AquiTron | AT-OFC

Occupancy Flow Controller

INSTALLATION OPERATION & MAINTENANCE INSTRUCTIONS

aquilar
leak detection solutions

AT-OFC

Occupancy Flow Controller

Please read these instructions carefully and keep them in a safe place (preferably close to the module) for future reference. These instructions must be followed carefully to ensure proper operation.

A. GENERAL INFORMATION

The AT-OFC is designed to directly control AquiTron AT-V-P-xx or AT-V-B-xx 6vdc latching solenoid valves only. Non latching or third-party (normally open or normally closed) valves must be switched via the on board volt free relays.

INSTALLATION ITEMS (NOT SUPPLIED)

- Cable Glands
- Power Cable

TOOLS REQUIRED

- Small flat blade screwdriver
- Cable cutter / strippers
- Cross Head screwdriver

IMPORTANT : This product should be installed by a qualified electrician in accordance with the latest edition of the IEE regulations.

B. AT-OFC DESCRIPTION

The AquiTron Occupancy Flow Controller (AT-OFC) is designed to aid water conservation and leak prevention by controlling water into specified areas. It is fully compliant with the requirements set out within BREEAM for WAT03 credit 2 for flow control devices.

The unit can be supplied with its own separate approved PIR device, or is compatible with many standard PIR light switches. It is capable of controlling up to three AT-V-B-XX / AT-V-P-XX latching valves. Multiple controllers or PIR's can be daisy chained to suit most applications.

Volt free relays are also available for controlling/signalling external devices. Along with an auxiliary input that can be programmed to trigger open or closed.

Any movement detected by the controllers PIR will open the attached valve(s) labelled Valve1, Valve 2 and Valve 3 and operate the relays. When no further movement is detected a user selectable countdown time period will start, after this time has expired the controller will close the valves and reset the relays. If further movement is detected during this countdown period, the system repeats the timer cycle. Countdown time periods from 6 seconds to 20 minutes can be selected.

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C. VERSATILE DESIGN

The AT-OFC is capable of controlling up to three individual AT-V-P/B-XX latching valves and handling loads of up to 3A 230Vac on each of its two volt free relays labelled NO, C, NC. With trigger options of both, PIR and auxiliary input most areas can be easily protected.

The AT-OFC's unobtrusive ABS enclosure can be easily mounted to a wall or hidden within a false ceiling.

D. TECHNICAL SPECIFICATIONS

CONTROLLER

Power supply	100 - 240 Vac 50/60Hz
Input Control Types	PIR (230Vac) or N/O volt free trigger
Power Cable Size	12 to 26 AWG
Maximum Number of Latching Solenoid Valves	3
Module housing	ABS 180 mm x 130 mm x 64 mm (L x W x D) IP 65
Maximum Number of PIR sensors	10
Outputs	3 x 6Vdc Pulse for AT-V-XX Latching solenoid valve outputs 2 x SPDT volt free relay contacts. Max load 3A @ 230Vac
Timer adjustment	6 sec to 20 minutes
Indicator	Power on LED (visible when enclosure cover is removed)
Maximum Distance to 6Vdc Valves	50M

E. APPLICATIONS

The AT-OFC is ideally suited to projects where PIR control is required for water shut off in commercial buildings: WC's, tea points, kitchens, utility rooms and shower areas. This system helps towards compliance with BREEAM WAT 03.

It can also be combined with all AquiTron or TraceTek leak detection systems to act as a master valve controller. This provides a complete leak detection and prevention solution.

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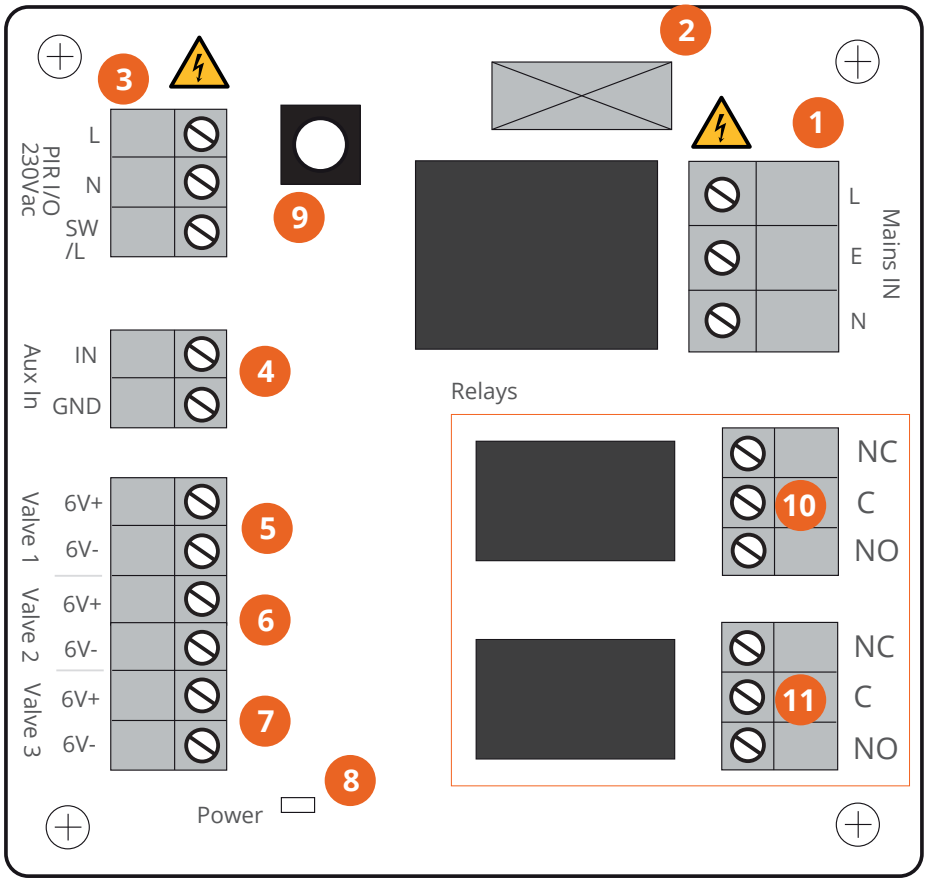
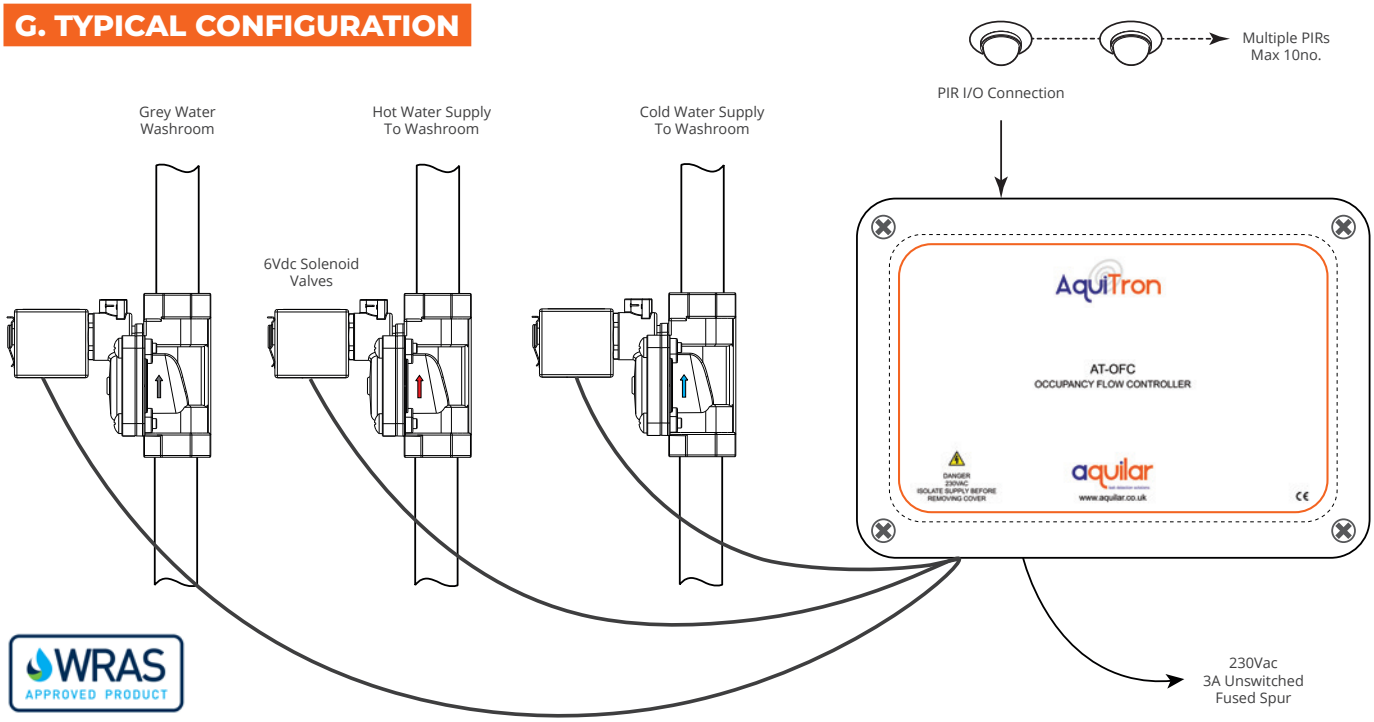
F. CONNECTIONS



IMPORTANT : All wiring should only be done by a qualified electrician

1. 230Vac Power Supply (This unit must be earthed)
2. Fuse: 5x30 230V F500mA Always replace with correct fuse type
3. PIR connection. 230Vac PIR must be used
4. Auxiliary Input (Volt Free)
5. Valve 1 Output 6Vdc latching only
6. Valve 2 Output 6Vdc latching only
7. Valve 3 Output 6Vdc latching only
8. Mains On LED Indicator
9. Timer / Function selector 6 sec - 20 min
10. Volt Free Relay 1 - 3A at 230Vac
11. Volt Free Relay 2 - 3A at 230Vac

G. TYPICAL CONFIGURATION



WRAS APPROVED PRODUCT

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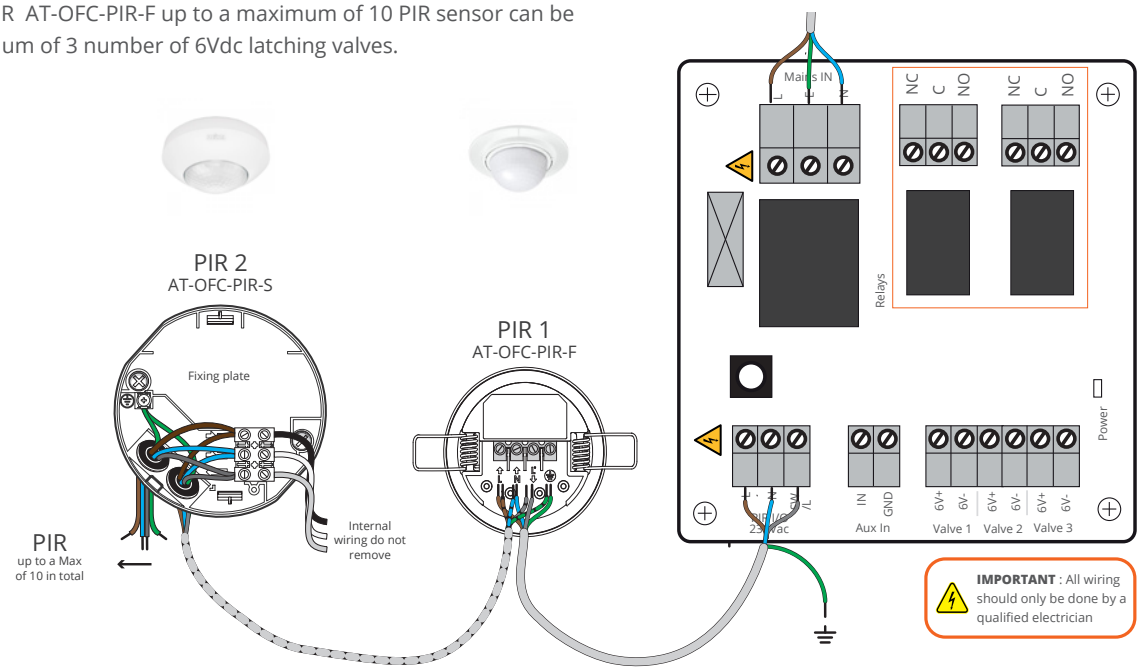
TYPICAL WIRING AT-OFC - AQUILAR PIR

Typical AT-OFC wiring showing a surface mount PIR - AT-OFC-PIR-S and a flush mounted PIR AT-OFC-PIR-F up to a maximum of 10 PIR sensor can be used, and maximum of 3 number of 6Vdc latching valves.

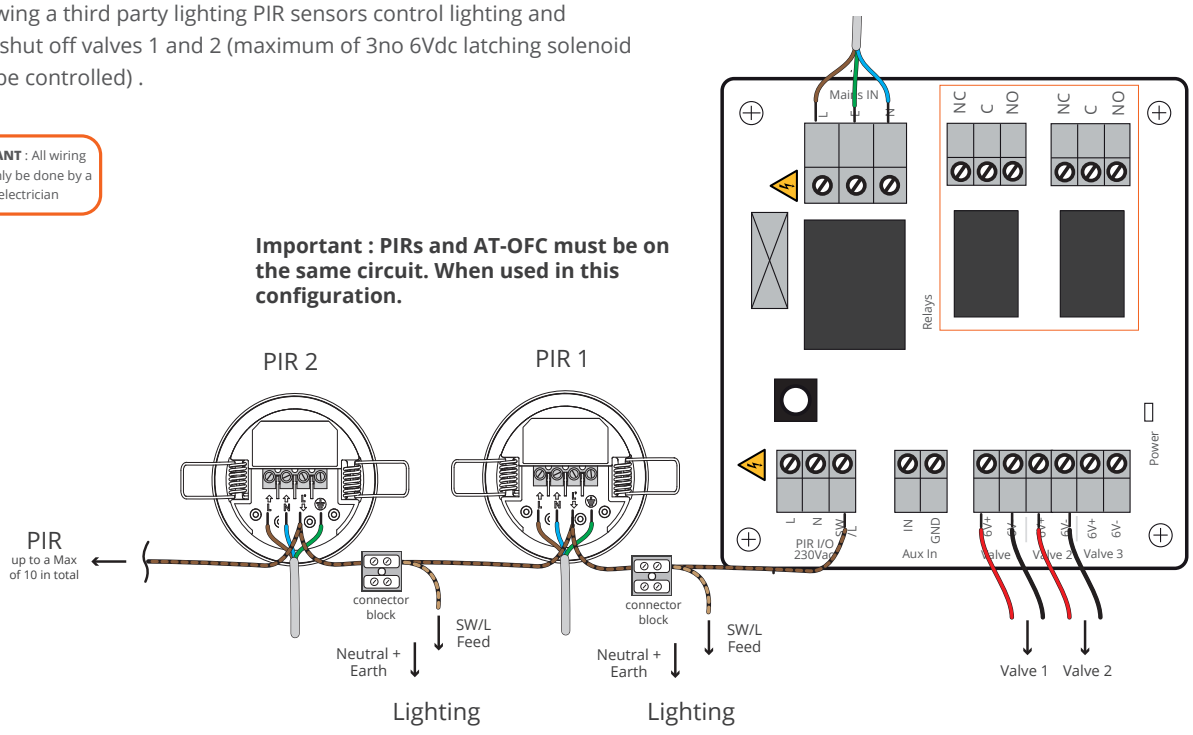


TYPICAL WIRING AT-OFC - LIGHTING PIR

Wiring showing a third party lighting PIR sensors control lighting and controlling shut off valves 1 and 2 (maximum of 3no 6Vdc latching solenoid valves can be controlled) .

IMPORTANT : All wiring should only be done by a qualified electrician

Important : PIRs and AT-OFC must be on the same circuit. When used in this configuration.



IMPORTANT : If using third party/lighting PIR systems to trigger the AT-OFC it is vital to ensure safety labelling is utilised to inform users that mains power may still be present within the unit and isolation may be required elsewhere. (e.g. the main MCB). The AT-OFC must be on the same circuit as the switch/trigger (i.e. lighting PIR)

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VALVE DRIVER OUTPUTS.

There are three valve driver outputs that will pulse AquiTron latching valves open and close.

All outputs are designed to drive the supplied AT-V-P-XX, AT-V-B-XX 6Vdc latching valves only. **They will not drive standard normally open / normally closed valves.**

When the timer is activated (e.g. by the PIR detecting movement) all three valve drivers will produce an electric pulse with contact A as positive.

When the timer reaches its set time period then all three valve drivers will produce an electric pulse with contact B as positive.

Note: The three drivers do not all operate at the same time, they operate one after the other, with 2 - 3 seconds gap in between.

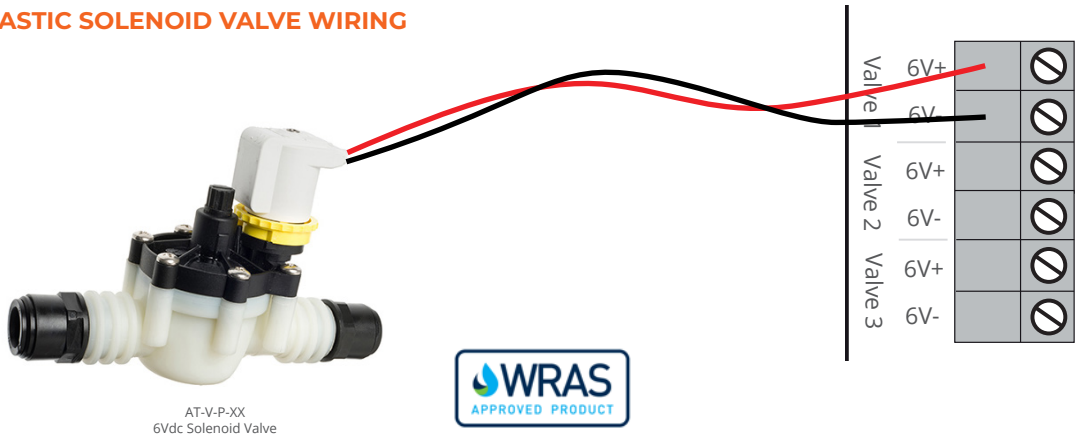
VALVE WIRING

Fig A diagrams show the cabling to the latching plastic solenoid valve. When using Nylon/Plastic Valves – +ve = Red -ve = Black.

Fig B diagram shows the cabling to the latching brass solenoid valve. When using the Brass Solenoid Valve. +ve = Terminal 2, -ve = Terminal 1

Valves should be checked for correct operation during commissioning and the wiring reversed if required.

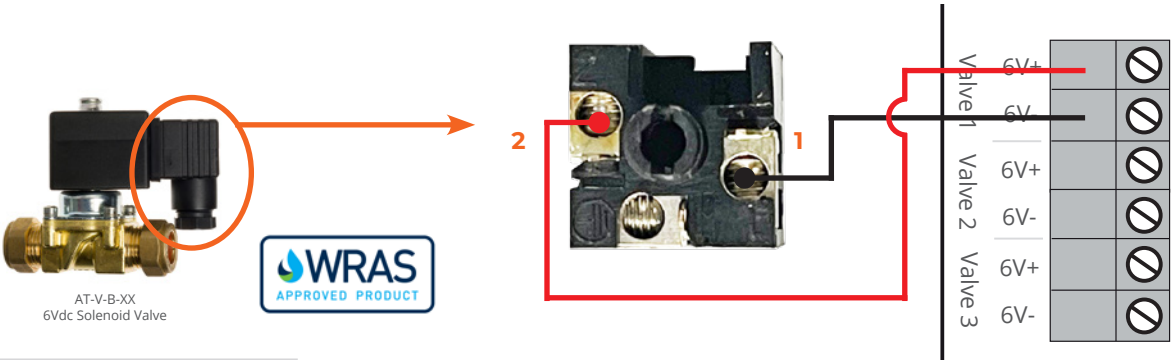
LATCHING PLASTIC SOLENOID VALVE WIRING



AT-V-P-XX
6Vdc Solenoid Valve

Fig A

LATCHING BRASS SOLENOID VALVE WIRING



AT-V-B-XX
6Vdc Solenoid Valve

Fig B

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RELAY SWITCH OUTPUTS

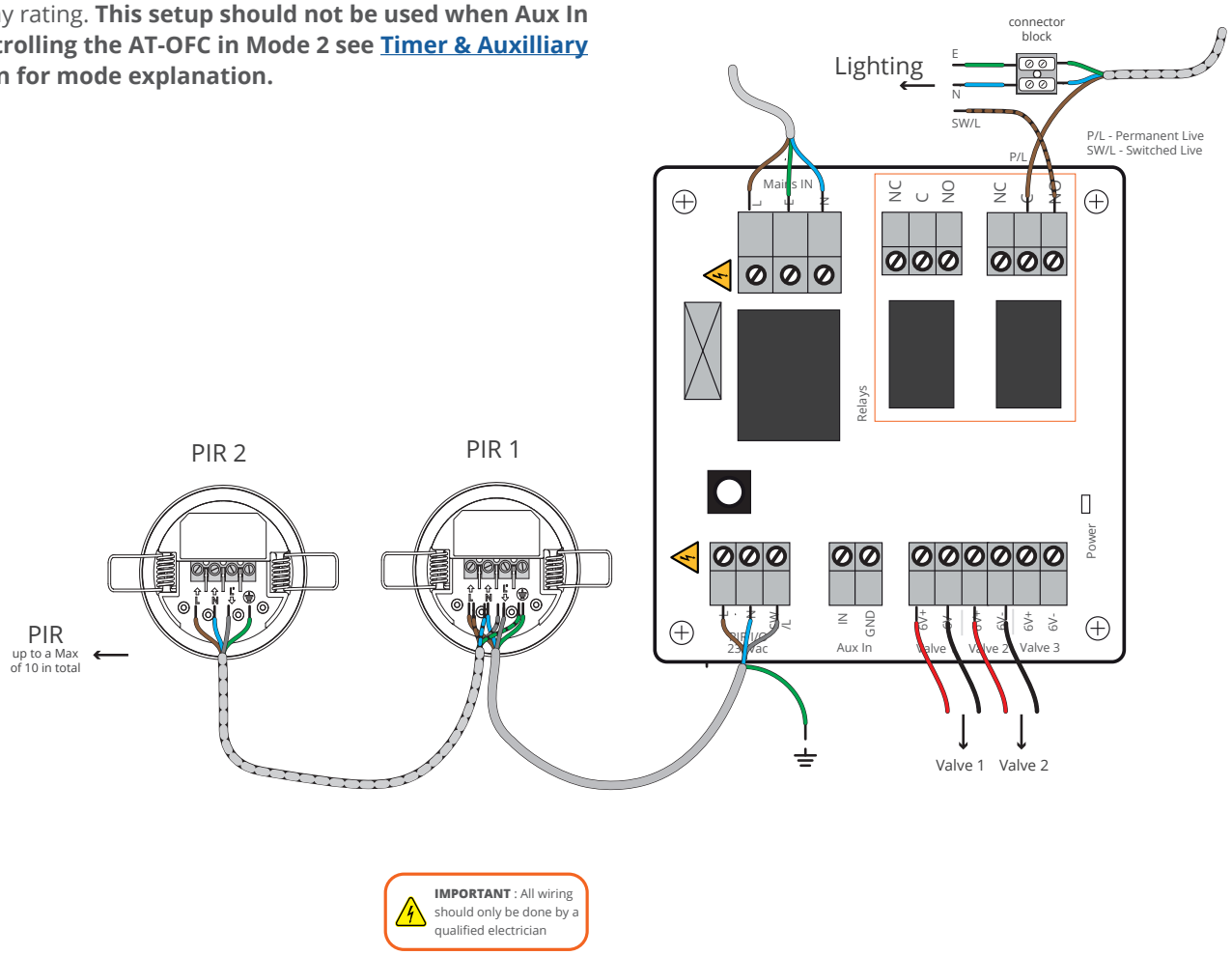
The controller has two relay switch outputs. Each output is capable of switching the following maximum voltage: 240V AC/30V DC

Current: 3A (resistive load)

The minimum load that can be switched reliably is 100mA at 5 volts DC.

When the timer is activated (e.g. by the PIR sensor detecting movement) the contacts of both relays will close (switch on) and when the timer reaches its set time period they will both open (switch off), see Timer section.

Diagram showing a typical PIR system controlling 2no 6Vdc latching valves, One of the relays on board is being used to control area lighting, load should not exceed the 240Vax and 3A relay rating. **This setup should not be used when Aux In is controlling the AT-OFC in Mode 2 see Timer & Auxilliary section for mode explanation.**



IMPORTANT : All wiring should only be done by a qualified electrician

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TIMER & AUXILLIARY

The function selector dial (see Fig C) is set according to timer function required. This is decided by if any equipment is connected to the auxiliary input.

For most functions such as stand-alone or attached to an override key switch or auto flush timer selecting 0-5 would be correct, depending on what time delay is required.

The Aux input **always** overrides the PIR inputs.

Settings on the Timer / Function Selector, Fig C, are as follows :

- Settings 0-5, **Mode 1** - Standard operation. Both Aux and PIR Input trigger valve(s) to open. Close pulse is sent after PIR Input (SW/L return) / Aux In signal is no longer present on either of the terminals.

- Settings A-F, **Mode 2** – Aux In attached to Leak Detection system / Key Switch or any other signalling device. PIR works as mode 1. Aux will override operation, if valve(s) is/are open (due to PIR being Triggered) Aux input will close the valve overriding the PIR input, if Valve is closed Aux trigger in signal will keep the valve(s) closed irrelevant of PIR trigger input on SW/L. Once Aux In signal clears, the timer starts as the selection A-F.

Note : Timer setting always and only begins once either of the trigger inputs (PIR or AUX In) has released.

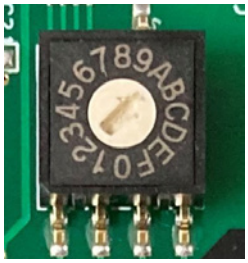

Fig C

Please see the tables below.

MODE 1

Selection	Timer	Aux In	Timer End
0	6 sec	Valve Open	Valve Closed
1	1 min	Valve Open	Valve Closed
2	5 min	Valve Open	Valve Closed
3	10 min	Valve Open	Valve Closed
4	15 min	Valve Open	Valve Closed
5	20 min	Valve Open	Valve Closed

MODE 2

Selection	Timer	Aux In	Timer End
A	6 sec	Valve Closed	Action Reversed
B	1 min	Valve Closed	Action Reversed
C	5 min	Valve Closed	Action Reversed
D	10 min	Valve Closed	Action Reversed
E	15 min	Valve Closed	Action Reversed
F	20 min	Valve Closed	Action Reversed

If the AT-OFC is to be used in conjunction with an AquiTron leak detection panel as a master valve controller then selection A-F should be used depending on time delay required.

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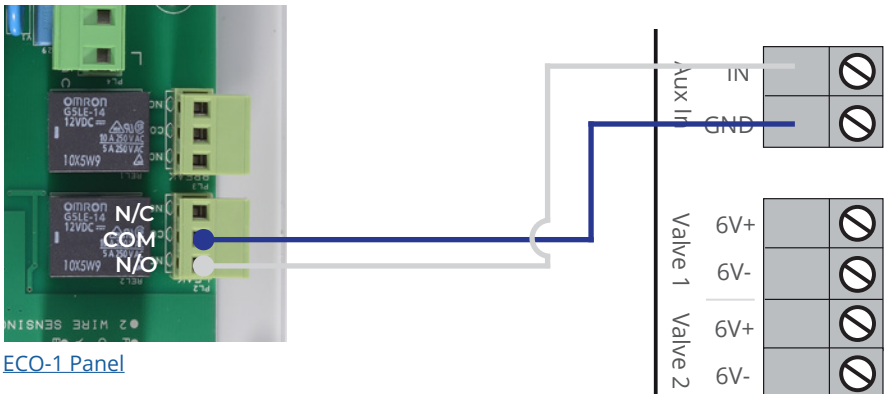
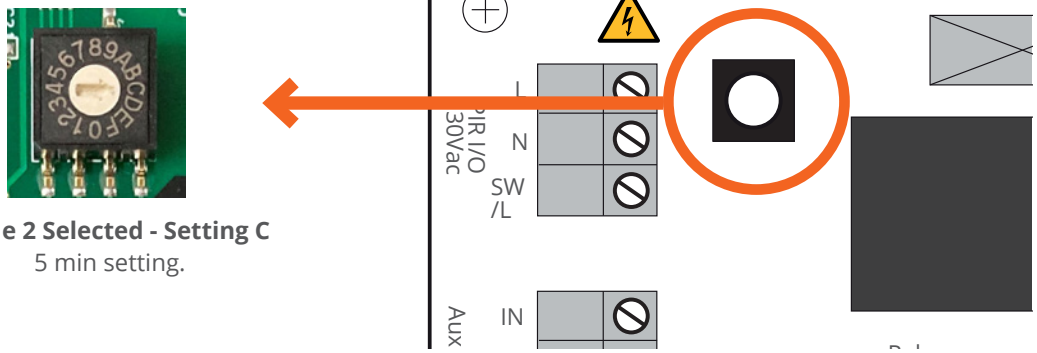
Note: The PIR will always try to open the valve. **The auxiliary input will always override the PIR.**

Note: The connection to the AT-OFC auxiliary input must always be a volt free normally open contact.

Example Shows AquiTron ECO-1 panel relay , 1 zone leak detection panel connected to an AT-OFC in Mode 2 operation - When the ECO-1 relay becomes energised (water leak is detect by the Eco-1), the Aux In will override the PIR and closes the valve(s). Once the Leak has been cleared and the relay has been de-energised a countdown timer of 5 minutes commences. Once the countdown timer ends the valves will be able to be controlled by the PIR allowing the valves to operate as normal.



ECO-1 Panel



Mode 2 Selected - Setting C
5 min setting.

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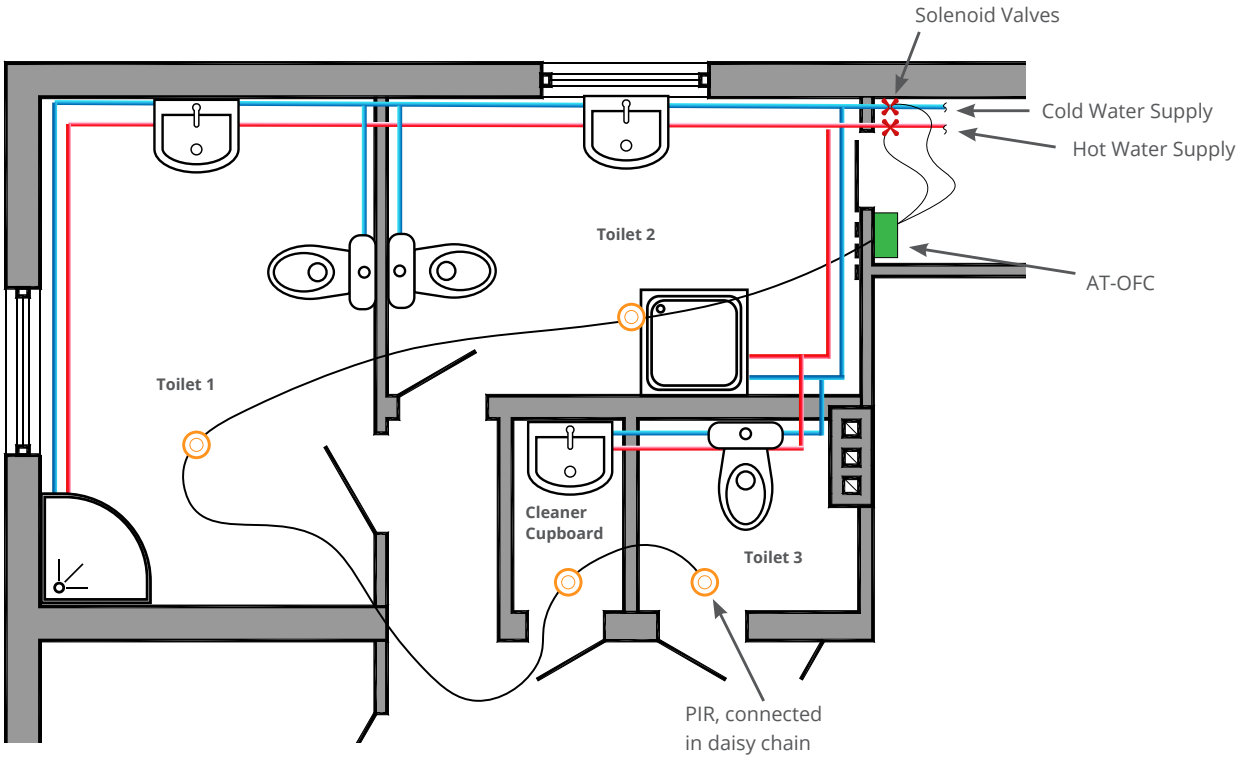
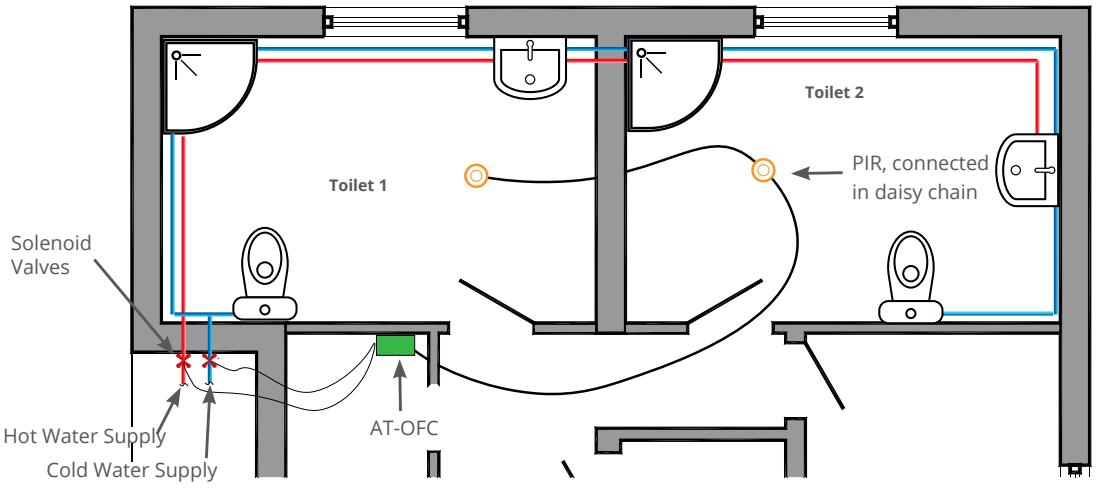
PIR POSITIONING

The Aquilar supplied PIR sensor has a range of 8 Metres when installed at 2.4M above finished floor level, different heights will affect the beam width or sensitivity. The device must be located so the sensor will detect movement within its field of view. The AT-OFC can be mounted out of sight and multiple PIRs can be used to pick up movement as seen in the example diagrams below.





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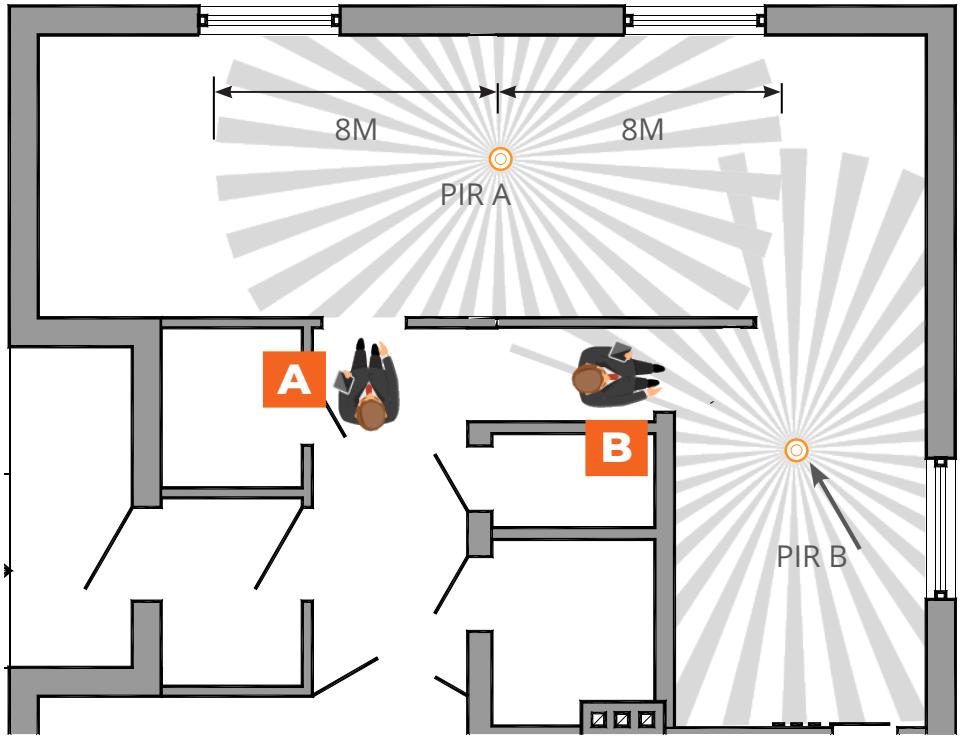
PIR SENSOR POSITION

Locate the sensor on the ceiling or high on a wall opposite and with a clear view, to the entrance. Keep away from areas that may be affected by damp, steam and water splashes. If you are unsure, test that the unit operated correctly before fixing permanently.



These distances are for the Aquilar PIRs. Positioning the PIR sensors strategically is important making sure that there is no blind spot as shown on the figure adjacent.

Person A walking in the room will activate PIR A
Person B walking in the room will activate PIR B

By positioning the PIRs strategically you will avoid having blind spots in the rooms where the system is required

PIR range shows the flush version - AT-OFC-PIR-F

H. MAINTENANCE

In hard water areas it is recommended that the solenoid valve assembly is dismantled and cleaned to remove lime scale deposits or debris every 12 months as the build up could cause the valve(s) to fail to open or close.

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ORDERING INFORMATION

Catalogue number	5725 AT-OFC Aquitron Occupancy Flow Controller, 230VAC
	5726 AT-OFC-PIR-S Ceiling Mount Surface PIR, White, 230Vac
	5727 AT-OFC-PIR-F Ceiling Mount Flush (Semi-Recessed) PIR, White, 230Vac
	5724 AT-OFC-PIR-W Wall Mount Surface PIR, White, 230Vac
	5723 AT-OFC-PIR-M Ceiling Mount Flush (Semi-Recessed) Microwave PIR, White, 230Vac

ANCILLARY PRODUCTS

5790 AT-V-P-15 15mm Valve, Plastic, 6Vdc
5795 AT-V-P-22 22mm Valve, Plastic, 6Vdc
5800 AT-V-P-28 28mm Valve, Plastic, 6Vdc
5805 AT-V-P-35 35mm Valve, Plastic, 6Vdc
5740 AT-V-B-15 15mm Valve, Brass, 6Vdc
5745 AT-V-B-22 22mm Valve, Brass, 6Vdc
5750 AT-V-B-28 28mm Valve, Brass, 6Vdc
5755 AT-V-B-35 35mm Valve, Brass, 6Vdc
5760 AT-V-B-42 42mm Valve, Brass, 6Vdc
5765 AT-V-B-54 54mm Valve, Brass, 6Vdc

All valves are WRAS approved

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