High Water Level Alarm

12 VDC Powered Alarm With Battery Backup

Rev 2.0 - 14 April 2026

INTRODUCTION

The PA50-12 High Level Water Alarm is designed to detect elevated water levels within sump chambers used for groundwater or surface water pumping applications.

For Titan-Pro and Titan pumping systems, either the PA50-12 High Level Water Alarm or the Pulse Monitoring System shall be specified, as no alarm or monitoring system is supplied as standard.

POWER SUPPLY OPTIONS

The unit is powered via a 12 VDC mains adapter (3-pin) or directly from a 12 VDC battery when used in conjunction with the Victron Battery Backup System. In addition, a 9 VDC battery can be installed to ensure continued alarm operation during mains power failure in systems without a battery backup.

- Powered by Battery Backup System - **Code: PA50-12/B**
- Mains Powered - **Code: PA50-12/M**

PACKAGING

- 1 x Alarm unit - PA50-12
- 2 x Compression glands
- 1 x Broken Finger Float Switch
- 1 x 9 VDC Battery
- Fitting clip with cable tie
- Operation Manual

Plus one of the following 12 VDC power supply options:

- 1 x Battery Lead with eyelets for battery connection and two crimped ferrules for connection to the alarm power terminals - Code: PA50-12/B; **OR**
- 1 x 12 VDC PSU (3-pin) with two crimped ferrules - Code: PA50-12/M

THE ALARM BOX

The alarm has two separate parts: the Back-Box and the Face Plate, and can be either surface mounted or flush mounted. Surface mounting uses the provided Back-Box whilst flush mounted does not use the Back-Box but utilises a standard twin electrical back box instead.

FITTING THE ALARM - SUPPLIED BACK-BOX

- Unscrew the Face-Plate from the Back-Box.
- Decide whether to have the float cable entering via the bottom of the box or the rear of the box. If the back, use the hole provided. If the bottom, carefully push out the recessed and thinner metal cover with a screw driver. If the float wire is to enter from the rear with the switch cable within the wall, use electrical conduit for the routing of the wire.
- Fix the Back-Box to the wall with appropriate fixing screws using the four fixing holes supplied.
- After the battery and float cable are attached, screw the Face-Plate to the Back-Box using the screws provided.

FITTING THE ALARM - ELECTRIC BACK-BOX

- Unscrew the Face-Plate from the Back-Box.
- Discard the supplied Back-Box.
- Bring the float wires in to the electrical back box via conduit within the wall.
- After the battery and float cable are attached, screw the Face-Plate to the Back-Box using the screws provided with the electrical back box, not the screws supplied with the alarm.

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Opening Hours:
Monday to Friday 8:00am - 5:00pm

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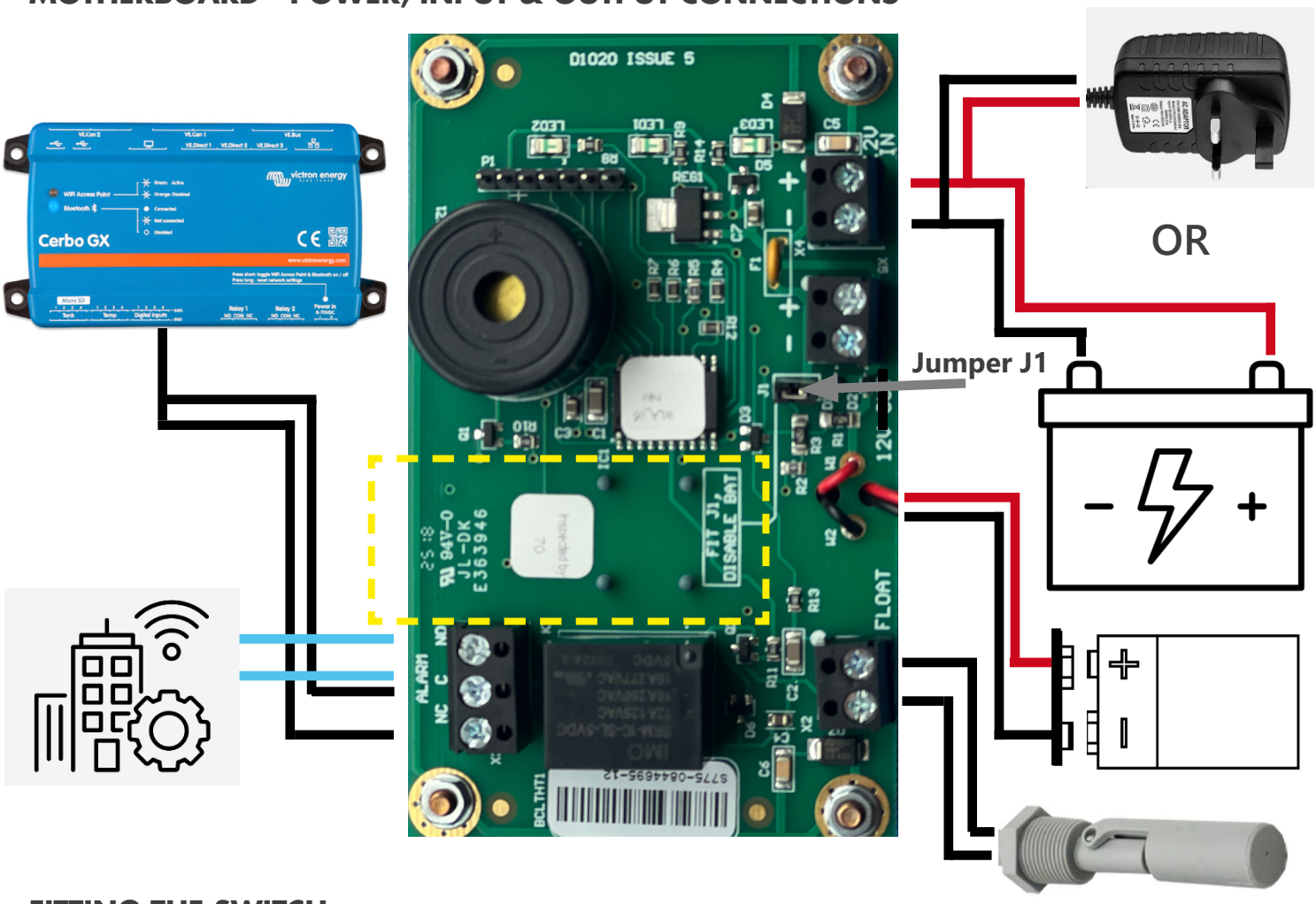
TECHNICAL DATA

Features	Result	Units
Width	152.0	mm
Height	92.0	mm
Depth - fitted to wall	37	mm
Depth - fitted to double back box	8.0	mm
Power supply - Connected to Battery Backup System	12	VDC
Power supply - Connected to mains via 3-pin PSU	12	VDC
Power supply - Internal battery	9	VDC
Sounder volume - at 1000 mm distance	90	dB
Switching - within sump	Reed switch - Normally closed	

MOTHERBOARD - POWER, INPUT & OUTPUT CONNECTIONS



FITTING THE SWITCH

NOTE: The switch must be fitted, as described below, **BEFORE** a 12 VDC power supply is connected. The switch should be fitted to the vertical pump discharge pipe using the clip and cable tie supplied. Wrap and tighten the cable tie around a pump vertical discharge pipe and the clip in order to secure the clip. Push the threaded barrel of the switch onto the clip to secure the switch to the discharge pipe. Tighten the nut to further secure.

NOTE: It is important that the switch is fitted in the correct orientation so that the switch is normally closed and becomes open when lifted by rising water.

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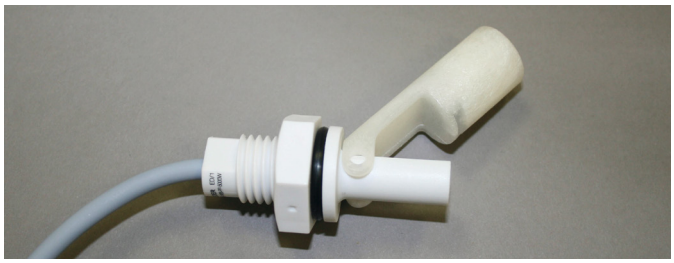
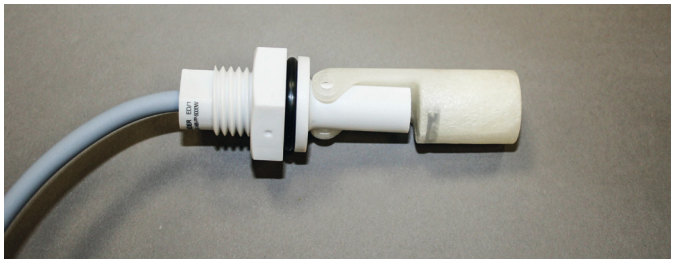
POSITIONING THE SWITCH

The switch should be positioned so that the alarm will sound after the pump should have operated. Slide the clip and cable tie up or down the discharge pipe to adjust to the correct height for the pump.

Where two pumps are installed, the switch should be positioned between the points where the two pumps turn on so that the alarm sounds after the first pump should have operated, not after the second pump should have operated. The sequence of pumping and alarm should be: **PUMP 1 - ALARM - PUMP 2**.



Float Switch Open



Float Switch Closed

FLOAT SWITCH CABLE

To conform with current building regulations and electrical regulations, extra low voltage wiring should not use the same conduit as mains voltage. This means the alarm float switch cable should NOT share the same conduit as the 230 VAC pump cable.

ALARM RESET MODE

The alarm can be set with two modes of alarm:

MODE A - Manual Reset - The alarm sounder will continue to operate until manual reset (via the MUTE button on the front face of the unit), even when the water level drops.

MODE B - Automatic Reset - The alarm sounder will automatically stop if the water level drops.

Discussions should take place with the client to agree which mode is preferred.

MODE A - Manual Reset will mean that the alarm will continue to sound until the client manually resets the alarm. This means that the client will be aware of an alarm condition, even when the second pump has lowered the water in the sump. MODE A ensures that the client will always be aware of the alarm condition and so is the safest option. It does however mean that neighbours could be disturbed by the alarm sounding for extended periods.

MODE B - Auto Reset will mean that when the second pump lowers the water level, the alarm will stop sounding. If the alarm condition occurs when the client is out of the house, they may not be aware of the problem to the first pump. It does mean however that the alarm will not keep sounding for extended periods.

PROGRAMMING THE ALARM RESET MODE

NOTE: The Alarm Reset Mode must be set before connecting the 12 VDC power source.

To set **MODE A**, insert the 12 VDC power source with the switch in the CLOSED position.

To set **MODE B**, insert the 12 VDC power source with the switch in the OPEN position.

CONNECTING THE 12 VDC POWER SOURCE

The Alarm will have been purchased with either:

- Battery Lead with eyelets for connection to the large 12V DC battery of the Victron MultiPlus Battery Backup System and 2 x crimped ferrules for connection to the Alarm (Purchase code PA50-12/B)
- 12 VDC PSU (3-pin) with two crimped ferrules (Purchase code PA50-12/M)

ONLY ONE OF THESE 12 VDC POWER SUPPLIES SHOULD BE CONNECTED TO THE ALARM

1. Insert the crimped ferrules into the 12V In terminals of the Alarm, which are located top right of the image on page 2 and are clearly marked 12V In. Ensure correct polarity: Red ferrule = positive (+), Black ferrule = Negative (-)
2. Ensure the float switch is in the correct position as explained above
3. Plug the 12 VDC PSU into an available 3-pin 230 VAC electrical socket, or
4. Connect the power lead to the 12 VDC battery - ensuring correct polarity

The "Power ON" LED light on the front panel of the alarm will illuminate immediately.

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FITTING THE 9 VDC BATTERY

Please note that the 9VDC battery is not required when the alarm is powered by the large battery of the Victron Inverter Battery Backup System.

Carefully push the supplied 9 VDC battery into the wired terminals. Remove the backing paper and adhere the battery to the alarm back-box or electrical back-box, ensuring that the battery does not foul on the alarm internals when the face-plate is attached. Optimum battery position is indicated by the dashed yellow box of the motherboard image on page 2.

JUMPER SETTINGS - IMPORTANT

Jumper J1 supplies a voltage to the battery monitoring circuit. This allows the unit to operate from a 12 V supply without a 9 V battery fitted, for example when the alarm is powered from the battery back-up system.

Location:
Jumper J1 located near to the bottom/centre of the circuit board. The exact position is confirmed on diagram of page 2.

Default setting:
Jumper J1 is fitted (bridged). This is the correct setting when no 9 V battery is installed.

When a 9 V battery is fitted:
Jumper J1 must be removed so that the terminals are open (not bridged).

Use the table below to confirm the correct Jumper J1 position for each power configuration.

Primary Power Source	9 VDC Battery	Jumper J1 position
Large DC battery of battery back-up system	Not installed	Bridged (fitted)
Large DC battery of battery back-up system	Installed	Open (not fitted)
230 AC to 12V DC adapter - inserted mains socket	Not installed	Bridged (fitted)
230 AC to 12V DC adapter - inserted mains socket	Installed	Open (not fitted)
None	Installed	Open (not fitted)

INDICATORS & ALARMS

If the alarm sounds or beeps, check the status of the indicators as the table below:

Sound	Indicator	Reason	Action
Fast beeping	Fast blue flashing	Water level high	Immediately check sump water level and pump operation
No sound	Fast blue flashing	Water level high - In mute mode	Continue investigation and repair actions as to reason for the high water level warning
Slow beeping	Slow blue flashing	Low 9 VDC battery	Replace battery

Fast beeping /flashing = 1 beep/flash per 5 seconds. Slow beeping / flashing = 1 beep/flash per minute

ALARM MUTE

If the unit is in an alarm condition, the primary or only pump has not operated correctly. This may be due to mechanical failure or because of power outage. The **MUTE** button should only be used when you have identified the reason for the alarm event, and you have taken steps to deal with that problem.

To mute the alarm, press the **MUTE** button **ONCE** to mute the sounder. The **WATER HIGH** indicator will still flash to indicate the sounder has been muted.

Press the **MUTE** button **A SECOND TIME** to reset the unit and to cancel the mute function. If the alarm indicator is still flashing, the water level is still high.

LOW 9 VDC BATTERY - WHERE FITTED

The unit will inform the user when the 9 VDC battery is low and requires replacement – see table above.

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CONNECTION TO NEWTON PULSE/BRIDGE MONITORING SYSTEM OR BMS

The Newton Pulse and Bridge cloud based monitoring systems can receive a zero-volt signal from the PA50-12 Alarm allowing notice of the alarm condition to be recorded as a critical event on the Newton Cloud and for email and push notifications sent to an unlimited number of registered recipients.

The terminals are located at the top left of the inside of the Alarm Face-Plate (bottom left of the image on page 2) and are labelled **ALARM**. Use two-core narrow gauge wire and connect to the NC (Normally Closed) and C (Common) terminals of the alarm to digital input 1 of the Victron Cerbo GX component of the Newton Pulse/Bridge. Configure the Newton Pulse/Bridge to receive input from the selected digital input and set the desired recipients of email and/or push notifications of an alarm event.

The Normally Open and Common terminals in the alarm can also be used to send a zero-voltage signal to home alarm and building management systems.

TESTING

Test the alarm sounder and indicator each month by pressing the **TEST** button, the alarm will sound and the indicators will show as long as you are pressing the test button. The test button tests the alarm sounder module only. To test the circuit for the main alarm or the zero-voltage output, raise the switch to the open position as explained above.

WARRANTY

The alarm is supplied with a one-year back-to-base warranty which is dated from either the date of purchase or a proven date of installation. If the unit develops a fault during the warranty period, Newton Waterproofing Systems will repair or replace the unit under warranty. Post the unit to the address below, together with an explanation of the problem and a return address. The warranty will be invalidated if the unit is damaged because of improper handling, storage or installation and in such cases a repair charge may be applicable.

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