

RACK-LEVEL GPU SIMULATION

GPU Emulator 160

Rack-level liquid cooled GPU simulator, LCLB 160

A compact liquid cooled rack-level GPU simulator load bank for data centre commissioning and testing. Up to 160 kW of resistive water-cooled load in a server rack format, connecting into existing liquid cooling infrastructure so test teams can apply a controlled heat load and watch how the cooling system behaves before live IT equipment arrives.

160kW
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 160 kW water cooled load on 0 to 100% control
- Flow, pressure and temperature measurement
- Full trending and recording of all results
- Full system drainage to prevent cross contamination between projects
- 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
- Robust steel enclosure, welded frame and heavy duty casters

SOLID-STATE SWITCHES (SSR)

- PWM zero-cross switching
- Fast switching, under 25 ms at 50 Hz and 16.7 ms at 60 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	160 kW
Step load increment	Solid-state switches, 0 to 160 kW
Inlet / outlet temperature	Min inlet 14 °C / 57 °F, max inlet 35 °C / 95 °F, max outlet 50 °C / 122 °F
Hydronic flow rate	Minimum 70 LPM / 19 GPM, maximum 400 LPM / 106 GPM
Allowable pressure drop	100 kPa / 15 psi, adjustable
Pipe size	50 mm / 2 in
FD83 connection size	50 mm / 2 in
Power connection	4 × 63A 3P+E
Dimensions (L × W × H)	1650 mm (incl. pipework) × 600 mm × 1930 mm / 65 × 24 × 76 in
Weight dry / full of PG25	590 kg / 714 kg (1,301 lb / 1,574 lb)
Delta T range	8 to 16 °C / 46 to 61 °F
Filling capacity	120 L / 32 US gal
Master / slave control	Master only in each 160 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, 16.7 ms at 60 Hz
Load voltage (AC)	24 to 480 VAC
Load current	231 A
Switching device	SCR, for AC loads
Leakage current	10 mA or less, off state, at 480 VAC
On state voltage drop	1.2 to 1.6 V, depending on load
Indication	LED power on and temperature fault

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	250 W

PROTECTIONS

- Overcurrent: external fast-acting semiconductor fuse or MCB
- Overtemperature: 90 °C / 194 °F on heat sink
- Overpressure: 6 bar / 87 psi PRV

CERTIFICATIONS

CE UL UKCA RoHS

PowerLoad believe this is the only CE marked load bank with solid-state switching fully manufactured in the UK.

HYDRAULIC ARRANGEMENT

Common internal manifolds with NPS 2 in (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. Welded frame and heavy duty casters give mobility without compromising durability.

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, with an internal/external control power switch, remote mode notification and dual Ethernet connections. Electrical integration is by 4 × 3P+E 415 VAC 63A plug flying leads, each module with dedicated short circuit protection.