



Overview

- Integrated design, load module, trailer, reels, cam-lock style connections, digital control
- Very high capacity, 1500-2500kw
- Dual voltage: 208-240/416-480vAC
- Digital load control, 5 kw resolution
- Touchscreen operator interface
- Remote and/or local control
- Data acquisition and recording
- Network units to form large systems

Description

The Simplex Trident 2500 is a fully integrated design trailer load bank including:

- Resistive Load Bank, 1500-2500kw
- Heavy duty, purpose built, tandem axle highway trailer
- Cables reels
- CAM-LOCK style connection panel
- Storage locker
- Integrated digital controller suitable for local and/or remote control

The Trident Trailer Load Bank is ideal for field testing in the performance of start-up and commissioning activities, service contracts and engine generator maintenance.

Trident Load Bank Systems feature highly standardized digital controllers with data acquisition capability. Trident Load Banks can be networked to other Trident units or to any Simplex Load Bank (except Powerstar and Infinity product lines) for totalized, single point control and data acquisition. In fact, any number of Simplex Load Banks can be networked to form large, integrated aggregate systems. Operator interface is via touchscreen. Load control is via screen keypad. All electrical values display on-screen and are capable of being recorded for future data retrieval.

The Trident family comprises load modules from 600-1250kw integrated with trailers, cable storage and connection accessories and digital controls. The Trident 2500 is a dual load module product. The Trident 1250 is a single load module product, 600-1250kw rated. Refer to the Trident 1250 Brochure for further details.

Features

NRTL Listed: CSA-US or CSA-Canada.

Trailer: NTM DOT Certification.

Digital Control: PLC based control with 8-inch color TFT touchscreen interface. MODBUS communication.

Instrumentation: Digital power transducer with Ethernet communication to digital controller. Data display on touchscreen. Data acquisition and recording.

Load Elements: Simplex "Powr-Web" chromium alloy, open wire, continuously supported, power resistor.

Load Control: 3-Pole contactors.

Load Element Circuit Protection: Branch circuit fuses. One set of fuses each 50KW branch. Fuses are current limiting type, 200KAIC, 600V.

Cooling System: 2 x 3-phase, direct-drive fan, 21,000 CFM.

Malfunction Detection System: Protection against fan failure, high exhaust air temperature, high intake air temperature, overvoltage and fan reversal. Exhaust air temperature displays on screen.

Control Power Supply: Dual voltage control power transformer with supply power switchable to internal (generator) or external.

Touch Screen: Easily removable from panel.

Connection: "Cam-Lock" type power connections.



Trident 2500R

Digital Load Bank with Data Acquisition

1500KW - 2500KW • Page 2

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Capacity Detail

Model	TOTAL KW (1.0pf)	KW DETAIL					
		480V	416V	380V	240V	208V	240V, 1-ph*
Trident 1500	1500	1500	1125	940	1000	750	300
Trident 1800	1800	1800	1350	1128	1000	750	300
Trident 2000	2000	2000	1500	1253	1000	750	300
Trident 2250	2250	2250	1688	1410	1000	750	300
Trident 2500	2500	2500	1875	1567	1000	750	300

*Requires external 3-phase fan/control power. Capacity limited to 1250 FLA.

Voltage: Dual Voltage: 240/480V AC, 3-phase Operational at any voltage to 480V AC maximum, single or 3-phase

Optional Voltages: Instead of 240/480v dual voltage:

- a. Any 50hz or 60hz single voltage to 690v
- b. 600v, single voltage
- c. 600/480v, dual voltage
- d. 600/300v, dual voltage
- e. 480/416v, dual voltage
- f. 208/416v, dual voltage

Frequency: 50, 60 Hertz standard

Connection: 3-wire plus ground

Time Rating: Continuous

Ambient Air Temperature: 120°F max

Airflow: 42,000 CFM

Temperature Rise: 180°F nominal

Control/Fan Power:

- 230/460V, 3-phase, 60 Hertz
- 190/380V, 3-phase, 50 Hertz
- Switchable internal (generator)-external
- External fan/control power requirements: 240/480VAC, 3-phase, 60 Hertz, 80 / 40 amps service (7.5HP motor)
- 230/460-115V control power transformer internal to Load Bank.

Net Weight: Approx. 12,500 lbs., including load module, trailer, three reels, 2000' 4/0 cable, cam-lock style connectors

Digital Load Control

Nominal 5.0 kw resolution: direct enter any load value and controller will apply load within nominal 5kw resolution

Digital Load Calibration Versus Voltage

Controller automatically calibrates loads for reduced voltage operation.



Standard Cable Reels



**Cam-Lock Cable Style
Connection Panel**



**Standard Trident
Remoteable Digital
Touchscreen Controller**



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Trailers

Heavy-duty, purpose-built for the application, tandem axle trailer:

Construction: Structural steel chassis, steel deck, all welded, built to DOT specification, NTM DOT certification label

Capacity: 12,500-14,000 GVWR

Axles: Tandem

Hitch: 2-5/16" ball hitch OR 3" pintle ring

Tires: (4) ST235/80R16, load range E

Brakes: Electric with breakaway system or hydraulic surge, mechanical parking brake

Suspension: Leaf springs

Features: Safety chains, DOT LED lighting with connector, reflectors, tie down rings, rear stabilizers, front lift jack, mud deflectors

Standard Finish: Dark gray polyurethane with epoxy primer.

Optional Finishes: Customer selected color. Undercoating. LINE-X overall protective coating. Hot dip galvanizing.



Cable Connections

Cam-Lock style cable connectors behind hinged door. 4/0, 400A. Snap-back protective covers. Also available orange-brown-yellow.



Cable Storage

Trident 2500 Trailer Load Banks normally supplied with 3 cable reels:

Capacity:

- 900-feet x 4/0 (1" cable), perfect wrap
- 750-feet x 4/0 (1" cable), nominal wrap

Standard Reel Features:

- Manual, gear driven, crank rewind
- Pinion brake
- 2" steel channel frame, powder coated

Other Cable Storage Options: Cable storage racks or totes.

Cable Options

- 4/0, extra-flex, portable power cable
- Type W
- 2000v
- 90C EPDM insulation
- Polyester braid reinforcement between insulation and outer jacket
- 2062 strand copper
- "CAM-LOCK" type connector, each end, standard
- Crimp-on ring lugs on generator end option
- 5 foot "Pigtails" available with "CAM-LOCK" type connections on one end and opposite end lugged, bare or otherwise terminated

Top Photo: Standard manual cable reels.

Middle Photo: Optional 12 or 24vDC electric rewind reels.

Bottom Photo: Optional full enclosure with lockable doors for cable reels.



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Digital Controller

Trident Load Banks are digitally controlled via PLC.

Top Photo: Standard Trident equipped with local, on-board, 8-inch Touchscreen operator interface behind hinged, lockable door. Fan/control power circuit breakers with internal/external interlock and control power circuit breakers are conveniently located on the control panel.

Middle Photo: Local operator interface is removable for remote operation.

Bottom Photo: Optional "suitcase style" remote controller, with Cat-5/Ethernet remote control cable.



Digital Control and Data Acquisition System

PLC based digital control with 8-inch color TFT touchscreen operator interface.

Functions

- Control power source and voltage level detection
- Malfunction detection and protection
- Direct access (keypad) load control
- Alternate mimic panel load control
- Basic automation of load control
- Field adjustable exhaust temperature limits with temperature display
- Built-in control from customer supplied computer

Instrumentation

Digital power transducer to digital controller and meter displays on touchscreen:

- 3-phase voltage (each, L-L)
- 3-phase current (each line)
- Frequency
- KW

Data Acquisition

- Captures and records all electrical values
- Start recording/stop recording screen buttons
- One second sample rate
- Exports text file to detachable flash drive which plugs into USB port

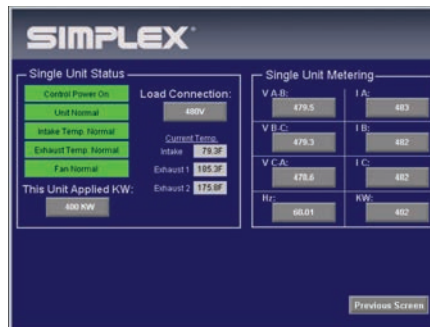
Outputs

MODBUS (standard) or BacNet (optional):

- Load applied
- Each electrical value as above



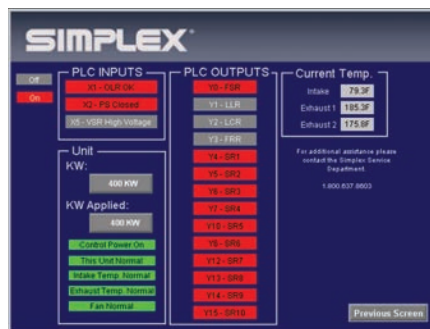
Main Screen



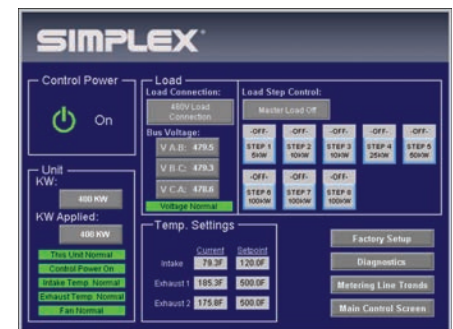
Monitoring Screen



Metering Trends Screen



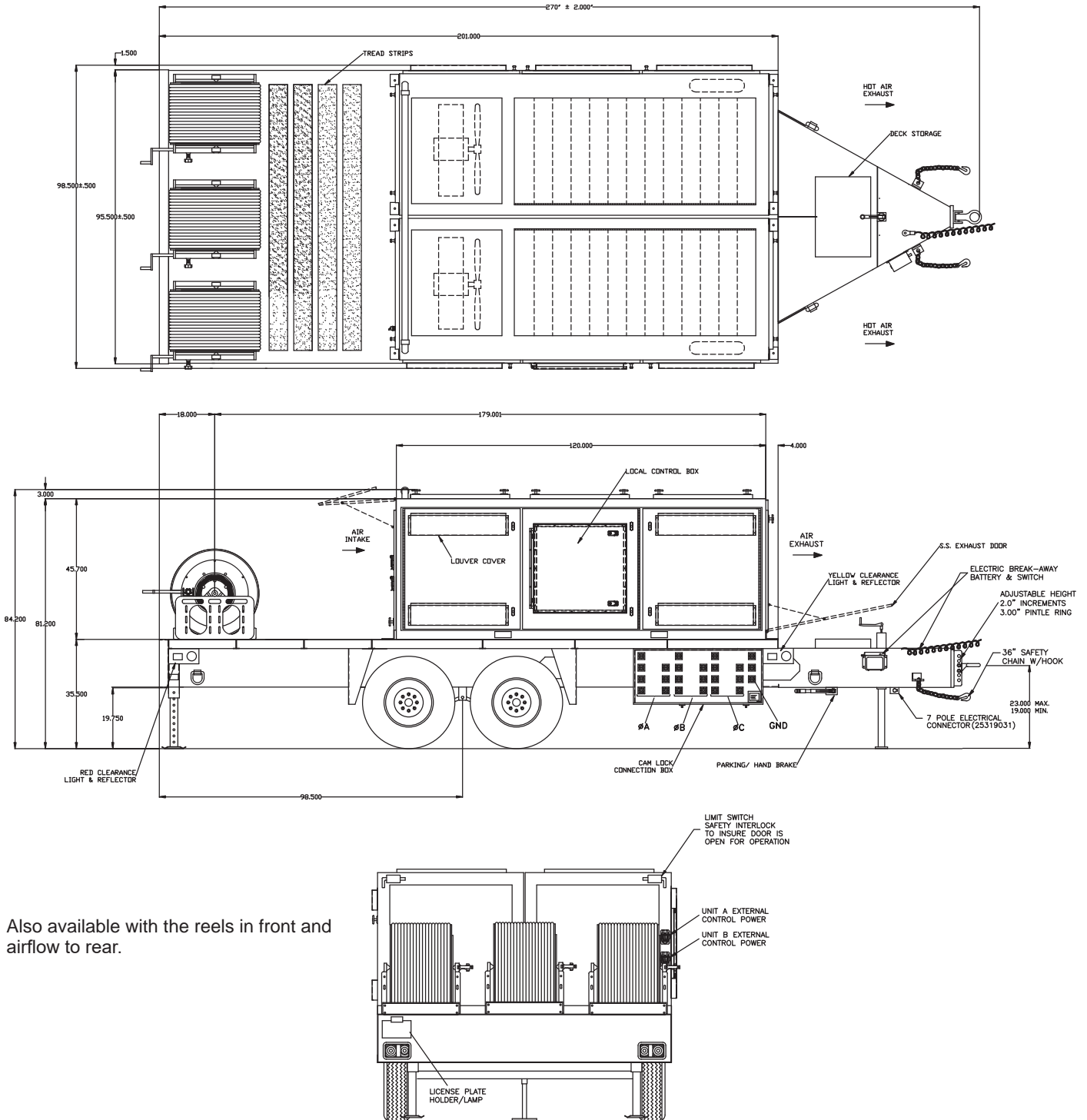
Diagnostics Screen



Maintenance Screen

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Also available with the reels in front and airflow to rear.