

AquiTron | AT-WM

Water Monitor



**INSTALLATION
INSTRUCTIONS**



aquilar
leak detection solutions

AquiTron

AT-WM Water Monitor

Please read the instructions carefully before attempting to install and connect the AT-WM unit.

KEEP CLEAN – DO NOT LET DEBRIS ENTER THE WATER METER OR VALVE

A. GENERAL INFORMATION

The Aquitron AT-WM is a pulse water meter, leak monitoring system that has been specifically designed to help achieve the requirements of BREEAM 2011 (BRE Environmental Assessment Method). The AT-WM system will allow designers, M&E contractors and developers to achieve the "Credit" available to reduce the impact of water leaks that may otherwise go undetected. The system is designed to monitor water flowing through a pulse water meter. If the volume of water reaches the pre-set limit (customer adjustable) the system can isolate the mains water pipe, therefore limiting the amount of water and leak damage.

INSTALLATION ITEMS (NOT SUPPLIED)

- Wall fasteners for surface mounting (four screws)
- Rubber or elastomeric washers to seal at mounting points
- Semi-flush recess flange (optional)

- Phillips (cross-head) screwdriver
- Small flat-head screwdriver

STORAGE

Keep the module in a dry place prior to installation to avoid possible damage to internal components.

TOOLS REQUIRED

- Drill or hole punch for electrical conduit entries

B. PRODUCT INFORMATION

AT-WM

12Vdc Regulated Supply 250mA (Polarity Non-Specific) PSU supplied.

TEMPERATURE

85°C Max.

PRESSURE

0.35 – 10 Bar (Contact Aquilar for alternate pressures).

FLOW RATES

AT-WM will detect any flow rate greater than 0.5 litres per minute.

C. WIRING & PULLING

Current IEE Regulations: AT-WM should be installed by a competent installer, in accordance with the recommendations laid down by the HVCA and sound engineering practice.

D. PLUMBING INSTALLATION

The diagrams will serve as a visual aid, but it is recommended that a competent plumber carries out the assembly and installation. Connect the pipe to the water meter / valve according to markings on the valve body. Apply pipe compound sparingly to male threads only. Ensure compound does not enter valve. Avoid pipe strain by proper support and alignment. Type PN16 mating flanges will be required on some models over 50mm.

Never hold the water meter or solenoid when tightening.

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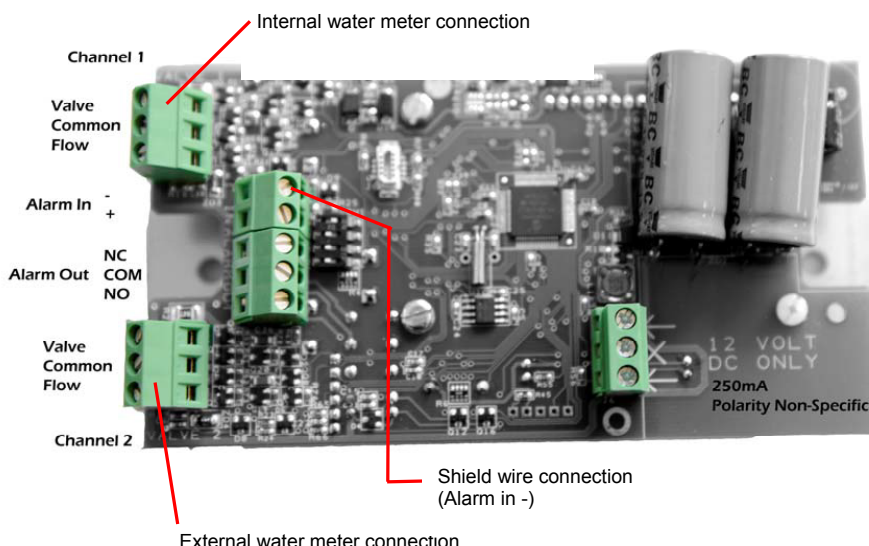
E. HELPFUL HINTS

We recommend that AT-WM is installed with a maintenance by-pass. The water meter can be fitted vertically or horizontally. Note the direction of the flow arrows marked on the water meter and valve to ensure they are fitted correctly.

F. MAINTENANCE

Clean periodically depending on conditions. Keep the medium flowing through the water meter / valve as free from dirt as possible. While in service, the Solenoid Valve should be operated at least once a month to ensure proper cleaning and closing. We strongly recommend a strainer is fitted prior to any meters or valves to prevent debris fouling the mechanism.

G. WIRING INSTRUCTIONS



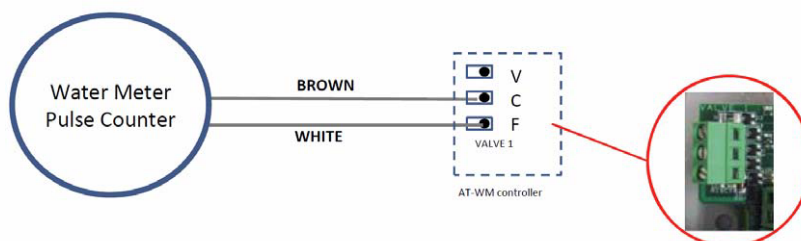
Plumb in the Water Meter and Solenoid Valve (if applicable) in line with the manufacturer's instructions. Using wiring instructions above, connect each Meter and Valve assembly to the controller using a shielded 2 core 1.00mm² copper cable. For longer runs, use a larger core size. Power the controller using the supplied transformer and open/close the valves to check they operate correctly. Run some water and check meter reading on Modes page has increased. The Input connection can be made to an intruder alarm for automatic guard level switching when alarm is activated. The

Output connections can be used to activate an external alarm, auto dialler or connection to a BMS.

The AT-WM controller monitors the water flowing ONE or TWO water meters or flow switches. There are two guard levels, Low Guard for when the property is occupied and High Guard for unoccupied. If the maximum allowable volume of water, or flow time is exceeded the solenoid valve can be set to automatically shut off the water supply. The controller will emit an audible and visual alarm.

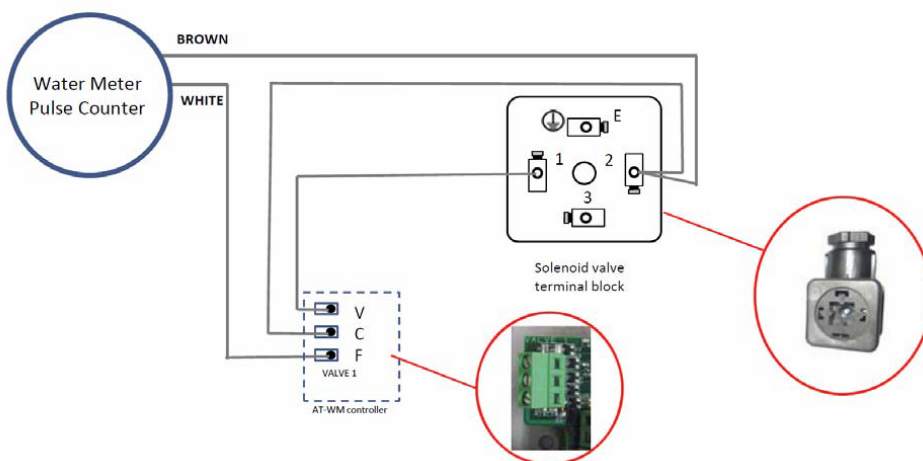
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H. WATER METER & CONTROL UNIT (NO SOLENOID VALVE)



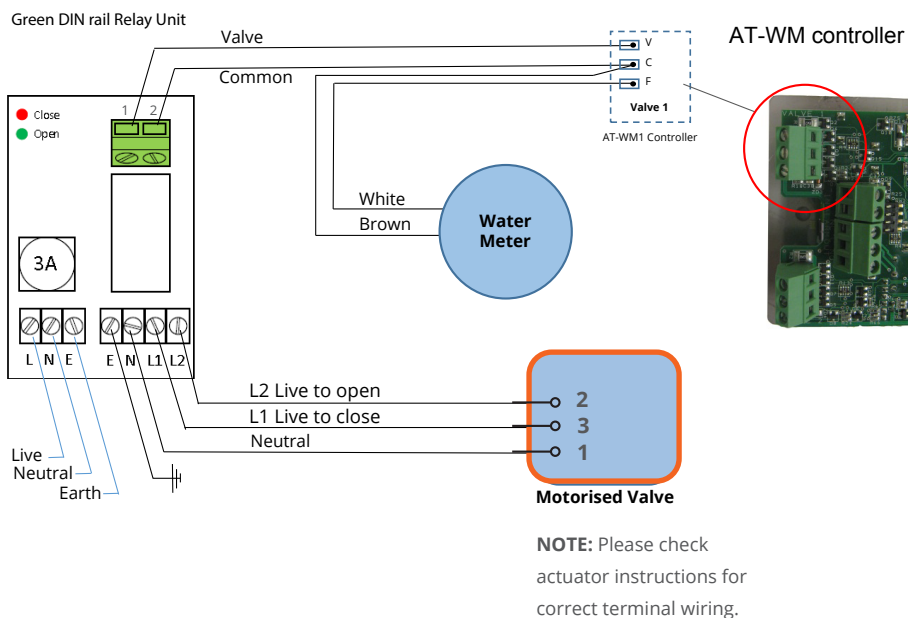
IMPORTANT NOTE: The Pulse sensor which is pre-fitted to the top of the water meter is pre-wired with a 1.5m cable. This can be extended using a screened 2 core cable using 1.0mm² up to 100m and 1.5mm² up to 150m. The screen is important to eliminate any interference and should be connected to the "Alarm In -"

I. WATER METER & CONTROL UNIT (WITH SOLENOID VALVE VALVE UP TO 50MM)



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J. WIRING FOR AT-RU1 RELAY UNIT DIN RAIL MOUNTABLE



AT-RU1 CONNECTIONS

Power Connections to Relay (Mains), 230Vac supply

L = Live,
N = Neutral,
E = Earth

Power Connections to Relay (Relay Valve), 230Vac supply

L1= Live Close,
L2= Live Open,
N = Neutral,
E = Earth

Control Connections from AT-WM Controller

1= V (Valve)
2=C (Common)

NOTE: Wiring should only be done by a qualified electrician






NOTE: These diagrams are shown for one water meter and one solenoid valve. If two are required, the second set should be wired to the "Valve 2" terminals.

Diagrams shown are for one water meter/solenoid valve. When two are required, use Valve 2 terminals for the second set.

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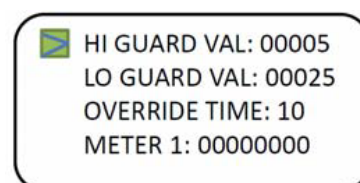
K. OPERATING THE AT-WM FOR DAY TO DAY USE.

Push any key to wake the display which will show the Home Page, see below. The home page shows the time, date, the level of guard and the state of the valves.







Use the keys     to navigate. Use OK button to switch between High & Low Guard Levels. Use OK to open and close valves. To return to Home, press  at any time.



Home Page



Guard Menu

To change a numerical value press OK to select the line;   to change the value and OK to confirm changes. Use the     to navigate the menu.



Page left and right to access other operating pages

Override will show either Start Manual Override or Cancel Manual Override.

Home This is the default screen, this screen displays date, time and system status.

Modes Use OK to switch between Normal 2 guard and single Permanent High Mode. Also displays power source and meter readings.

Audit The audit page records the maximum and minimum litres of water used in a period. The period can be half hour, one hour, guard period or 24 hours depending on system settings.

Data will display the history of Minimum and Maximum Litres used in any 60 seconds.

Events Log displays a record of events with times and dates.

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TO TEMPORARILY OVERRIDE THE GUARD LIMITS –

From **Home** go left to Override. Press OK to Start Manual Override Countdown. To Cancel Override, go left again from **Home** page and press OK.

The default override time is 30 minutes. This can be changed between 10 and 45 minutes. The override allows unlimited water to flow during this period.

THE GUARD MENU

To access the guard menu push both the Up and Down keys together for 2 seconds.

HI GUARD VAL: Push OK to change and confirm the maximum value in litres/hour (default: 2)

LO GUARD VAL: As above, but for when the property is occupied (default: 50)

OVERRIDE TIME: Push OK to increase from 10 minutes to 45 minutes maximum (default: 30)

METER READINGS: Push OK, navigate to match the actual water meter reading.

DATE: Push OK to select and confirm the date. Use the Up and Down keys to adjust the date.

TIME: Push OK to select and confirm the time. Use the Up and Down keys to adjust the time.

MODE: Select mode:

- **DAILY** - every day is the same
- **SEVEN DAY** - day by day
- **WEEKEND/WEEKDAY** - two settings for the whole week
- **ALARM** – Automatic (for systems connected to an intruder alarm)

SET HI/LO Times: Push OK to access the 7 day timer.

To set the LOW GUARD start to finish periods use the navigation keys. If only one period is required set both 1 and 2 the same.

To EXIT Guard Menu, push  at any time.

THE ENGINEERING MENU

To access the engineering menu push the left, right and down keys together for 3 seconds.

FLOW PER: Push OK to select between hourly, half hourly, guard and day metering (default: hour)

PULSE: Push OK to select between one pulse per 1 litre, or one pulse per 10 Litres and one pulse per 100 Litres (default: 1 litre)

VALVES: Push OK to select valves, None; Both; Valve 1 only; or Valve 2 only (default: Both)

METERS: Push OK to select meters, None; Both; Meter 1 only; or Meter 2 only (default: Both)


LEAK: Push OK to select LEAK Settings. Close all; Close Single.

CLOSE VALVE: Push OK to close the valve when a High Guard period is selected (default: No)

ALARM IN: Push OK to select between Off, Normally open and closed. When selected this will switch between guard levels In line with the intruder alarm (default: Norm Open)

ALARM OUT: On/Off For connection to BMS or other alarm (default: OFF)

RESET DEFAULTS: Push OK to reset factory default settings.

To EXIT Engineering Menu, push  at any time.


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SETTING THE HIGH AND LOW GUARD VALUES USING THE AUDIT PAGE

The Data page stores the Maximum value recorded in the High & Low Guard periods.

START AUTO AUDIT: (If factory set) will disable the Guard function, **WARNING** your property is not protected at all during AUTO AUDIT.

USE DATA: At any time you can select USE DATA to transfer the Auto Audit maximum values plus 10% into the High and Low Guard Values in the Guard Menu.

To EXIT the menu, push  at any time. one low period per day with period 1 start & finish times the same.

To EXIT Guard Menu, push  at any time.

L. AT-WM-C – SETTINGS GUIDE

This document should be used as an additional guide to how to set up your Aquitrone AT-WM Major leak detection controller. Please fully read the AT-WM installation instructions for information on installing, connecting, and navigating around the menu system.

All values used in this guide are examples only and **NOT** definitive settings, your values will be different as required by the property the unit is located within.

When setting up this controller please consider the protection required. This system is primarily designed to comply with the criteria set out in BREEAM WAT 03 to detect MAJOR LEAKS in commercial buildings.

[Any text below in brackets and italics may not strictly be necessary but are hints and/or methods used to ensure programming is progressing correctly]

TOOLS REQUIRED

- AT-WM-C
- Fingers
- Settings relevant to the application

There are two hidden menus used to program the unit:

Guard menu – accessed by pressing and holding for 5 seconds the up and down arrows together.

Engineering menu – accessed by pressing and holding for 5 seconds the left, right and down arrows together.

Navigate through menus – use up and down arrows to move the cursor (flashing on left hand side of the screen) through the options available. Once the cursor is at the option required press OK to enter that option. Pressing OK will either cycle through the available options or allow you to use the arrows to enter the setting required and press ok to go back to menu.

Pressing the L/H arrow will exit the menu back to the home screen.

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- Any setting not mentioned in this guide is generally not required to setup the system and should be left as default.
- Allow 30-45 minutes to program and check each unit.
- If no button is pressed the system will time out and you will have to re-enter the menu.
- If the unit has been previously setup or 'fiddled with' we would advise starting with a factory reset. This can be found at the bottom of the engineering menu

The first 7 steps are all to be found in the Guard menu and are mostly in logical order as you go down through the menu.

STEP 1

Set time and date – Locate and set the unit to the correct time and date. *[exit menu to home screen by pressing R/H arrow, check time and date is displaying correctly. It is important to do this first as it affects further settings options]*

STEP 2

HI GRD LTR – Press ok and set hi grd value. Min is 1ltr, Max is 2000ltr. This is the lower value of the two for when the building is not expected to use as much water. *[Use left and right arrows to enter higher values faster. We selected 50]* Press ok to exit back to menu. *[if you skipped step 1 and the building is in use, expect the unit to go into alarm now].*

STEP 3

LO GRD LTR – Press ok and set lo grd value. Min is 1ltr, Max 5000000ltr. This is the higher value of the two for when the building is expected to use the most water. *[Use left and right arrows to enter higher values faster. We selected 100]* Press ok to exit back to menu.

STEP 4

Override time – press ok to cycle to 45. The override function allows you to use unlimited water for the period entered without the unit going into alarm. Once started a countdown will begin once the period ends the system will automatically revert to its normal settings.

STEP 5

Meter 1 (2) – Press ok and set to match the reading from the top of water meter 1. *[Use left and right arrows to enter higher values faster.]* Press ok to exit back to menu and repeat for meter 2 if two meters are fitted.

Skip time and date as we have already done these.

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STEP 6

Mode – Press ok to cycle through options available *[the different modes are described on page 6 of this manual. For this example we will assume daily has been selected]*

STEP 7

Set HI/LO Times – Press ok to enter the set Low Guard time period screen. This is the time the building is occupied. Set lines 1 and 2 the same *[if you do not the system will go into alarm]*. All times out of this period are high guard. *[A value **MUST** be entered in this screen. If you require a value higher than 2000ltr per half hour, in effect a permanent low guard, then we would advise setting this low period to 1 minute at midnight ie. 00.01 – 00.00. For our example we have entered 06.00 – 18.00]*. Press ok and left arrow once to exit to menu.

This is the end of the guard menu the next steps are in the engineering menu, again in order.

STEP 8

Flow Per – Press ok to cycle through the options. This is the setting the controller uses to measure the values entered in steps 2 and 3. *[We generally use hour or half hour as these are the most granular setting and give the most protection. We have used half hour in this example]* E.g. if you entered 100ltr the system will allow 100ltr per half hour to pass through before going into alarm. *[This is **NOT** at set intervals that start on the hour or half hour (12.00, 12.30, 13.00, 13.30 etc). It uses a clever algorithm to constantly monitor volume used in **any** period of 30 minutes]*.

STEP 9

Pulse – Press ok to cycle through the options. This must match the pulse output from the connected meter(S). *[Generally smaller meters will be 1ltr per pulse and larger flanged meters 10 ltrs per pulse. This information is normally found on the water meter. You **cannot** use meters that do not have a volt free pulse of 1, 10 or 100 ltrs on this controller. We have selected 1]*

STEP 10

Valves – Press ok to cycle through options. If a valve is fitted to the system select the channel you have connected the valve to *[ignore this setting if no valve fitted. We selected none]*.

STEP 11

Meters – Press ok to cycle through options. Select dependent on whether you have one or two meters connected. *[1 meter fitted use channel 1 and select 1 only, two meters fitted select both. We selected both]*.

For 99.9% of installations you have now finished setting up.

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An overview of the system as programmed above:

- Between 6am and 6pm every day up to 100ltr per half hour can be used until an alarm
- From 6pm through to 6am the next day 50ltr per half hour can be used before an alarm.

Home screen:

- Are the date and time correct? *[if not, your time periods will be out. Please be aware this unit does not self-adjust between GMT and BST]*
- Guard: Low *[assuming you are in the low guard time period, if not unit will display 'Timer high'. It is possible to put the unit into manual high guard by pressing ok. Press ok again to go back to programmed settings]*
- Channel 1: OK *[if display is 'closed' select channel using down button and press ok, should display 'changing' then display 'ok']*
- Channel 2: OK *[as channel 1. If you selected 1 meter in step 1], no channel 2 will be displayed]*

Modes Screen: Press R/H arrow once to enter

- Mode: Normal *[It is possible to select 'Permanent High' by pressing ok (this will change the guard display on the home screen to 'Permanent High'). If selected the unit will stay in hi guard until reversed]*
- Power: should say mains *[unless you are running on battery back up, in which case it will say battery]*
- Meter 1: Will display the amount you entered in step 5 (unless water has been used). *[An easy way to check you have the correct pulse setting is to run off some water in the building and check this reading continues to match the reading on the top of the water meter].*
- Meter 2: As meter 1 above *[If you selected 1 meter in step 1] no meter 2 will be displayed]*

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