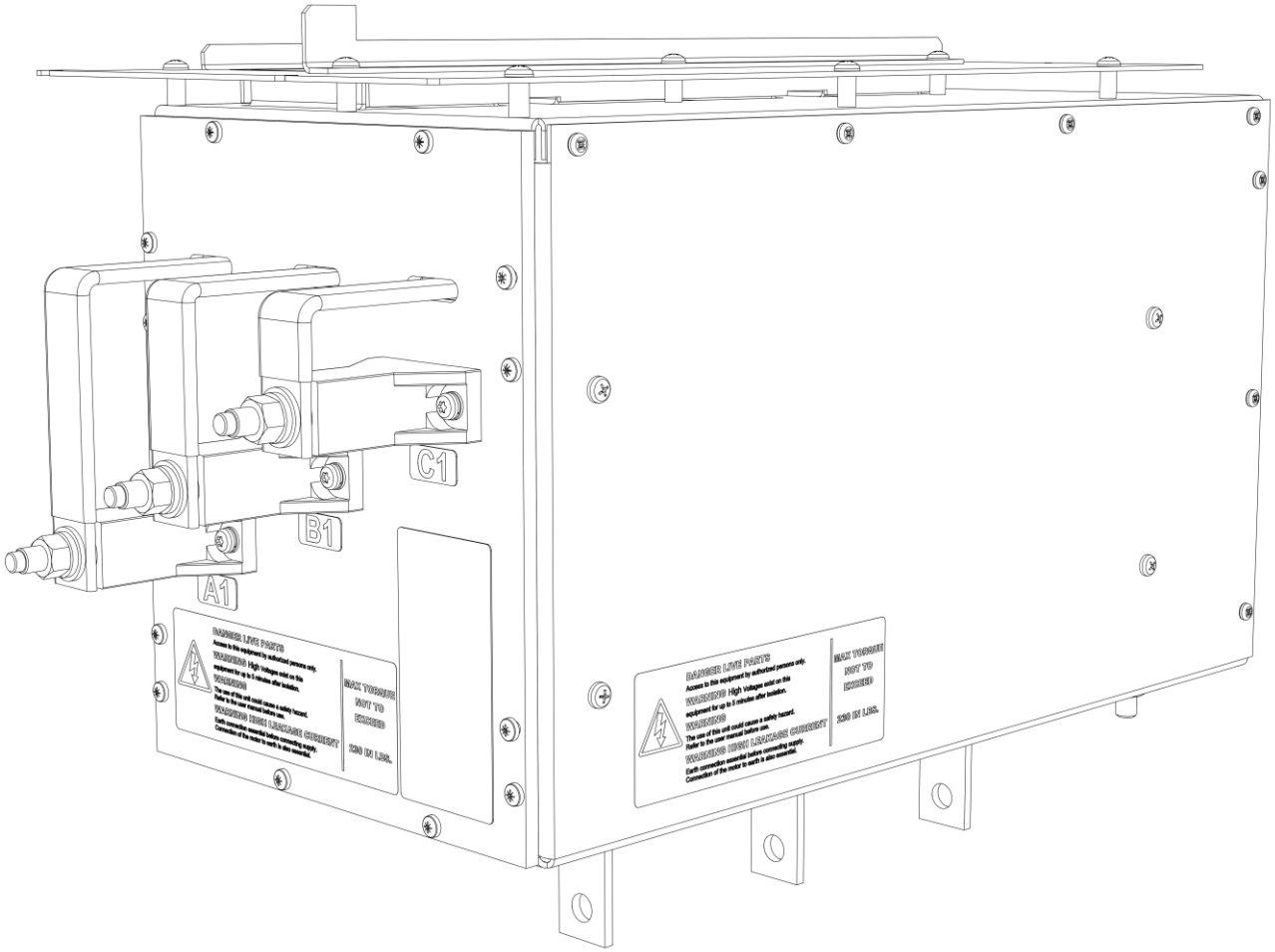
# AEI-REA-550-00-N
# Load Sharing Reactor - Data Sheet

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# Contents

## 1. Introduction

- The Avid Load Sharing Reactor (AEI-REA-550-00-N) is designed for use with the Avid Extreme Inverter 550A (AEI550A) and also MVD500/MVD300 Delta modules.
- The AEI-REA-550-00-N is used as an output reactor in multiple transistor bridge configurations.
- The module is fitted directly below its corresponding AEI/Delta module and is fitted on the standard cubicle cross rails.
- The module is air cooled using the cooling fan which is required for each AEI/Delta module. One of two apertures can be used for the airflow on the underside or rear (suitable for dirty air) of the module.

## 2. WARNINGS

- This equipment may be connected to more than one live circuit.
- All power supplies must be switched off and isolated before working on the equipment, failure to do so could result in death or serious injury.
- Wait at ***least*** 5 minutes after isolating supplies and check that the voltage between DC+ and DC- on the inverter has reduced to a safe level before working on the equipment.
- Risk of burn - surfaces on the cables and busbars can reach high temperatures and remain hot for some time after power is removed.
- Unit weighs: 30kg (66 lb.) When lifting use a two-man lift or suitable lifting equipment.
- The reactor is of IP00 construction and ***must*** be installed into an enclosure.

# 3. Specification

## 3.1 Electrical

| Specification | ***Value*** |
|---|---|
| Effective Inductance | 20µH per phase |
| Mains Network Frequency | 50 or 60 Hz |
| Continuous Current | 550A rms |
| Peak Current (60 seconds every 10 minutes) | +50% for 60s |
| Working Voltage | 690V AC rms |
| Resistance | 0.78mΩ |
| Withstand Test Voltage | 3.8 kV DC |

## 3.2 Cooling

| Specification | ***Value*** |
|---|---|
| Air Cooled | Cooled by the enclosure cooling system i.e., a fan mounted above the AEI/Delta to pull cooling air through the enclosure from the bottom of the cubicle. To be used with a fan of a minimum 900 $m^3$/hour (525 CFM) capacity (depending on application). |
| Airflow | If air is drawn through the back of the module from outside the enclosure:<br>• Care ***must*** be taken to prevent the high voltage coils from being accessible through the back of the enclosure.<br>• A blanking plate must be fitted on the bottom cut-out of the module. |

## 3.3 Environmental

| Specification | ***Value*** |
|---|---|
| Ambient Temperature<br>(Internal cabinet temperature) - Operating | 0 to 50°C |
| Temperature – Storage or Transport | -13°F to 131°F ( -25 to +55°C) |
| Altitude – Operating | Up to 3280ft. (1000m) ASL.<br>Between 3280ft. (1000m) and 6551ft. (2000m) apply derating of 7.5% per 3280ft. (1000m). |
| Altitude – Storage | Up to 9842ft. (3000m) ASL |
| Altitude - Transport | Will withstand air transport |
| Vibration – Transport | IEC 60721-3-2:1997 Class 2M1, in transport packaging. |
| Humidity – Operating, Storage or Transport | 5% to 95% RH, Non-condensing. |
| Cabinet air – Operating | Pollution Degree 2 as per IEC60664-1, UL 840 & CSA C22.2 No. 0.2-93<br>i.e. clean, free from dust, condensation and conductive or corrosive gases. Maximum chemicals 15ppm $H_2S$, 25ppm $NO_2$, 25ppm $SO_2$ |

## 3.4 Mechanical

| Specification | ***Value*** |
|---|---|
| Dimensions | 232mm W x 324mm H x 551mm L<br>(9.13” W x 12.73” H x 21.67” L) |
| Enclosure | IP00 (IEC 60529:1989; BS EN 60529:1992) NEMA 1<br>Must always be installed within an enclosure with restricted access |
| Mass | 30kg (66 lb.) |

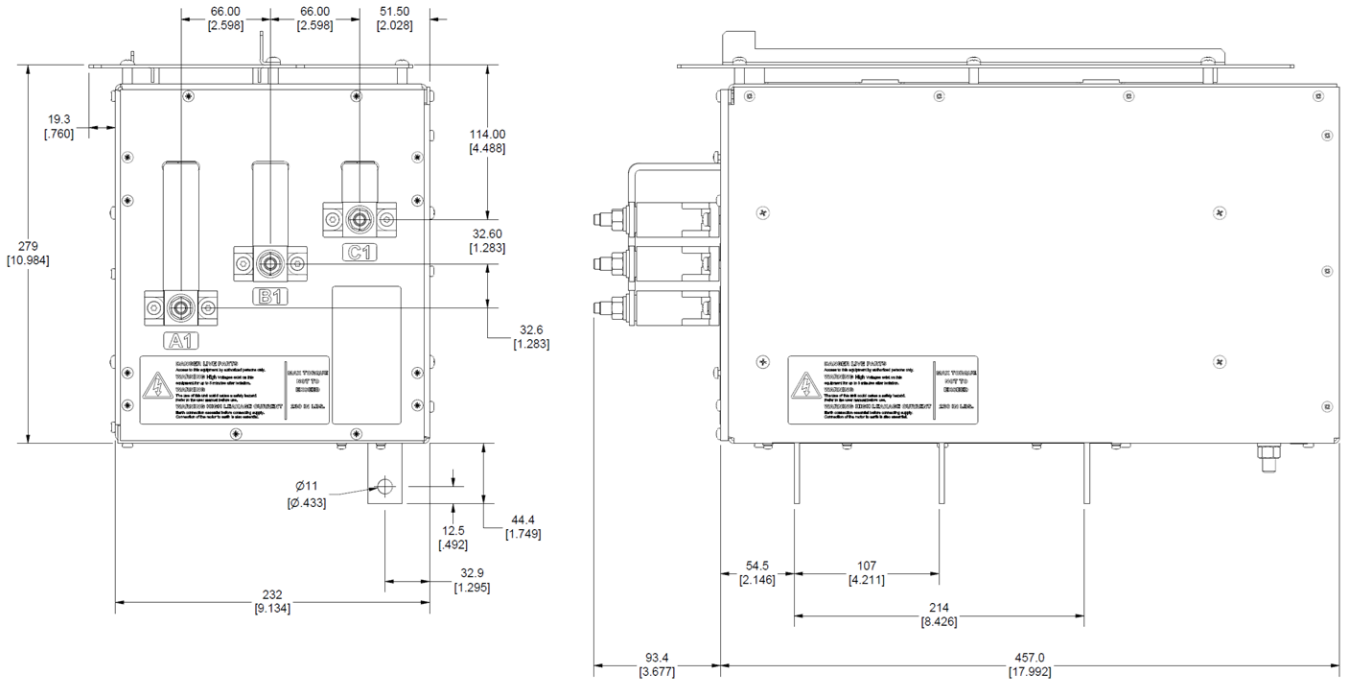
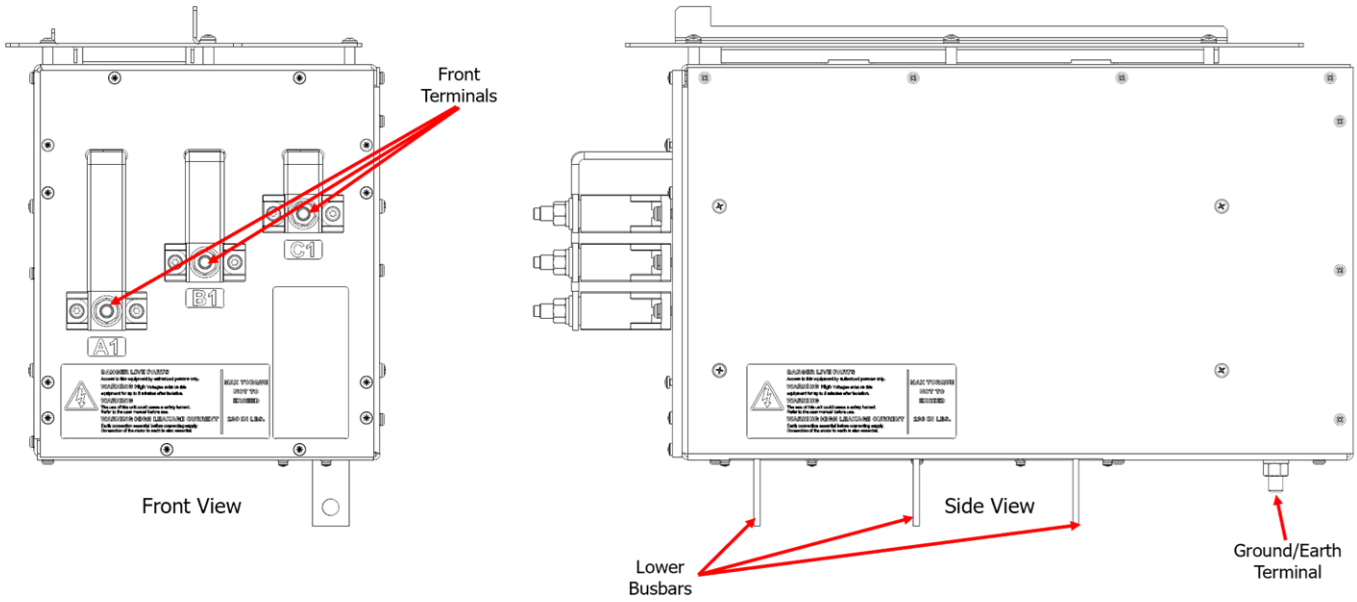



**Figure 3.1 – Mechanical Dimensions**



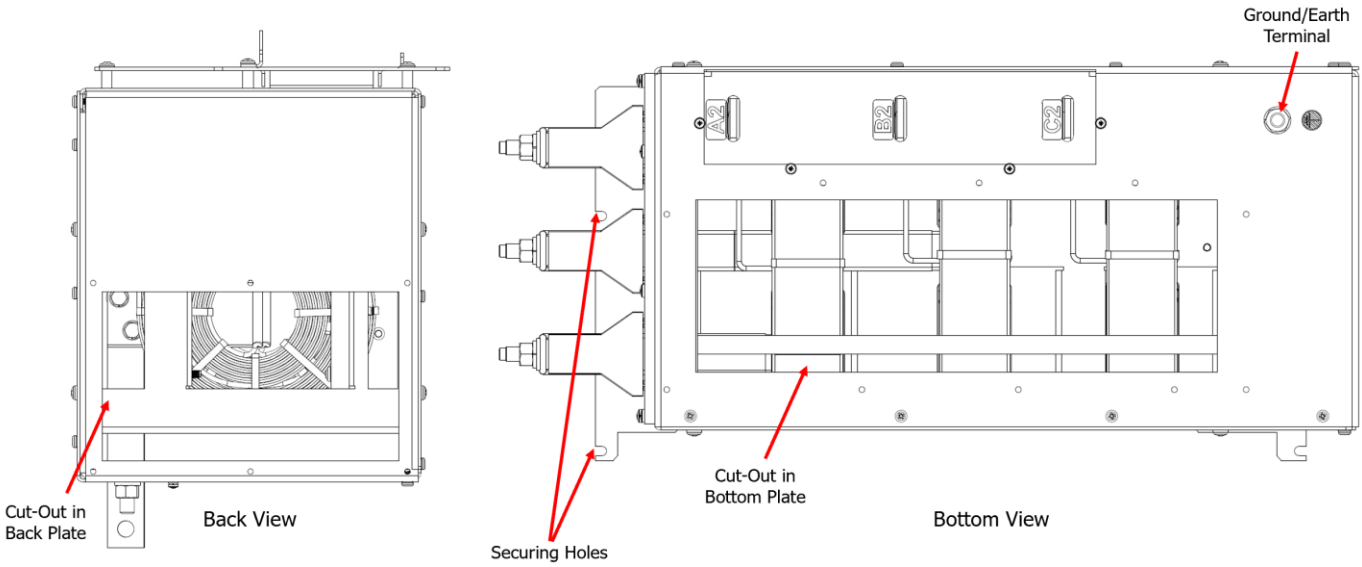



**Figure 3.2 - General Mechanical Arrangement and Electrical Connections**

## 4. Installation

- The AEI-REA-550-00-N is fitted directly below the inverter to which it is connected, it is supported by the cross rails in the enclosure.
- There are two lifting brackets on the top of the module to enable safe installation using suitable lifting equipment.
- Guide rails on the top plate of the reactor allow for correct positioning.
- There are four securing points (Ø 6mm) on the top plate of the module which allow it to be bolted into pre-drilled fixings on the cross rails.

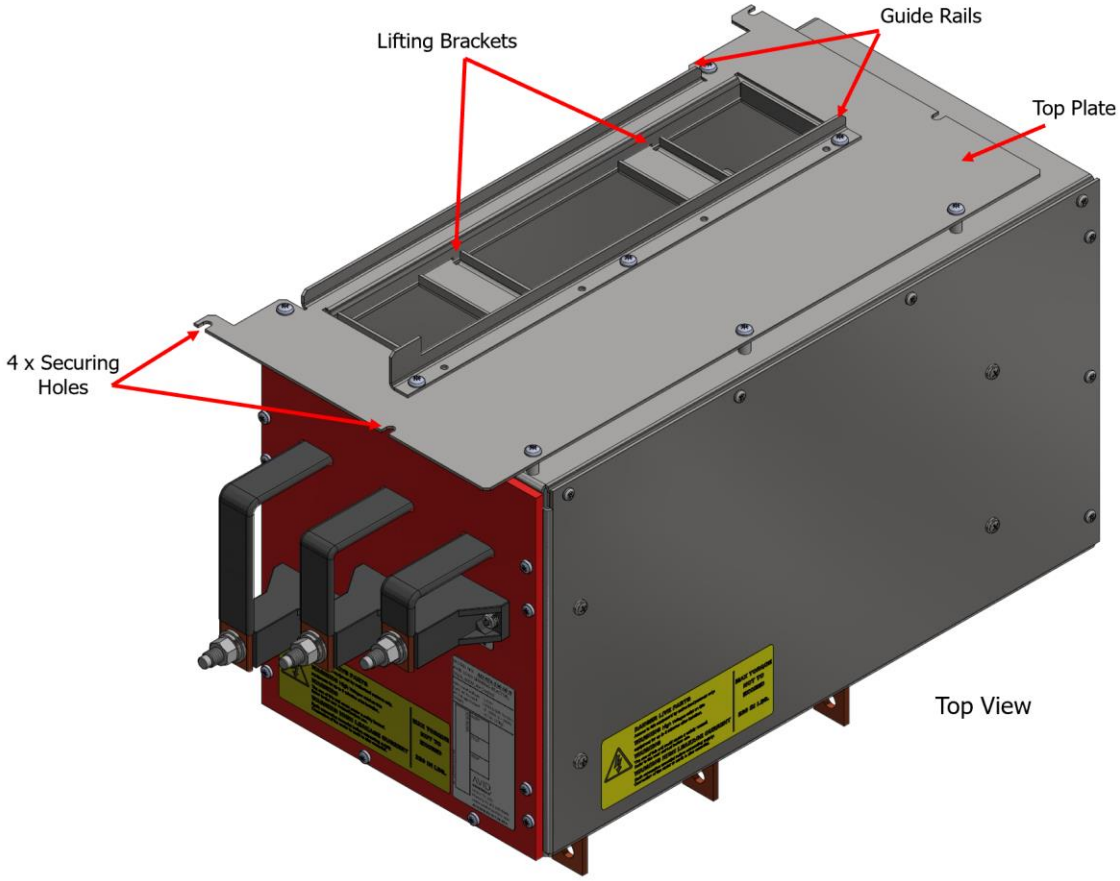



**Figure 4.1 – Mounting Information**

## 4.1 High Voltage /Power Connections

| Connection | ***Value*** | ***Torque*** |
|---|---|---|
| Busbars at the Bottom of the Module | 11mm Ø holes suitable for M10 Bolt | 35 N.m (310 lb-in) |
| Front Studs | Bolt 3/8-16 | 26 N.m (230 lb-in) |
| Ground Connection at the Rear Bottom of the Module | Bolt 3/8-16 x 1" | 31 N.m (274 lb-in) |

- The reactor connections are not polarity sensitive, i.e., either set of terminals may be used as input or output connections.
- Terminate one power cable per connection point.
- All power cables must have insulation rated to a minimum temperature of 125°C. Recommended insulation materials include high temperature silicone rubber and extruded radiation-crosslinked polyolefin.
- AC and GROUND cables must have insulation rated to a minimum of 690V AC.
- After fitting connections to the front studs, an optional polycarbonate shroud, packed loose in the box with the equipment should be fitted unless other safety shrouding provisions are in place within the enclosure.

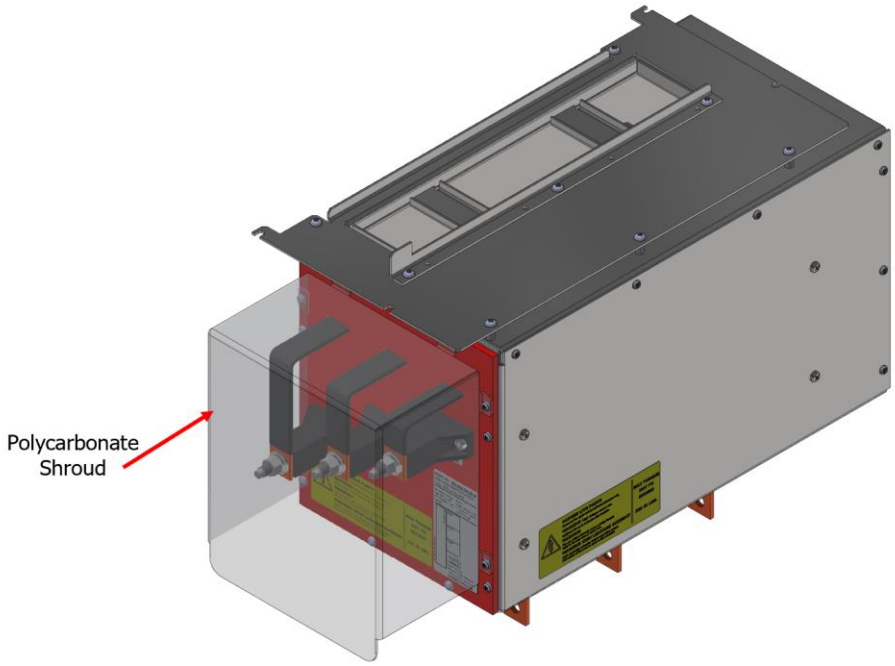



**Figure 4.2 Location of Polycarbonate Shroud**

## 4.2 Grounding Requirements

- The reactor ***must*** be grounded (earthed) by the 3/8-16 UNC bolt situated on the bottom of the module.
- This is identified by the standard green/yellow ground symbol.

## 5. Contact Details: Sales, Service and Support

The AEI-REA-550-00-N contains no user serviceable parts. For repairs or replacement please contact:

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## 6. Document Revision History

| Rev. | Date | Author | Changes |
|---|---|---|---|
| 00 | 11th Sept 2024 | Mark Woods | Document created |
| 01 | 18th Sept 2024 | Mark Woods | Revised shroud information. |