AquaViser™

Kit

By MicroLoop

Installation Manual V 1.0

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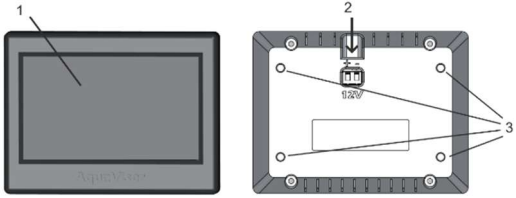
The AquaViser Kit Includes :

AquaViser LCD

1. Touch LCD
2. 12 Volt Screw Terminals
3. Brass mounting nuts (use M3 bolts)



AquaCast Module

1. 12V power (screw terminals)
2. 12V pump output (screw terminals)
3. Tank level / temp sensor inputs (screw terminals)
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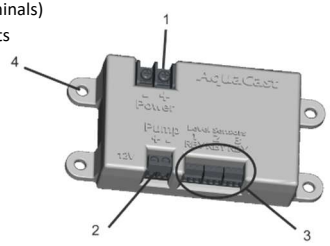


Overview continued

1. Product Overview

The **AquaViser System** is a wireless, 12V-compatible tank monitoring and control solution, designed for use in **caravans and campervans** and other off-grid or mobile water systems. The system provides real-time tank level and water temperature monitoring, and can wirelessly control a water pump — all without the need for any complex wiring between the display and sensing unit.

System Components

- **AquaViser (LCD Display)**: Sends and receives data wirelessly and requires only a 12V power supply.
- **AquaCast Module**: Handles all sensor inputs and pump control. Also powered by a 12V supply.

Wireless Communication

All control signals and sensor data are transmitted using **secure wireless encryption** between the AquaCast and AquaViser, eliminating the need for data cables. This simplifies installation, especially in tight or pre-wired / fabricated spaces.

Key Features

- **Wireless** tank level and pump control system.
- Simple **12V-only wiring to LCD** — no signal wires needed.
- AquaCast connects to:
  - **Up to 3 tank level sensors** (e.g., water or grey tanks).
  - **1 optional water temperature sensor** (replaces one tank sensor).
- Full customization of:
  - **Tank sizes and names**.
  - **Sensor calibration** (empty/full voltage setting).
  - **LCD backlight brightness and dim timeout.**

4.1.3 Tank Setup

- You should now see a blue blinking LED. This will remain blinking (in pairing mode) for 3 minutes.

- Once selected click ‘Pair’

- Once you have exited to the main screen, if no tanks are connected, you should notice a pump status button on the top left of the screen with ‘Pump Off’ written on the button.

- You can have up to 3 tanks connected to a single AquaCast.
- By default the tanks sizes are 100 Ltr each and tanks 1 and 2 will be Tap Water while Tank 3 will default to Grey Water.
- This can be all changed and customised in the ”tank setup” menu.

Tank Sensor Wiring:

Each tank input supports three-wire “stable signal” sensors with the following wire colour convention:

- **Red** – 12V output to the sensor.
- **Blue** – Signal from sensor.
- **Yellow** – Ground.

If a **water temperature sensor** is desired, it replaces **Tank 1**'s input. Use a compatible **NTC thermistor** connected between the **Red and Blue terminals only** (leave the yellow screw terminal unoccupied).

Installation and Wiring

- Both AquaViser and AquaCast are powered by a **regulated 12V DC supply**.
- Detailed wiring, install instruction and **fusing guidelines** are provided in the following sections.
- **Screw terminals** are used throughout for easy connection of power, pump, and sensor lines.

This modular and wireless system allows for flexible setup, reliable operation, and easy customization to suit a wide variety of installations.

2. Important notes on wiring.

2.1 Voltage Requirements.

- Ensure all components are powered with a **regulated 12V DC supply** or **12V battery (no more than 14.5 V)**.
- Supplying incorrect voltage can **damage the LCD or module permanently**.

2.2 Wiring and Current Requirements.

- The AquaViser (LCD) draws **no more than 0.5 A**
    - Fused 22 AWG or larger wiring is sufficient.
- The module may draw **up to 8A** under full load. Ensure the power source can supply **at least 12V, 8A** continuously (this will depend on your pump being used and should not be exceeded).
    - AquaCast (module) use at least fused 14 AWG for short runs (<1 meter); 12 AWG or 10 AWG for longer runs to minimize voltage drop.

2.3 Fusing.

- Always place an **inline fuse** close to the power source:
    - **0.75–1A fuse** for the LCD line
    - **10–15A fuse** for the module power line

* Remember - Fuses protect against **short circuits and overcurrent** conditions where the current will exceed the wires rating.

2.4 Grounding.

- Connect all grounds (LCD, module, power supply) to a **common ground point** to prevent erratic behavior or damage.
- Avoid ground loops.

4. Operation / Getting started:

4.1 Pairing the AquaViser LCD with the AquaCast module

4.1.1 Powering the module

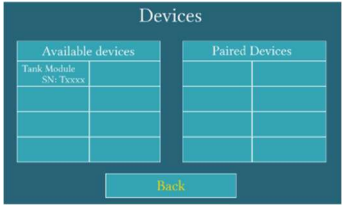
Ensure the module as 12V power and there is a visible red (blinking) power indicator.

4.1.2 Pairing

- The AquaViser LCD should start up with a splash screen and a welcome chime followed by the blank AquaViser main screen.
- Press the cog wheel (bottom left) to enter the menu.

- Once in the menu press the Pair device button to enter the Devices Screen

- Once in the device screen find and press on your Module
- If you cannot see your module in the list, go to the **AquaCast** module and short press the pair button, next to the power terminals.



3.2.2 Environmental Considerations

- Install in a dry, well-ventilated location.
- Avoid exposure to direct sunlight or condensation.
- Operating temperature range: **-10°C to 50°C**.

3.2.3 Wiring Clearance

- Ensure power is accessable behind the display for the power connection.
- Route wires cleanly and avoid sharp bends at the connector ends.
- If mounted in an enclosure, allow for airflow or heat dissipation, especially near power regulators or backlight circuits.

3.2.4 Screw Terminals

The AquaViser uses a small screw terminal for power input:

- **Power Input Terminal**:
  A compact screw terminal connects to the 12V power line. Use a **precision flat-blade screwdriver (2.5 mm or smaller)**. Strip 5–6 mm of insulation before insertion. Avoid overtightening.

General Tips:

- Always check polarity before connecting / powering the display.
- Avoid frayed or loose wire strands that could short to nearby terminals or tracks.
- Use ferrules on stranded wire where possible for clean, reliable connections.

2.5 Polarity.

- Double-check all connections for **correct polarity**. Reversing power lines can **instantly damage** the components.

2.6 Connector Quality

- Use **secure, reliable connectors** rated for the required current. Loose or cheap connectors can overheat and fail.

2.7 Wire Routing.

- Keep **power wires separate from signal/data wires** to avoid electrical noise or interference.
- Avoid sharp bends and strain on wires.

2.8 Power Supply Recommendation

- Use a **regulated 12V DC supply** (or battery of no more than 14.5V) capable of **12A or more** for safe operation.
- If using a switching power supply, ensure it is properly ventilated and protected from overload.

3. Installation Instructions.

3.1 Mounting the AquaCast

The AquaCast is designed with four mounting holes to allow flexible installation. It can be securely mounted in any orientation — horizontal, vertical, or flat — depending on your system layout and space constraints.

3.1.1 Mounting Guidelines:

- Use M4 or similar screws to mount on stable surface.
- Avoid over-tightening the screws to prevent damage to the casing.

- Ensure the mounting surface is flat and stable to prevent stress on the board.

3.1.2 Environmental Considerations

- Install in a dry location protected from water spray, direct sunlight, or extreme humidity.
- Operating temperature range: **-10°C to 50°C**.
- Ensure sufficient airflow if the module will be used with a motor above 4A.

3.1.4 Screw Terminals

- The AquaCast uses several types of screw terminals for secure and reliable connections:
    - **Power Input Terminals**:
      Large screw terminals are provided for connecting a regulated 12V power supply. Use a flat-blade screwdriver to firmly secure the wires. Strip approximately 6–8 mm of insulation before insertion.
    - **Pump Output Terminals**:
      These terminals handle higher current (up to 10A) and require properly sized wire (see wiring section). Ensure wire strands are tightly twisted or use ferrules to avoid stray strands.
    - **Level Sensor Terminals**:
      Small, fine-pitch screw terminals are used for sensor connections. These typically require a **precision flat-blade screwdriver** (2.5 mm or smaller). Avoid over-tightening, and insert only stripped wire tips (around 4–5 mm).

- **General Tips for All Terminals:**

- Double-check wire polarity before powering on.
- Tug test all wires gently after tightening to confirm they are secure.
- **Beware of bare or fraying wires** — exposed strands can cause short circuits between adjacent terminals. Always twist wires neatly and consider using ferrules for safety. Avoid inserting tinned wires unless using ferrules, as solder can creep under pressure and loosen over time.

3.1.3 Wiring Clearance

- Leave enough space around the module for cable routing and connector access.
- Avoid placing the device near high-EMI sources such as motors or large inductive loads.

3.2 Installing the AquaViser (LCD)

3.2.1 Mounting the AquaViser

The AquaViser is designed to be surface-mounted a vertical or flat mounting surface. Only 12V cable is required as all data is passed wirelessly from the module. Ensure the screen is easily visible and protected from accidental contact or harsh environments.

- (Not to scale)

Find enclosed mounting hole template for the LCD

- M3 brass inserts are used to mount on the wall
  Used with M3 bolts
- A 10mm hole is recommended for wire access

Mounting Guidelines:

- Use M3 or bolts through the four mounting points. Do not over tighten
- Do not apply excessive force to the screen during installation.
- Allow clearance behind the screen for connector access and ventilation.