

## Do not expect the miracle of fast charging with Lithium batteries without upgrading the wiring !

With Lithium (and Lead Acid) the gauge of the wire and the distance is the most important factor for faster charging.

It is more important with Lithium because it will charge at a high rate longer. There are situations where 100-400 Amp Hour banks are being installed then there is complete disappointment when the 55 amp charger is only putting out 23 Amps. (40' of 6AWG)

This is due to the voltage drop between the converter and the battery bank. We are recommending that customers examine their wiring so they can optimize it.

A 2% drop in voltage is recommended for optimum performance. Using a calculator such as the [Circuit Wizard](#) \* you can enter 12 volts, the maximum amperage of the converter, the 2 percent drop, and a duration of battery bank size/converter amperage\*60(to give minutes duration) for a complete charge.

Using this calculator it becomes obvious that longer distances require larger wire. There is a practical limit to what can be expected, weighed with the cost of wire that often dictates the best solution is to bring the converter closer to the battery bank or accept slower charge rates.

### Solutions:

1. A deck mount style can be mounted closer to the batteries. This requires space and an AC outlet. The converter in the power center can be turned off and kept in place as a spare.
2. Accept the lower charge rates. If you are plugged in most of the time, or your battery bank is large enough to support a short dry camping time, then the slower charge rate does not matter.

### Other things to consider:

Another plus of the deck mount style [PD91XXALV](#) is that it is 2 stage. The power centers are single stage.

When choosing Lithium batteries look at the maximum charge rate amps.

There are 100 amp hour batteries that will charge at 100 amps and some that will only handle 50. Make sure the converter does not exceed this.

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## Sample Entry

### Find the Correct DC Wire

#### Information required to meet ABYC Standards ?

**Circuit Voltage**  
(V DC)

**12**

**Load Current**  
(amps)

**55**

**Length of Conductor**  
(feet)

**16**

#### Modify these default values if necessary

Allowable Voltage Drop  
(%)

2

Type of Load

Fixed ▼

Wire Insulation Temperature  
Rating (°C)

105 ▼

In Engine Room? ☐

#### Additional Derating Factors (if applicable) ?

Duration (minutes)

240

Terminated on Fuse? ☐

In Conduit or Sheath? ☐

Extra Thermal Insulation? ☐

Recommended Wire

**AWG 4**

Browse

**ANCOR**

4 AWG Wire

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