M-Series Solar System Set Up

Easy Installation Guide for Your M-Series Pump System

Welcome to Cap Solar! Your M-Series pump system (M5, M30, M40 Flex, or M15 Flex) is designed for simple setup with pre-sized components: the pump, prewired battery box (with charge controller inside), solar panels, and your chosen trough. Follow these steps to get water flowing fast!

What You'll Receive

- M-Series pump (M5, M30, M40 Flex, or M15 Flex)
- Prewired battery box (12–48V with charge controller - Victron or Sun Saver)
    - Connections:
        - Solar pin connector
        - Float Pin connector
        - Orange Pump Deutsch connector
- Solar panels (pre-sized for your pump)
- Trough (4x8 stationary, 4x8 Wheels and hitch, Capsule, or DU-AL)
- Float switch (6 ft or 20 ft)

Tools You'll Need

- Hex driver
- Ratchet
- 9/16" wrench and socket
- Hose (if needed for trough connection)

Installation Steps

Step 1: Unpack and Check Your Kit

- Lay out all components: M-Series pump, battery box, solar panels, trough, and float switch.

- Ensure nothing's damaged from transit.

Step 2: Set Up Your Solar Panels

- Place the panels in a sunny, unshaded spot, facing south.
    - The angle of the panel/mount should vary anywhere between 40 degrees and 60 degrees. Depending on season
    - Summer = less angle
    - Winter = greater angle
- Take the panel(s) with the provided Hub and slide the U-bolt over a 3" pole and rest on the lip of the Hub of the mount
- On the bottom of the panel, the arm and swivel swing out and lean against the pole below the Hub. Take two 64' hose clamps and tighten them down over the top and bottom of swivel with a hex driver.
- Tighten the U-bolt on the Hub with 9/16" rachet, socket and wrench
- Locate the solar wiring harness (attached to the panels) with the pin connector. You'll plug this into the battery box later.

Step 3: Install Your Trough

- Ensure any trough you have is on level and stable ground.
- In most cases adding a wind break around the trough is beneficial.

- **Options**:
    - **4x8 Stationary/Wheels and Hitch:** Position it near the water source and pump (if possible) and connect the Flex hose outlet to the rest of your hose (Provided by you) from the water source. (Typical set up with a dugout)
    - **Capsule Trough**: Typically, troughs are placed over a wet-well.
        - **IN WINTER:** If your operation has "X" amount of cattle it is suggested to get covers for the Capsule drink tubes to ensure the water doesn't freeze over as easily.

- **DU-AL Trough**: Set it up - close to your water source. Typically, on a wet well, or a dugout. Connect the pump's hose to the designated inlet on the bottom right of the DU-AL.
    - Ensure the DU-AL is secure to the ground, as its possible for cattle to push it around and it is top heavy.

Step 4: Place the Pump

- **Submersible**: Wet Well
    - Remove the pump and submersible cable from the box, inspect all equipment for damage. Attach flex hose into outlet as shown. Secure with hex driver.
    - Install 2" hose barb adapter onto 2" poly pipe or air seeder hose.
    - Hang the M Series pump upside down from the eyelet on the bottom of the pumps wet well kit.
- **Floating**:
    - Attached your hose to the flex hose with hose clamps and tighten with hex driver and make sure the 9/16" hardware is tightly secured on the bottom of the pump with the float.
    - To position the floating pump in the dugout, use poly rope (not supplied) and attach to holes in the float.
    - Stake rope to opposite banks of dugout allowing the pump to float in an adequate depth of water
    - NOTE: place inlet suction screen into water before running pump **(DAMAGE WILL OCCUR IF PUMP RUNS DRY)**

- IMPORTANT: when pump is placed, install outlet of pipe above top of water tank. If end of pipe is in water before pump is shut-off the water will siphon back, and the pump will cycle. NOTE: there is no check valve in these pumps.

Step 5: Connect the Battery Box and Float Switch

- Open the battery box and find the “IMPORTANT” sticker above the Victron charge controller. Follow these steps in order:
    1. **Connect the Battery**: Attach the positive (red wire) to the positive terminal on the battery inside the box. The negative is prewired.
    2. **Plug in Solar**: Take the solar pin connector from the panels and plug it into the “Solar” port on the right side of the box.
    3. **Plug in Pump**: Connect the pump’s twist-lock plug to the receptacle on the bottom left of the box labeled “Pump.”
- **Float Switch**:
    1. Using the adjustable clamp find the portion on the float switch bracket so the pivot point is below full water level.
    2. Plug the float switch pin connector (6 ft or 20 ft) into the “Float” port on the top left of the box.
    3. Check to make sure the water tank will not overflow before the pump shuts off.
    4. **IMPORTANT:** Float switch must be protected from cattle.

Step 6: Test Your System

- Double-check all connections: solar pin to “Solar,” pump twist-lock to “Pump,” float switch to “Float.”
- Ensure all wired connection in the battery box on the battery and give a tug on the leads into the charge controller to ensure they are tight and secure.
- When all connections are made, the pump should start automatically. Watch for water flowing to your trough!

Quick Tips

- **No Power?** Ensure the solar pin connector is secure, and panels are in sunlight.
- **Trough Not Filling?** Check the pump and float switch plugs.

- **Need Help?** Contact Cap Solar support—we're here for you!

That's it! Your M-Series pump system is now delivering water with solar power. Enjoy your Cap Solar setup!