

# Installation Instructions for IOXUS LiftGate Super Capacitor Module

Your New IOXUS LiftGate Super Capacitor Module is as easy and as safe to install as a battery. No additional tools or skills are needed beyond those for installing a battery. The entire process should take less than an hour.

**CAUTION: Insure the power to the rear battery box is off. It is always best to disconnect the wire directly that power the rear battery area.**

**There is no risk of shock with the IOXUS LiftGate Module. The voltages are typical of those measured in any 12V DC system that includes a charger.**

**10 step instructions to install the IOXUS LiftGate Super Capacitor Module:**

**Step 1. Remove the power source from the LiftGate batteries**

**Step 2. Remove the battery cables from the studs on the battery that is closest to the charge input. this is usually the battery on the right**

**Step 3. Remove the battery hold down**

**Step 4. Remove the right side battery**

**Step 5. Clean the battery tray surface as needed**

**Step 6. Install the module with the positive input and output side toward you. Negative in back.**

**Step 7. Install battery hold downs to the module and the battery**

**Step 8. Reinstall the buss cable between the lift gate module output and the positive of the existing battery or batteries if 2 are used**

**Step 9. Install your charging input ground cable and ground buss cable to the other batteries to the ground on the module**

**Step 10. Install your input charge cable to the input post on the module**

At this point your IOXUS Super Capacitor LiftGate module is installed !. Simply start the tractor and let it run for up to 20 minutes to initialize the IOXUS Super Capacitor Module. Measure the voltage the remaining battery while the tractor is running and it should be greater than 12.0V and slowly rising. You may put the cover on the battery box.

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**Your IOXUS LiftGate theory of operation:** Your IOXUS LiftGate Module contains a sophisticated DC/DC converter which acts like a second alternator. The internal electronics compensate for any voltage loss that typical trailers see across the length of them from the input of the tractor to the rear battery box. It is especially effective as the trailer ages and that voltage drop increases. That low voltage prevents the existing battery (s) from being properly charged causing a weak and short performance while operating the LiftGate but also decrease the life of the battery substantially. Inside the IOXUS LiftGate Module is a bank of Super Capacitors. These Capacitors get charged from the converter and in turn charge the remaining battery (s). They will charge themselves and the remaining battery even if the input voltage dips to 9V. Once the voltage on them equal that of the battery, the remaining power gets pushed to the battery and it then charges to its design parameters. When installed the Module will supply approx. 80% of the peak power required to operate a typical lift including all the initial peak current. The battery will remain in a 'lightly' used state thus further enabling it to last longer.

The IOXUS Module can be used with two, one or no remaining battery.

For systems with two or more existing batteries, simply remove one of them once the power to the battery box is safely off. In most cases only a single battery is needed along with the Module to operate the LiftGate as desired. In some light duty applications where the power to the tractor / engine battery is always present the Module can operate without a battery. It will function at least several full lift up & down cycles once charged but will need to be constantly charged if the uses are more frequent. When in doubt please consult the factory for clarifications. But in a single battery application the lift will

**operate significantly longer than previous normal because that battery will be healthily charged unlike before.**

**The IOXUS LiftGate Module has three terminals. The black is Ground. The red is Positive input and the green is Positive output either to the remaining battery or to the Lift Gate itself through the control switch.**

**With a single battery remaining, connect the IOXUS Module Ground wire first. Then connect the remaining battery Positive terminal to the Green Positive output terminal. Connect the Positive input wire to the Red terminal.**

**With a volt meter measure the voltage across the rear battery. Connect power to the battery box. In approx. 10 minutes you should notice the voltage of that battery to slowly begin to rise. This is indicating that the internal DC/DC converter has charged the internal bank of Super Capacitors and is now charging the battery. Depending on the condition of the battery, that charge time may vary. And may take an additional 30-45 minutes. If a new battery was installed that charge time should be approx. 30 minutes.**

**NOTE: When the remaining battery is fully charged, the IOXUS Module will draw less than 1 Amp from the tractor.**

**For installations where no battery is used, the Green terminal should connect direct to the control wires for the lift gate itself that feed the switch. The charge time will be approx. 10-15 minutes and will stop when the voltage at the point reaches 14.0V**