

OUTPOST 40 // FIELD ENGINEERING DIVISION

INTEGRATING A SOLAR CHARGE CONTROLLER TO THE 12V GO-BOX

Adding a solar charge controller allows you to safely harness a portable solar panel to keep your go-box charged indefinitely without overcharging or damaging the battery.

PHASE 1: COMPONENT & WIRING PREPARATION

Before making any physical connections, you must follow the golden rule of solar electrical work to prevent damaging your charge controller:

- **The Charge Controller:** A budget 10A or 20A PWM/MPPT solar charge controller with clear screw terminals.
- **The Input Port:** A panel-mount waterproof DC barrel jack or Anderson Powerpole port installed on the side of your ammo can.
- **Wiring:** 14-gauge stranded copper wire (Red for Positive, Black for Negative).

PHASE 2: STEP-BY-STEP WIRING SCHEMATIC

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[ SOLAR PANEL ] —(Positive/Negative)—> [ CONTROLLER: Solar Terminals ]
                                         |
[ 12V BATTERY ] —(Fused Positive/Negative)—> [ CONTROLLER: Battery
Terminals ]
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01 Battery-to-Controller Link (First)

- Run a fused positive wire from your go-box battery (or the input side of your main fuse block) to the **Battery (+) terminal** on the charge controller.
- Run a negative wire from the battery's negative terminal to the **Battery (-) terminal** on the charge controller. *The controller's display should power on.*

02 Panel-to-Controller Link (Second)

- Wire your exterior-mounted solar input port (Anderson Powerpoles or DC barrel jack) directly to the **Solar (+) and Solar (-)** screw terminals on the charge controller.
- Secure all screw terminals tightly to prevent loose connections from vibrating loose in the field.

PHASE 3: SAFEGUARDS & FIELD OPERATION

- **Panel Rating Check:** Ensure your portable solar panel's open-circuit voltage matches your controller's maximum input limit (typically 12V/24V auto-detect systems handle up to 25V safely for small PWM units).
- **Shade Management:** Keep your solar panel in direct sunlight while keeping your go-box shaded or inside your shelter to prevent thermal overheating during peak daytime charging.