

Installation And Operation Manual



KA2

2 Zone Alarm

MODEL NUMBER: KA2

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For more information on this product and Knight Alarms range of sensors please visit.

www.knightalarms.com

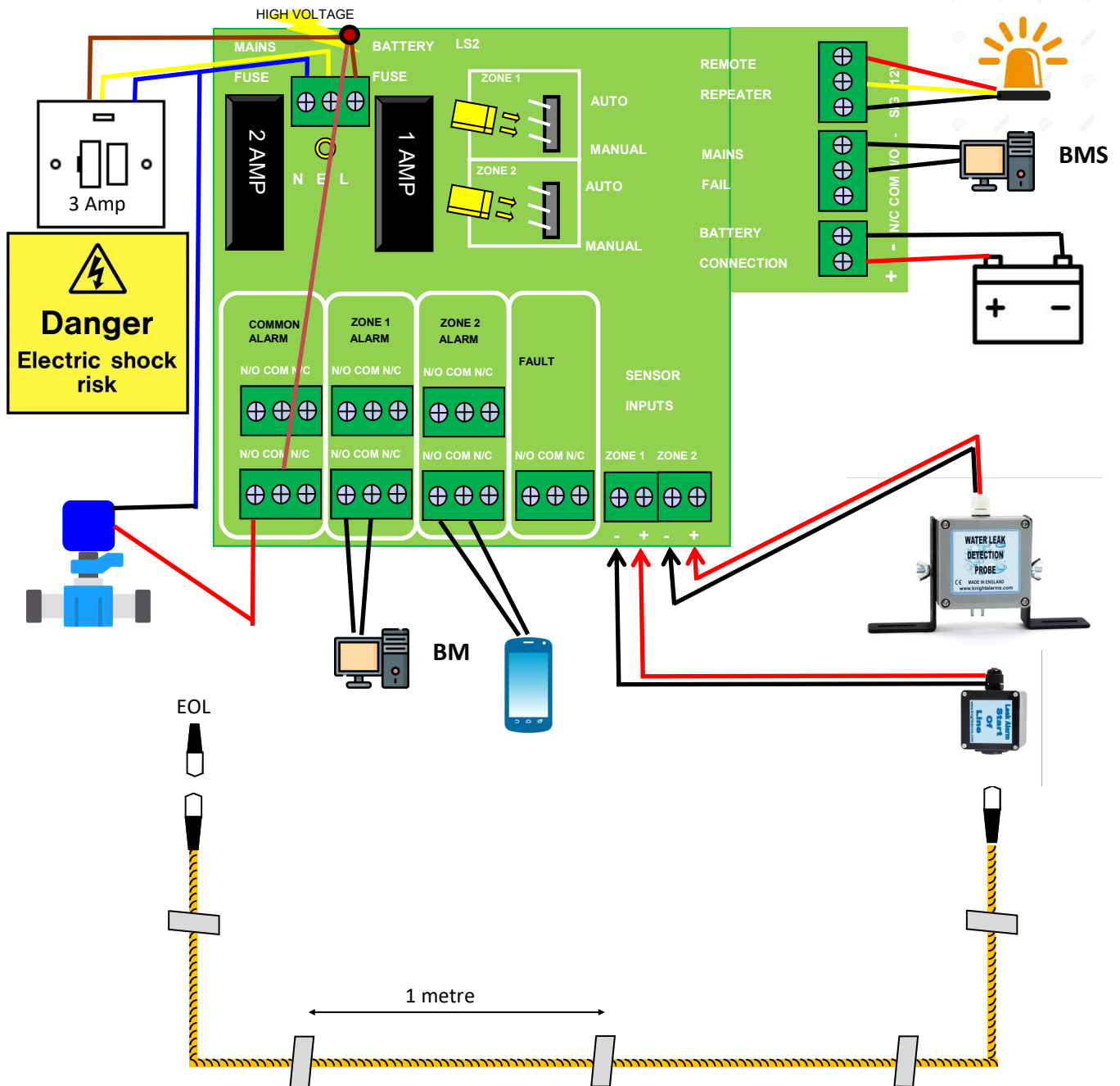
Or email us at:

sales@knightalarms.com

Technology is constantly updating, Information given via this manual was current on the given date.



A copy of this guarantee is available on our website.



!! WARNING !! – MAINS ELECTRICAL SUPPLY

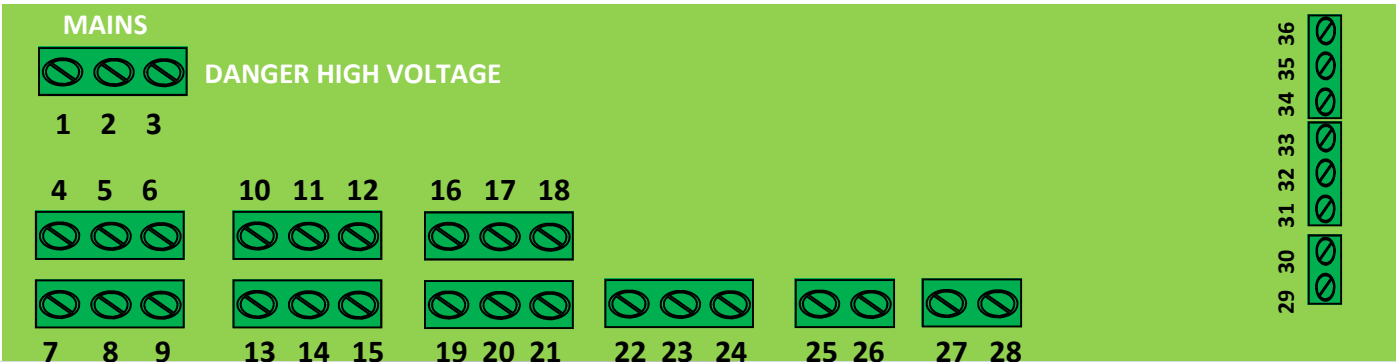
The panel must be permanently connected to the mains supply in accordance with current IEE wiring regulation. A 3 amp fused spur, installed by a qualified electrician, is strongly recommended. Any fault which could be mains related must be diagnosed and corrected by a qualified electrician to ensure continued safe operation.

!! WARNING !! – MAINS ELECTRICAL SUPPLY

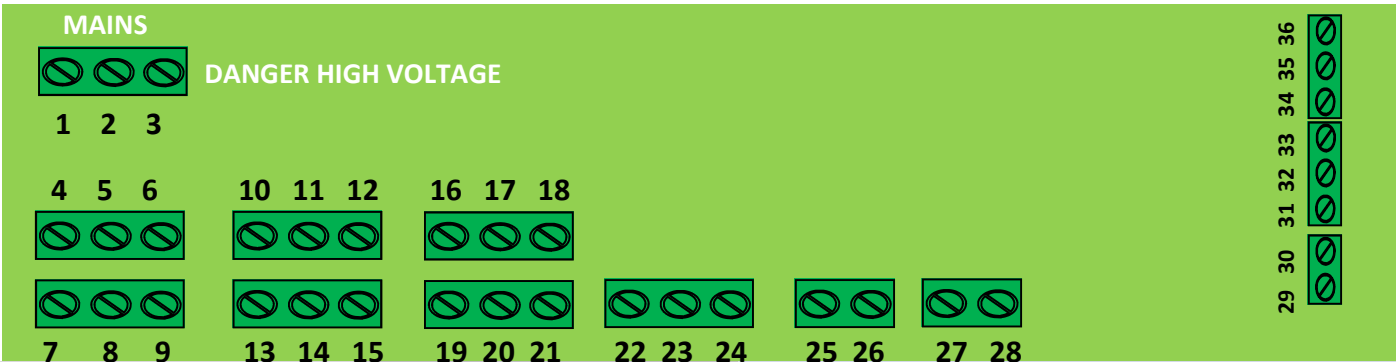
ALWAYS DISCONNECT THE MAINS SUPPLY BEFORE YOU WORK ON THIS EQUIPMENT.

HIGH RISK OF ELECTRIC SHOCK.

DO NOT WORK ON THIS EQUIPMENT UNLESS YOU ARE QUALIFIED TO DO SO.



<u>TERMINAL NUMBER</u>	<u>DESCRIPTION</u>	<u>VOLTAGE</u>	<u>RISK</u>
1	MAINS INPUT NEUTRAL	NEUTRAL MAINS 230V AC	HIGH
2	MAINS INPUT EARTH	NO VOLTS	HIGH
3	MAINS INPUT LIVE	LIVE MAINS 230V AC	HIGH
4	RELAY ENERGISES ON ALARM	NORMALLY OPEN VOLT-FREE	Assume
5	RELAY ENERGISES ON ALARM	COMMON VOLT-FREE	Assume
6	RELAY ENERGISES ON ALARM	NORMALLY CLOSED VOLT-FREE	Assume
7	RELAY ENERGISES ON ALARM	+12V DC ON ALARM POS	LOW
8	RELAY ENERGISES ON ALARM	-13.6 V DC NEG	LOW
9	RELAY ENERGISES ON ALARM	+13.6 V DC POS	LOW
10	RELAY ENERGISES ON ALARM	NORMALLY CLOSE VOLT-FREE	Assume
11	RELAY ENERGISES ON ALARM	COMMON VOLT-FREE	Assume
12	RELAY ENERGISES ON ALARM	NORMALLY OPEN VOLT-FREE	Assume
13	RELAY ENERGISES ON ALARM	230V AC LIVE OUTPUT	HIGH
14	RELAY ENERGISES ON ALARM	GROUND / EARTH	LOW
15	RELAY ENERGISES ON ALARM	230V AC NUETRAL OUTPUT	HIGH
16	RELAY ENERGISES ON ALARM	110 TO 230 VAC LIVE POWER INPUT	HIGH
17	RELAY ENERGISES ON ALARM	GROUND / EARTH	LOW
18	RELAY ENERGISES ON ALARM	110 TO 230 VAC NEUTRAL POWER INPUT	HIGH



TERMINAL NUMBER	DESCRIPTION	VOLTAGE	RISK
19	RELAY ENERGISES ON ALARM	NORMALLY OPEN VOLT-FREE	Assume high
20	RELAY ENERGISES ON ALARM	COMMON VOLT-FREE	Assume high
21	RELAY ENERGISES ON ALARM	NORMALLY CLOSED VOLT-FREE	Assume high
22	RELAY ENERGISES ON ALARM	NORMALLY OPEN VOLT-FREE	Assume high
23	RELAY ENERGISES ON FAULT	COMMON VOLT-FREE	Assume high
24	RELAY ENERGISES ON FAULT	NORMALLY CLOSED VOLT-FREE	Assume high
25	SENSOR ZONE 1 INPUT -V	POLARITY CONCIOUS -5VDC	LOW
26	SENSOR ZONE 1 INPUT +V	POLARITY CONCIOUS +5VDC	LOW
27	SENSOR ZONE 2 INPUT -V	POLARITY CONCIOUS -5VDC	LOW
28	SENSOR ZONE 2 INPUT +V	POLARITY CONCIOUS +5VDC	LOW
29	BATTERY CONNECTION +V	POLARITY CONCIOUS +13.6VDC	LOW
30	BATTERY CONNECTION -V	POLARITY CONCIOUS +13.6VDC	LOW
31	RELAY DE-ENERGISES ON POWER FAIL	NORMALLY CLOSED VOLT-FREE	Assume high
32	RELAY DE-ENERGISES ON POWER FAIL	COMMON VOLT-FREE	Assume high
33	RELAY DE-ENERGISES ON POWER FAIL	NORMALLY OPEN VOLT-FREE	Assume high
34	REPEATER ALARM -VDC	-VDC SUPPLY FOR REPEATER ALARM	LOW
35	REPEATER ALARM SIGNAL OUT	+5VDC WHEN SYSTEM SOUNDER IS ON	LOW
36	REPEATER ALARM +12VDC	+12VDC SUPPLY FOR REPEATER ALARM	LOW

When a leak is detected an internal buzzer will sound, a valve (if connected) will shut off the water, the alarm relay will energise and the red LED will flash.

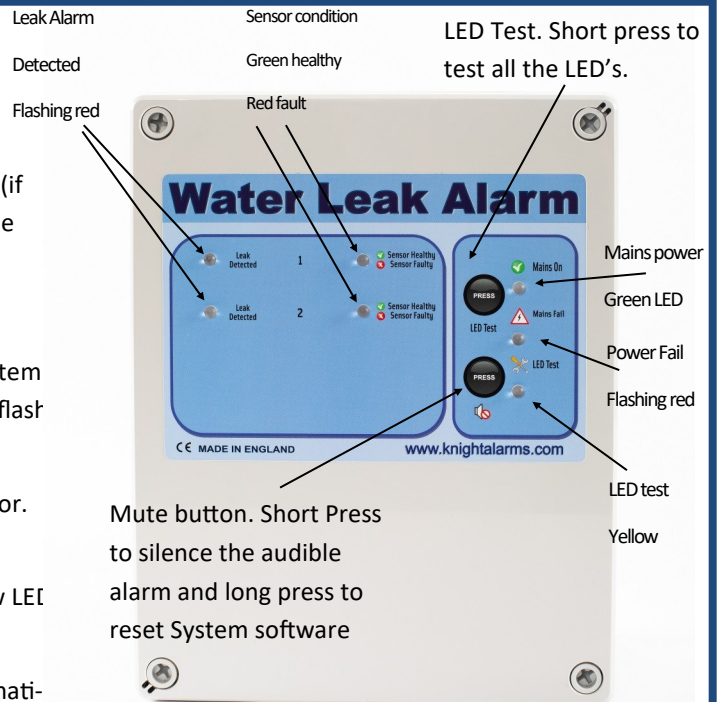
Press the mute button to silence the alarm

When the leak has been rectified and the sensor dried the system will self reset. The valve will reopen and the red LED will stop flashing. The system is now ready to detect the next leak.

Test the system periodically by applying tap water to the sensor.
Dry with a clean microfibre cloth

If a sensor becomes faulty the alarm will sound and the yellow LED will be lit.

Once the sensor fault has been rectified the system will automatically return back to healthy.



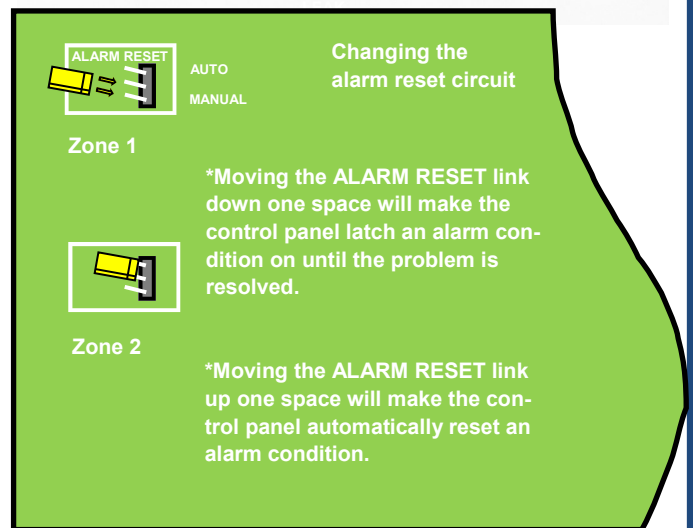
Mute button. Short Press to silence the audible alarm and long press to reset System software

Automatic and manual links

Sometimes, for instance, when the leak detection panel is in an unmanned area, it is beneficial to have the alarm latch on, needing to be physically reset.

When a panel is in a populated area, a self-rest is more convenient and allows the panel to control itself automatically.

Each zone has its own dedicated link which can be set in either position

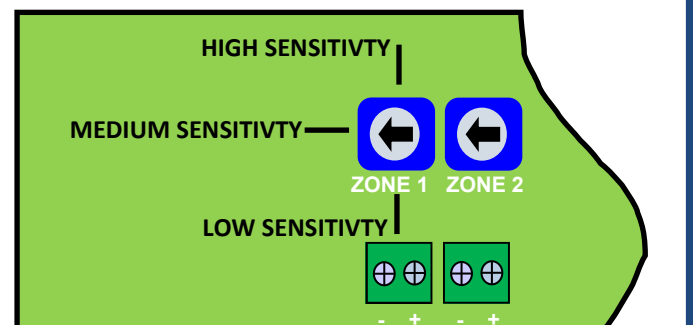


Sensitivity Controls

Each zone has its dedicated sensitivity adjustment potentiometer.

Turning the screw clockwise will increase the sensitivity to detect small amounts of water.

Turning the screw anti-clockwise will decrease the sensitivity to detect larger amounts of water.



The KA2 control panel has a leak-detected LED per zone, a mains healthy LED, and a sensor fault/healthy red/green LED.

In the event of a leak, the alarm LED will flash red, the buzzer will sound, the valve will operate (if connected) & the relays will energize. Pressing the mute button will silence the buzzer. The Leak LED will remain illuminated until the sensor has been dried.







In the event of a sensor fault, the sensor fault LED will change green to red and the internal buzzer will sound fault relay energize. The mute button can be pressed to silence the buzzer. The fault LED will remain red until the sensor fault has been rectified.

The panel will self-reset in both instances unless the alarm reset link is set to latch.

The KA2 control panel test button can be pressed to test the functionality of all LED's.



Model Number KA2

Technical Specifications	Model KA2	Compatible Sensors
Dimensions	H240mm x W191mm x D107mm	 Cable Sensor
Weight	570g	 Probe Sensor
Material and IP rating	ABS, UL94-HB ingress IP54	 Mini Probe
Operating Temperature	Resistant up to 55°C down to -25°C	 Mini Pad Sensor
Common alarm relay x2	230V change-over volt-free Max 2A	 Overflow Sensor
Input Main Voltage	110-240 VAC @50Hz	 Over-Temperature
Zone 1 Relay Contact Output x2	230V change-over volt-free Max 2A	
Zone 2 Relay Contact Output x2	230V change-over volt-free Max 2A	
Battery Backup	1 x 12V 01.2Ah sealed lead acid	
Repeater Output	5 V DC @ 50mA MAX	
Common Fault Relay Output x1	50V change-over volt-free Max 1A	
Sensor Outputs	5V DC 2 mA SELV	
Sounder Output	3400Hz 95 dB @ 10cm	
Mains fail relay x1	230V change-over volt-free Max 2A	
Mains Fuse PCB Mounted	2A quick blow 20mm glass	
Battery Fuse PCB Mounted	1A quick blow 20mm glass	

Technical Specifications	2 zone model KA2
LED Test Button.	Tests full operation of all LED's.
Mute Button.	1 Silences the internal sounder. 2. Acts as a system alarm acknowledgement
Mains Healthy LED.	Indicates when the system has a healthy power supply connected.
Leak Detected LED.	Will flash red when the connected sensors detect an incident.
Sensor Fault LED.	Will indicate green when healthy and red when a fault has occurred.
Alarm Reset Link.	Sets alarm to latch on or Auto reset.
Sensitivity adjustment per zone.	Single turn potentiometer left decrease right increase.
System software version	Knight Alarms V2.1 4Mhz watchdog enabled.
Battery Backup	Connected to maintain system functionality in the event of power loss. Float charged.
Power Supply.	110—230V AC switch mode 12V DC
Terminal ratings.	5mm 230V AC MAX 8amps
Valve Exercise Mode	Fully Automatic valve exercise cycle
Beacon Output	configured to output 5V DC when in alarm or fault condition.
MAX Sensor Cable Length	100M of Sensor cable and 100M Connection cable.
Optimised Self Learning	Minimises spurious alarms

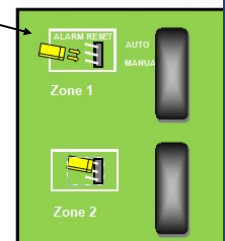
Compatible Sensors



Repeater Alarm



Oil Sensor Probe



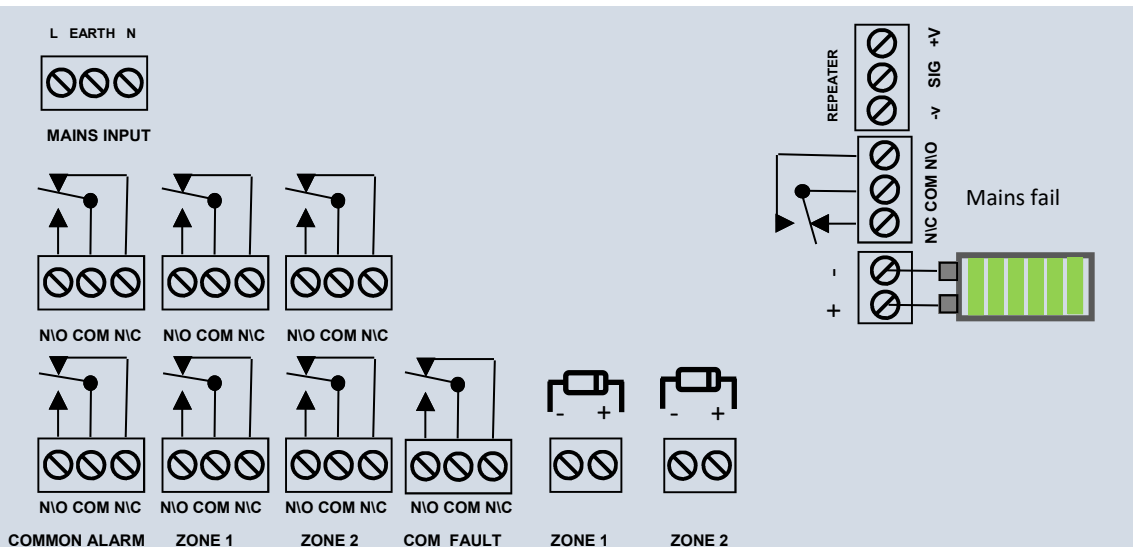
Over-Temperature



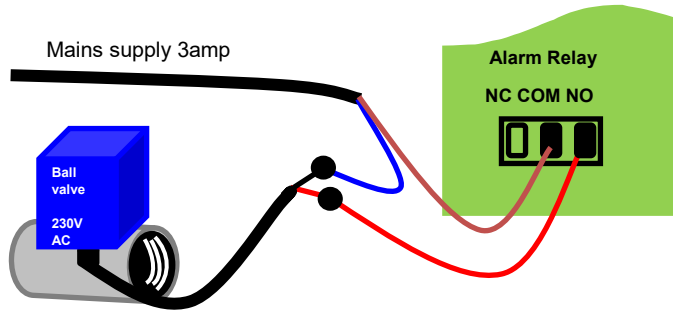
Humidity Sensor



Metal Water Probe

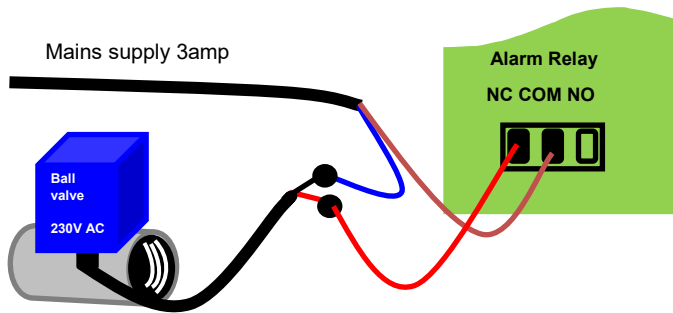


Valve Wiring Normally Open Valve.



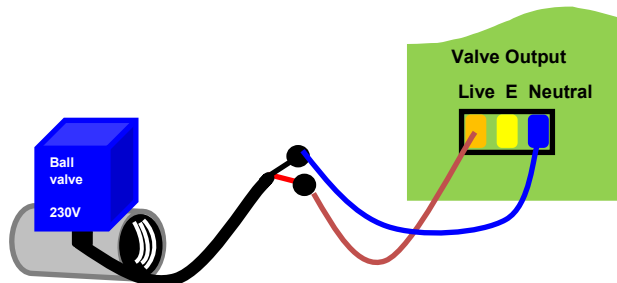
A normally open valve will allow water to flow. When voltage is applied the valve will close and turn off the water. When the power is taken away from the valve it will automatically open again.

Valve Wiring Normally Closed Valve.



A normally closed valve also known as a fail safe valve will not let water flow until a voltage is applied. When the voltage is removed the valve will automatically close. When the voltage is applied the valve will re-open.

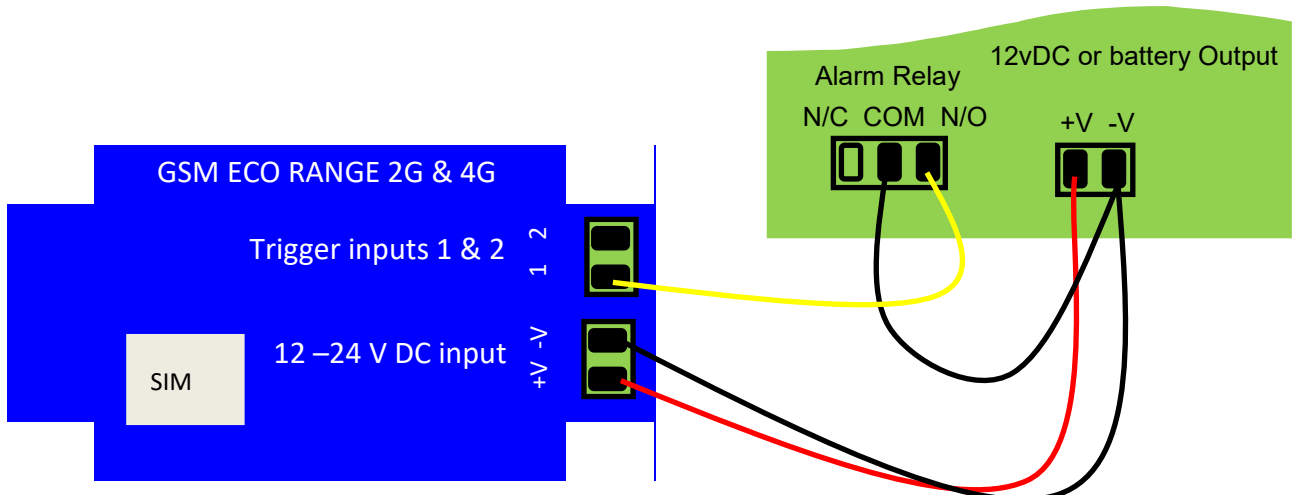
Dedicated Valve Output Terminal.



When a dedicated valve terminal is available the valve wiring has already been configured. Live is connected to red and black to neutral. Valves are typically normally open but in case of a normally closed please adjust the valve link.

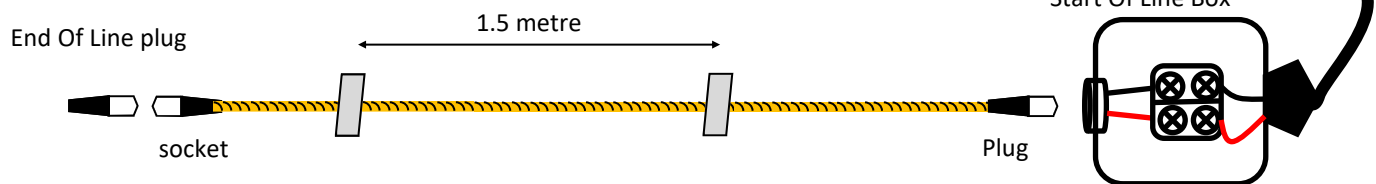
Please note: Valves are automatically exercised for 3 seconds every month to flush out debris and eliminate seizure.

SMS Text dialler wiring.

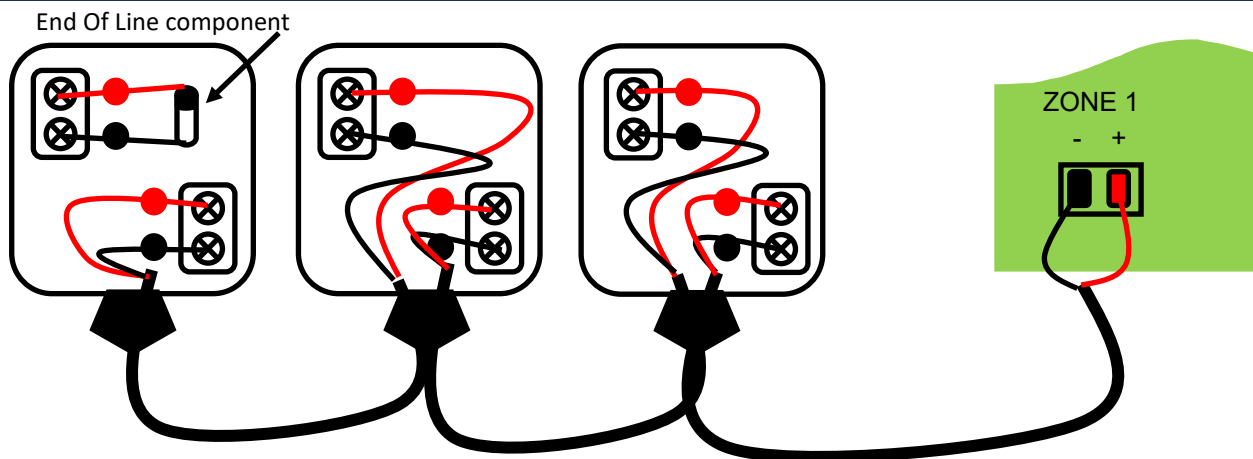


Sensor cable wiring.

- Cables can be installed up to 100 metres away from the control panel.
- Sensor cables must not exceed 100 metres.
- Metal work should be avoided wherever possible.
- It is recommended clipping the cables to the floor slab every 1.5M.
- Sensor cables can be wiped clean and dry.
- Do not paint or use mastic sealants on the sensor cable.
- It is recommended installing cables in a clean dry environment.

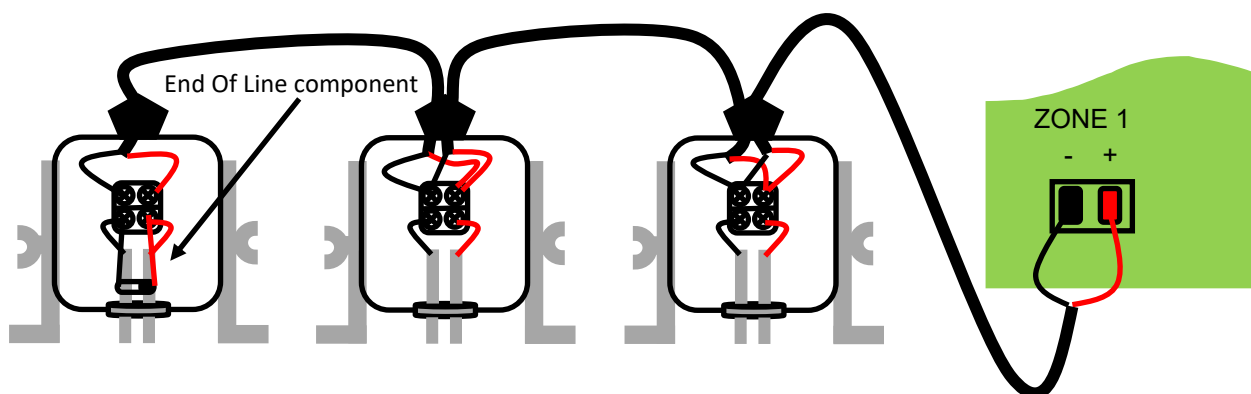


Mini Pad Sensor Wiring.



- Minipad Sensors can be installed up to 100 metres away from the control panel.
- Minipad sensors must not be laid directly on metal work.
- Maximum 100 Minipad sensors can be wired in series parallel per zone.
- Please ensure a Diode is correctly fitted to the last sensor.

Probe Sensor Wiring.



- Probe Sensors can be installed up to 100 metres away from the control panel.
- Probe sensors kept clean and dry.
- Maximum 100 Probe sensors can be wired in series parallel per zone.
- Please ensure a Diode is correctly fitted to the last sensor.

Problem	Solution
System is displaying leak detection but no leak can be found	<ul style="list-style-type: none">• Is the sensor touching anything metallic.• Is the sensor tape is it coiled up and shorting out on its self.• Wipe the cable with a dry cloth there maybe conductive material that is invisible to the eye.• Check for conductive debris along the sensor route. Check bends and floor posts.• Check the wiring from the panel to the beginning of the sensor.• Sensor still damp from a detected leak. Dry with a cloth.• Adjust system sensitivity.
System is displaying sensor Faulty.	<ul style="list-style-type: none">• Make sure an end of line component is installed at the end of the sensor run.• Check the wiring from the panel to the very end of the sensor,• Check the continuity of the cable from panel to sensor making sure there are no breaks or snagged cable.• Using the process of elimination, break the system down into sections. Put the end of line directly on the panel then to your next point until you discover where you no longer have continuity.
System has no power healthy green LED	<ul style="list-style-type: none">• No mains power. Check the adjacent fused spur.• Check the onboard 20mm glass fuses.• Check mains wiring and that the terminals plugs sit neatly in there plugs.
Valve is not turning off water	<ul style="list-style-type: none">• Check the onboard 20mm glass valve fuse.• Check 230v AC voltage is present at the valve when the control panel is in an alarm condition.• Check the valve is not stuck and there is no debris blocking its gate.