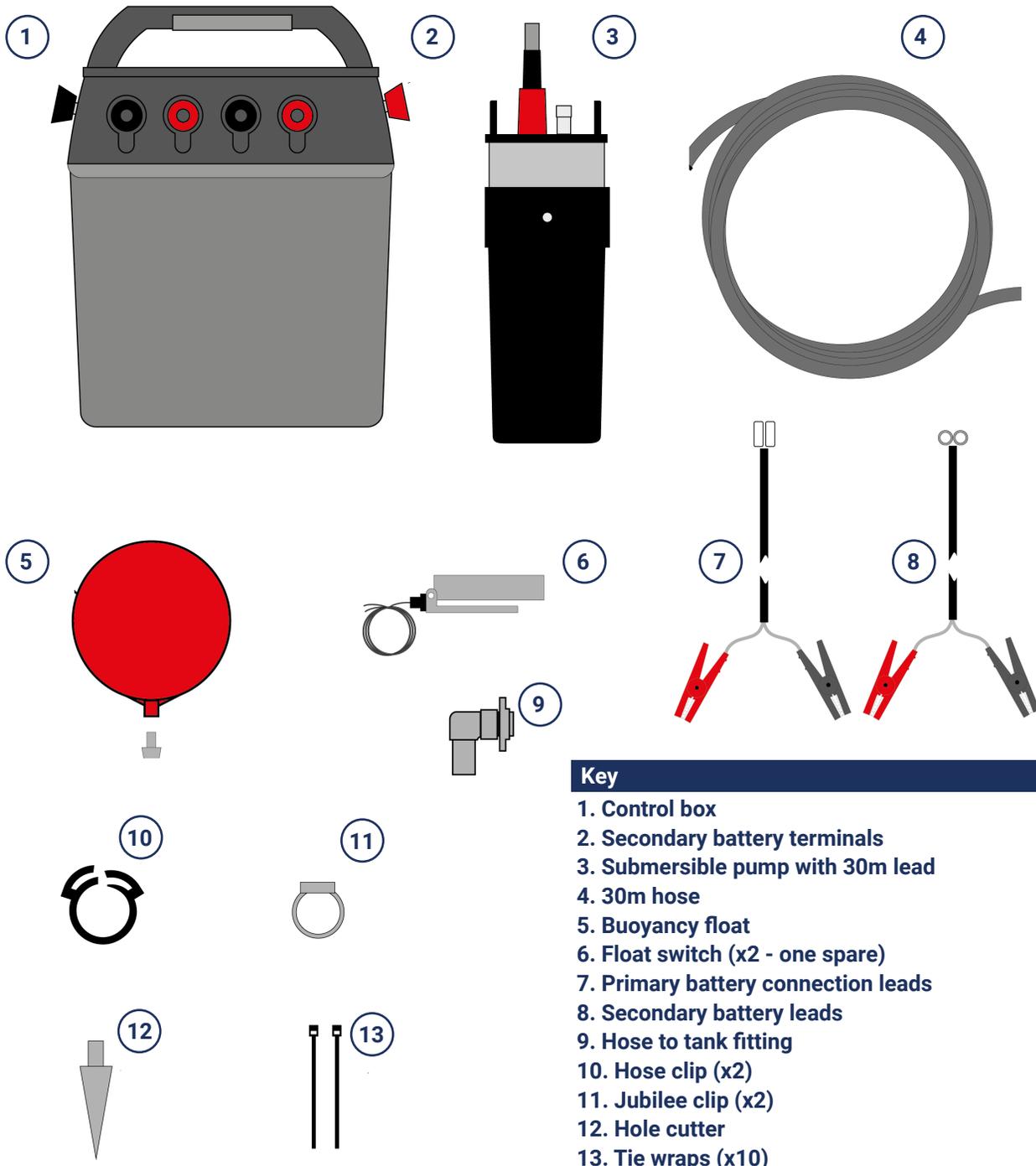


# BATTERY AND SOLAR PUMP INSTALLATION GUIDE

Whats in the box?



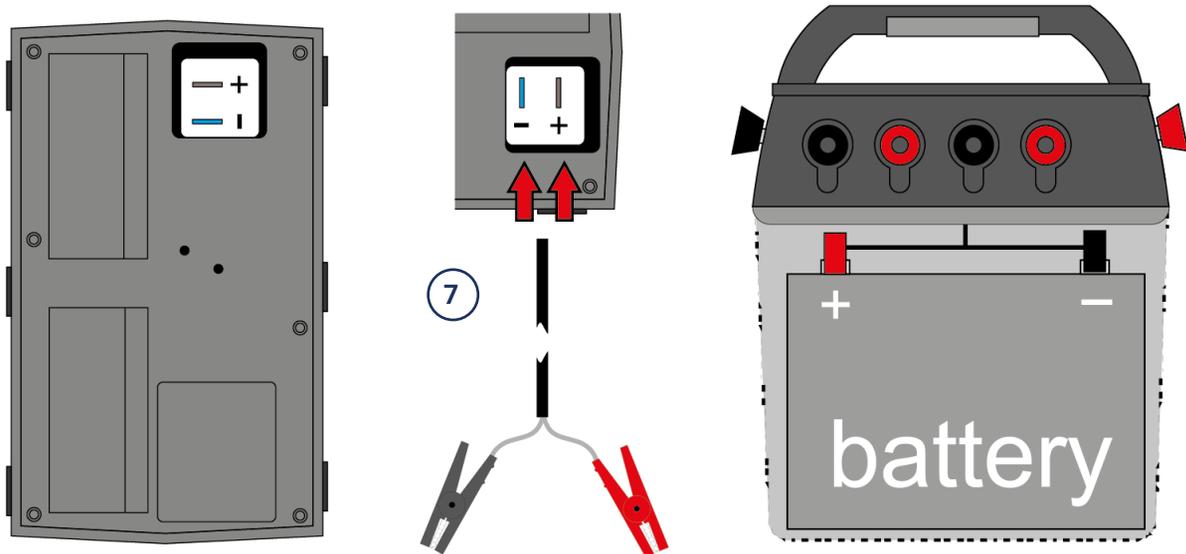
## Key

1. Control box
2. Secondary battery terminals
3. Submersible pump with 30m lead
4. 30m hose
5. Buoyancy float
6. Float switch (x2 - one spare)
7. Primary battery connection leads
8. Secondary battery leads
9. Hose to tank fitting
10. Hose clip (x2)
11. Jubilee clip (x2)
12. Hole cutter
13. Tie wraps (x10)

## Connecting it all together

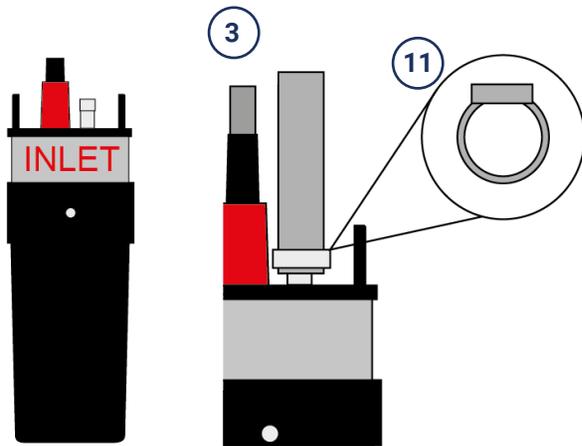
### 12V Connection

Use a leisure battery of minimum 75ah. Some batteries may need the handle detaching to allow room for the crocodile clips. Ensure the battery is fully charged as batteries with low voltage can affect the performance of the pump. A secondary battery can be connected to the external battery terminals.



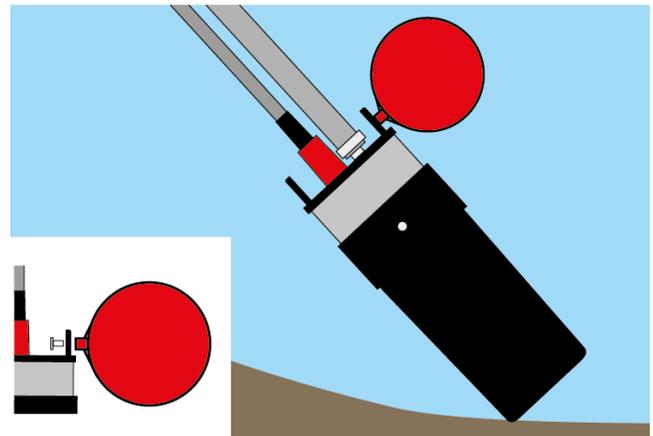
### Hose Connection

Connect the hose to the outlet on the pump and secure with jubilee clip

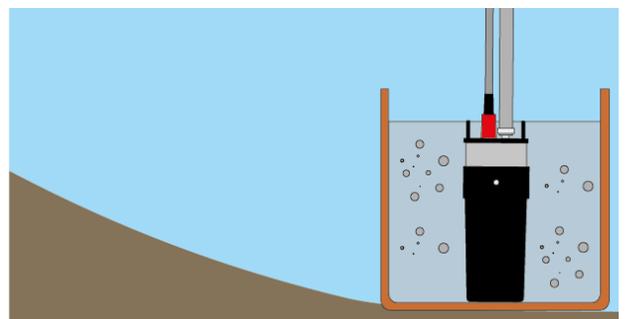
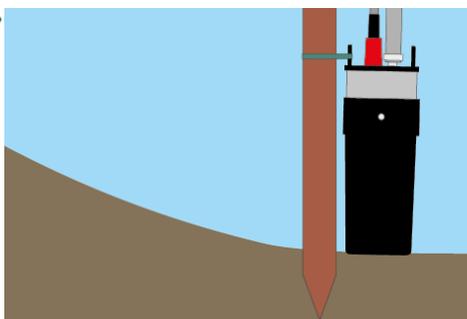


### Pump Placement

Immerse the pump fully in the water ensuring the mesh inlet remains fully submerged. The optional float will add some buoyancy and help in keeping the inlet clear of silt.



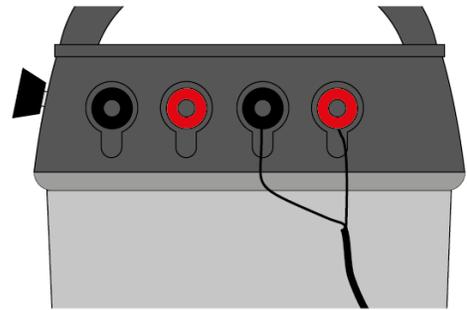
**TIPS:** Secure the pump in place with a stake to keep it in the best position. To keep the mesh clear of debris, place the pump in a bucket of pea grit.



### Connect the pump to the control box

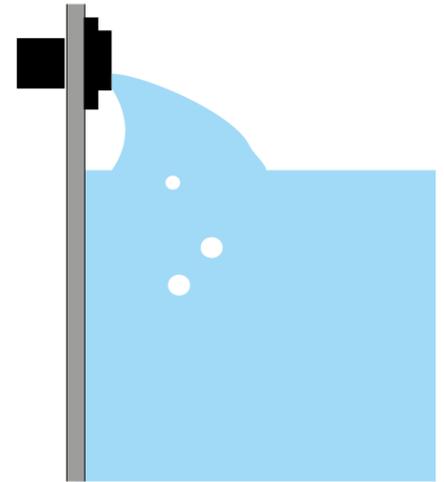
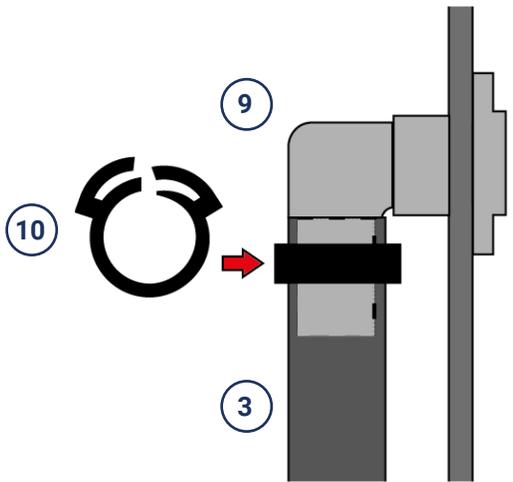
Position the control box near to your water trough. Run the hose and lead back to the box from the water source. Use the tie wraps to secure the lead along the length of the hose if desired. Connect to the right two terminals (brown wire to red terminal and blue wire to black terminal).

**TIP: Position the trough so that the control box can be placed behind a fence, protecting it from the animal.**



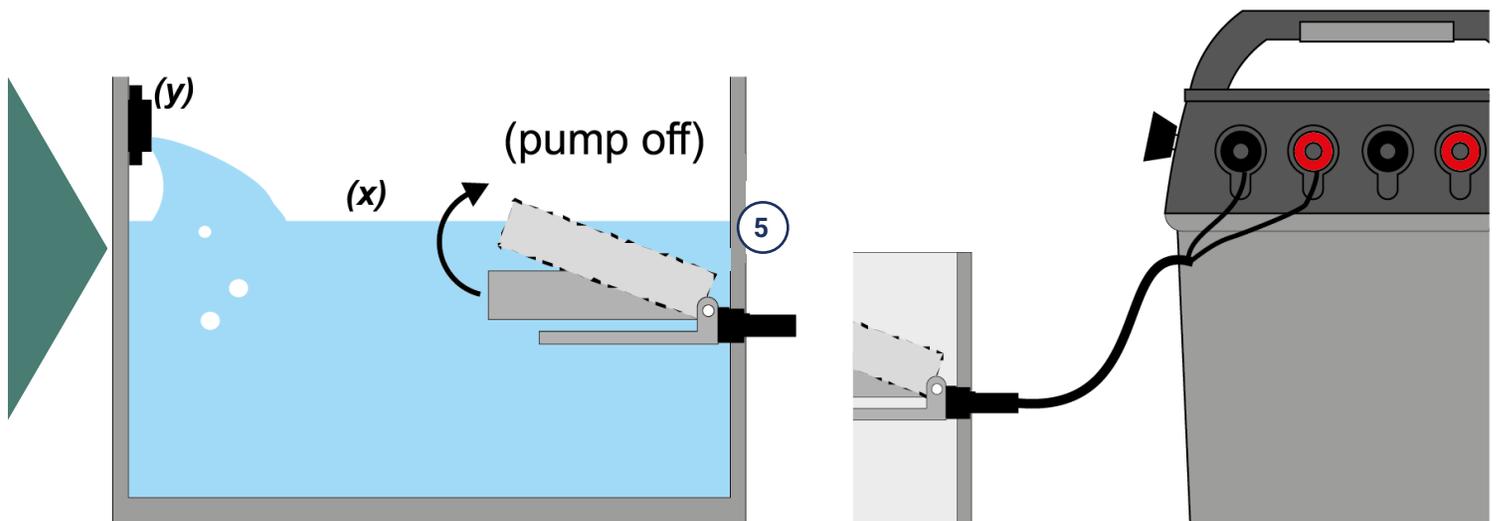
### Connect the hose to the tank

Drill the hole for the hose to tank fitting (22mm on drill bit) above your high-water level. Secure the hose to the fitting using the hose clip. Securely fix the tank fitting into the trough.



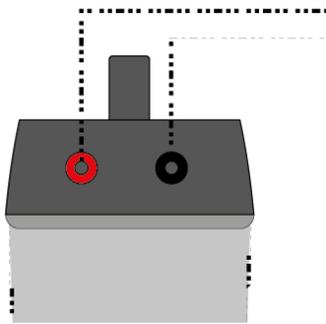
### Float Switch

The float switch turns off the pump as the water rises and the switch hinges upwards. Drill the hole at 16mm. The switch should be positioned so that the high-water level required to turn off the pump (x) is below the incoming water pipe (y). Connect the switch wire to the left two terminals on the front of the control box (not positive/negative specific).



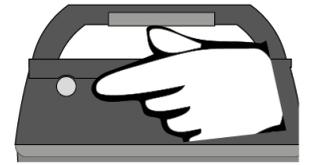
### Solar Panel

If you are using a solar panel, connect the positive and negative terminals to the corresponding wires from the solar panel. The pump can work with an array of up to 300w.

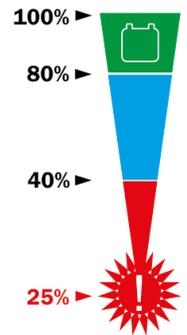


### Turning on

The pump is ready to go. Turn on by pressing the clear switch.



The switch features a three-colour indicator showing the condition of the battery. A green light shows that the battery is in the best condition. If you are using a solar panel, a green light indicates that your panel is efficiently replacing the power consumed by the pump.



### Fill the tank

The tank will fill until the float switch cuts the power to the pump, when the high-water level has been reached. After the initial filling it is recommended that the battery is recharged fully before the animals begin to use the trough. This can be done via an independent battery charger or the solar panel.

### Problem solving

1. **Check battery.** Batteries that are not fully charged can drastically reduce the performance of the pump. If you have fully charged battery to hand, swap them first to see if this solves the problem. Check the battery connection leads to the box are connected correctly.
2. **Solar panel.** The older type has a regulator on the back of the panel with red and green lights to indicate if power is being transferred to the battery. If not, use a multi-meter to check voltage at the end of the leads.
3. **Float switch.** Try to ascertain if moving it by hand will activate the pump. One person needs to be at the tank and one at the pump location. Check the box is working in this regard by making a connection across the terminals with a screwdriver. If you suspect the box is a problem, put the lead directly onto the battery to see if the pump will work.
4. **Pump.** If the pump is not working directly onto the battery, disconnect the lead extension at the waterproof connector. Check for water ingress. Try the pump on the battery without the lead extension. Make sure the pump is clear of debris.
5. **Lead length.** The lead represents a load on the pump which reduces performance. If the pump is installed in a static location and has excess lead coiled up, cut the lead to length to improve performance.