ActivStopLeak

Advanced Guide for Installers

Edition ONE

Activ TEC

ActivStopLeak Introduction

ActivStopLeak (ASL) is a fully automated water leak detection system for homes and commercial buildings that will not only alarm when a leak is detected, but it will also shut down the water supply.

Its electronic control 'self learns' what constitutes normal water usage, and identifies any situation where the water flow has the characteristics of a burst pipe, small leak or drip, or a tap left running accidently. Even the drip of a micro leak down to 0.1 ltr per hour can be recognised.

If a much larger than normal water flow is required then the user can disarm the ASL detection monitor at the touch of a button or by an phone APP.

At the point of installation the ASL is Bluetooth® paired with the main user's phone, then before operation starts is put through it's 'learning' phase. First as NO flow (important that an isolation valve immediately after the ASL is fully closed), then as a normal flow, with the most commonly used tap or shower open fully.
On completion of this simple exercise, the ASL device is 'armed', and will continue to learn as usage habits change.

ASL Key features.

- Ultra low flow sensitivity down to 0.1 ltr per hour
- Checks for micro leaks every hour of every day.
- Low voltage safety
- No plug in connections that could be accidently disconnected from the power supply.
- Optional wall mounted control.
- One unit for pipe connections up to 1".

Control and Alarm methods.

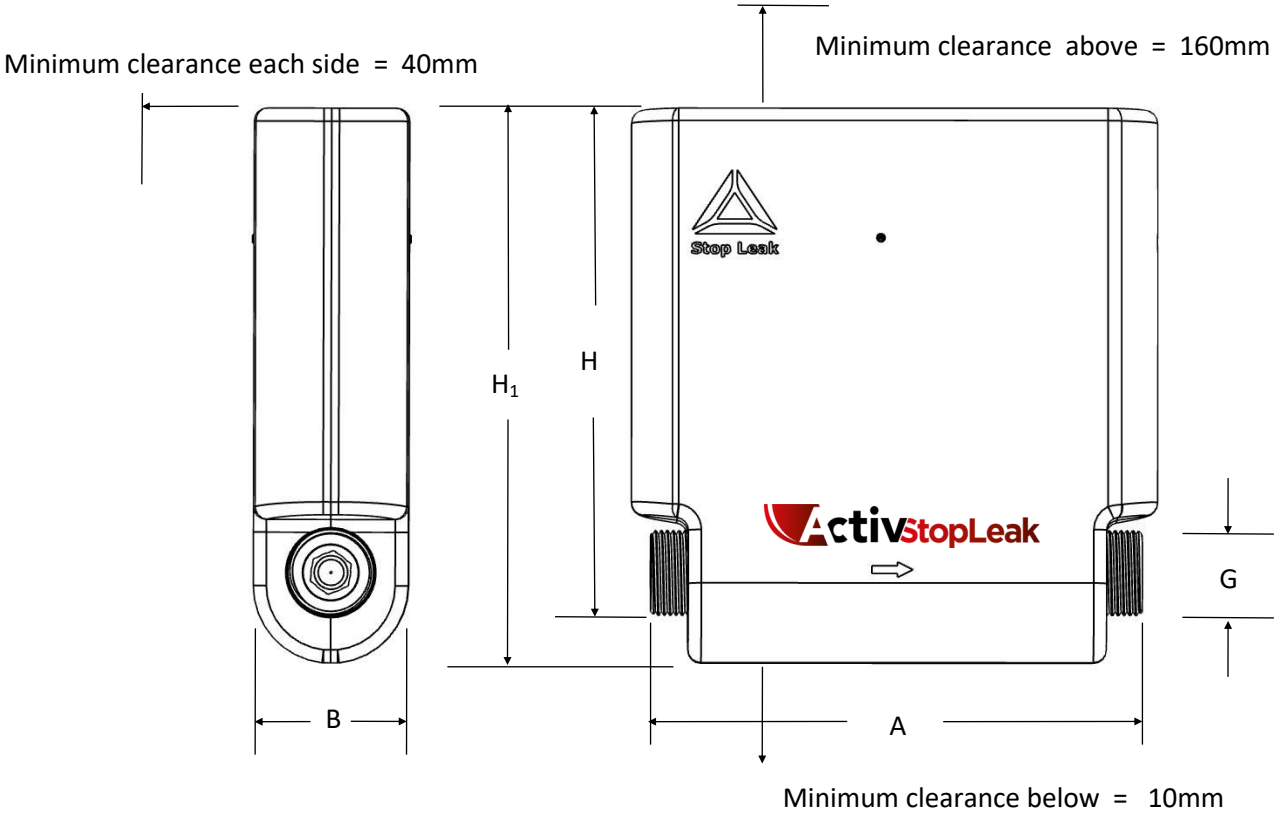
- An LED on the ActivStopLeak indicates the system status.
- Download the free APP for the full control package and warning messaging.
- Bluetooth® Low Energy (BLE) transmission to a phone.
- Add an additional remote control and alarm, wall mounted and hard wired with Disarm and Rearm touch pads plus LED colour coded messaging.

Download on the App Store GET IT ON Google Play

Technical	
Sensitivity	0.1 l/hr
Response time	Programmable
Allowable flow time limits	Programmable
Maximum operating temperature range	Up to 60C
Connection brass body	G 1"
Connection union isolation valve accessory (order separately)	G 1" x 3/4" male
Ingress protection (IP) rating - Sensor	IP 68
Ingress protection (IP) rating - Electronics	IP 54
Power Supply to External Transformer (connected to fused spur) External Transformer 230V - 24V AC / DC with 2.5M cable pre-wired.	230v 24V AC / DC
Absorbed power . Absorbed power is the expected power drawn by the load.	0.5W / 1VA
Communication via BLE used for first installation configuration and for device management. Range of connection up to 30 M in the absence of shielding barriers.	Bluetooth® Low Energy (BLE) transmission.
Material flow valve body	Low lead brass
Kiwa Regulation 4 (KUKreg4) Certification. Valid to 12/06/2029 Certificate number	2406710 (1)

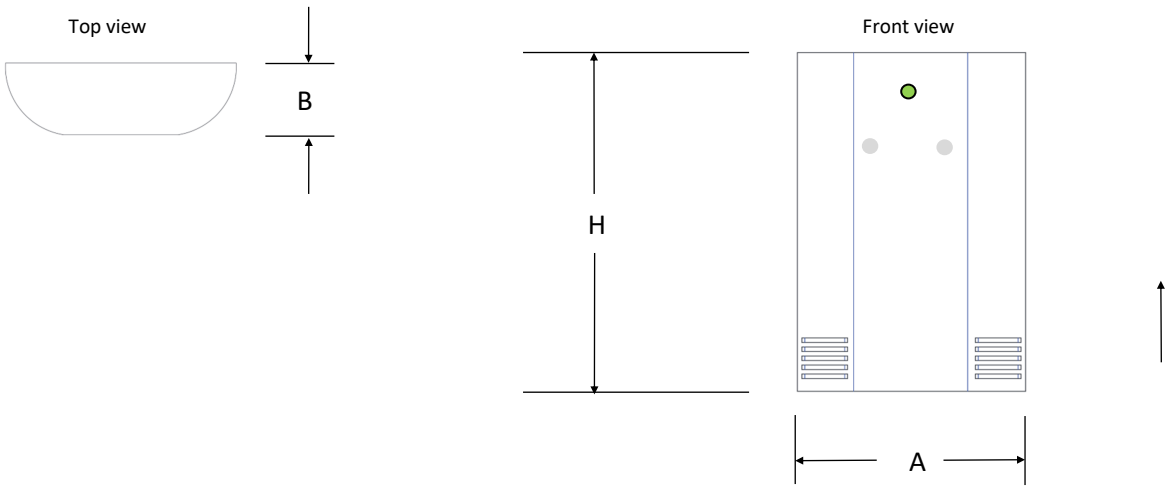
Dimensions ActivStopLeak

A (mm)	B (mm)	G (mm)	H (mm)	H_1
191.5	60	G 1 "UNI ISO 228 120	196.5	215

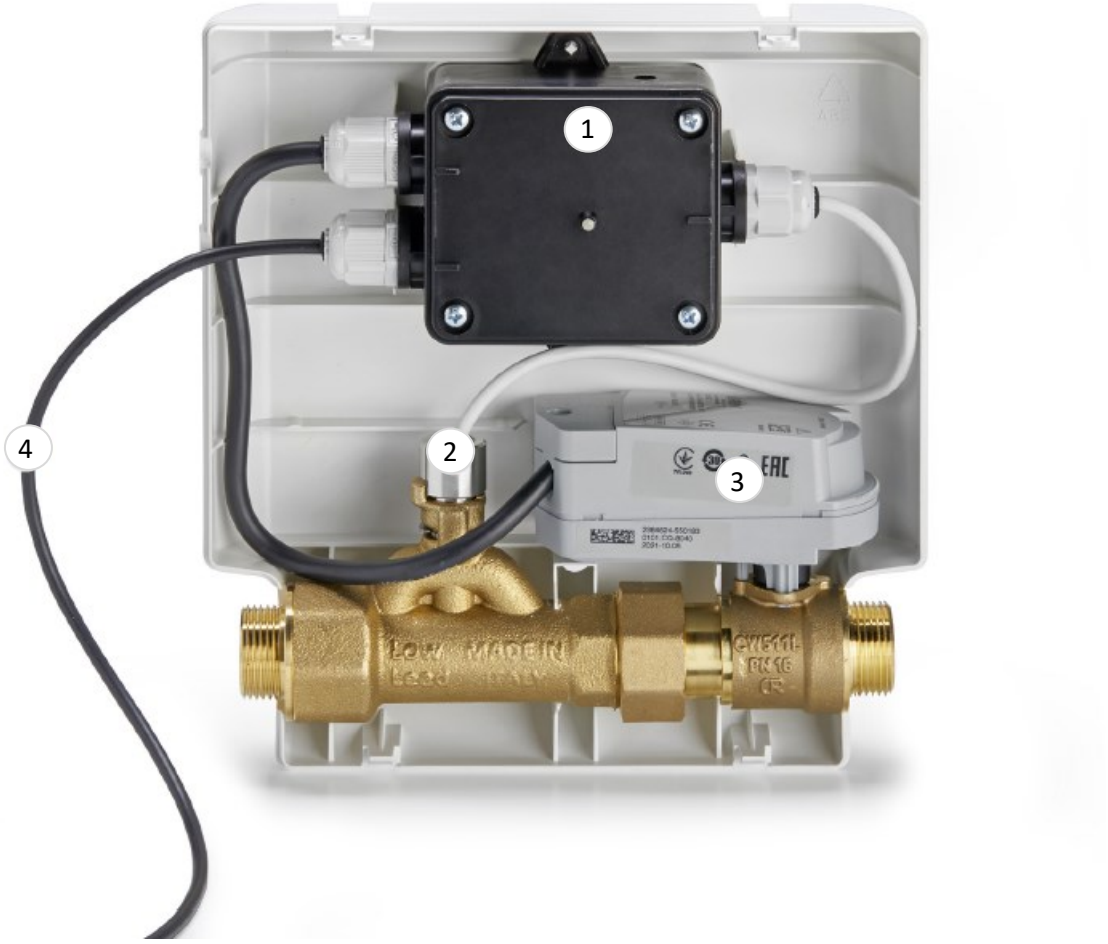


Dimensions - Wired Remote Alarm

A (mm)	B (mm)		H (mm)	
80	25		120	



ActivStopLeak Main Components.



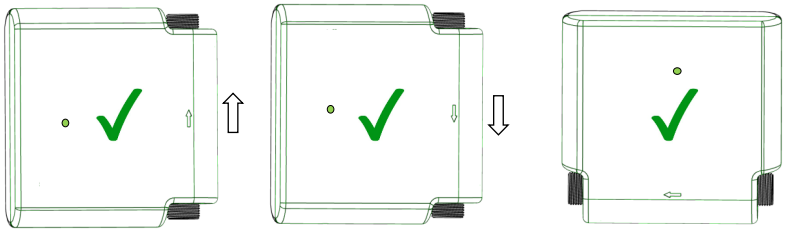
1 Electronic Controller and wiring board.
LED indication of operating condition.
Bluetooth® Low Energy (BLE) comms.

2 Leak detection flow sensor block.
Flow sampling block and non return valves

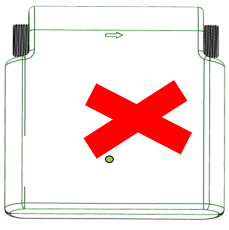
3 Actuated water supply shut off valve 24v.

4 Pre-wired connection for the optional Remote Alarm

Installation orientation.



Correct installation orientation of ActivStopLeak.



DO NOT install in this orientation!

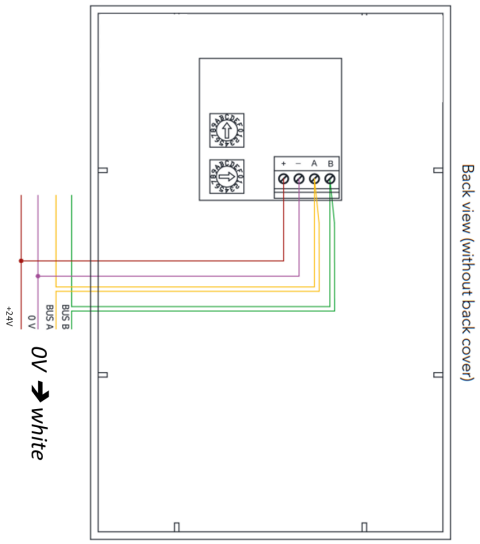
ActivStopLeak Remote Control and Alarm

The Remote Alarm is used to remotely display a notification of the ActivStopLeak immediate status or to temporarily disarm it. For example watering the garden, or jet washing the car or patio, could require a larger amount of water flow than normal , which the ActivStopLeak would assume is a leak, so the monitor can be DISARMED by pressing the 'D' touch pad. REARM the device when the returning to normal water demand by pressing the 'R' touch pad. The Remote Control and Alarm allows anyone in the building to control the ASL and recognize alarms without a phone APP by using the R and D touch pads on the unit

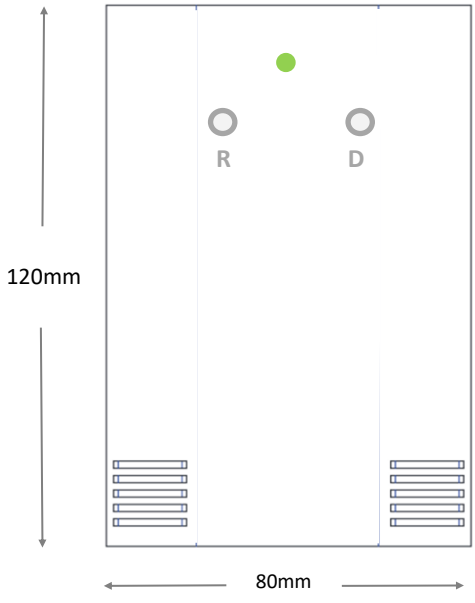
The LED on the remote alarm informs the user of the status of the ActivStopLeak by changing colour.*
In normal operation the LED is a steady **GREEN** colour. It can change colours to inform of a changed condition of operation. The below table lists the LED colours condition in normal operation.

GREEN	Steady solid light	ASL in normal operation, monitoring water flow.
RED	Steady solid light	Warning, the flow sensor has been disconnected!
RED	Flashing light	Warning, the device valve body on control is disconnected!
YELLOW	Steady solid light	LEAK detected and water supply shut down!
YELLOW	Flashing light	Undiagnosed FAULT (possible sensor or electronics errors)

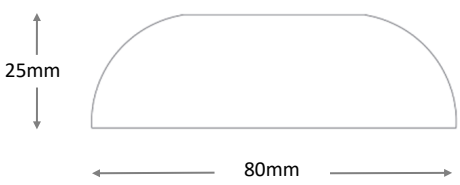
During first set up, the LED will flash GREEN before starting the learning phase of commissioning. When starting the CLOSED learning phase (no flow, with the isolation valves fully closed) it will flash BLUE. The next phase of learning is to monitor what the user or installer will demonstrate as a NORMAL FLOW operation by opening the most commonly used tap or shower valve. During this time the LED will flash PURPLE. When learning is complete, the LED will show that it in automatic monitoring mode as a steady solid GREEN colour.



Back View with wiring connections



Dimensions

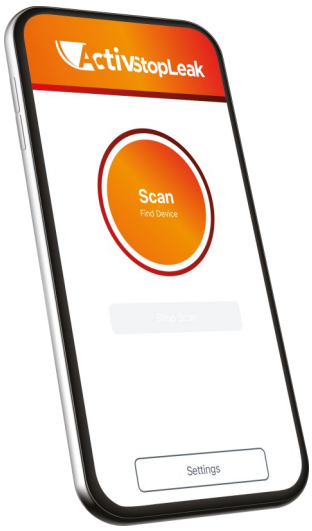


*Note, the LED colours codes do not apply the operation of the ASL using the phone APP.

ActivStopLeak OPERATION.

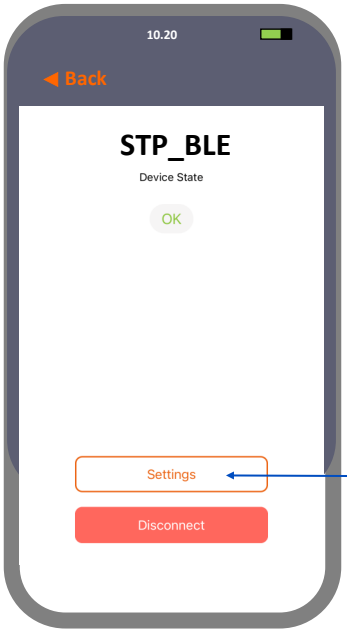
Download on the App Store | GET IT ON Google Play

After downloading the ActivStopLeak App from either the Apple IOS or GOOGLE android app store pair the device with your phone.

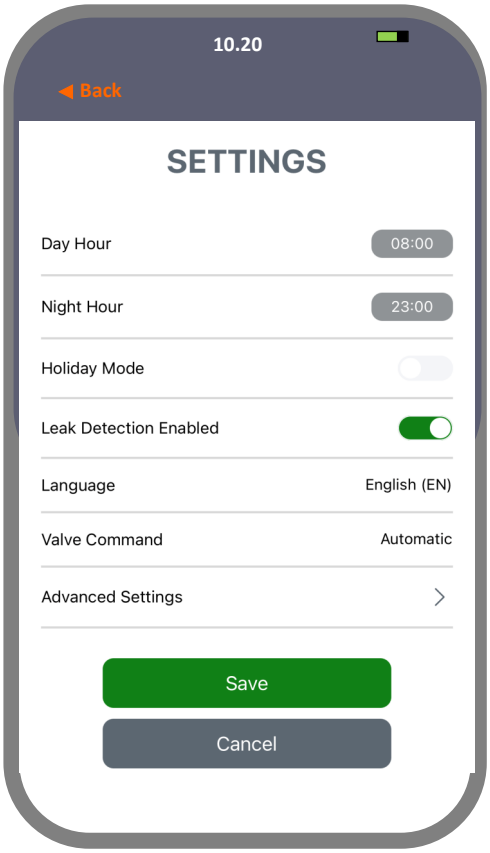


Complete the learning phase as outlined in the installation Instructions provided. Automatic monitoring is ON.

Now, if the user wanted to explore the automatic leak detection operation parameters, open the menu with **SETTINGS.**



Enter Settings Menu



Settings

Day Hour - Sets the users normal daytime time for water monitoring.

Night Hour - Sets the users normal night time for water monitoring.

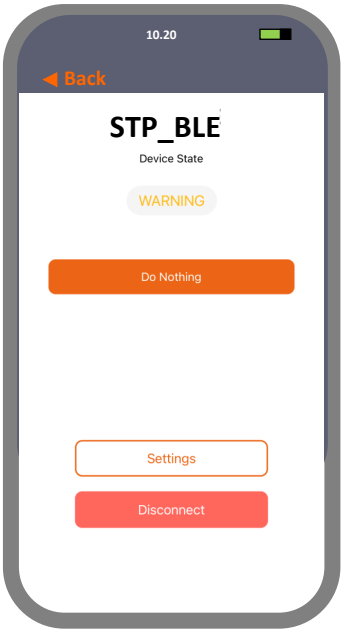
Holiday Mode - Turn on when the Building is unoccupied. Expected water usage will be minimal or zero.

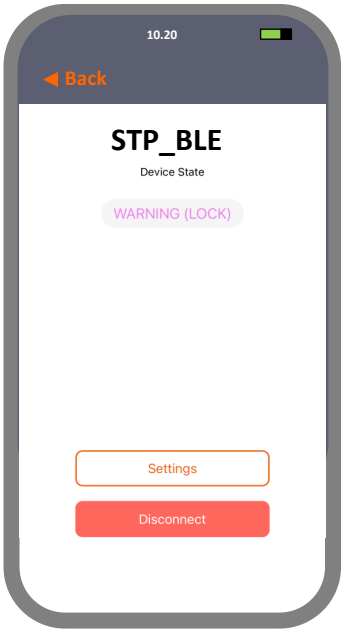
Language - options to change

Valve Command - Automatic or manual CLOSE (permanent OFF) or manual OPEN (Permanent water supply ON without automatic water leak protection)

Advanced Settings - enter into the Advanced menu for commissioning engineers.

ActivStopLeak OPERATION - MESSAGES





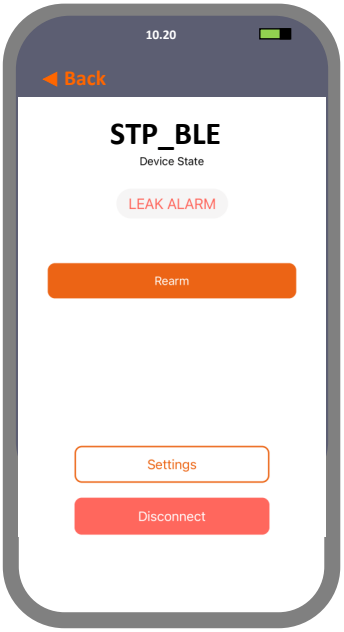
ASL State - WARNING

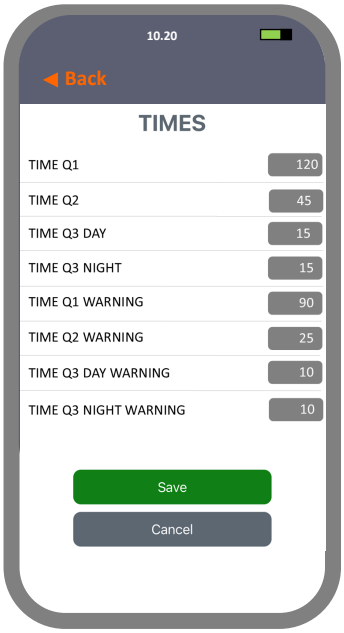
The user can 'ignore' (select DO NOTHING) after investigating what has caused the alarm, and deciding that the 'leak' is small, and the is no risk. The repair can be made when convenient.

If left, and the time out limit is met, then the ASL device will go on to shut down the water supply as the criteria for a leak has been met.

Do nothing selected, then the WARNING LOCK message is shown. During the LOCK period it is possible to access Settings, and with any intervention of the ASL cancelled (LOCK).

The warning state will return if set back into normal operation.





ASL State - LEAK

The time and flow parameter conditions have been met to recognise a LEAK in the system.

The flow parameters are as monitored in one of the three monitoring functions.
Q1 Microflow (as low as 0.1 l/hr)
Q2 Normal flow (as set during Learning)
Q3 Large Flow

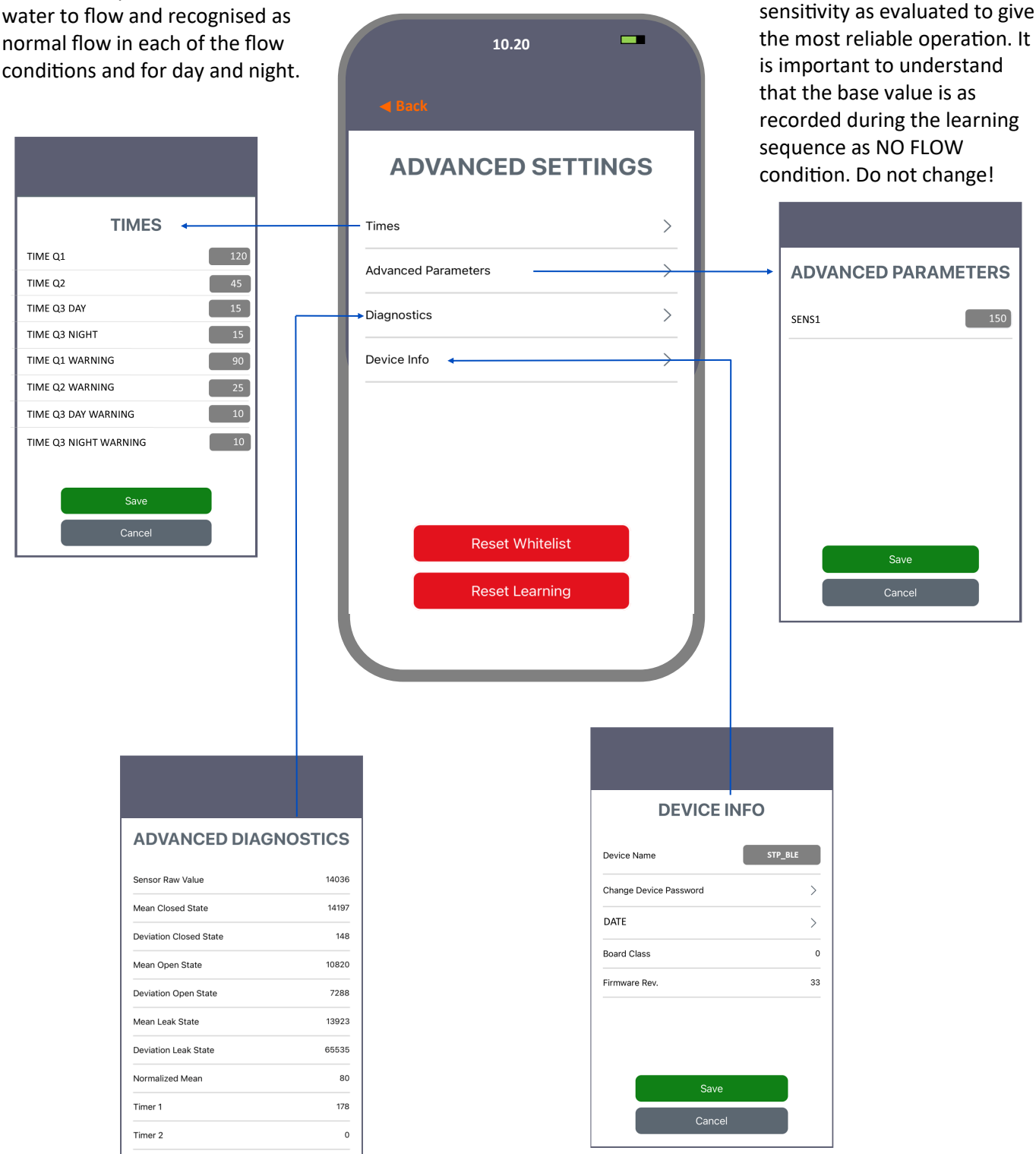
The time parameters can be changed by the user if required.
See SETTINGS menu / go to Advanced Settings / select Times from the menu.

Eight time options are available and can be set by the commissioning engineer.

ActivStopLeak OPERATION - Advanced Settings

Times (as seen also on page 7)
Set the time periods allowed for water to flow and recognised as normal flow in each of the flow conditions and for day and night.

Advanced Parameters SENS1 allocated a value of 150.
To explain, this is the value of sensitivity as evaluated to give the most reliable operation. It is important to understand that the base value is as recorded during the learning sequence as NO FLOW condition. Do not change!



Advanced diagnostics record all monitoring history for use by our engineers

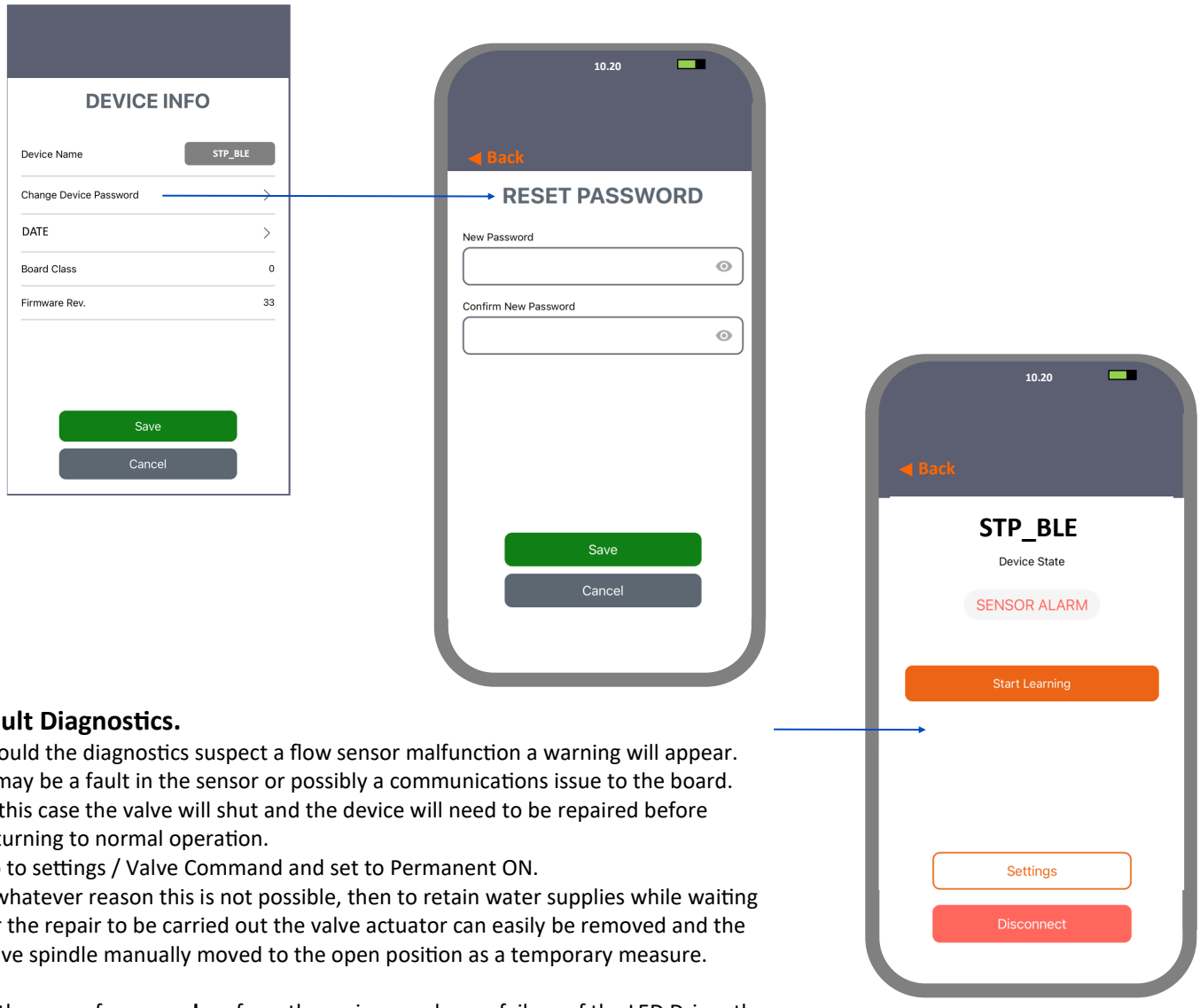
DEVICE INFO includes the name and password for the ASL and can be reset (see the page 9 'SECURITY'. Also in this menu our engineers can identify Board class and firmware version.

ActivStopLeak security and Fault diagnostics on the APP

Change of user and a shared password.
This can easily be done for example when handing over the property where the ActivStopLeak is installed. Erasing the whitelist doesn't change the password, so if anyone has changed it, at the reconnection to the device, you need to insert the new password. **The default factory password is 999999.**

Change of user where the password is NOT shared.
If the user changed the password to a unique code, then moved out of the property, how could the new occupier pair their phone to the ActivStopLeak without knowing what the previous owner's password was? Also assume the previous owner can not be contacted.

In this case, the only thing you can do is opening the ActivStopleak valve case, and pressing down the white button next to the sensor. This will make a **factory reset** and, although you'll need to do the learning operation again, the Stopleak will go back to the factory default password and values .



Fault Diagnostics.

Should the diagnostics suspect a flow sensor malfunction a warning will appear.
It may be a fault in the sensor or possibly a communications issue to the board.
In this case the valve will shut and the device will need to be repaired before returning to normal operation.
Go to settings / Valve Command and set to Permanent ON.
If whatever reason this is not possible, then to retain water supplies while waiting for the repair to be carried out the valve actuator can easily be removed and the valve spindle manually moved to the open position as a temporary measure.

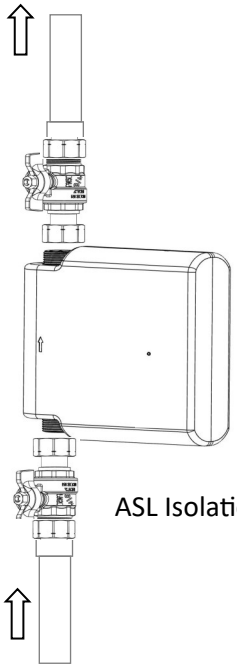
In the case of a **power loss** from the mains supply or a failure of the LED Driver the user will see the Pairing has been lost on the phone APP.

Part Numbers and Accessories

Code	Reference	Description
STOPLEAK1	ASL ONE	**ActivStopLeak whole house leak detection**, blue tooth connectivity and app. Apartments and new homes. The ASL has blue tooth connectivity.
STOPLEAK2	ASL TWO	**ActivStopLeak whole house leak detection, with Remote control / Alarm** with manual reset and manual alarm over-ride. The ASL has blue tooth connectivity.
STOPLEAKCON	ASL REMOTE	Remote Control and Alarm accessory. Add to upgrade ASL ONE to the same specification as ASL TWO.
STOPLEAKACC1	ASL Isolation Valves	STOP LEAK BALL VALVE ACCESSORY KIT. 2 x Union isolation valves to connect and provide isolation to the ASL.

ASL ONE

ASL REMOTE



ASL Isolation Valves

Adding an audible alarm or buzzer.

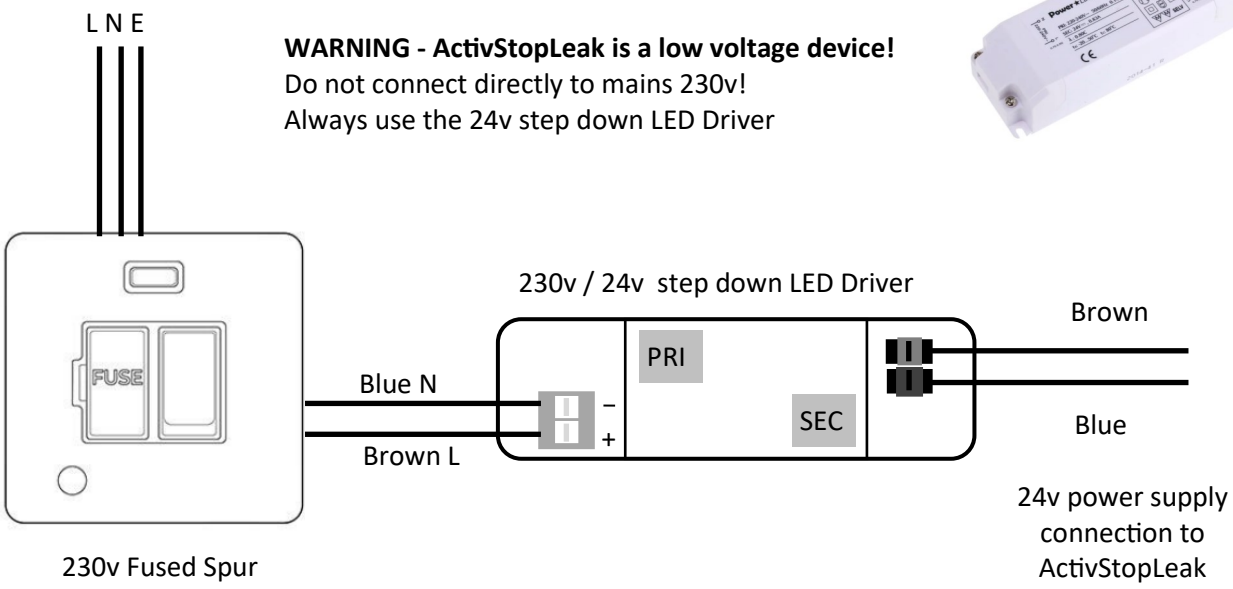
An audible alarm or just a simple buzzer can be added by wiring into the terminals on the electronics board. These products are not supplied by ActivTec or Inta but are readily available for the installer to purchase from retail or online sales outlets.

Note - if no one can gain entry to the building (or apartment) then it would be of a nuisance value to other neighbours. But then again, so is water leaking through into an adjoining property! So there may be building installations where adding an audible alarm is required.

See the Wiring Information section Page 14.

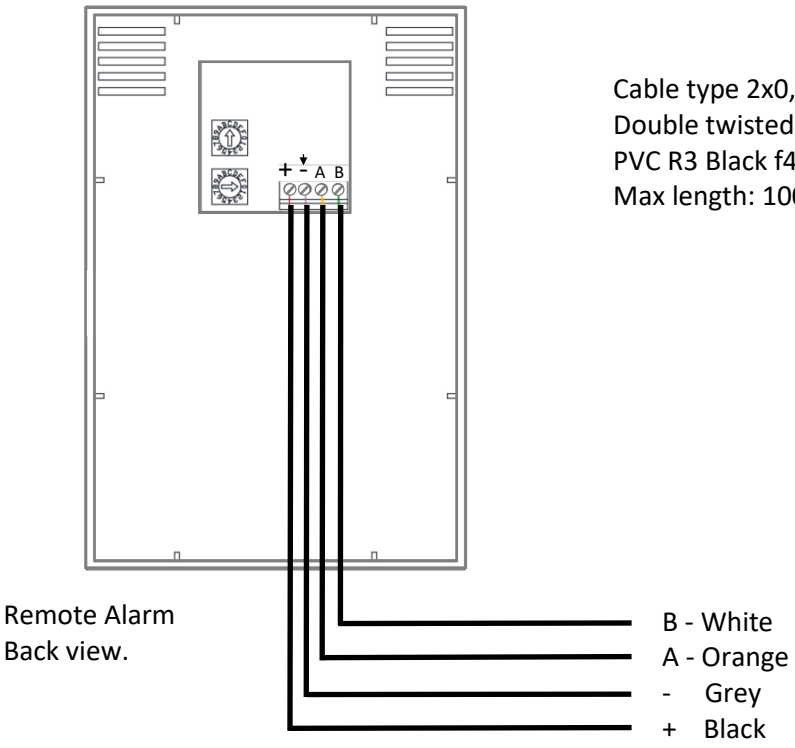
ActivStopLeak Wiring Information

Installation
Connect the power supply using the step down LED Driver from an unswitched fused spur.
If using a switched spur position where it is unlikely to be accidently switched off.
However, should it be turned off the APP will show no connection (not paired).



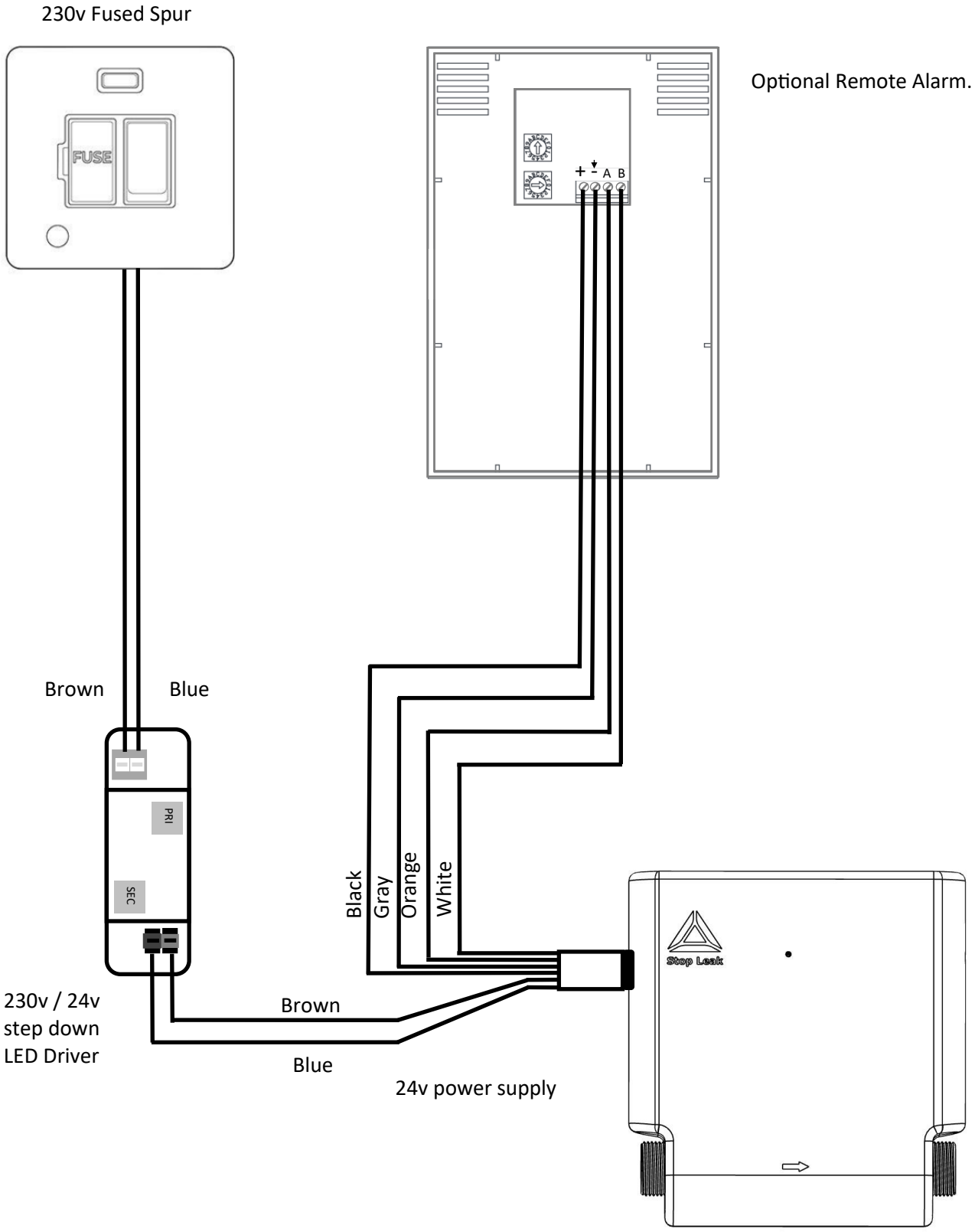
WARNING - ActivStopLeak is a low voltage device!
Do not connect directly to mains 230v!
Always use the 24v step down LED Driver

Installation.
To connect the Control and Remote Alarm use the cable provided.
The installer provides additional cabling to connect the remote control and alarm in its desired position in the building.



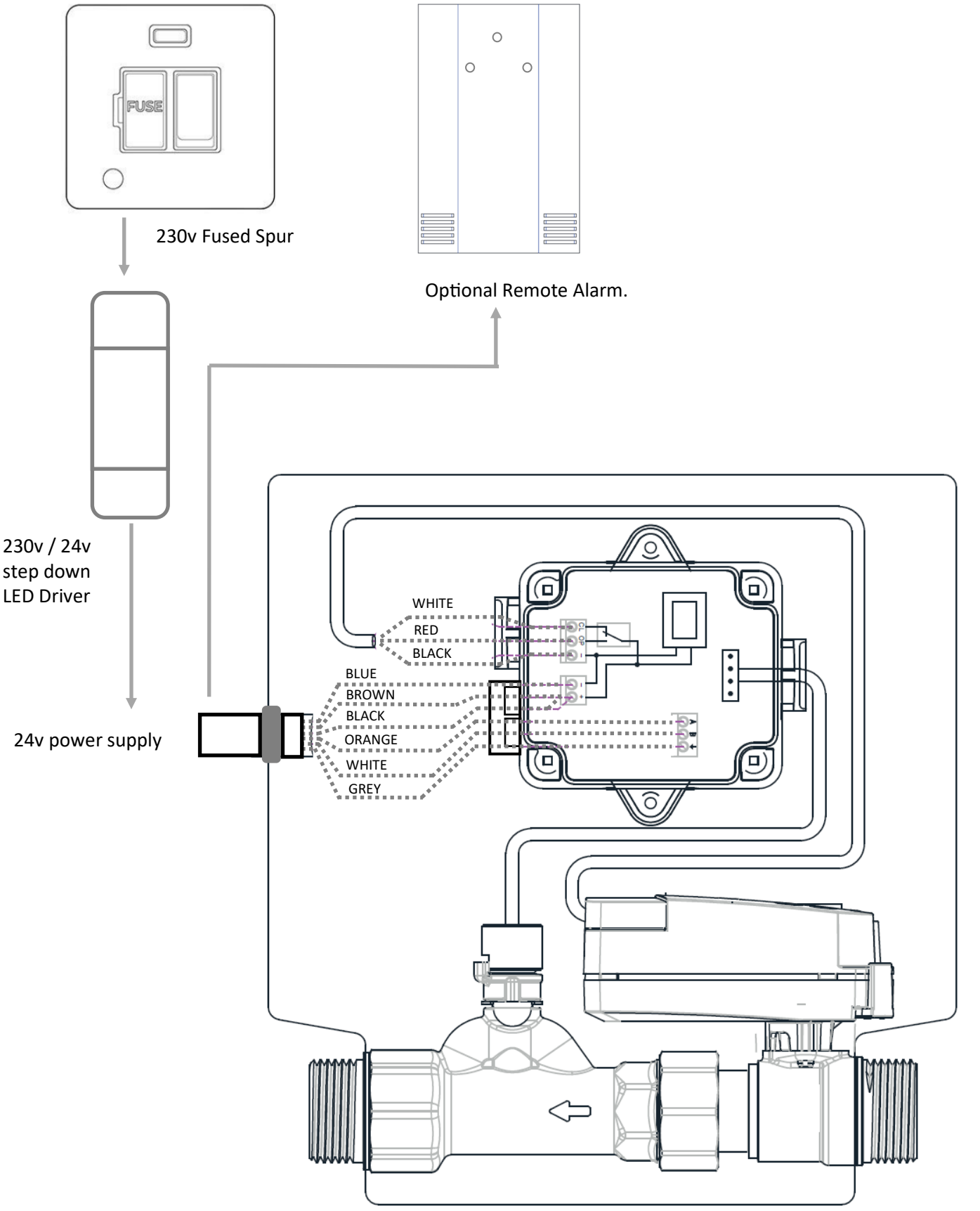
Cable type 2x0,35 PVC insulated f1,4mm ± 0,1.
Double twisted cord with external insulation.
PVC R3 Black f4,30 ± 0,2 or equivalent.
Max length: 100 m.

Wiring Information



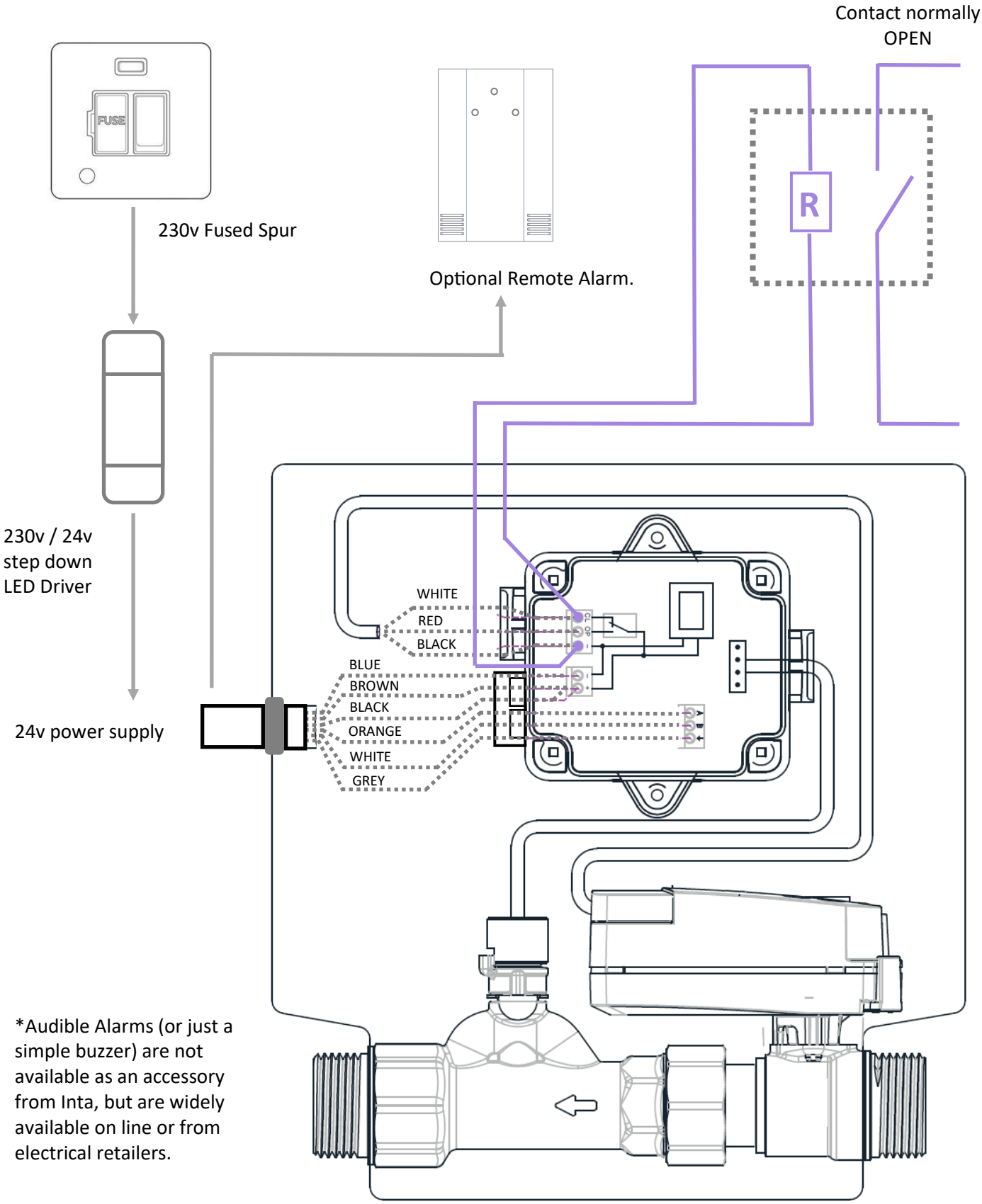
WARNING - ActivStopLeak is a low voltage device!
Do not connect directly to mains 230v.
Always use the 24v step down LED Driver

Wiring Information - Internal connections.



ALARM REMOTE CONTROL or ADDING an AUDIBLE ALARM*

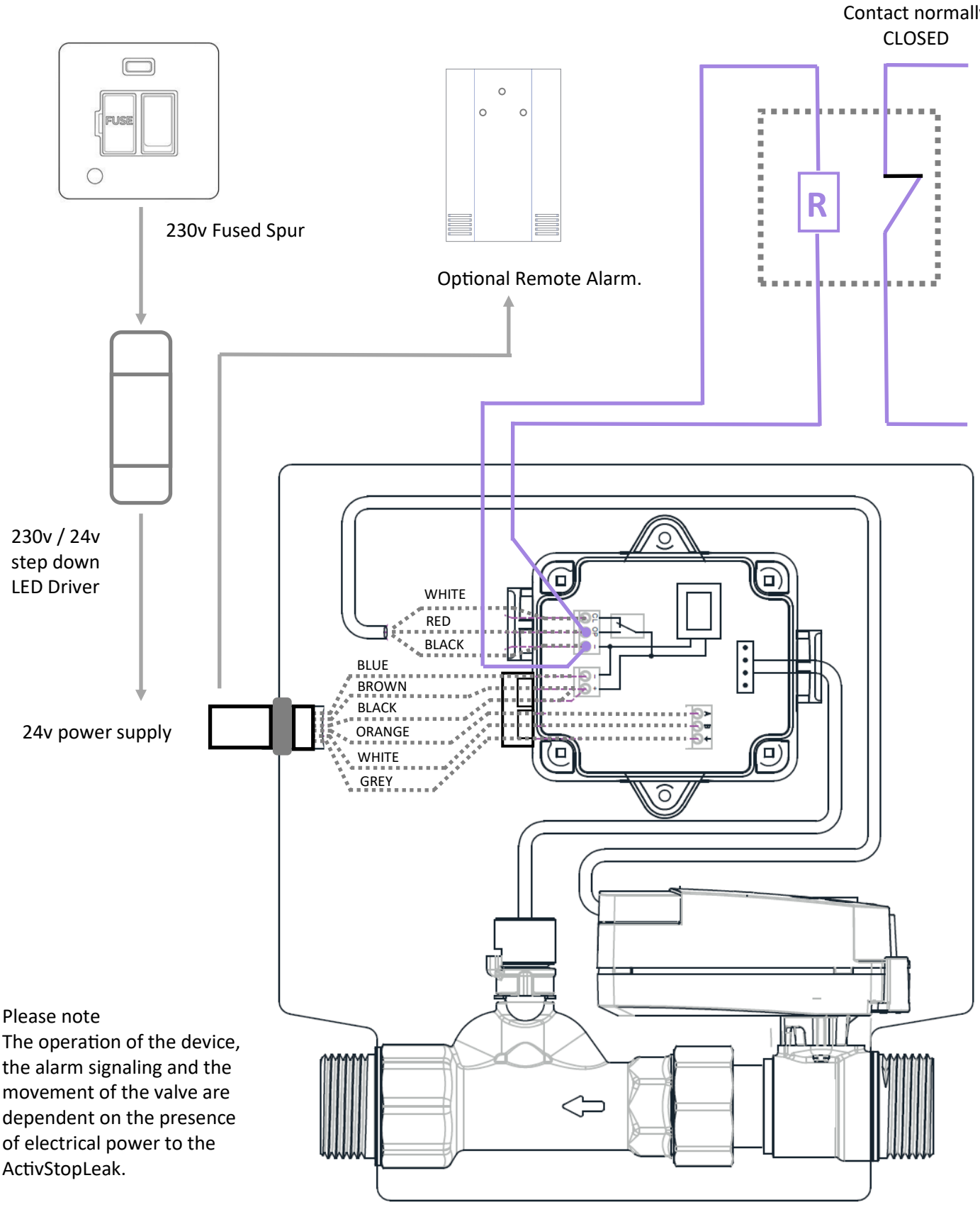
(Optional, by the electrical installer) -The contact is closed only in the presence of an alarm.
This connection may also be used to connect a simple audible alarm or buzzer.



*Audible Alarms (or just a simple buzzer) are not available as an accessory from Inta, but are widely available on line or from electrical retailers.

ALARM REMOTE CONTROL
(Optional, by the electrical installer) -

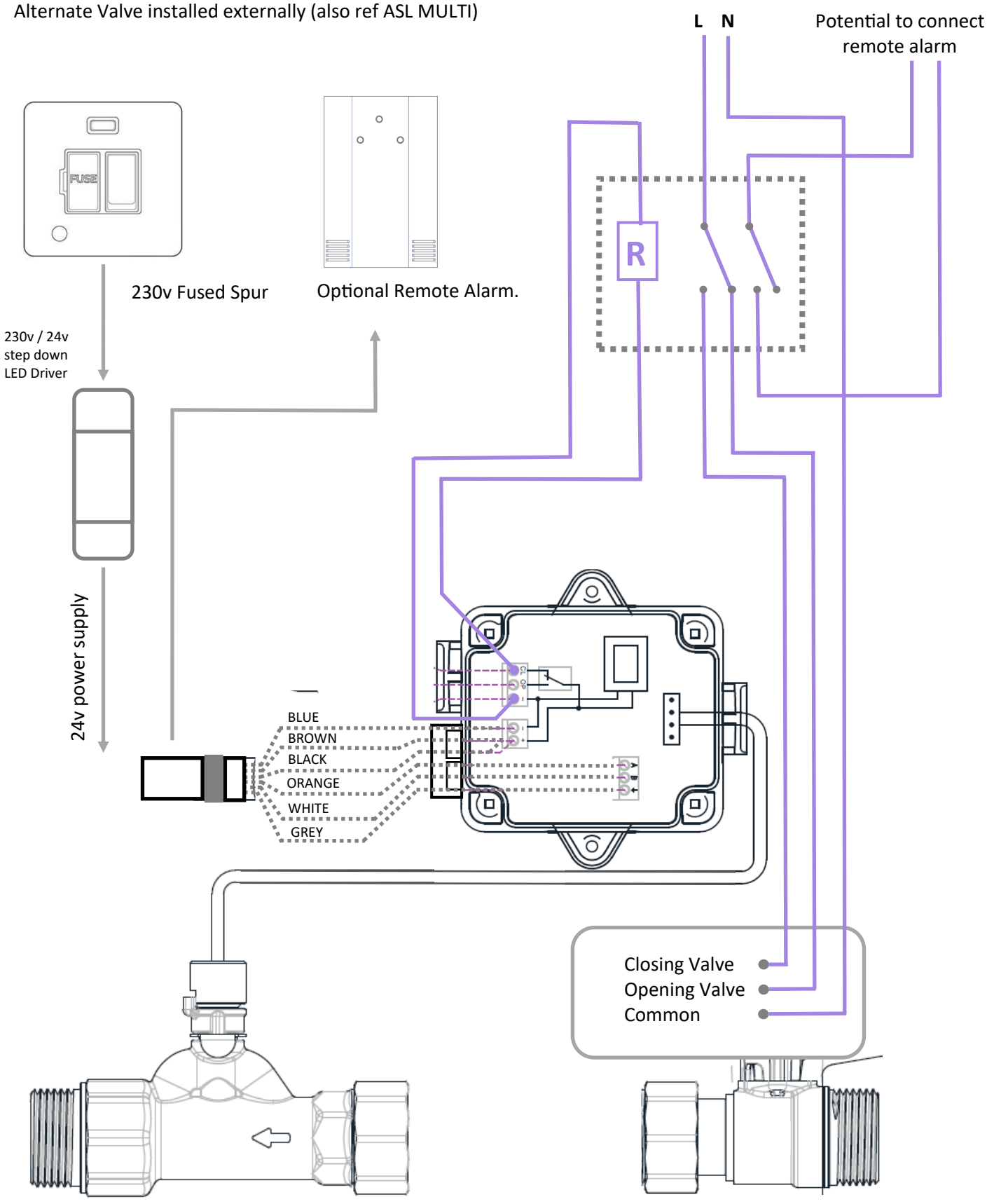
The contact is closed in the presence of an **alarm and in the absence of voltage.**



Please note
The operation of the device, the alarm signaling and the movement of the valve are dependent on the presence of electrical power to the ActivStopLeak.

WIRING DIAGRAM without built in shut down VALVE:.

Alternate Valve installed externally (also ref ASL MULTI)



Motorised Ball Valve is installed remotely from the flow sensor block and electronic controller

The importance of accurate and sensitive flow monitoring.

ActivStopLeak checks for microleaks all the time and has day and night operation.

Monitoring at the micro leak level can pick up drips that could be present only during the day, caused by an intermittent cistern valve not closing properly. By monitoring 24 / 7 ALL micro leaks will be detected.

For demonstration use a typical water bill from l2022, user is billed at a rate of £1.0778 per M3.
And using these figures we can calculate the possible costs of everyday leaks, using these values:

1 Litre = 0.001 M3
1 Litre = 4,000 drips or droplets.
1 water droplet is 0.001 Litres (ref google search, its not an exact science)

Example of possible micro leak costs to a home owner.
Dripping tap at 1 drop per second = 31,5 cubic meters of water per year
Cost as per the water bill from last year = **£33.95** additional cost per year.
Example of possible micro leak costs to housing association or local authority.
For a modest community of say 50,000 homes, say one in 20 homes had a dripping tap,
That's 2,500 homes with a leaky tap, that's 78,750 cubic metres of water.
If not flagged up by monitoring and remedial action taken the cost over one year could be as high as **£84,876.75.**



Dripping taps, toilet cisterns overflowing with near invisible flow, and dripping showers are not uncommon.

Sustainable Building Certification

ActivStopLeak meets all aspect of BREEAM Certification.

Wat 03 Water Leak Detection and Prevention – No. of credits available: 2
Aim – To reduce the impact of water leaks that may otherwise go undetected

One Credit – Demonstrate compliance for a leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter.
One Credit – Demonstrate compliance for one of the following flow control devices fitted to each WC area/facility to ensure water is supplied only when needed (and therefore prevent minor water leaks):
a. A time controller i.e. an automatic time switch device to switch off the water supply after a predetermined interval
b. A programmed time controller i.e. an automatic time switch device to switch water on and/or off at predetermined times.
c. A volume controller i.e. an automatic control device to turn off the water supply once the maximum preset volume is reached.
d. A presence detector and controller i.e. an automatic device detecting occupancy or movement in an area to switch water on and turn it off when the presence is removed *
e. A central control unit i.e. a dedicated computer-based control unit for an overall managed water control system, utilising some or all of the types of control elements listed above.

Managing Escape of Water Risk on Construction Sites

Further reference – consult CIREG documentation.
Construction Insurance Risk Engineers Group
Best Practice Guidance – Managing escape of water risk on construction sites. 5th edition 2019.
See section 6
6. Mitigation
6.1 In all circumstances, there should be:

- A means for detecting that water is flowing when it should not be.
- A means for rapidly shutting down the system when such water flow is detected.

This can be achieved in a number of ways such as automated water management devices or robust physical monitoring and emergency response procedures. Rapid detection and quick isolation are key to the mitigation of water damage.
6.2 Any temporary water supplies should be switched off outside working hours. A main valve should be readily accessible, and people designated to perform the task. Temporary rising mains should be tightly controlled and protected, with lockable discharge points. Temporary water pipes should be located away from electrical risers and temporary electrical supplies, ideally external to the buildings.
6.3 A flow management device should be installed on the main temporary water supply and, if a booster set is required, between the booster pump and any water tank. This device should be set up to operate autonomously, shutting off the system outside of working hours, monitoring flow during operation and shutting off the system in the event of abnormal flow.
The flow management device should be physically checked at least weekly to ensure that it remains fully operable.

Visit - https://activ-tec.com/activstopleak/

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