TITAN
1500KVA Load Bank

Description

Very high capacity electrical loads, typically in excess of 10MW, for testing, maintenance and performance analysis of large AC power systems can be formed using the Simplex Titan Load Bank as a building block element. The Titan Load Bank is a self-contained, semi-portable unit providing resistive and inductive loads to 1500KVA, .8 power factor, to 600VAC. It can be applied singly or in systems of multiple units paralleled to achieve virtually any total capacity desired. Load application and power factor control is step adjustable in any increment/multiple of 25KW and 18.75KVAR.

The Titan Load Bank is totally self-contained, freestanding and semi-portable. The Titan consists of air-cooled resistive and inductive load elements, magnetic contactors for load control, branch circuit fuse protection of load elements, forced-air cooling system, 120V control power supply, malfunction detection system, main load terminals, unit control panel, provision for remote control panel.

The Titan is weatherproof and intended for outdoor use. A marine version is available for use in shipyards. The Titan is suitable for portable use or permanent installation. It can be moved using a forklift or a crane, or it can be mounted on a trailer. Trailer installations can accommodate multiple units, within the weight capacity of the trailer.

Applications

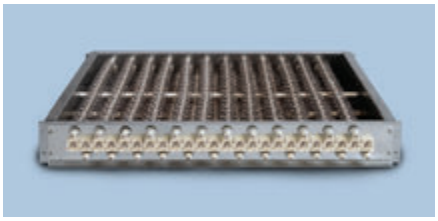
- Manufacturers of large electric generators and high capacity distribution apparatus
- Utilities, for testing of generators, standby engine-generators, transformers, switch-gear
- Shipyards for testing and maintenance of shipboard power systems
- Research and development labs for design and testing of electrical power systems

Features

- Self-contained load and control system
- Utilizes the proven Simplex “Powr-Web” load element (see page 2)
- Inductive load elements (see page 2)
- Branch circuit fuse protection of load elements
- Digital load control (see page 4)
- Comprehensive malfunction detection system

Benefits

- Modular enclosure design with separate and isolated control and power sections
- NEMA-3R, oversize control section with generous cable connection space
- Vertical airflow, exhausts hot air above level of personnel and away from buildings, pavement etc.
- Slide-out, tray mounted load elements
- Comprehensive overload, short circuit and malfunction protection
- Highly standardized, based upon extensive product line
- Supported by comprehensive engineering and product support, including detail manuals, 24 hour field service, availability of start-up services.



Powr-Web Resistive Load Element

Description

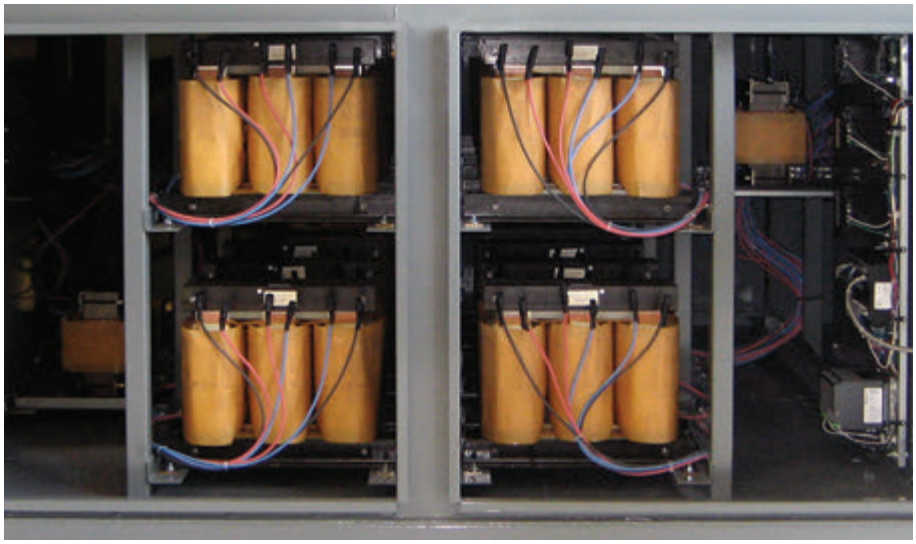
Simplex Load Banks utilize “Powr-Web” load elements. The “Powr-Web” is an advanced design, air-cooled power resistor specifically designed for application to Load Bank systems. The “Powr-Web” is conservatively operated at half the maximum temperature rating of the alloy and features a short-circuit-safe design based on continuous mechanical support of the element by high temperature, ceramic clad stainless steel rods. The “Power Webs” are assembled into discrete trays which are assembled in a vertical “stack.” Each tray in the “stack” is independently serviceable without disturbing adjacent trays.

Specifications

- Alloy: FeCrAl
- Maximum continuous temperature rating: 1920°F
- Maximum operating temperature as applied in Load Bank: 1080° F
- Cool down time from operating to ambient temperature is 10 seconds.

Construction

- Ceramic clad, stainless steel through-rods.
- UL Recognized



Inductive Load Elements

The Simplex inductive load banks consist of discrete iron-core load elements. These are non-saturable, air gap calibrated, air cooled devices and are field replaceable. Standard elements have a temperature sensor embedded in the windings to detect element overheating and through the module malfunction detection system, disconnect the load elements and activate an alarm. Standard elements are varnish coated; epoxy coatings are available for severe environments.

Specifications

Tolerance:	5%
Maximum Harmonic Distortion:	1%
Power Factor:	.05
Insulation:	220°C
Cooling:	Air

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Nationwide Manufacturing (ISO9001: 2015 certified)

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Principle Systems and Components

The load bank is a completely self-contained, freestanding unit which includes all resistive load elements, load control devices, load element branch circuit fuse protection, main load bus and terminals, cooling system, control power supply, unit controller and malfunction detection system and NEMA type enclosure.

Load Elements

Simplex “Powr-Web” open wire, helically wound, chromium alloy, thermally derated to 60%. 5% tolerance, 2% balance, .995 p.f.

UL Recognized.

Load Control

Branch circuit contactors, each 50 KW step. Contactors have enclosed silver surfaced contacts, 120V coils; electrically operated and electrically held.

Element Circuit Protection

Branch circuit fuses, each 50KW branch circuit, 70A, 200kAIC, current limiting type.

Power Wiring

150°C insulated; color coded.

Control Wiring

105°C, color coded.

Power Connection

Plated bus bar within an oversize terminal junction box.

Cooling

Forced air, vertical airflow, top exhaust. 3-phase, TEFC motor driving cast aluminum fan blade. Circuit breaker combination motor starter.

System Protection

Fan failure, high exhaust temperature, high intake temperature; lockout and alarm.

Enclosure

Modular enclosure consists of three parts:

1. NEMA-3R rainproof power section including load elements and cooling fan
2. NEMA-3R control section, thermally and electrically isolated from power section
3. Exhaust hood. Mounts atop power section. Vertical flow with rain separators. Hood may be deleted and a duct flange provided for indoor applications where air is exhausted through a duct to the outdoors.

All panels for access to serviceable components are hinged doors with stainless steel hinges and lockable latches. All exterior fasteners are stainless steel.

The load bank enclosure is of double wall construction for cool exterior and thermal isolation of the load elements. Cooling airflow through the enclosure is vertical with cold air intake at the bottom and hot air exhaust out the top. Intake and exhaust openings are screened. All parts of the enclosure are abrasive blasted or chemically etched, and finished in powder-coat or epoxy/polyurethane, dark gray. The exhaust hood is powder-coated with high temperature black powder.

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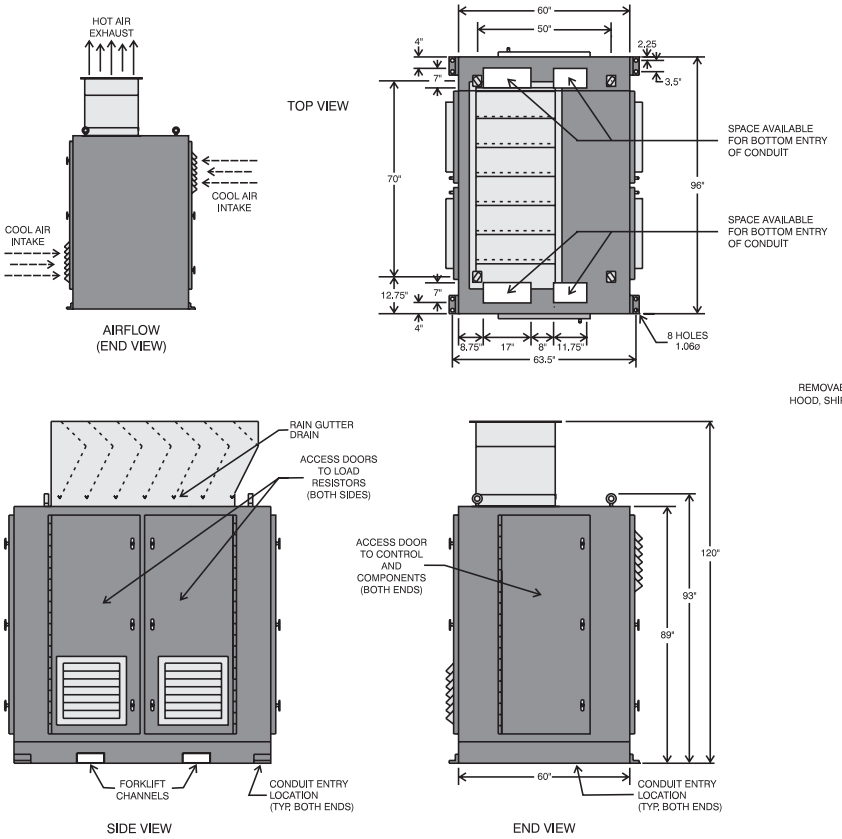
Dimensions and Key Features



D-Series, Digital Load Controller

With D-Series controllers, the user enjoys a significant savings of installation cost. Versus traditional analog (toggle switch) panels, connections for remote control are reduced to a single RS-485 or Ethernet Cat-5 cable. Multiple control stations are easily networked. Valuable space is conserved. Reliability is enhanced.

With D-Series controllers, data monitoring and acquisition, load bank automation and BMS integration are made simple. The D-Series is networked via MODBUS RTU over RS-485 or Ethernet allowing simple daisy chain or Ethernet switch cable networking. MODBUS-to-BacNet (or other protocol) convertors are available.

The D-Series controller can be accessed by remote PC by simple assignment of an IP address.

PC integration software is available.

The D-Series accepts Simplex "Auto-Test" software enabling full automation of load bank testing with data acquisition, report generation and pass-fail testing. Inputs from generator controller data outputs can be accepted to allow integration of full engine data.

Features

- Standard control system for Simplex Stationary Load Banks
- PLC based
- Color TFT touchpanel operator interface featuring bright colors, excellent contrast and wide viewing angle, perfect for bright sunlight and low light conditions
- Easy upgrades for load bank automation
- Network capable
- IP address capable
- PC integration software available
- MODBUS RTU over RS-485 or Ethernet network communications

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