

1875 KVA Load bank

Trailer-Mounted 1.5 MW Load Bank

Characteristics

Manufacturer: PD Power Systems, LLC

Part No.: PDPS-LB-1875/RR

Rated: 1875 KVA at 0.8 pf 4160 V, 3-phase,
50/60 Hz Continuous Duty Rated

Compromising: 1500 KW at 480 V, 3-phase, 60 Hz
1125 KVAR at 4160 V, 3-phase, 60 Hz
0.8 power factor capability

Fan Motor & Control Circuit:

Dual 50/60 Hz 380-420 V, 3-phase; 440-480, 3-phase, 60 Hz

Dimensions (packaged):

Height (ft.) - 12

Width (ft.) - 8.5

Length (ft.) - 35

Weight (lbs.) - 128,900



Capabilities and Features

ISO Style containerized construction. Vertical discharge

Walk-in control room for easy access to control, switchgear, and optional power circuit breakers.

Air inlet covers provide protection from dirt and moisture during transport.

Polycarbonate screens in control and switchgear enclosures protect all live parts from accidental contact.

Four Lift Frame: Quantity Four (4) integral lifting holes plus Fork Pockets built into Container Base.

Load Bank Control System Module

Installed with voltage and current transformers to provide a control interface for all the functions within the load bank for individual or multi-unit control. It provides intelligent, fast, user-friendly, accurate control and instrumentation with outstanding test features and data acquisition capabilities.

Additional load banks can be linked together and operated using either the:

1. Optional Handheld Terminal
2. Other options available, including control via MODBUS from a separate system.

Construction

The frame of the load bank is constructed from 2mm "Zintec" steel, folded and welded to form a monocoque construction. Double-skinned recessed doors allow easy access to the separate enclosures for control, switchgear, and power connections. The double-skinned, horizontal discharge duct with a stainless steel heat shield contains the resistive load elements and cooling fan. Stainless steel mesh screen on the main air inlet and outlet provide protection against access to hazardous parts to IPIX. All electrical enclosures are to IP54. High quality two-pack industrial acrylic or electrostatically applied paint systems are applied to a prepped electro-plated zinc base and low bake finish.

Load Connections

The load bank is equipped with 200 A or 600 A IEEE 386, Interface 592, load break bushings to connect the generator set output 4160 VAC voltage to the trailer-mounted step-down 4160 VAC / 480 VAC transformer.

Load Elements

The load bank uses replaceable, non-finned sheathed elements. The outer sheath is made from stainless steel to give good corrosion resistance. The heating element is an 80/20 nickel-chrome wire embedded in compacted magnesium oxide powder, giving good thermal and insulation properties. The elements are conservatively rated, and there is no need for cooling fins to dissipate the heat into the airflow. This ensures that foreign matter or a loosely fitting fin will not cause hot spots and ensures high reliability.



1875 KVA Load bank (continued)

Load Elements (continued)

The elements are designed to operate continuously at up to 800°C (red/orange). The actual temperature is below 500°C (dull red). This gives a wide margin of safety and very long life. Load tolerance is within 2½ % of total capacity. Elements are continuously rated at the specific voltage. Short-term tests with fluctuations up to 10% above rated voltage are permissible. Tests at lower voltages, with a corresponding reduction in overall rating, may be carried out. Power is proportional to voltage squared.

Auxiliary Power

The fan and control circuit may be powered from an external auxiliary supply or from the supply on test, provided it is of the correct voltage and frequency. Lower voltages and other frequencies must be tested using the external supply. On static load banks, connection is by internal terminals. Trailer/mobile load banks include an IEC 60309-2 plug and socket with a three-position switch, enabling quick and easy connection. Dual 50/60Hz Fan & Control Circuit: 380/420V, 50Hz and 440/480V, 60Hz.

Safety Features:

- Emergency stop/disconnect switch gives full isolation of the fan and control supply.
- A 110 Volt AC control circuit transformer provides isolation and operator safety.
- Stop/start buttons ensure the load bank will not automatically restart. On static load banks, provisions are provided for the connection of remote stop/start buttons.
- The fan motor is fully protected with fuses and a thermal overload. Movable load banks are also fitted with phase-rotation detection, automatically providing correct airflow direction. Single-phase protection is integrated into the operating controls. Thermal detectors are fitted to protect against overheating in the resistive duct and switchgear enclosure.
- Overvoltage protection for the control and load circuit is provided by load control if specified.
- Individual load element group and associated contactors are fuse-protected.
- The load contactors and fan controls are interlocked to ensure the load can be applied only when the fan is running.
- Internal access is restricted by key-operated door catches. Polycarbonate screens behind the doors prevent accidental contact with live parts.

Transformer

Sized per load bank, transformers are ruggedized, heavy-duty, dry-type, aluminum-wound, VPI, special with load break (medium-voltage IEEE 386 quick-connects), 4160:480V, 3-phase, 60Hz, 150°C rise, enclosed in suitable outdoor steel, power-coated enclosure.

Trailer and Interconnect

Trailer for the packaged load bank, controls, and transformer is suitably sized for DOT-compliant operation and includes a suspension system for over-the-road use. The trailer includes integral brakes, DOT over-the-road lighting, markings, and a tongue-mounting jack. The trailer is primed and painted with high-gloss industrial black paint.

