

# Dual-Feed 80A Auto Low Voltage Disconnect Panel - 80LVD02

## User Manual

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### 1.1 Overview

Telect's 80A, -48 Vdc Low-Voltage Disconnect (LVD) panel is a rack-mounted component with coil-operated contactors. These contactors disconnect the power system from the load and return when the system voltage falls below a preset level, protecting batteries and power circuits from damage. A compact 1 RU, dual-circuit panel configuration provides this vital capability in minimal rack space. Panel comes with factory-set disconnect voltages. Separate disconnect and closure voltages prevent rapid cycling of the LVD when the voltage is precisely at one of the control values.

Side 1 and Side 2 use a pair of dual-hole lugs for input source and output feeds. Inputs, outputs, and ground are easily accessible on this total front access LVD panel. Features include:

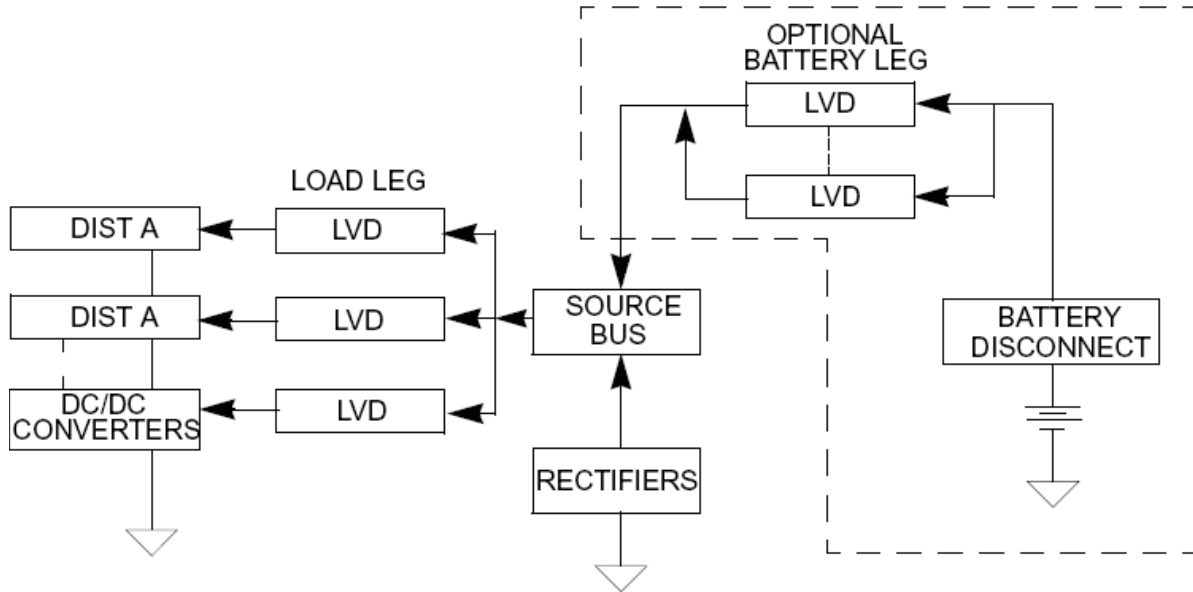
- Dual-color LVD STATUS LEDs for each side
- Independent Side 1 and 2 operation
- Total front access (TFA)
- Lexan cover protects I/O terminals and lugs
- Occupies just 1 EIA RU of vertical space
- Fits 19 or 23 inch racks with either EIA or WECO spacing
- Output RTNs for Side 1 and Side 2 are diode-isolated from the input RTNs



Figure 1 - 80LVD02

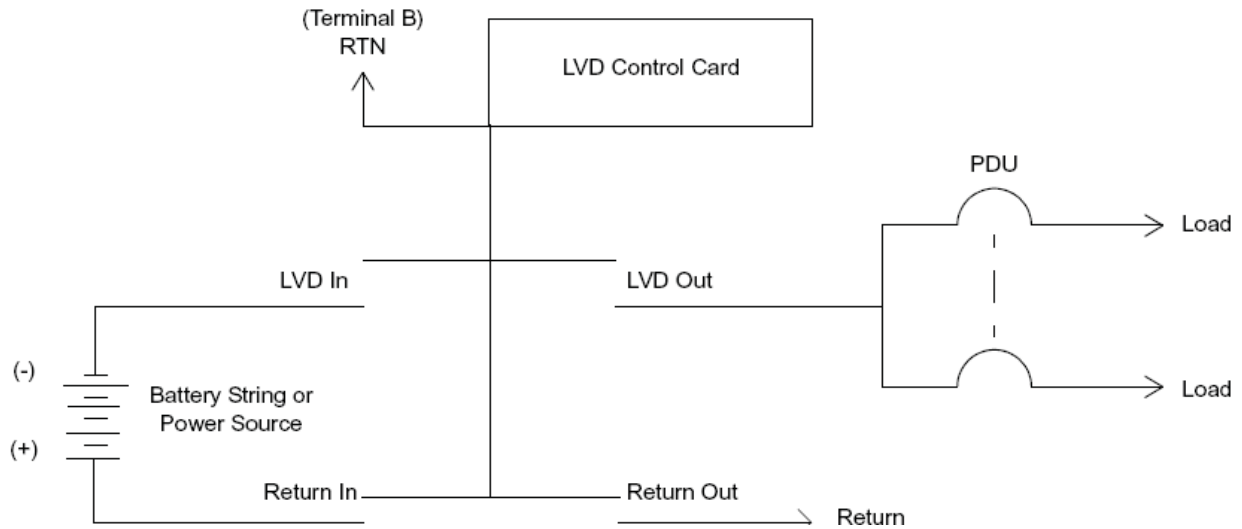
The LVDs are normally connected in series with the load, but may be connected in series with the battery as an option for exclusive battery protection. This protects the batteries from damage due

to discharge below the minimum recommended cell voltage levels during long-term power losses. See Figure 2.



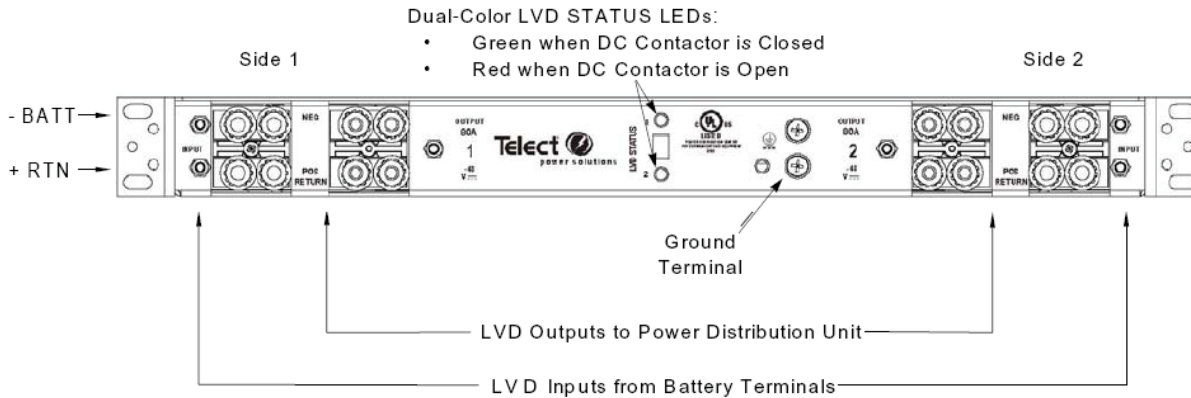
**Figure 2 - LVD Connection Series**

When the voltage falls below the setpoint, the LVD control card interrupts the circuit between the battery or source bus and the loads connected to the power distribution unit (PDU), as shown in Figure 3.

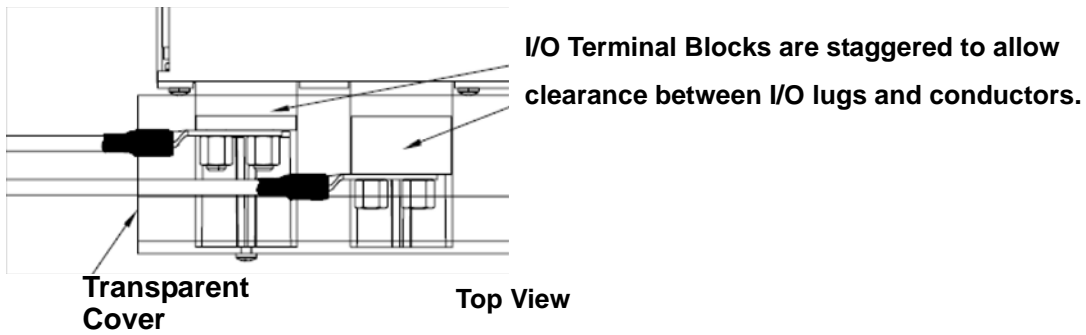


**Figure 3 - LVD Control Card Interruption**

The disconnect voltage is factory set at -39.0 Vdc and the closure is set for -47.0 Vdc. Separate disconnect and closure voltages prevent rapid cycling of the LVD when the voltage is precisely at one of the control values.



**Figure 4 - Status LVDs**



**Figure 5 - I/O Blocks and Clearance**

## 1.2 Specifications

Mechanical:	Specifications:
Dimensions (nominal) without brackets	Width: 17.0 in. (431.8 mm) Height: 1.75 in. (44.5 mm) (1 RU) Depth: 7.5 in. (190.5 mm)
Weight	~ 12 lb. (5.4 kg)
Material	Cold-rolled steel
Finish	Telect white powder coat
Mounting	19 or 23 in.

Terminal:	Specifications:
Input/Output Terminals	Dual-hole compression lugs, #1/4-20 studs on 5/8 in. centers, for 4 AWG or larger. Max. lug width is 0.5 in. (12.7 mm)
Chassis ground	Two #10 screws on 5/8 in. centers for either a single- or dual-hole lug.

Environment:	Specifications:
Temp (ambient)*	23°C to 131°F (-5° to 55°C)
Humidity	0% to 90%, non-condensing
* This unit is cooled by natural convection. Do not block air vents at top of panel.	

Electrical Interface:	Specifications:
Operating voltage (nominal)	-48 Vdc
Maximum voltage rating	-60 Vdc
Maximum output current capacity (continuous operation)	<ul style="list-style-type: none"> <li>• 80A @ 35°C</li> <li>• 70A @ 55°C</li> </ul>
Maximum input interruption device rating	100A
Interrupt Rating (IR)	100A
Short Circuit Rating (SC)	5000A
Disconnect setting	Factory set at -39.0 V (±.5 V). LVD STATUS LED turns red when the contactor opens.
Re-engage (pull-in) setting	Factory set at -47.0 V (±.5 V). LVD STATUS LED turns green when the contactor closes.

Electrical Interface:	Specifications:
Contactors	Dual-pole single-throw
LVD Control Card Reliability	MTBF > 400,000 hrs. per Bellcore Telcordia Technologies SR 332 Issue 1, May 2001.

### 1.3 Installation

#### **!** ALERT

**ALERT!** Only qualified personnel may install and maintain this product. Verify that all connections meet requirements specified in local electric codes or operating company guidelines before supplying power. Protect this equipment with a fuse or breaker sufficient to interrupt power levels specified in Section “1.2 Specifications” on page 4.

For installation in a data center, incorporate a readily accessible disconnect device into the building wiring.

Install this product in locations accessible only by qualified personnel.

#### 1.3.1 Important Installation Considerations

- **Elevated Operating Ambient** - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T<sub>ma</sub>) specified by the manufacturer.
- **Reduced Air Flow** - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- **Mechanical Loading** - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- **Circuit Overloading** - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- **Reliable Earthing** - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).
- **Disconnect Device** - A readily disconnect device shall be incorporated in the building installation wiring.
- **Over-Current Circuit Protection** - Any DC power source, of any nature, feeding the LVD must be properly circuit protected per NEC standards. Telect recommends this power source be protected with an external breaker rated at 60 Vdc, 125 Amperes maximum.

- **Intended Location** - This unit is intended only for installation in a restricted access location.

*NOTE:* This unit receives power from more than one source.

### 1.3.2 Inspection

Please read these instructions carefully before beginning installation. If you need assistance, call Technical Support at 1-888-821-4856 (domestic calls), or 509-921-6161 (Option 2), or email us at [getinfo@telect.com](mailto:getinfo@telect.com).

Inspect equipment after unpacking and compare it to the packing list.

Immediately report any shipping damage, defects, or missing parts to Telect at 1-800-551-4567. Keep all documentation that comes with your shipment.

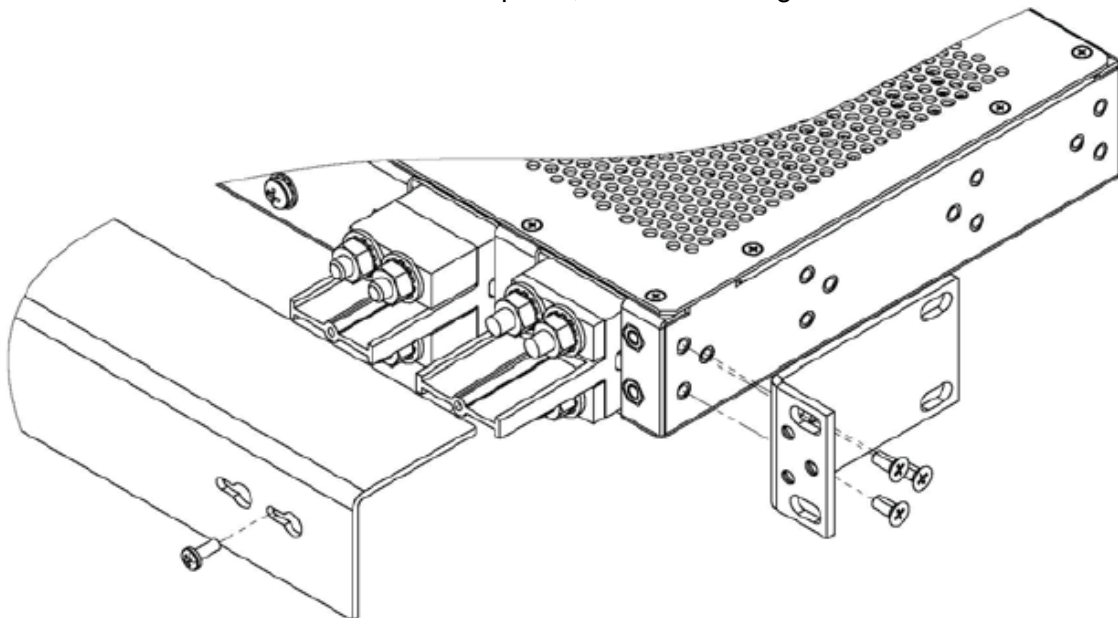
Telect is not liable for shipping damage. If the product is damaged, notify the carrier and call Telect's Customer Service Department at 1-800-551-4567 (domestic only) or 1-509-926-6000 for further recourse.

*NOTE:* For service or warranty information, please visit the [telect.com](http://telect.com) website, or email inquiries to [getinfo@Telect.com](mailto:getinfo@Telect.com) and click on the "Support" tab, or phone us at 800-551-4567 (domestic only) or 509-926-6000.

### 1.3.3 Installation Procedure

Each panel is thoroughly tested and calibrated at the factory. No user testing is necessary.

1. Remove the transparent cover on the front of the panel.
2. Locate an unused rack position as close as possible to the output power distribution unit.
3. Secure the brackets to the sides of the panel, as shown in Figure 6.



**Figure 6 - Panel Brackets**

Panel brackets provide flush or extended EIA or WECO mounting in a 19- or 23-inch rack. The front of the panel can be extended by ½ inch increments up to 3 inches.

4. Mount the panel using the four 12-24 thread-cutting screws, washers, and lock-washers provided.
5. Tighten the screws to 35 in-lb. (4.29 N•m).
6. DO NOT CONNECT POWER before properly grounding the panel, as follows:

### WARNING

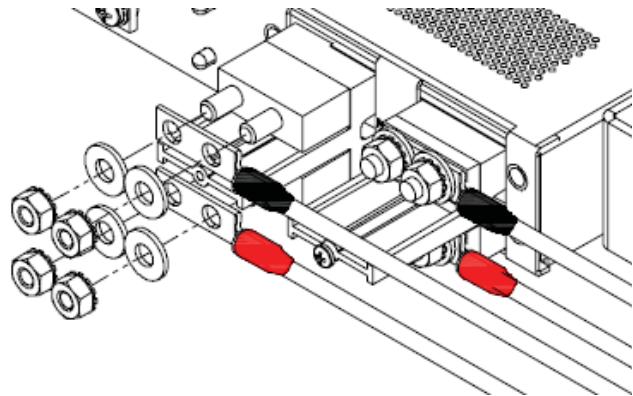
**WARNING! Failure to properly ground this equipment can create hazardous conditions to installation personnel and to the equipment.**

- a. Use a listed (approved) crimping tool to attach an approved, single- or dual-hole lug (#10 holes on 5/8 in. center) to a suitable conductor.
- b. Connect the ground lug using one or both SEMS screws and the washers provided.
- c. Tighten the 10-32 grounding screw(s) to 25 in-lb. (~2.8 N•m), max.
- d. Connect the opposite end of the ground conductor to a suitable ground bar.

### WARNING

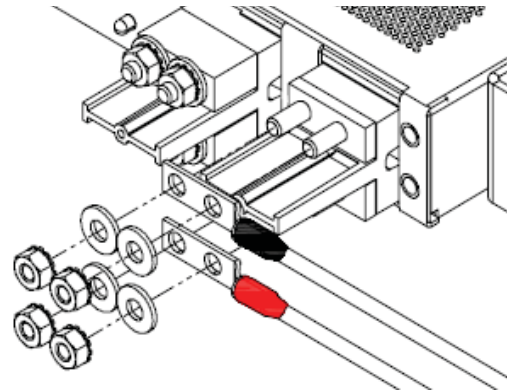
**WARNING! Before connecting input power cables, make sure the input power to the panel is turned off.**

7. For output wiring, crimp dual-hole compression lugs for 1/4-in. studs on 5/8-in. (15.9 mm) centers onto suitable copper wires (#4 AWG or larger) for Sides 1 and 2. (Lug width must not exceed 0.5 in. [12.7 mm].)
8. Use heat-shrink tubing to cover the ends.
9. Use a coarse, nonmetallic cleaning pad to clean the terminals.
10. Telect recommends lightly coating lugs and LVD output terminals (NEG and POS RTN, nearest the front corners) with antioxidant.
11. Connect the lugs to the terminals on both Sides 1 and 2, using the 1/4-20 hardware provided.



**Figure 7 - Conductor Installation**

12. Tighten the lugs to ~50 in-lb. (~5.65 N•m), max.
13. Connect the output conductors to the output device, such as a secondary power distribution unit.
14. Similarly, for input wiring, prepare and install lugged LVD input conductors on both Sides 1 and 2.
15. Confirm that power is disabled at the power source (battery or power supply), then connect this panel's input cables to the source.
16. Enable the battery or power supply source bus to provide power to the LVD panel.
17. Ensure correct voltage and polarity at all terminals.



**Figure 8 - Conductor Installation**

## 1.4 Compression Lugs

The panel's four, -48 Vdc input and output studs require dual-hole compression lugs suitable for 1/4-in. studs on 5/8-in. centers. The ground terminal requires a single- or dual-hole lug suitable for #10 screws on 5/8-in. centers. The following tables show the suggested lugs.

**Table 1 - Input & Output Power Lugs (1/4-in. Dual Holes on 5/8-in. Centers)**

	4 AWG		2 AWG	
	Straight Tongue	45° Tongue	Straight Tongue	45° Tongue
<b>Burndy</b>	YA4C-2L (Burndy Die 8)	YA4C-2L-45 (Burndy Die 8)	YA2CL2NT14 (Burndy Die 10)	YA2CL2NT1445 (Burndy Die 10)
<b>Panduit</b>	—	—	LCDN2-14A-Q (Panduit Die 33) (Burndy Die 10)	LCDN2-14AH-Q (Panduit Die 33) (Burndy Die 10)

**Table 2 - Ground Lugs (#10 Dual Holes on 5/8-in. Centers)**

	8 AWG	6 AWG (Preferred)
<b>Burndy</b>	YA8CL2TC10 (Burndy Die Code 49)	YA6CL2TC10 (Burndy Die Code 7)
<b>Panduit</b>	LCD8-10A-L (Panduit Die Code 21) (Burndy Die Code 49)	LCD6-10A-L (Panduit Die Code 24) (Burndy Die Code 7)

## 1.5 Maintenance

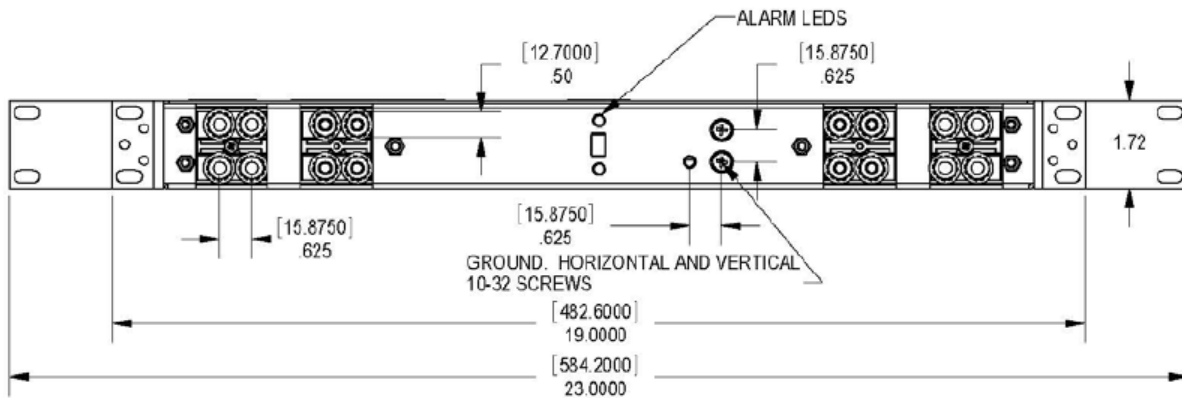
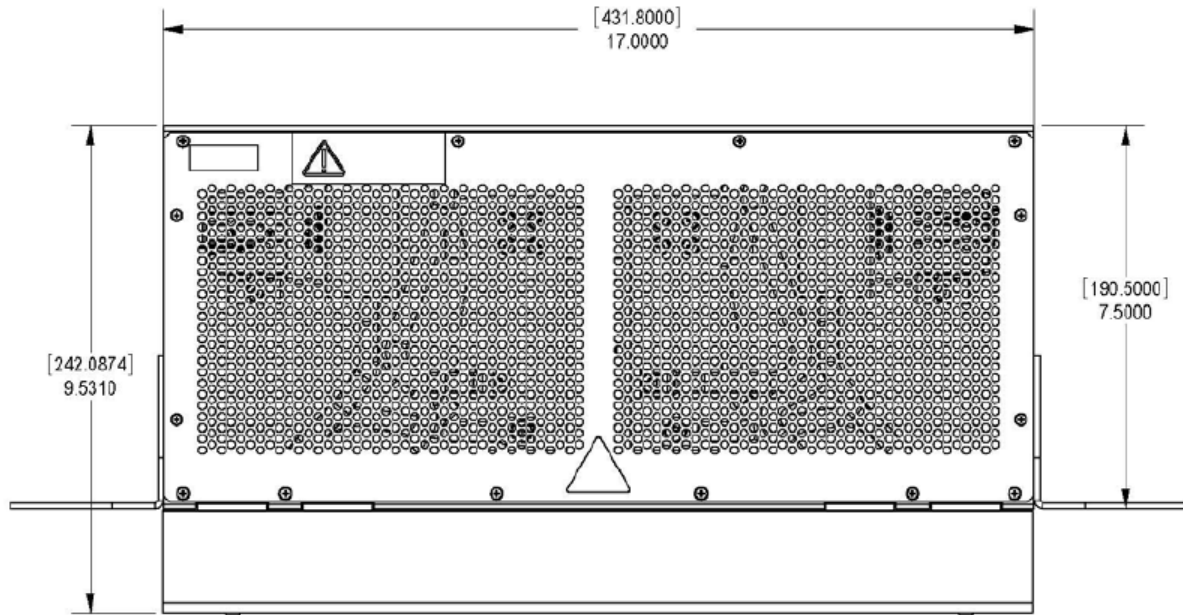
This panel does not require any preventative maintenance. NEVER use this panel to support any weight except its own.



## 1.6 Certifications

UL listed; NEBS Level III pending.

## 1.7 Dimensions



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