

**FEATURED PRODUCT**

**V-CHECK™ II**  
Battery Status Indicator

- Digitally monitors the state of power for any battery, particularly the liftgate batteries
- Provides a digital display of the battery voltage (9V-16V)
- Provides a digital display of the battery state of charge
- Features the “GO/NO-GO” LED light
- Easy to install



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## The Path of Least Resistance

Resistance in terms of electricity is anything that limits the flow of electrical current, whether it be slowing it down or reducing the amount of electricity all together.

On every tractor/trailer there will be some resistance that normally occurs as the electricity flows from the power source at the front of the tractor to the end source on the trailer. However, there are some things that can be done to make sure that the power on your vehicle is taking the path of least resistance, if you know what to look for.

**COPPER WIRE GAUGE:** Most people don't realize that copper wire has its own resistance. Its resistance is proportional to the length of the wire and its cross-section/thickness (gauge). Electricity running through a smaller gauge wire has more resistance trying to reach its destination than a wire with a larger gauge. Think of wire gauge as a water pipe. The longer and thinner the pipe, the more time it will take for water to travel from point A to point B. The shorter and thicker the pipe, the less time it takes for the current of water to travel to its destination.

**How to take the path of least resistance:** While all vehicles are already OEM spec'd for proper wiring, it's important to make sure that proper electrical cables with the correct gauges are being used between the tractor/trailer. Any add-ons to the trailer (not original to the OEM specs), that require additional wiring should use the correct size gauge. Additional ground wiring for these add-ons should also be taken into consideration as well.

**ELECTRICAL CONNECTIONS:** For every plug and socket connection a small voltage drop will occur. This is due to contacts that do not mate 100%. The construction of pins and receptacles don't always make full contact; even the most efficient design will have some voltage drop. This creates resistance.

**How to take the path of least resistance:** Always make sure that your plugs are securely connected to the socket. If your socket has split pins,

use caution and very carefully use a screw driver to open them up slightly so there is better contact between the wall of the pins on the socket and the wall of the pins in the plug.

**CORROSION:** Corrosion has a similar more devastating effect. When corrosion begins to take over, the copper surface of the pins on the plugs and sockets, as well as the wires in the electrical cables and/or harness system, become diminished. Fewer electrons are able to flow over the surface, causing resistance and a drop in voltage. Voltage drop due to corrosion may become apparent when lights dim, flicker or go out altogether. On the inside of a trailer, dome lights may experience the same effect. If corrosion gets into the liftgate charging system, resistance will cause a drop in charge and a noticeable decrease in cycles may tip off a driver that something is wrong. If a battery status indicator monitors the power in the liftgate batteries, it may indicate a drop in the state of charge, even after the batteries have been charged to full capacity.

**How to take the path of least resistance:** Maintaining the electrical system to keep it free from corrosion is very important. The following are a few tips that will help prevent corrosion in the electrical system:

- Protect battery posts and terminals with anti-corrosive spray.
- Check ground power source: Always make sure ground leads directly to the negative battery post. Grounding to the chassis or engine will lead to corrosion, poor contacts and faulty electrical operations.
- Clean connectors every 6 months use a plug and socket brush with water, (NOT SOAP).
- Grease plugs and sockets after every cleaning, reapply dielectric grease on plug and socket pins to keep the connection properly sealed.
- If you must make a repair to the wiring in the harness, or any kind of wiring, use shrink terminals.
- Avoid probing through insulation to test wiring as this opens up an avenue for damaging chemicals to start corrosion.



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- Copper wire has its own resistance which is proportional to the length of the wire and its cross-section/thickness (gauge). Electricity running through a smaller gauge wire has more resistance trying to reach its destination than a wire with a larger gauge.
- For every plug and socket connection a small voltage drop will occur due to contacts that do not mate 100%. Always make sure plugs/sockets are completely connected and that there is good contact between the pin walls.
- When corrosion takes over the electrical system, fewer electrons are able to flow over the surface, causing resistance and a drop in voltage. Routine preventative maintenance will help fight corrosion.

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