Universal Monitor – LAN Connectivity

INSTALLATION & OPERATING GUIDELINES

The Universal Monitor is a warning system which monitors sump pump activity and sump water levels in real time. The universal monitor shows:

- Sump water levels in real time
- Pump cycles
- Total pump run time
- Installation, servicing and maintenance logs

and alerts the end user service engineer when there is:

- a power failure to the monitor
- a high level situation in the chamber/sump
- a change to normal pumping patterns
- a service due

Universal Monitor data streams can be accessed from:

- a PC or laptop
- a tablet
- a smart phone

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2. PRODUCT SUMMARY

Thank you for purchasing the Universal Monitor.

The Universal Monitor is a warning system which alerts the end user and / or maintenance teams when there is:

- a power failure
- a high level situation in the chamber/sump
- a high level situation recorded
- a service due

The universal monitor shows via a web interface

- Sump water levels in real time
- Pump cycles
- Total pump run time
- Installation, servicing and maintenance logs

The system uses an ultrasonic sensor which is located inside the chamber/sump and this is connected to the internet via the monitor box.

3. SITE PREPARATION AND INSTALLATION

3.1 ADVISORY

All Triton products are manufactured and developed to the highest standards and assembled with precision and care. Each product has been rigorously tested before leaving ourselves. We constantly strive to develop our products to provide you with the most innovative products possible.

Please read these guidelines carefully prior to installation. These guidelines contain important information and hazard warnings, which will enable you to install and operate your product safely, economically, and reliably.

Only qualified personnel should carry out the installation in accordance with the latest IET wiring regulations BS7671. All works should be in line with the Health and Safety at Works Act 1974.

It is important to note that these guidelines are for guidance only and it is the installer's responsibility to satisfy them-selves that the installation procedure is in accordance with good practice, this will then eliminate any potential damage to the product during or after installation.

If you are unsure on any point, then please contact Triton technical helpdesk on **01322 318830** or via email info@tritonsystems.co.uk for further information.

3.1.1 INTENDED USE

This Universal Monitor is designed for use indoors or in a suitable waterproof outdoor enclosure. Under no circumstances should the product be installed outdoors without suitable protection from both water and extreme temperatures.

3.2 INSTALLATION

3.2.1 LOCATION

Select a suitable location for the Universal Monitor Alarm Box, taking into account that the panel must be located within 5m of the base of the pump chamber/sump, it must be located in a dry area where the panel is accessible by the end user. If you need to mount the panel further away from the pump chamber/sump, please contact Triton technical helpdesk on **01322 318830** or via email info@tritonsystems.co.uk for further information.

3.2.2 MOUNTING THE UNIVERSAL MONITOR'S MONITOR BOX

Mount the monitor box to a wall or backboard using the mounting points located at the back of the panel using appropriate screws and wall plugs for the surface. Please see the mounting template in section 5.1 for dimensions.

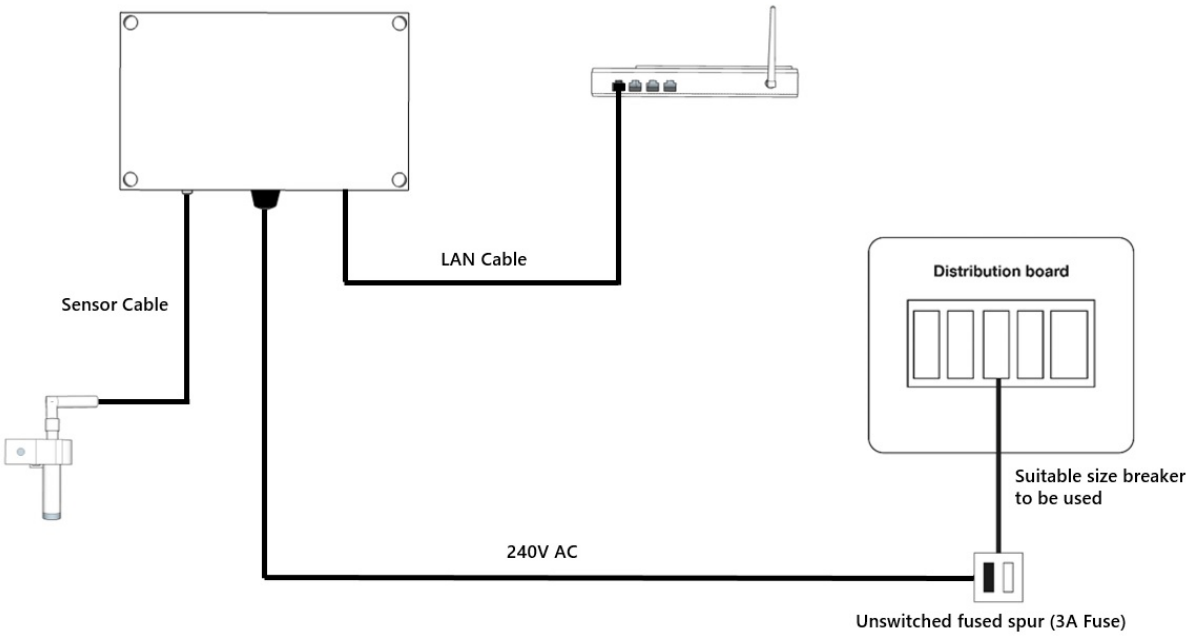


Fig.1 Connecting the Universal Monitor to mains power supply

3.2.3 MOUNTING THE SENSOR

The sensor is supplied with a 5m cable and a multi directional fixing bracket. Should you require more than 5 metres of cable please contact Triton technical helpdesk on **01322 318830** or via email info@tritonsystems.co.uk for further information.

1. Please ensure you position the sensor at least 120mm higher than the secondary pump activation point

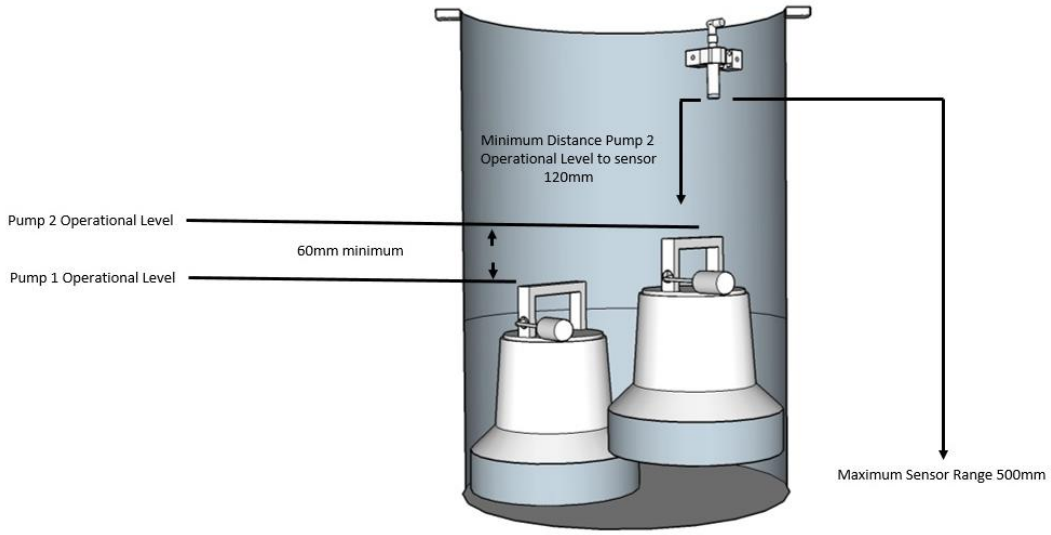


Fig.2 Universal Monitor and Sump Pumps operational ranges

2. Anchor the fixing bracket to the sump with a suitable fastening system.

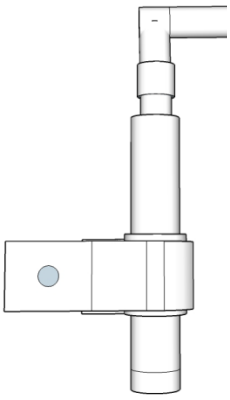


Fig. 2.1 Sensor and fixing bracket

3. When positioning the sensor ensure it is secured in position using the two M16 plastic nuts provided.
4. Point the sensor vertically at the surface of the water ensuring that its beam path is not interrupted by pumps, float arms, cables etc. Tighten the locking nuts and tighten the mounting bracket clamps with an allen key.
5. Draw the cable between the chamber/sump and control panel location.

3.2.4 CONNECTING THE SENSOR TO THE MONITOR BOX

1. Locate the sensor cable to the cable socket located on the underside of the monitor box ensuring that the location lug and groove marry up.

2. Tighten the threaded sleeve hand tight. Do not over tighten.

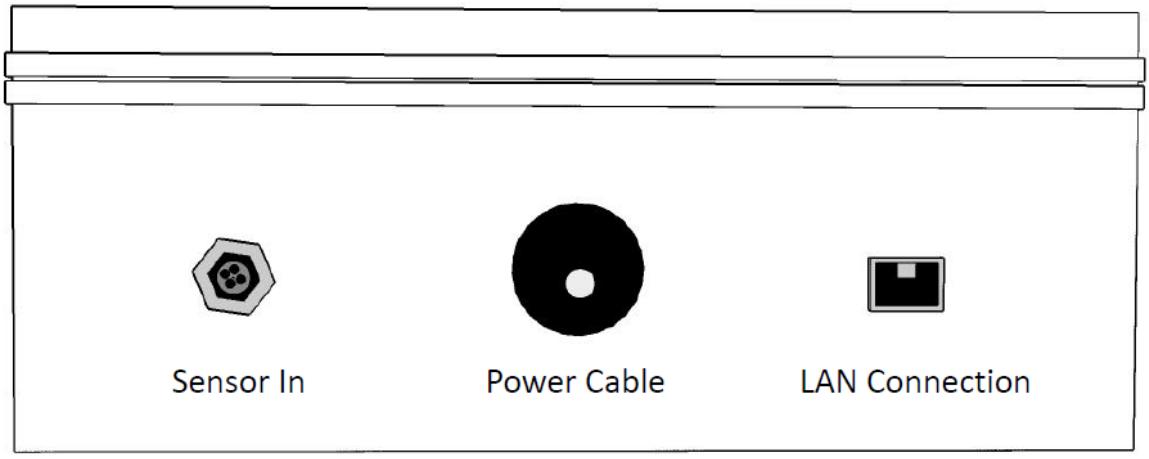


Fig.3 Output and input points on the Universal Monitor Box

3.2.5 CONNECTING THE MONITOR BOX TO THE INTERNET

1. Run the LAN cable from a nearby internet connection point and plug this into the monitor box. A 1m LAN cable is supplied with the Universal Monitor although longer cables may be used.

3.2.6 CONNECT THE UNIVERSAL MONITOR TO THE MAINS ELECTRICAL SUPPLY

The Universal Monitor should be connected to the mains supply by a qualified person in accordance with the Institute of Electrical Engineers Regulations with the latest IET wiring regulations - BS7671. Please take into account all the electrical information as detailed within section 4 when installing the panel.

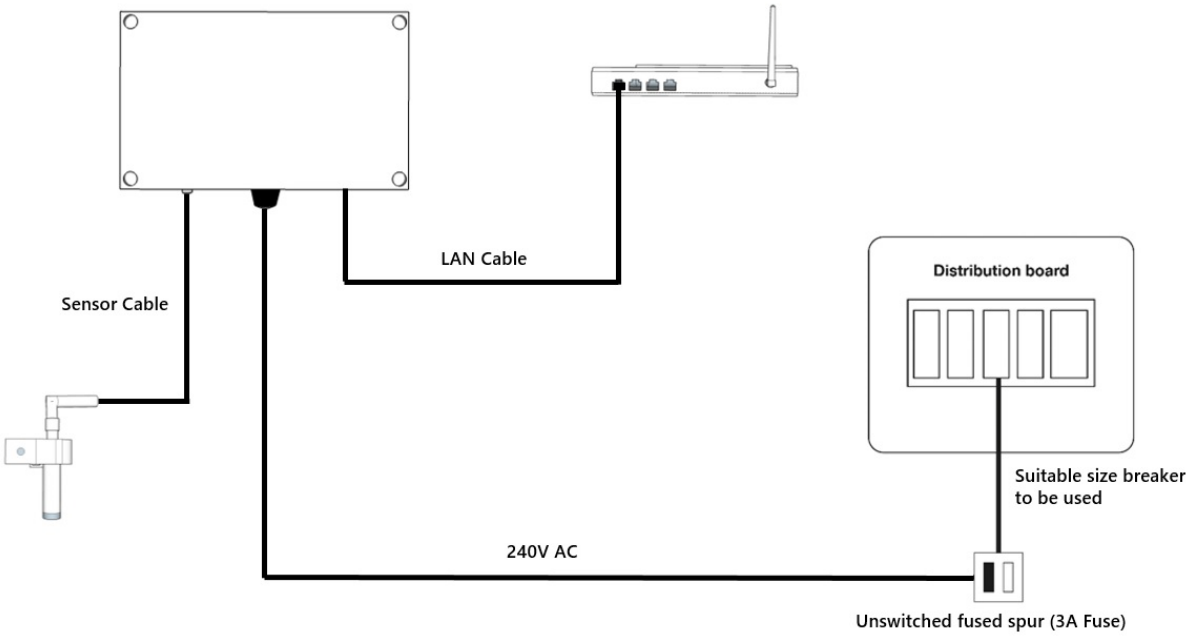


Fig.4 Connecting the Universal Monitor to mains power supply.

For connection to the mains electrical supply it is imperative that the Monitor Box is connected to a dedicated power supply and not via a ring main.

The panel comes pre-installed with a 1m length of 3-core mains power cable, for connection to an un-switched fused spur (max 3A). The un-switched fused spur should be sited adjacent to the monitor box.

This work should be entrusted to a qualified electrician in accordance with the latest IET wiring regulations BS7671.

Keep the connection isolated until you are ready to test the system.

3.3 OPERATION

3.3.1 BEFORE YOU START

- Before you install one of these devices you will need to register as an installer at www.universalmonitor.co.uk
- You will need the use of a smartphone, tablet or laptop PC with WIFI or 3G/4G connectivity to run the commissioning process.

- You will need a LAN cable long enough to connect Universal Monitor to the nearest internet connection
- You will need a hose and water supply to run the pumps during commissioning.
- You will need the sump "owner's" email address and mobile phone number.

3.3.2 SWITCHING ON FOR THE FIRST TIME

1. Ensure that the monitor box is connected to the internet and power supply.

2. Switch the power supply on.

3. The Universal Monitor will take approximately 2 minutes to boot up and then will automatically start sending data to remote servers.

   On your laptop/tablet/smart phone go to www.universalmonitor.co.uk and once signed in click

   Commissioning > Start a new commission

   And follow the on screen instructions. You will be asked to verify the Universal Monitor serial number, enter details about the sump and its location and enter the owner's name, mobile telephone number and email address before starting the commissioning process.

4. As you enter the owner's information during the commissioning process the owner (or end user) will automatically be sent a registration request by SMS and email.
5. The owner of the sump monitor will need to fill in their details, alert preferences, advise emergency contact details and agree to service terms and conditions.
6. It is important that the owner / end user completes these details otherwise they will NOT receive system alerts when there is a problem.

3.3.3 COMMISSIONING THE UNIVERSAL MONITOR

When you start the commissioning process you will see on your phone, tablet / laptop a graph showing the approximate water level distance from the sensor.

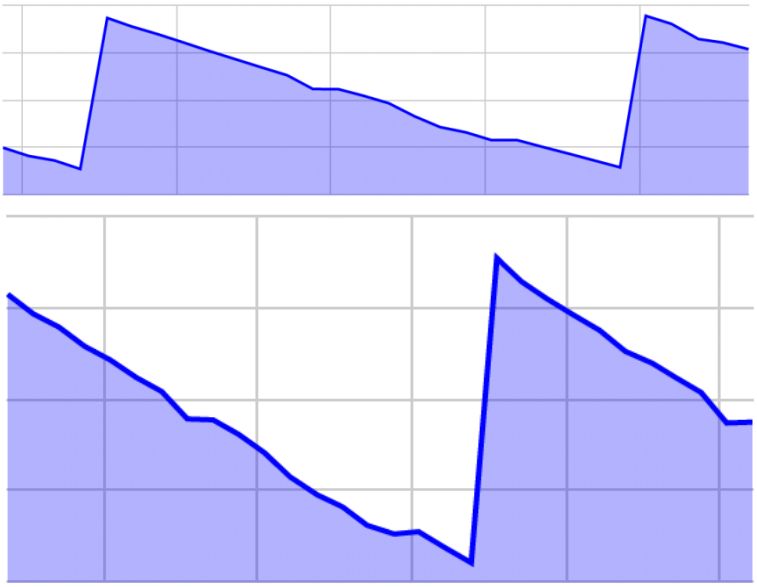
Start running water into the sump so that the pump cycles every 3-5 minutes approximately.

You should see a smooth graph following the cycles of the pump. If there are any areas where the graph does not show water levels, adjust the sensor or move any obstructions from the sensor's view of the water.

Ensure that the shape of the graph correctly follows the water movements in the sump.

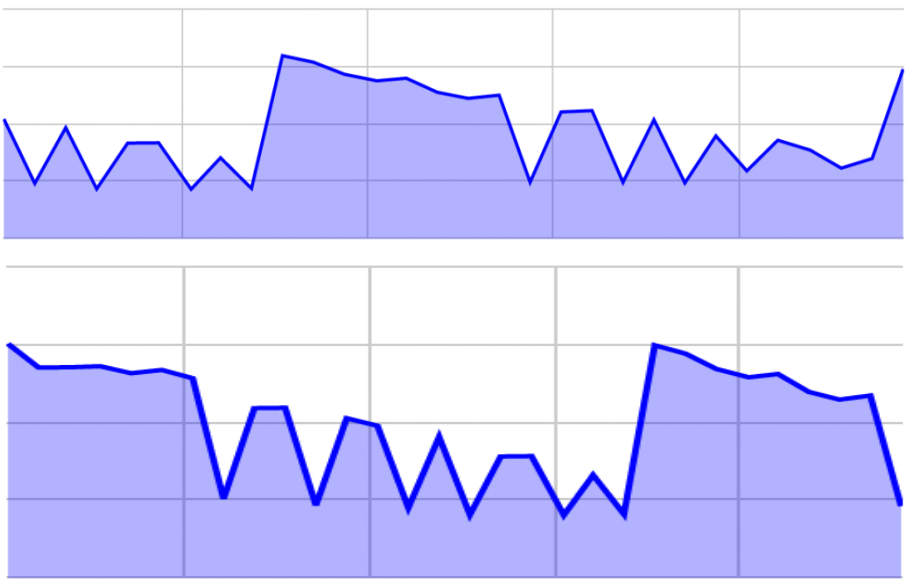
Example sensor readings

Perfect sensor readings - the graph shape is showing accurate peaks and troughs as the pump actuates and the lines are smooth – this is what you are aiming for



Sufficient sensor readings – showing clear peaks and troughs as the pump actuates – but the readings are not smooth. These readings are sufficient for monitoring purposes but the sensor should be adjusted to achieve better results if possible and ensure accurate cycle counting.

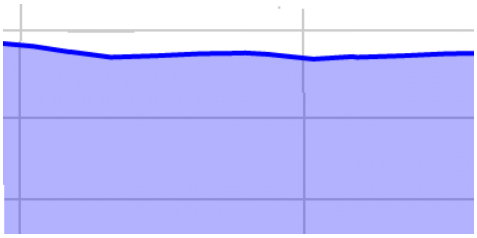
Inaccurate sensor readings – readings are not sufficiently accurate for software to track pump cycles and overall water levels. The sensor must be adjusted.



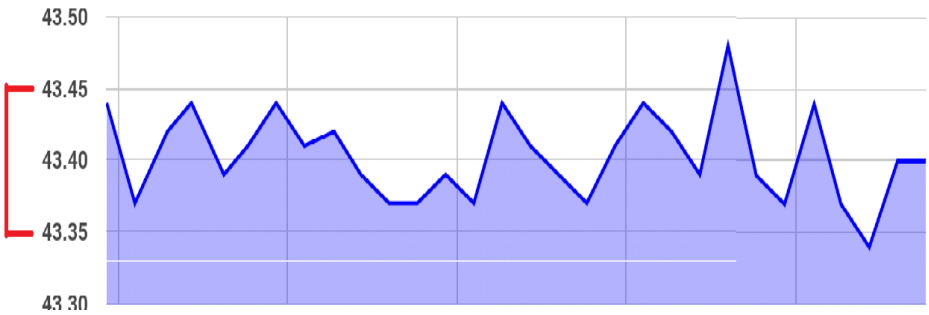
Other circumstances

Accurate sensor readings – but the pump needs to cycle faster during the commissioning process

False readings – if you see a flat line during part of the cycle the sensor is focusing on something inside the sump.



False readings – the graph is showing a very small range of only a few mm - the sensor may be focusing on something inside the sump. Adjust the sensor and remove any obstructions between the sensor and the water.



3.3.4 OWNER'S RESPONSIBILITIES

1. During the commissioning process the owner will automatically receive an SMS and an email asking them to create an account, advise their contact details and nominate who should be alerted in case of a problem or potential problem.

2. If the owner does not complete these details the Universal Monitor WILL NOT send alerts

3. The owner must ensure all entries are accurate and kept up to date via the owner's admin panel at www.universalmonitor.co.uk

4. The owner must ensure that nominated contacts are informed that their details have been entered into the monitoring system and that nominated contacts understand what to do if they receive an alert.

5. The Universal Monitor automatically sends water level data to Hades Monitor and Control (UK) Ltd, which interprets the received data on its servers and runs and manages the background monitoring service [The Service]. This service is provided free of charge for the first year (paid within the purchase price of the Universal Monitor) but at the end of the first year the owner must pay an annual service subscription.

3.4 NOTIFICATIONS

3.4.1 LOSS OF POWER AND LOSS OF CONNECTIVITY

1. The Universal Monitor service will advise owners by text message when the monitor box does not send data to system servers for 5 minutes. This alert may be generated by a power failure, an internet connection failure or a failure in the Universal Monitor.
2. The service will send messages to the owner first, and then nominated emergency contacts until any recipient acknowledges the alert or until four notifications have been sent to each recipient and no one has responded.
3. If the monitor box is re-connected the service will subsequently notify the acknowledging contact.
4. All disconnections, reconnections and notifications are logged within the owner's and installer's control panel.

3.4.2 PUMP FAILURE LEVEL HAS BEEN EXCEEDED

1. The Universal Monitor service will advise owners by text message and autodialler [to a landline] when the water levels in the sump exceeds a pump's normal operating level for more than 2 minutes.
2. The service will send messages to the owner first, and then nominated emergency contacts until any recipient acknowledges the alert or until four notifications have been sent to each recipient and no one has responded.
3. If water levels return to normal the service will subsequently notify the acknowledging contact.
4. All high water level situations, notifications and acknowledgements are logged within the owner's and installer's control panel.

3.5 OTHER SERVICE CAPABILITIES

3.5.1 CYCLE COUNTER AND PUMP RUNTIME LOGS

The service records pump cycles and pump runtimes for user information. This data is further displayed within charts which show daily and seasonal pump use.

All data is accessible to owners and installers via log in at www.universalmonitor.co.uk

3.5.2 ACTIVITY LOGS

The service records full details of all relevant activity around the monitoring system's activities and changes. Amongst other things the following details are recorded.

- Installer details
- Commissioning details
- Owner preferences
- Changes in owner preferences
- Confirmation of agreement to service terms and conditions
- Re-commissioning details
- Services, service activity and servicer's details
- Loss of contact events, alerts, responses and notifications
- High water events, alerts, responses and notifications

All data is accessible to owners and installers via log in at www.universalmonitor.co.uk

3.5.3 EXCEPTIONAL EVENT ACTIVITY REPORTING

1. The background service which analyses data sent from the universal monitor will analyse data over the longer term and generate “normal” pump operating parameters and patterns or “baseline data”.

   Once this baseline data is collated the service is able to identify certain exceptional events and advise owners / installers when these occur.

2. Once baseline data is collected on normal pump out times future pump out times can be compared against past performance. Where pump out times take significantly longer than normal situations [for example where there is a blockage in a pump outlet or impeller, or where pump performance deteriorates over time], owners / service engineers will be alerted. This data can also be viewed visually to look at longer term trends in pump capability.

3. Over time, baseline data will also be collected on normal daily and seasonal pumping cycles. This baseline helps to identify when an unusually high number of cycles continue for a prolonged period [for example where a water main has burst, or where some other event causes an unusual influx of water]. Owners will be alerted where this behaviour is identified and mitigation measures or additional risk abatement measures can be considered.

   All data is accessible to owners and installers via log in at www.universalmonitor.co.uk

3.5.4 SERVICING

The service will advise owners and installers when a service is due by email.

3.6 DATA ACCESS

Data and reports generated from the Universal Monitor's readings can be access from any web-compatible device by logging in at www.universalmonitor.co.uk

Login details are never shared.

The owner's system preferences, contact information, nominated contacts, system outputs and other system critical data are available to the Universal Monitor installer and nominated service engineers.

No personal information is disclosed to any third party except with the owner's consent.

System data may be used anonymously for aggregated data analysis.

4. TECHNICAL SPECIFICATION

This system conforms to:

- The Low Voltage Directive, EN61010:2010.
- The EMC Directive EN55014:2006, A1 and EN55014-2:2015.

SPECIFICATION OF THE UNIVERSAL MONITOR PANEL	
POWER SUPPLY	230V AC 50Hz
RATED POWER	< 15VA
MAINS POWER CABLE LENGTH	1m
WEIGHT	1.35kg
MATERIAL	ABS
COLOUR	Light Grey
OPERATING TEMPERATURE	-10'C to +40'C

5. DIMENSIONS OF THE UNIVERSAL MONITOR BOX

LENGTH	245mm
WIDTH	100mm
HEIGHT	145mm

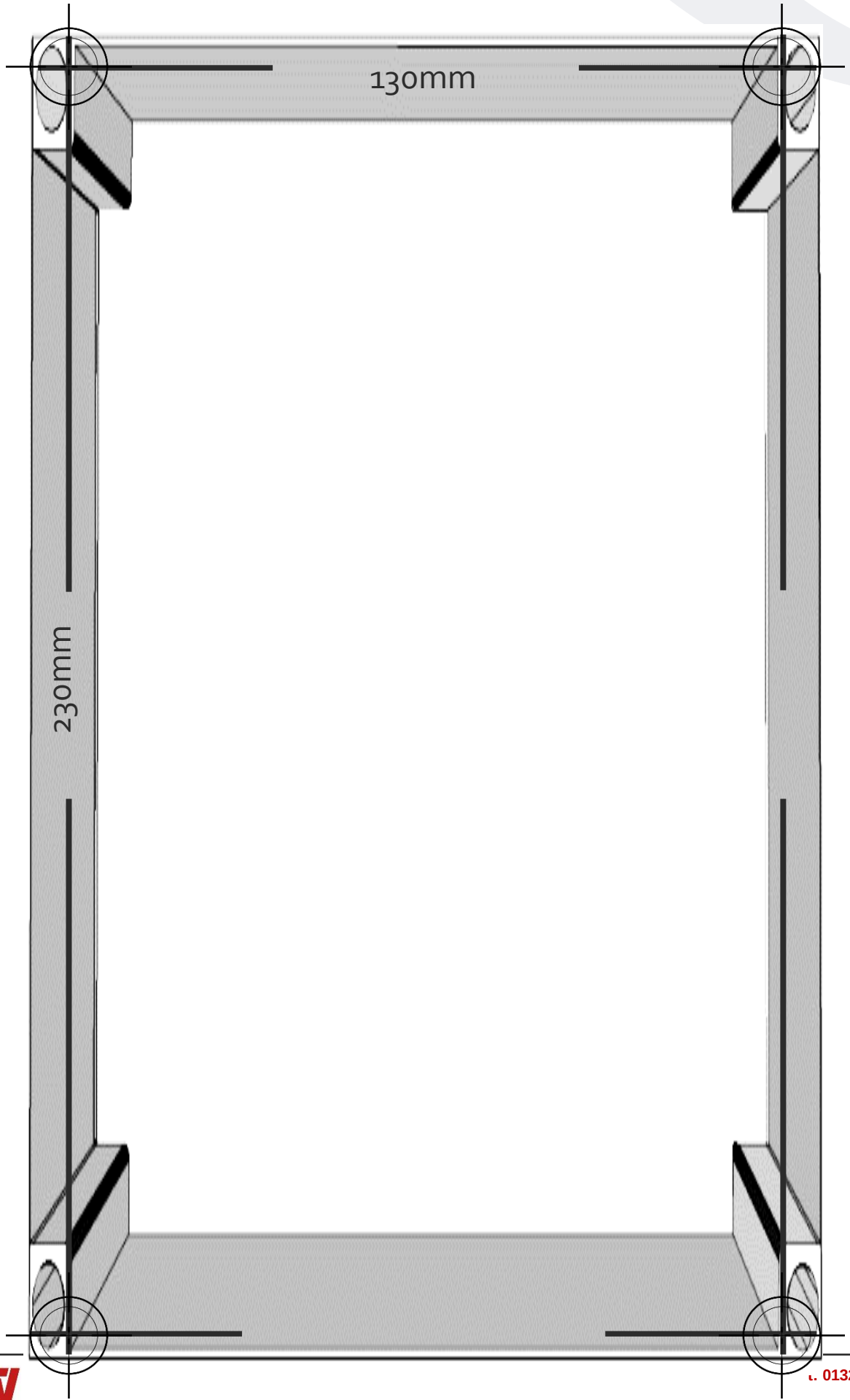


Fig.5
Mounting
template

6. PARTS LIST

Below is a list of all the parts supplied with your Universal Monitor (LAN version).

Qty	Product Name
1	Universal Monitor Box
1	Sensor cable 5m
1	Power Cable 1m
1	USB cable 1m
1	Sensor and 2no nuts
1	Sensor holding bracket
1	Installation and operating guidelines

7. SPARE PARTS LIST

For information please call the Triton technical helpdesk on **01322 318830** or via email info@tritonsystems.co.uk.

8. TRANSPORT

Remove Universal Monitor from its packaging and inspect for any signs of damage. Should there be any damage or missing parts this must be reported immediately (no claim will be considered after 24 hours from time of delivery). Please check the parts list in section 6.

9. MAINTENANCE

IMPORTANT – All maintenance works (inspections and services) MUST be undertaken by a technically qualified/competent company/engineer. Before carrying out any maintenance work within the Monitor Box the system MUST be completely disconnected from the mains power supply, and measures should be taken to prevent the system from being inadvertently switched back on. When undertaking works within the chamber/sump suitable measures MUST to taken to ensure safe access in accordance with current safety regulations. (See section 12 health and safety)

The product should be inspected annually, with the following being performed;

- Review symmetry of graphs
- Review whether loss of power or internet connection triggers notifications
- Review whether exceeding failure levels trigger notifications
- **Inspect** all cables for signs of wear and tear.

When installed in conjunction with a pump system, please refer to the product installation and operating guidelines for tanks/chamber maintenance requirements.

It is important that the product undergoes a full service at a minimum frequency of once yearly (increased servicing frequency is subject to site and product specific details. Where there is a risk of flooding as a result of product failure the servicing frequency should be increased accordingly).

To arrange a service please call the Triton technical helpdesk on **01322 318830** or via email info@tritonsystems.co.uk.

10. FAULT FINDING

If you experience problems, please contact Triton technical helpdesk on **01322 318830** or via email info@tritonsystems.co.uk for further information.

11. HEALTH AND SAFETY

Please pay attention to the following regulations when installing the pump or ask your qualified electrician/distributor.

11.1 SAFETY PRECAUTIONS

In order to minimise the risk of accidents in connection with the service and installation work the following guidelines should be followed.

- Make sure there are no poisonous gases within the work area.
- Check the explosion risk before using electric hand tools.
- Do not ignore health hazards.
- Observe strict cleanliness.
- Bear in mind the risk of electrical accidents.
- Make sure you have a clear path of retreat.
- Use a safety helmet, safety goggles and protective shoes.
- If working at height or in confined spaces, please ensure you meet the current health and safety regulations.
- A first aid kit must be close to hand.
- No unauthorised modifications should be made.
- Operation should be in accordance with this guide.

11.2 ELECTRICAL CONNECTIONS

Anyone carrying out electrical work must ensure that reasonable provision has been made in the design and installation of the electrical installations in order to protect any persons who might use, maintain or alter the electrical installation of that dwelling from fire and injury, including electric shock, this should be done in accordance with the latest IET wiring regulations BS7671.

- The following works should only be done by qualified and authorized electricians.
- Triton disclaims all responsibility for work done by untrained or/and unauthorized personnel.
- Heed operating voltage (see section 4 technical specification and any additional labels)
- Take out the main fuses to isolate the mains power supply from the control system before repairs or any other works and ensure it cannot be energized again.
- Before starting check the efficiency of the protective arrangements of the pump and the monitoring equipment. Failure to heed this warning may cause a lethal accident.
- Do not put the lead ends into water! Irruption of water may cause malfunctions.
- If persons are likely to come into physical contact with the pump or pumped media, the earthed (grounded) socket must have an additional connection to an earth (ground) fault protection device (GFI). (See earthing)
- Connection only to a mains power supply installed in accordance to the local regulations. Please consider the voltage drop of long supply cables.
- Replace the cable if the cable jacket is damaged. Do not pinch the cable or pull it around sharp bends.
- Always install the control system in a dry and well-ventilated room above the backpressure level. Never install the control system within the chamber/sump.

Earthing

- For safety reasons, the earth conductor should be approximately 50mm (2”) longer than the phase conductors. If the motor cable is jerked loose by mistake, the earth conductor should be the last conductor to come loose from the first terminal. This applies to both ends of the cable. Ensure the correct earthing of the pump and control system.

11.3 DECLARATIONS

11.3.1 THE EUROPEAN UNION WASTE ELECTRICAL AND ELECTRONIC REGULATIONS 2013

This pcb assembly is classified as Electrical or Electronic equipment and should not be disposed of in normal domestic or commercial waste. The mandatory crossed out wheeled bin symbol (see above) on the product indicates that the product shall not be mixed or disposed of in household or commercial waste. Under the WEEE Directive, the equipment should be recycled using the best possible techniques to minimise environmental impact and avoid unnecessary landfill.

For further information, visit,- http://www.legislation.gov.uk/uksi/2013/3113/contents/made

11.3.2 RISK OF ELECTRIC SHOCK

DO NOT OPEN THIS UNIT IF NOT QUALIFIED TO DO SO

To reduce the risk of electric shock, do not remove cover. No User-Serviceable parts inside. Refer Servicing to qualified service personnel.

Disconnect from Mains Before Removing Cover.

11.3.3 CE APPROVED

The Product complies with the relevant sections of,-

1) The Low Voltage Directive, EN61010:2010,
and
2) The EMC Directive EN55014:2006, A1 and EN55014-2:2015

12. GUARANTEE

12-month component guarantee (please refer to our condition of sale for further information).

If within the guarantee period of a product any defect is discovered in respect of workmanship, construction or material, we will make good the defect or replace the defective part at our expense inside normal working hours at the company's premises providing, written notice is given immediately the defect is discovered and that, if required by us, the part or complete system is returned to the company's premises carriage paid. Spares or repaired parts are delivered ex works exclusive of fitting.

The guarantee does not apply to defects caused by incorrect installation, abnormal conditions of working, accidents, misuse or neglects. Our responsibility is in all cases limited to the cost of making good the defect or replacing the defective part at the company's premises inside normal working hours. The company excludes all liability for any consequential or other damage or losses which may occur.

Guarantees

Triton approved contractors have access to TUG Insurance Backed Guarantees which are issued for a maximum of 30 years and which cover wall tie replacement, below ground waterproofing and damp and timber treatment. The TUG Insurance Backed Guarantee provides peace of mind to clients by coming into force in the event of the approved contractor ceasing to trade.

Triton also issues its own guarantees to cover the performance of Triton products plus the workmanship of the Triton Approved Contractor. These are designed for contractors who do not issue their own company guarantees. Triton Guarantees are valid for up to 30 years from date of completion of the works (up to 10 years for below ground waterproofing).

Visit www.tug.uk.com to apply for Triton Approved Contractor status and to download the guarantee application forms.

Also available from Triton

Flooring Systems (gas barriers, waterproofing and damp control)
Flood Resilience/Restoration
Replacement Cavity Wall Ties
Protective Coatings, Structural Repair
Green Roof Systems
Radon (ground gas) Barrier Systems
Concrete Waterproofing – Type A Barrier Protection
Concrete Waterproofing – Type B Integral
Concrete Waterproofing – Type C Cavity Drain
Condensation Control Systems
Damp Proofing and Replastering Systems
Timber Preservation and Repair Systems

Triton Systems
Units 3 – 5 Crayford Commercial Centre, Greyhound Way, Crayford, Kent DA1 4HF
Tel: 01322 318830 Fax: 01322 524017 Email: info@tritonsystems.co.uk

Triton Chemical Manufacturing Co Ltd trading as Triton Systems