

Installation And Operation Manual



KA1

1 Zone Alarm

MODEL NUMBER: KA1

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

www.knightalarms.com

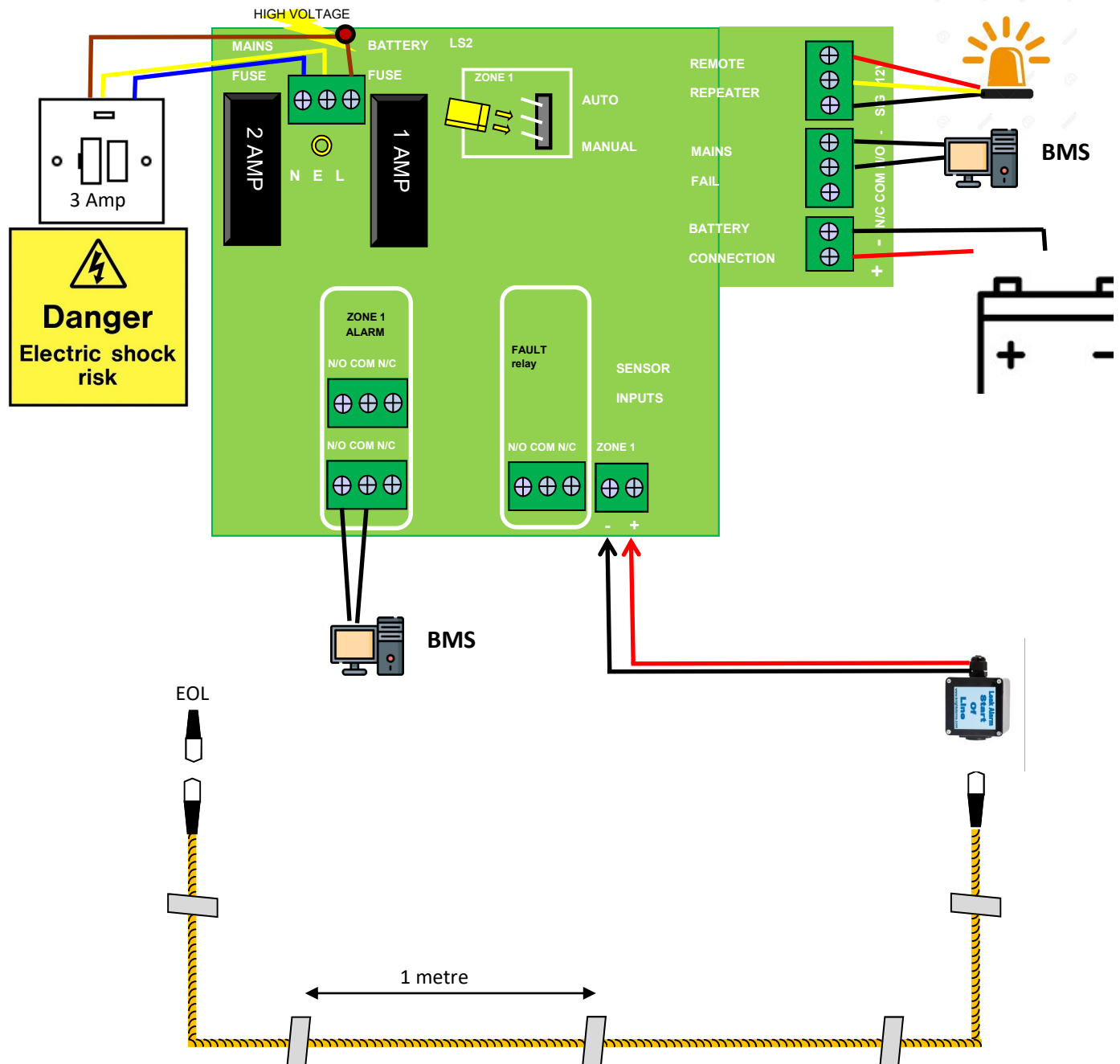
Or email us at:

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

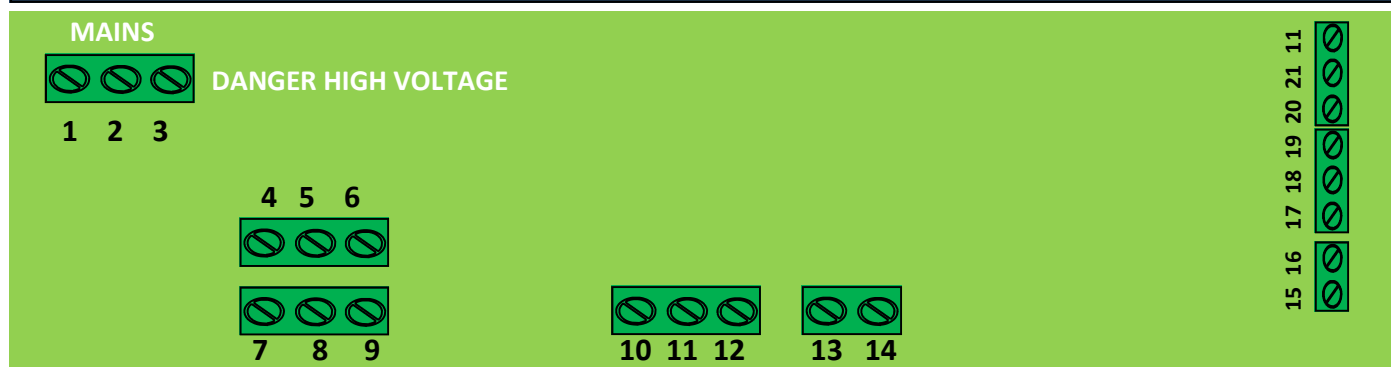
The panel must be permanently connected to the mains supply in accordance with current IEE wiring regulation. A 3 amp fused spur, installed by a qualified electrician, is strongly recommended. Any fault which could be mains related must be diagnosed and corrected by a qualified electrician to ensure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

!! WARNING !! – MAINS ELECTRICAL SUPPLY

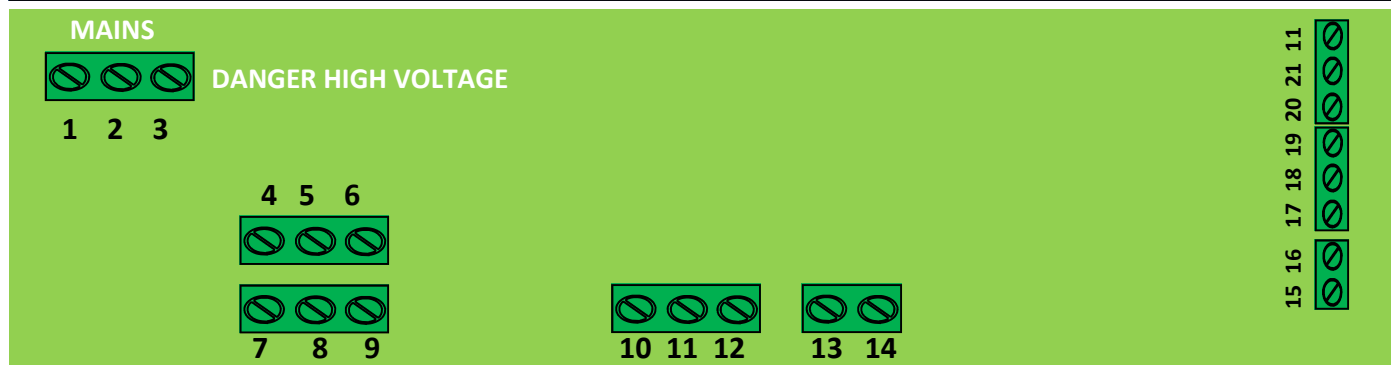
ALWAYS DISCONNECT THE MAINS SUPPLY BEFORE YOU WORK ON THIS EQUIPMENT.

HIGH RISK OF ELECTRIC SHOCK.

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



TERMINAL NUMBER	DESCRIPTION	VOLTAGE	RISK
1	MAINS INPUT NEUTRAL.	NEUTRAL MAINS 230V AC.	HIGH
2	MAINS INPUT EARTH.	NO VOLTS EARTH.	HIGH
3	MAINS INPUT LIVE.	LIVE MAINS 230V AC.	HIGH
4	RELAY ENERGISES ON ALARM.	NORMALLY OPEN VOLT-FREE.	Assume high
5	RELAY ENERGISES ON ALARM.	COMMON VOLT-FREE.	Assume high
6	RELAY ENERGISES ON ALARM.	NORMALLY OPEN VOLT-FREE.	Assume high
7	RELAY ENERGISES ON ALARM.	NORMALLY OPEN VOLT-FREE.	Assume high
8	RELAY ENERGISES ON ALARM.	COMMON VOLT-FREE.	Assume high
9	RELAY ENERGISES ON ALARM.	NORMALLY CLOSED VOLT-FREE.	Assume high
10	RELAY ENERGISES ON FAULT.	NORMALLY OPEN VOLT-FREE.	Assume high
11	RELAY ENERGISES ON FAULT.	COMMON VOLT-FREE.	Assume high
12	RELAY ENERGISES ON FAULT.	NORMALLY OPEN VOLT-FREE.	Assume high
13	SENSOR OUTPUT.	-5 VDC SELV POLARITY CONCIOUS.	LOW
14	SENSOR OUTPUT.	+5 VDC SELV POLARITY CONCIOUS.	LOW
15	BATTERY OUTPUT CONNECTION.	+13.6V DC FLOAT CHARGE.	LOW
16	BATTERY OUTPUT CONNECTION.	-13.6V DC 0v POLARITY CONCIOUS.	LOW
17	RELAY OFF ON MAINS FAILURE.	NORMALLY CLOSED VOLT-FREE.	Assume high
18	RELAY OFF ON MAINS FAILURE.	COMMON VOLT-FREE.	Assume high



TERMINAL NUMBER	DESCRIPTION	VOLTAGE	RISK
17	RELAY OFF ON MAINS FAILURE.	NORMALLY CLOSED VOLT-FREE.	Assume high
18	RELAY OFF ON MAINS FAILURE.	COMMON VOLT-FREE.	Assume high
19	RELAY OFF ON MAINS FAILURE.	NORMALLY OPEN VOLT-FREE.	Assume high
20	REPEATER ALARM –VDC.	-VDC SUPPLY FOR REPEATER ALARM.	LOW
21	REPEATER ALARM SIGNAL OUT.	+5VDC WHEN SYSTEM SOUNDER IS ON.	LOW
22	REPEATER ALARM +12VDC.	+12VDC SUPPLY FOR REPEATER ALARM.	LOW
23	RELAY ENERGISES ON FAULT.	COMMON VOLT-FREE.	Assume high
24	RELAY ENERGISES ON FAULT.	NORMALLY CLOSED VOLT-FREE.	Assume high

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.

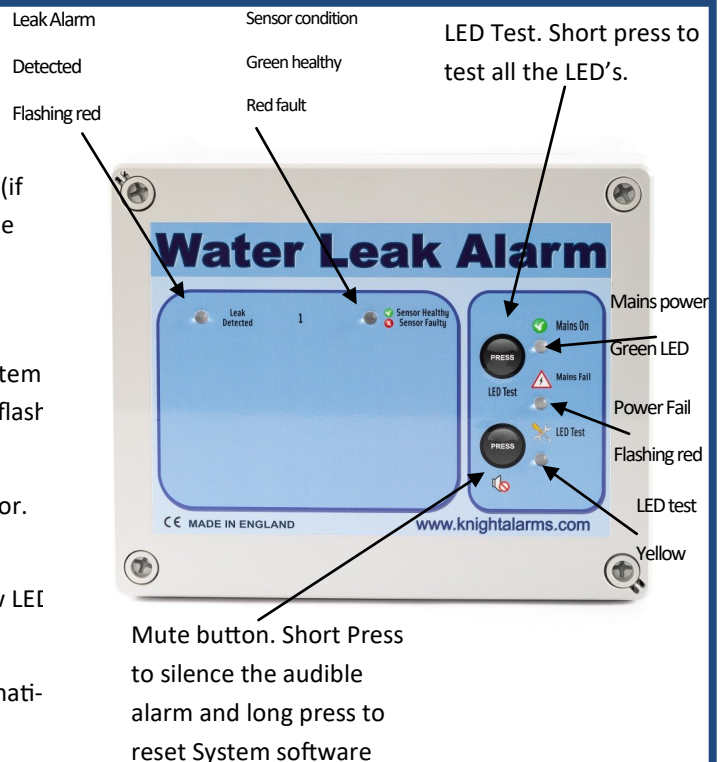
Press the mute button to silence the alarm

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.

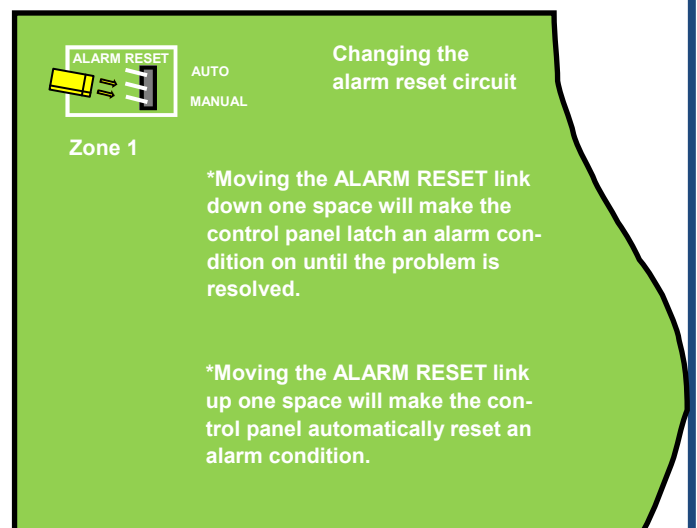


Automatic and manual links

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.

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

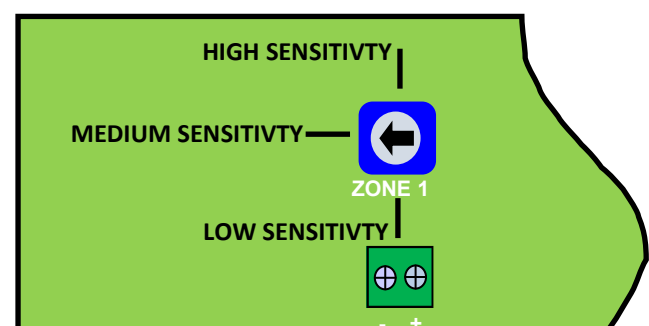


Sensitivity Controls

The sensor has a 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 KA1 control panel has a leak-detected LED, 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 KA1 control panel test button can be pressed to test the functionality of all LED's.



Model Number KA1

Technical Specifications	Model KA1	Compatible Sensors
Dimensions	H163mm x W201mm x D99mm	 Cable Sensor
Weight	470g	
Material and IP rating	ABS, UL94-HB ingress IP54	
Operating Temperature	Resistant up to 55°C down to -25°C	
Input Main Voltage	110-240 VAC @50Hz	 Probe Sensor
Zone 1 Relay Contact Output x2	230V change-over volt-free Max 2A	 Mini Probe
Battery Backup	1 x 12V 01.2Ah sealed lead acid	
Repeater Output	5 V DC @ 50mA MAX	 Mini Pad Sensor
Common Fault Relay Output x1	50V change-over volt-free Max 1A	
Sensor Outputs	5V DC 2 mA SELV	 Overflow Sensor
Sounder Output	3400Hz 95 dB @ 10cm	
Mains fail relay x1	230V change-over volt-free Max 2A	 Over-Temperature
Mains Fuse PCB Mounted	2A quick blow 20mm glass	
Battery Fuse PCB Mounted	1A quick blow 20mm glass	

Technical Specifications	Single Zone KA1
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
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

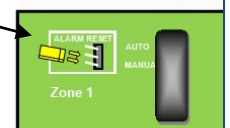
Compatible Sensors



Repeater Alarm



Oil Sensor Probe



Over-Temperature



Humidity Sensor

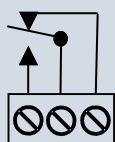


Metal Water Probe

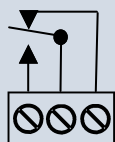
L EARTH N



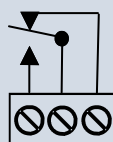
MAINS INPUT



N/O COM N/C



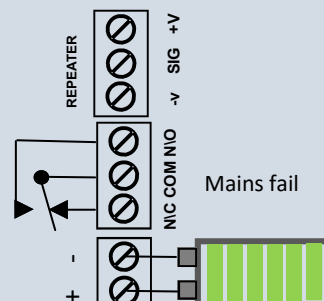
ZONE 1



COM FAULT

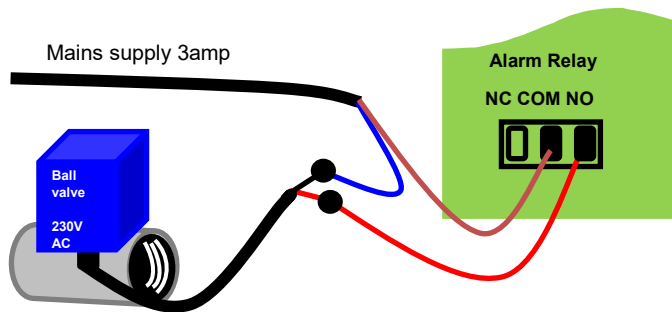


ZONE 1



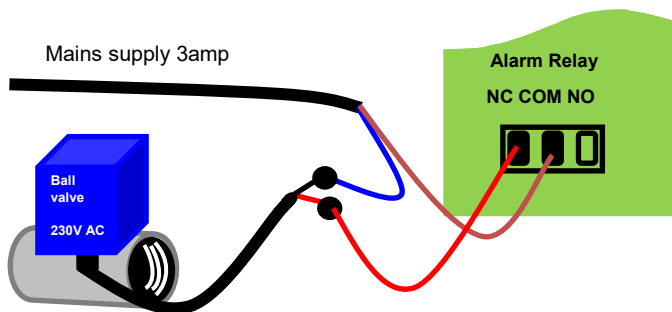
Valve Wiring Normally Open Valve.

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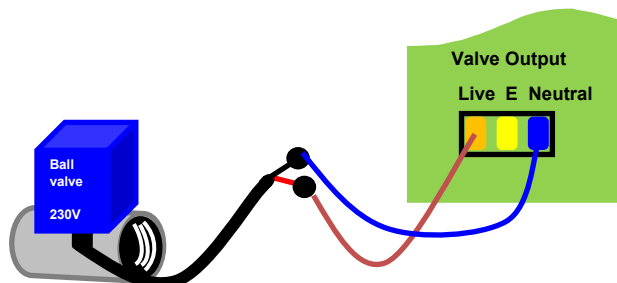
A normally open valve will allow water to flow. When voltage is applied the valve will close and turn off the water. When the power is taken away from the valve it will automatically open again.

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.

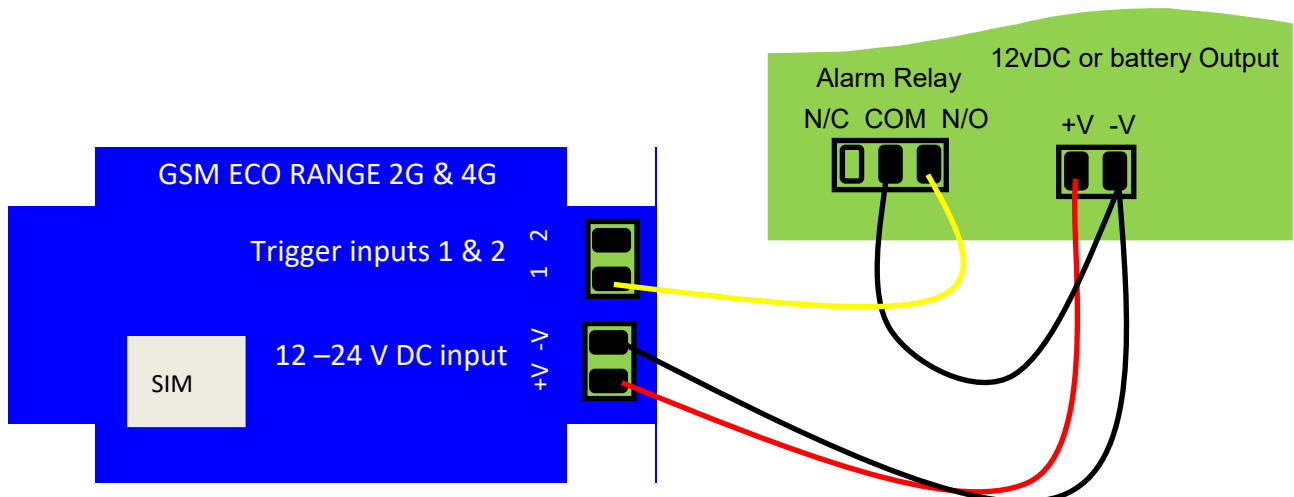
Dedicated Valve Output Terminal.



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.

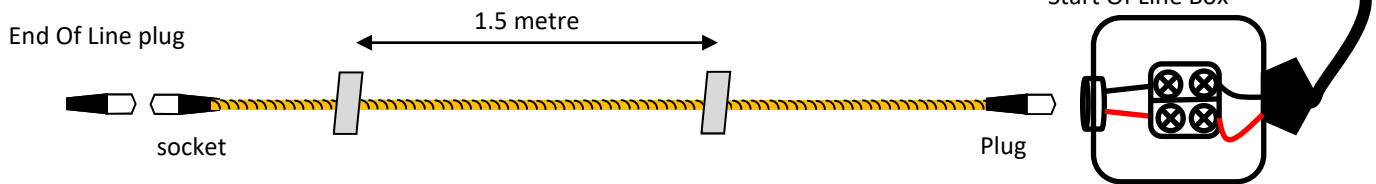
SMS Text dialler wiring.



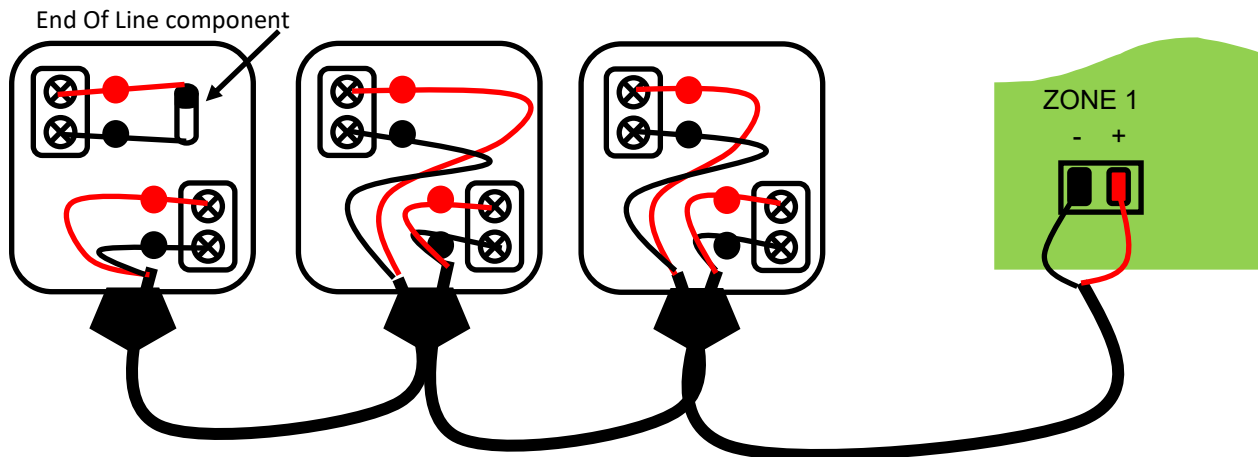
Sensor cable wiring.

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- 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.

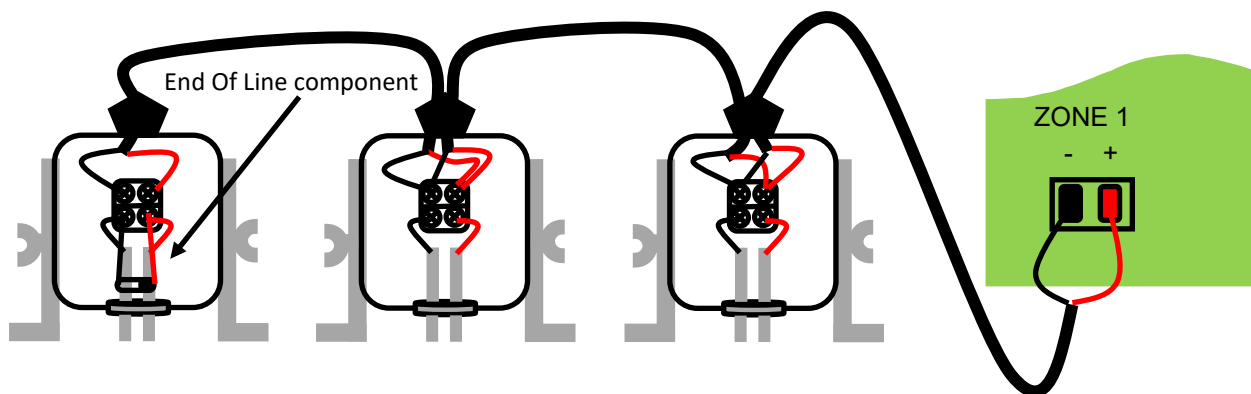


Mini Pad Sensor Wiring.



- 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	• 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.	• 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	• 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	• 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.