernet for connection to building management systems. The panel carries power on/off, master load on/off, and alarm indicators for low flow, overtemperature and overpressure. Electrical integration is by 6 × 3P+E 415 VAC 63A plug flying leads for connection to site GPU points, each module with dedicated short circuit protection, clear indicator lamps and an emergency stop button.