SYSTEM OVERVIEW

Preface: This document provides system application information for Battery Disconnect Panel Model LBD800, Spec. No. 586400100.

Description: The Model LBD800 is a +24 or –48 volt Battery Disconnect Panel designed for mounting on a wall or in a 23" relay rack. The panel provides one or two battery disconnect circuit breakers or fuses within the current range of 300 to 800 amperes each. Shunts are included for monitoring battery discharge/recharge current. Local and remote Fuse/Circuit Breaker Alarm circuits are provided.

Caution: ***This battery disconnect must be installed in the UNGROUNDED battery lead only.***

Note: *Battery Return and Load Return wiring is external to this assembly, and must be furnished by the customer.*

General Specifications

See detailed specifications on page 9.

List 1, 11

Spec. No.:	586400100
Model:	LBD800
Voltage:	Lists 1 & 2: –48VDC Lists 11 & 12: +24VDC
Capacity:	Lists 1 & 11: 800 A Lists 2 & 12: 1600A total, 800A per circuit
Agency Approval:	UL Listed, CSA
Framework Type:	Cabinet for Wall or 23" Relay Rack Mounting
Mounting Width:	Lists 1 & 11: 21.38 Inches Lists 2 & 12: 21.38 Inches
Mounting Height:	Lists 1 & 11: 10.44 Inches Lists 2 & 12: 22.68 Inches
Mounting Depth:	Lists 1 & 11: 7.25 Inches Lists 2 & 12: 7.25 Inches
Rack-Mount Front Projection:	Lists 1 & 11: 6.00 Inches Lists 2 & 12: 6.00 Inches
Access:	Front for operation and maintenance; top, bottom, sides or rear for wiring
Color:	Gray
Accessories:	Distribution Devices, Lugs, Busbar Rear Extension Kit, Cable Opening Cover, Vortex® Interface Cable, Battery Bank Installation Kit
Environment:	+40°C (+122°F)

List 2, 12

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LIST INFORMATION

List Structure

When viewing electronically, more detailed information is available for each option by clicking on the desired number in the column entitled *List #* from the table below.

List #	Part Number	Description
1	58640010001	Single-Input Battery Disconnect Panel, -48VDC, designed to accept one 800A max. circuit breaker or fuse. Circuit breakers and fuseholders are equipped with shunts.
2	58640010002	Dual-Input Battery Disconnect Panel, -48VDC, designed to accept two 800A max. circuit breakers or fuses, bussed to a single load. Circuit breakers and fuseholders are equipped with shunts.
11	58640010011	Single-Input Battery Disconnect Panel, +24VDC, designed to accept one 800A max. circuit breaker or fuse. Circuit breakers and fuseholders are equipped with shunts.
12	58640010012	Dual-Input Battery Disconnect Panel, +24VDC, designed to accept two 800A max. circuit breakers or fuses, bussed to a single load. Circuit breakers and fuseholders are equipped with shunts.

List Descriptions

List 1: -48VDC Single-Input Disconnect Panel

-48VDC single-input Battery Disconnect Panel rated at 800A.

Features

- Wall or rack mountable.
- Accepts either GJ/218-type circuit breaker or TPL-type fuse. Fuseholder and circuit breaker are equipped with metering shunts.
- Wiring can enter cabinet from top, bottom, sides, or rear (with Busbar Rear Extension Kit).
- Shunt output is provided for battery current monitoring.
- One (1) Fuse Alarm/Circuit Breaker Alarm circuit card is provided to allow remote alarm monitoring.
- Panel is equipped with a lockable front access door. Accepts customer-furnished 1/4" dia. padlock.
- Panel is equipped with a remote door alarm circuit with manual cutoff feature.

Restrictions

Lockout/Tagout feature does **not** include padlock.

Ordering Notes

1) Order one (1) circuit breaker per Table 1 or one (1) Part No. 514404 fuseholder and one (1) fuse per Table 3.
2) Order lugs per Table 4.

List 2: -48VDC Dual-Input Disconnect Panel

-48VDC dual-input Battery Disconnect Panel rated at 800A per circuit (1600A total). Provides two separate inputs and one bussed output.

Features

- Wall or rack mountable.
- Accepts either GJ/218-type circuit breakers or TPL-type fuses. Fuseholders and circuit breakers are equipped with metering shunts.
- Wiring can enter cabinet from top, bottom, sides, or rear (with Busbar Rear Extension Kit).
- Shunt outputs are provided for battery current monitoring.
- One (1) Fuse Alarm/Circuit Breaker Alarm circuit card is provided to allow remote alarm monitoring.
- Panel is equipped with a lockable access door. Accepts customer-furnished 1/4" dia. padlock.
- Panel is equipped with a remote door alarm circuit with manual cutoff feature.

Restrictions

Lockout/Tagout feature does **not** include padlock.

Ordering Notes

1) Order two (2) circuit breakers per Table 1 or two (2) Part No. 514404 fuseholders and two (2) fuses per Table 3.
2) Order lugs per Table 4.

List 11: +24VDC Single-Input Disconnect Panel

+24VDC single-input Battery Disconnect Panel rated at 800A.

Features

- Wall or rack mountable.
- Accepts either GJ/218-type circuit breaker or TPL-type fuse. Fuseholder and circuit breaker are equipped with metering shunts.
- Wiring can enter cabinet from top, bottom, sides, or rear (with Busbar Rear Extension Kit).
- Shunt output is provided for battery current monitoring.
- One (1) Fuse Alarm/Circuit Breaker Alarm circuit card is provided to allow remote alarm monitoring.
- Panel is equipped with a lockable front access door. Accepts customer-furnished 1/4" dia. padlock.
- Panel is equipped with a remote door alarm circuit with manual cutoff feature.

Restrictions

Lockout/Tagout feature does **not** include padlock.

Ordering Notes

1) Order one (1) circuit breaker per Table 2 or one (1) Part No. 514404 fuseholder and one (1) fuse per Table 3.
2) Order lugs per Table 4.

List 12: +24VDC Dual-Input Disconnect Panel

+24VDC two-input Battery Disconnect Panel rated at 800A per circuit (1600A total). Provides two separate inputs and one bussed output.

Features

- Wall or rack mountable.
- Accepts either GJ/218-type circuit breakers or TPL-type fuses. Fuseholders and circuit breakers are equipped with metering shunts.
- Wiring can enter cabinet from top, bottom, sides, or rear (with Busbar Rear Extension Kit).
- Shunt outputs are provided for battery current monitoring.
- One (1) Fuse Alarm/Circuit Breaker Alarm circuit card is provided to allow remote alarm monitoring.
- Panel is equipped with a lockable access door. Accepts customer-furnished 1/4" dia. padlock.
- Panel is equipped with a remote door alarm circuit with manual cutoff feature.

Restrictions

Lockout/Tagout feature does **not** include padlock.

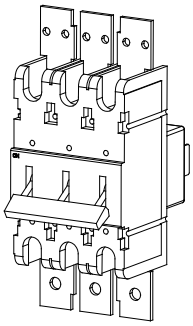
Ordering Notes

1) Order two (2) circuit breakers per Table 2 or two (2) Part No. 514404 fuseholders and two (2) fuses per Table 3.
2) Order lugs per Table 4.

ACCESSORY INFORMATION

Distribution Devices

GJ/218-Type Circuit Breakers



GJ/218 Circuit Breaker Assembly (3-Pole Shown)

For List 1 and 2 (–48V system), order circuit breaker(s) per Table 1.

For List 11 and 12 (+24V system), order circuit breaker(s) per Table 2.

Each circuit breaker in Tables 1 and 2 is equipped with an internal shunt (25mV. @ shunt capacity shown in the table.

Each circuit breaker in Tables 1 and 2 is provided with a trip coil, which permits electrically tripping the circuit breaker open from a remote location.

For lug selection, refer to Table 3 (Lugs).

-48VDC GJ/218-Type Circuit Breakers			
CURRENT RATING	**POLES**	**SHUNT CAPACITY**	**PART NUMBER Electrical/ Mechanical Trip [1]**
300A	2	600A	513781
350A	2	600A	513783
400A	2	600A	513785
450A	3	800A	513787
500A	3	800A	513789
600A	3	800A	513791
800A	4	1200A	513793

[1] These circuit breakers provide an alarm during an electrical or manual trip condition.

Table 1

+24VDC GJ/218-Type Circuit Breakers			
CURRENT RATING	**POLES**	**SHUNT CAPACITY**	**PART NUMBER Electrical/ Mechanical Trip [1]**
300A	2	600A	124267
350A	2	600A	124268
400A	2	600A	124269
450A	3	800A	124270
500A	3	800A	124291
600A	3	800A	124292
800A	4	1200A	124293

[1] These circuit breakers provide an alarm during an electrical or manual trip condition.

Table 2

TPL-Type Fuses

Order fuses per Table 3.

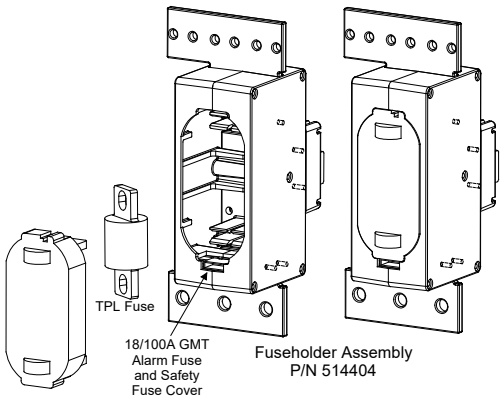
When specifying List 1 or 11 with disconnect fuse, order one (1) Part No. 514404 fuseholder.

When specifying List 2 or 12 with disconnect fuses, order two (2) Part No. 514404 fuseholders.

Alarm fuse and alarm fuse safety cover are included with each fuseholder.

Each fuseholder is provided with a shunt (25mV. @ 1200A).

For lug selection, refer to Table 4 (Lugs).



TPL-TYPE FUSES	
AMPERE RATING	**PART NUMBER**
300	248255700
400	248257000
500	248258000
600	248259000
800	102901
18/100A GMT Alarm Fuse	248610301
Safety Fuse Cover	248898700

Table 3

Lugs

For lug selection, refer to Table 4.

Lugs should be crimped per lug manufacturer's specifications.

All lugs for customer connections must be ordered separately.

Output (Load) Lug Requirements

Load lug requirements are determined by site requirements. Refer to the following for lug specifications.

Load: Lug terminated Load conductors are connected to the load busbar within the Battery Disconnect Panel. For lug mounting hole size and spacing dimensions, refer to the "Physical Size Information" section of this document.

Load Return: Load Return connections are to be provided by the customer outside the Battery Disconnect Panel.

Input (Battery) Lug Requirements

Battery Input lug requirements are determined by site requirements. Refer to the following for lug specifications.

Battery: Lug terminated Input conductors are connected to the battery input busbar within the Battery Disconnect Panel. For lug mounting hole size and spacing dimensions, refer to the "Physical Size Information" section of this document.

Battery Return: Input Return connections are to be provided by the customer outside the Battery Disconnect Panel.

Standard Crimp Lugs

CRIMP LUGS (Two-Hole, 3/8" Bolt Clearance Holes, 1" Centers)	
LEAD SIZE (Ga.)	**PART NUMBER**
8	245349800
6	245349900
4	245350000
2	245348200
1/0	245347100
2/0	245347200
3/0	245347300
4/0	245347400
250 KCMIL	245347500
300 KCMIL	245347600
350 KCMIL	245347700
400 KCMIL	245347800
500 KCMIL	245347900
600 KCMIL	245348000
750 KCMIL	245348100

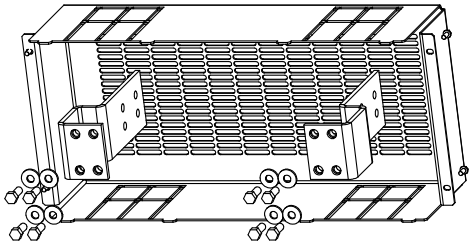
Table 4

Busbar Rear Extension Kits (Part No. 520582, 520584)

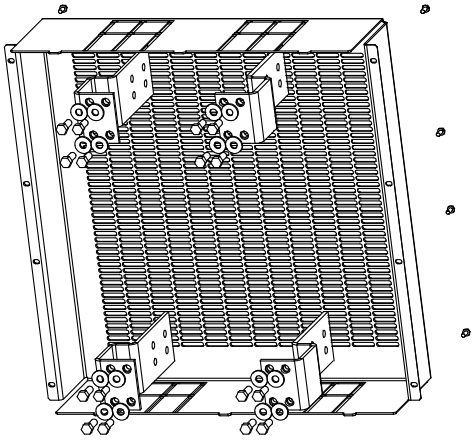
Extends input and output busbars through cabinet rear panel. Allows lug connections outside of cabinet for rack mount applications. Includes a plastic safety cover and all required hardware.

For List 1 or 11, order kit Part No. 520582.

For List 2 or 12, order kit Part No. 520584.



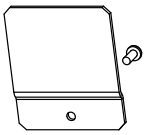
Part No. 520582



Part No. 520584

Cable Opening Cover Kit (Part No. 520659)

Covers one quarter of one (1) input or output cable opening in a List 1, 2, 11, or 12 cabinet. Replaces original cutout. Mounting screw included.



Battery Bank Installation Kit (Part No. P0915627)

Used to mount the Battery Disconnect Panel to the top of a VRLA Battery Stack. (Includes Mounting Bracket Kit P/N 535140.)

SPECIFICATIONS

1.1 Electrical Ratings

1.1.1 Voltage:

(A) Lists 1 and 2: -48VDC operation. 39VDC to 60VDC maximum.

(B) Lists 11 and 12: +24VDC operation. 18VDC to 30VDC maximum.

1.1.2 Current:

(A) Lists 1 and 11: 300 - 800 Amps.

(B) Lists 2 and 12: 300 - 800 Amps per input, internally bussed to a single 1600 Amp max. output.

1.2 Environmental Ratings

1.2.1 Operating Ambient Temperature Range: 0°C to +40°C (+32°F to +104°F).

1.2.2 Storage Ambient Temperature Range: -40°C to +85°C (-40°F to +185°F).

1.2.3 Humidity: This system is capable of operating in an ambient relative humidity range of 0% to 95%, noncondensing.

1.2.4 Altitude: The maximum operating ambient temperature should be derated by 10°C at an elevation of 10,000 feet above sea level. For elevations between 3,000 feet and 10,000 feet, derate the maximum operating ambient temperature linearly.

1.2.5 Ventilation Requirements: The Battery Disconnect Panel should be mounted so that ventilating openings are not blocked and temperature of the air entering the cabinet does not exceed the limits stated in Paragraph 1.2.1. *Note: Ventilation openings on the rear panel may be blocked in wall mounting applications.*

1.2.6 Compliance Information

(A) Safety Compliance: This panel is UL Listed for use in DC Power Distribution Centers for Communications Equipment. This unit also meets the requirements of CSA 22.2, No. 225 and is tested and Certified by UL ("c UL") as a Custom Built Power Distribution Center for Communications Equipment.

(B) Seismic Compliance: Designed to meet NEBS.

1.3 Standard Features

1.3.1 Local Controls and Indicators:

(A) FA/CBA (Fuse Alarm/Circuit Breaker Alarm): Red LED, visible through opening in front door, illuminates if fuse operates open, or circuit breaker opens automatically or manually. One LED on Lists 1 and 11. Two LED's on Lists 2 and 12.

1.3.2 External Alarms Circuits: Screw-compression terminal block provides the following connections. Terminal block accepts 10-22 AWG wire.

(A) Fuse Alarm/Circuit Breaker Alarm (FA/CBA): Three sets of Form-C relay contacts change state if a fuse operates open, or if a circuit breaker opens automatically or manually. Contacts are rated for 0.5 A at 125 VAC, 1.0 A at 30 VDC, and 0.3 A at 110 VDC.

Note: *Do not apply voltages higher than 42.4 volts AC (peak) or 60 volts DC.*

(B) Door Alarm: A SPDT switch changes state if the door is opened. Contacts are rated for 1A at 10VDC.

Note: *Do not apply voltages higher than 42.4 volts AC (peak) or 60 volts DC.*

1.3.3 Monitoring, Reference and Control Outputs: Screw-compression terminal block provides the following connections. Terminal block accepts 10-22 AWG wire.

(A) Battery Current Monitoring: Each circuit breaker or fuseholder is equipped with a metering shunt. See Distribution Devices under Accessory Information for specific shunt rating. The following signal is provided for monitoring battery discharge/recharge current.

(1) Shunt output. Allows monitoring of battery discharge/recharge current. A 49.9 ohm current limiting resistor is provided in each lead.

1.3.4 External Monitoring, Reference, and Control Inputs: Screw-compression terminal block provides the following connections. Terminal block accepts 10-22 AWG wire.

(A) Controlled Battery Source (CBS): Input required for operating monitoring, alarm and control circuits. Accepts ±20VDC to ±56VDC. External 1-1/3A fuse required.

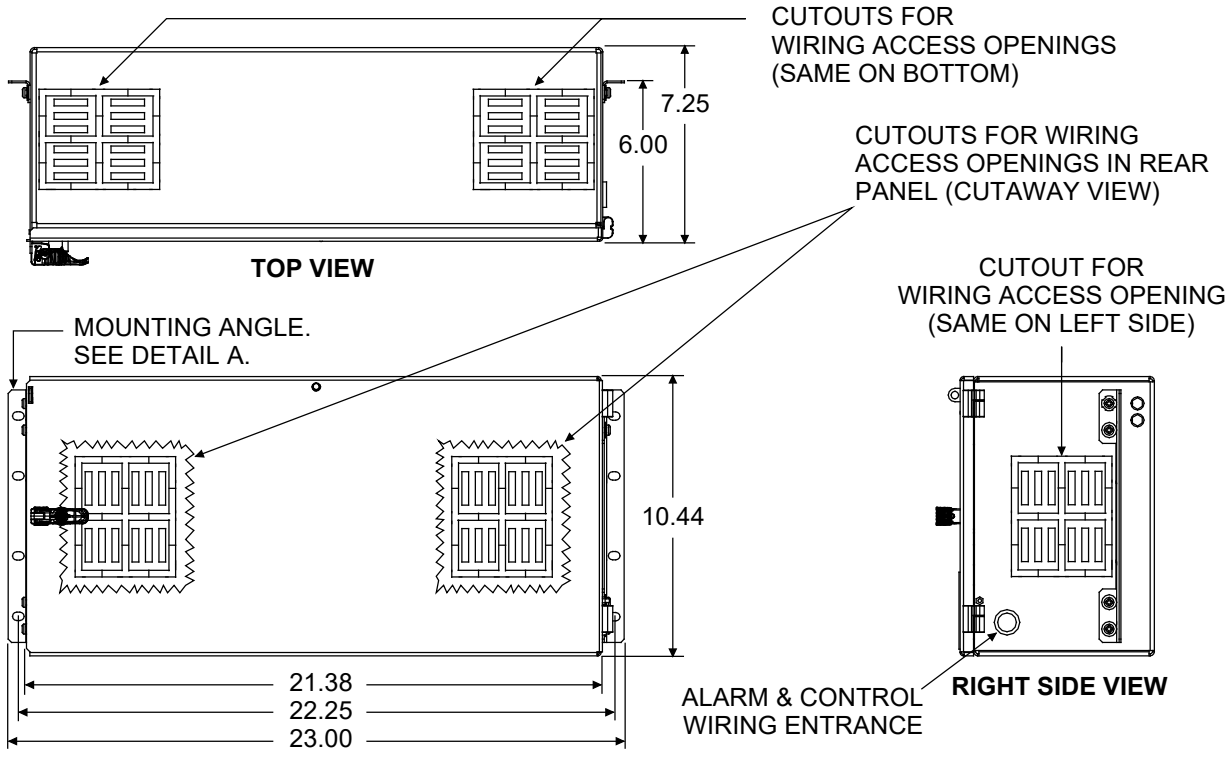
(B) Emergency Power Off (EPO), Emergency Shutdown and Fire Alarm Disconnect: Circuit breakers can be tripped open by applying system ground to a control terminal. Manual reset of circuit breaker is required after removal of the ground signal.

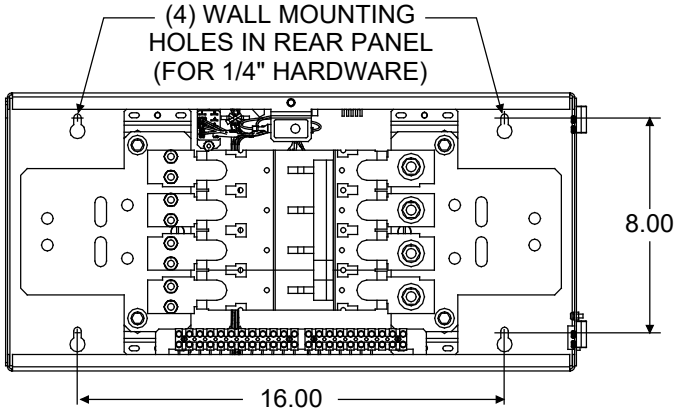
Note: *Not available with fuses.*

Note: *For applications in which a single-pole switch is used for Emergency Power Off (EPO) control of both the Battery Disconnect Panel and an associated Lorain Vortex Power System, installation of a factory-furnished isolation diode kit is required. See instruction manual for installation procedure.*

MECHANICAL SPECIFICATIONS

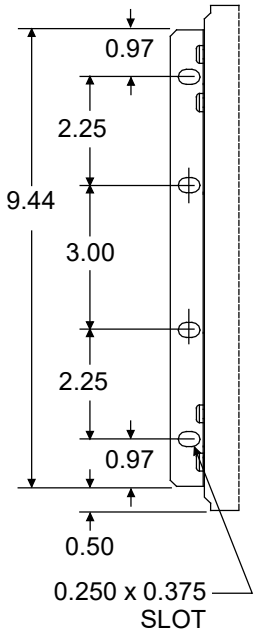
Overall Dimensions – Lists 1 and 11





FRONT VIEW
WITH DOOR REMOVED

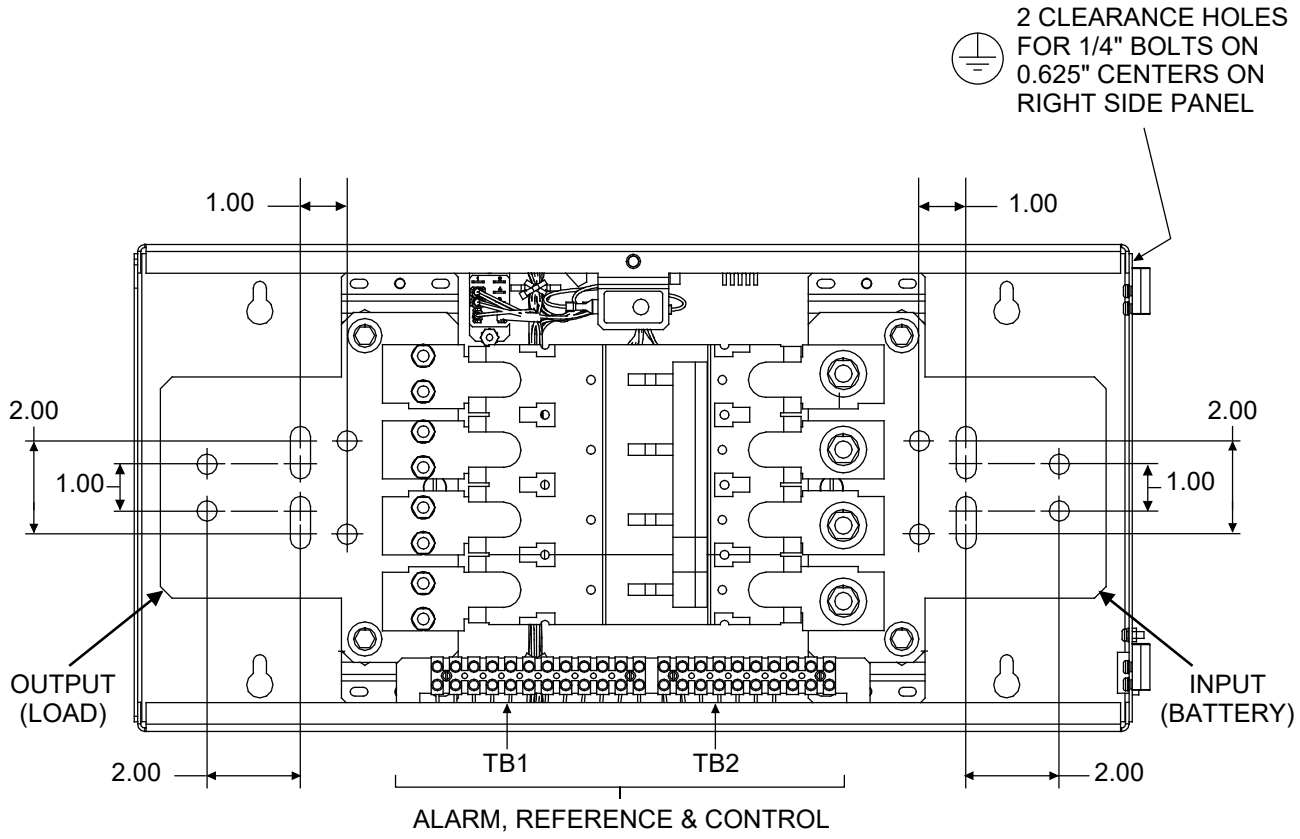
DETAIL A
MOUNTING ANGLES
(NOTE 3)



NOTES

1. All dimensions are in inches.
2. Wiring access cutouts contain ventilation openings.
3. Furnished rack-mounting angles are shipped detached.
4. Approx. Weight (in lbs):
   Net: 41
   Shipping: 50

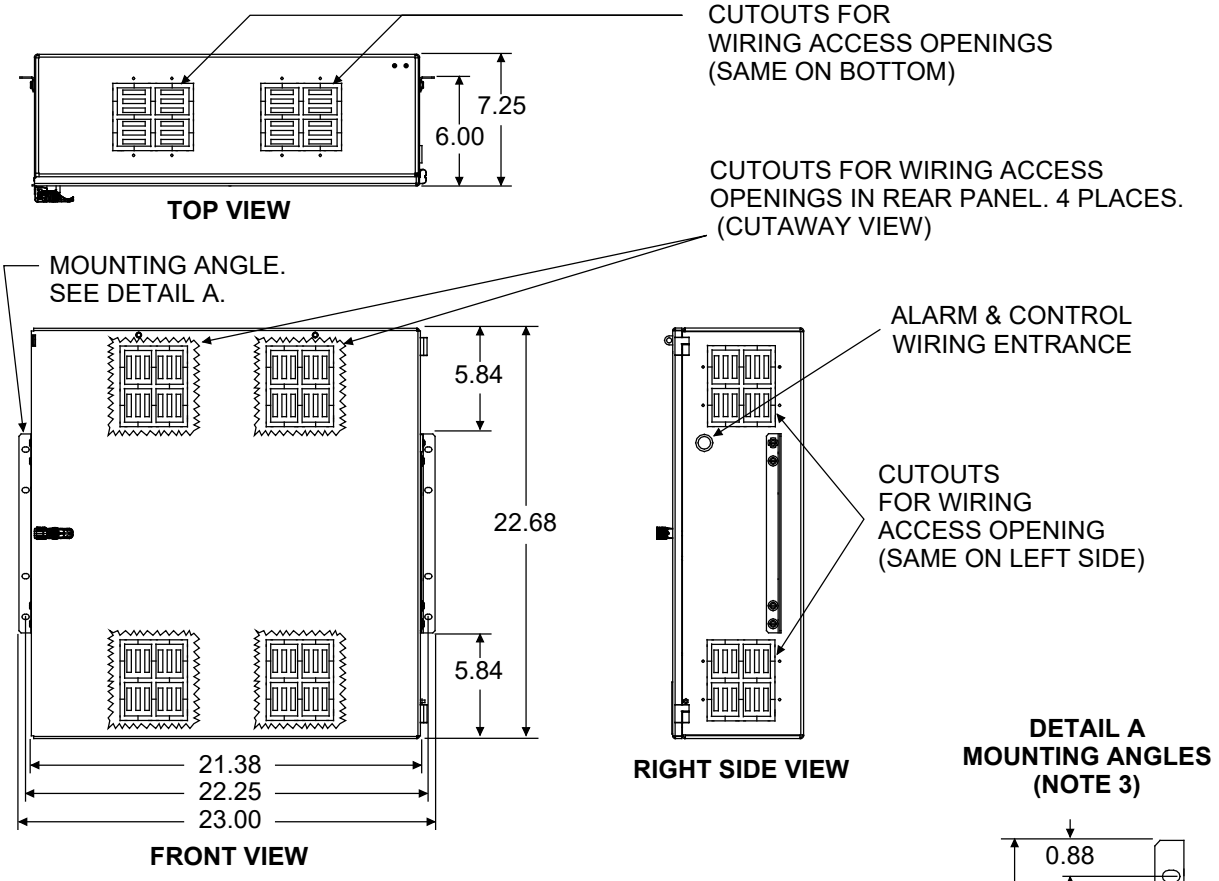
Terminal Dimensions and Locations – Lists 1 and 11

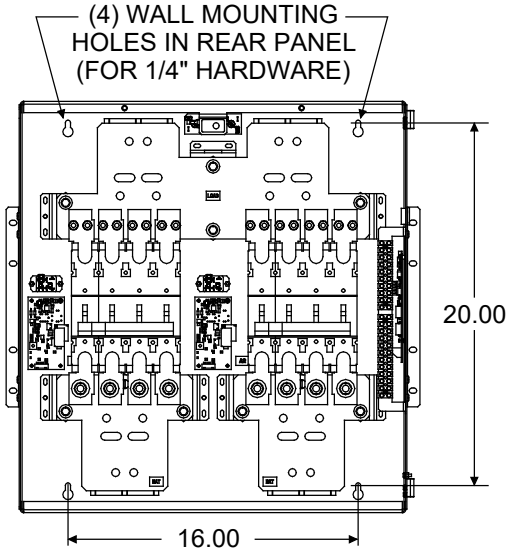


NOTES

1. All dimensions are in inches.
2. All input & output lug mounting holes provide clearance for 3/8" bolts.

Overall Dimensions – Lists 2 and 12

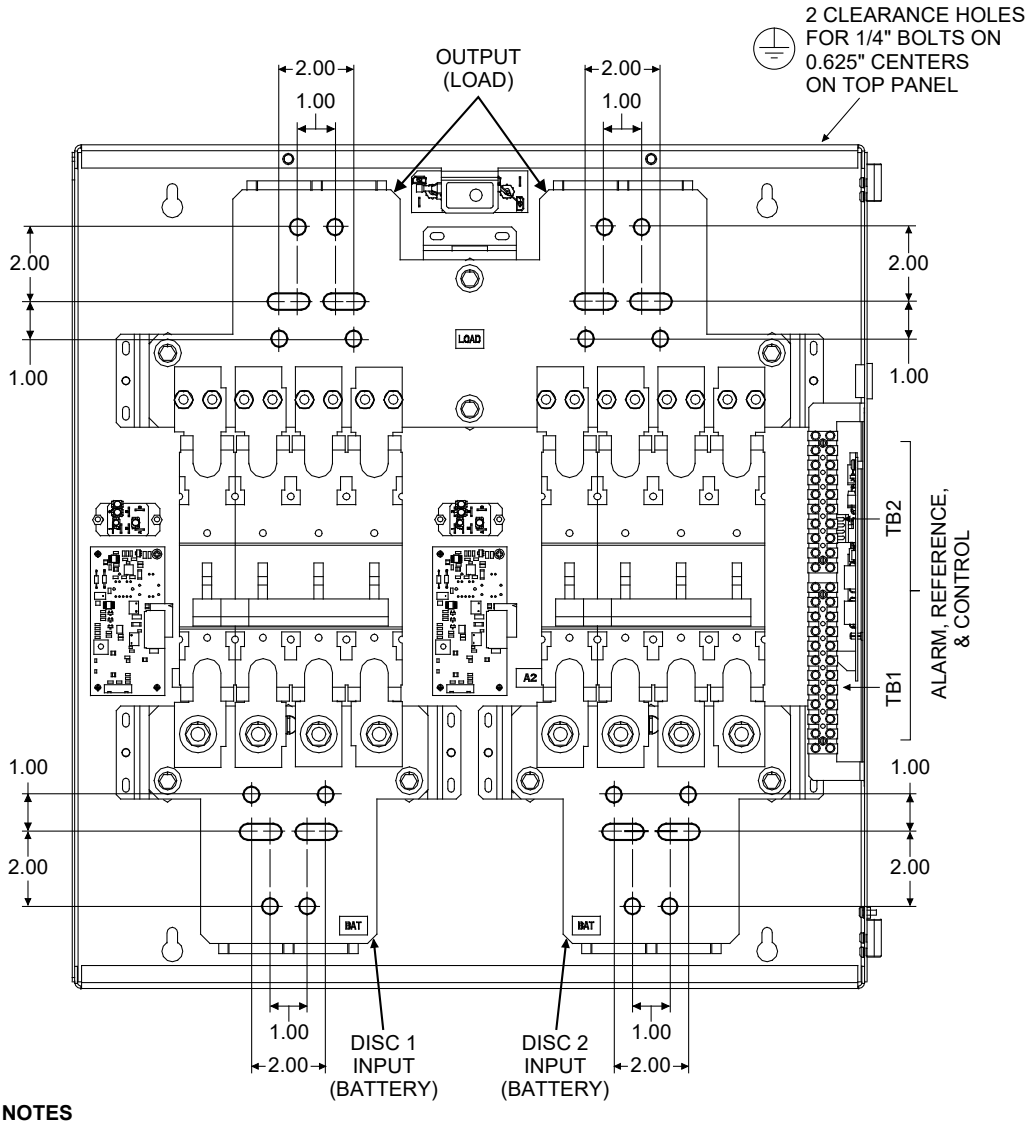




NOTES

1. All dimensions are in inches.
2. Wiring access cutouts contain ventilation openings.
3. Furnished rack-mounting angles are shipped detached.
4. Approx. Weight (in lbs):
   Net: 76
   Shipping: 90

Terminal Dimensions and Locations – Lists 2 and 12



NOTES

1. All dimensions are in inches.
2. All input & output lug mounting holes provide clearance for 3/8" bolts.

RELATED DOCUMENTATION

Schematic Diagram:	SD586400100 (Battery Disconnect Panel)
Wiring Diagram:	T586400100 (Battery Disconnect Panel)
Instructions:	Section 5908 (Installation and User Instructions) P0913485 (Battery Bank Installation Kit Instructions)

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