Knight Alarms Ltd

Leak Detection made easy

Installation And Operation Manual

KA8

8 Zone Alarm

MODEL NUMBER: KA8

Knight Alarms Ltd

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Contents

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.

arantee is available on our

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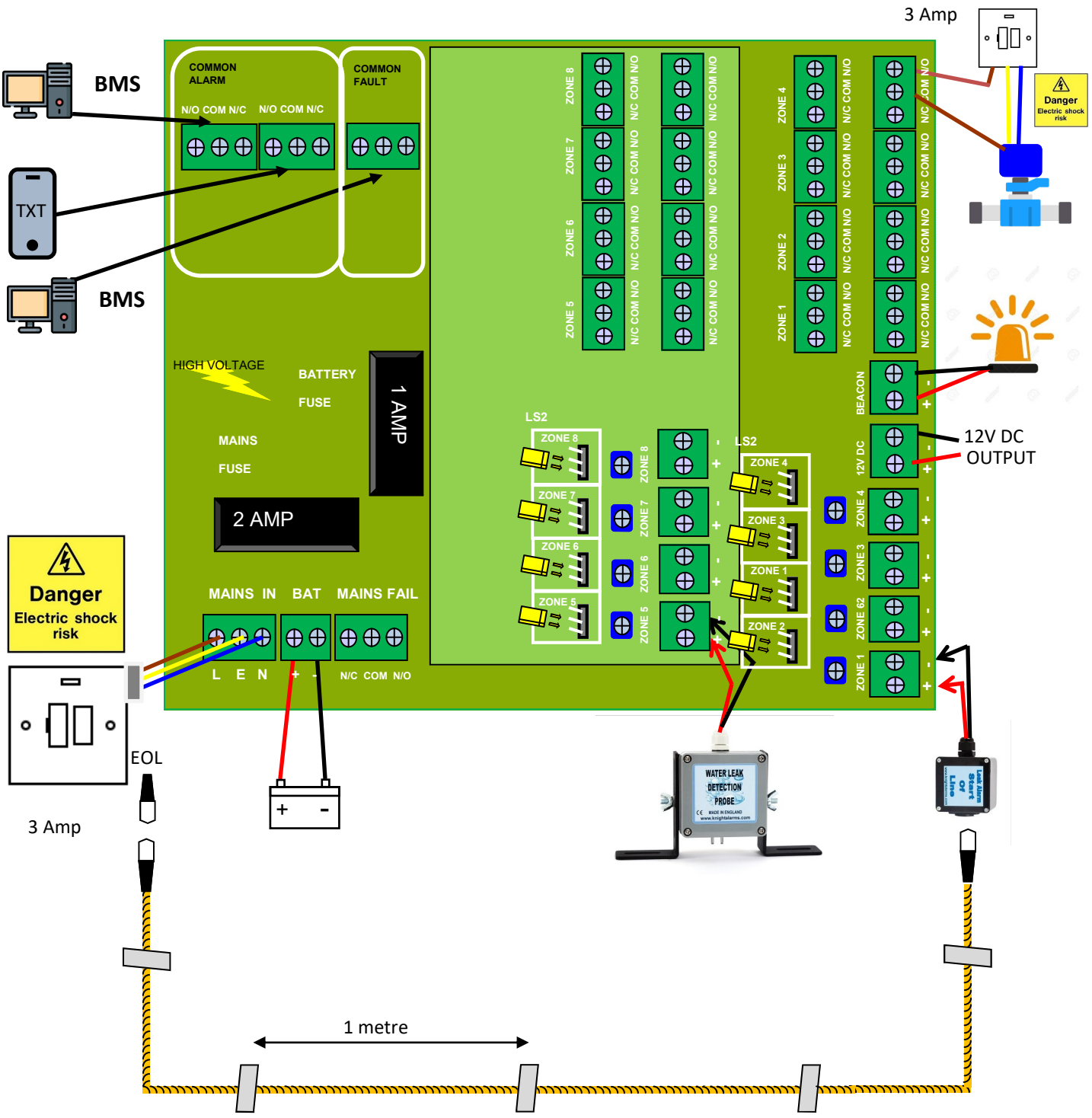
Quick wiring guide



!! 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.

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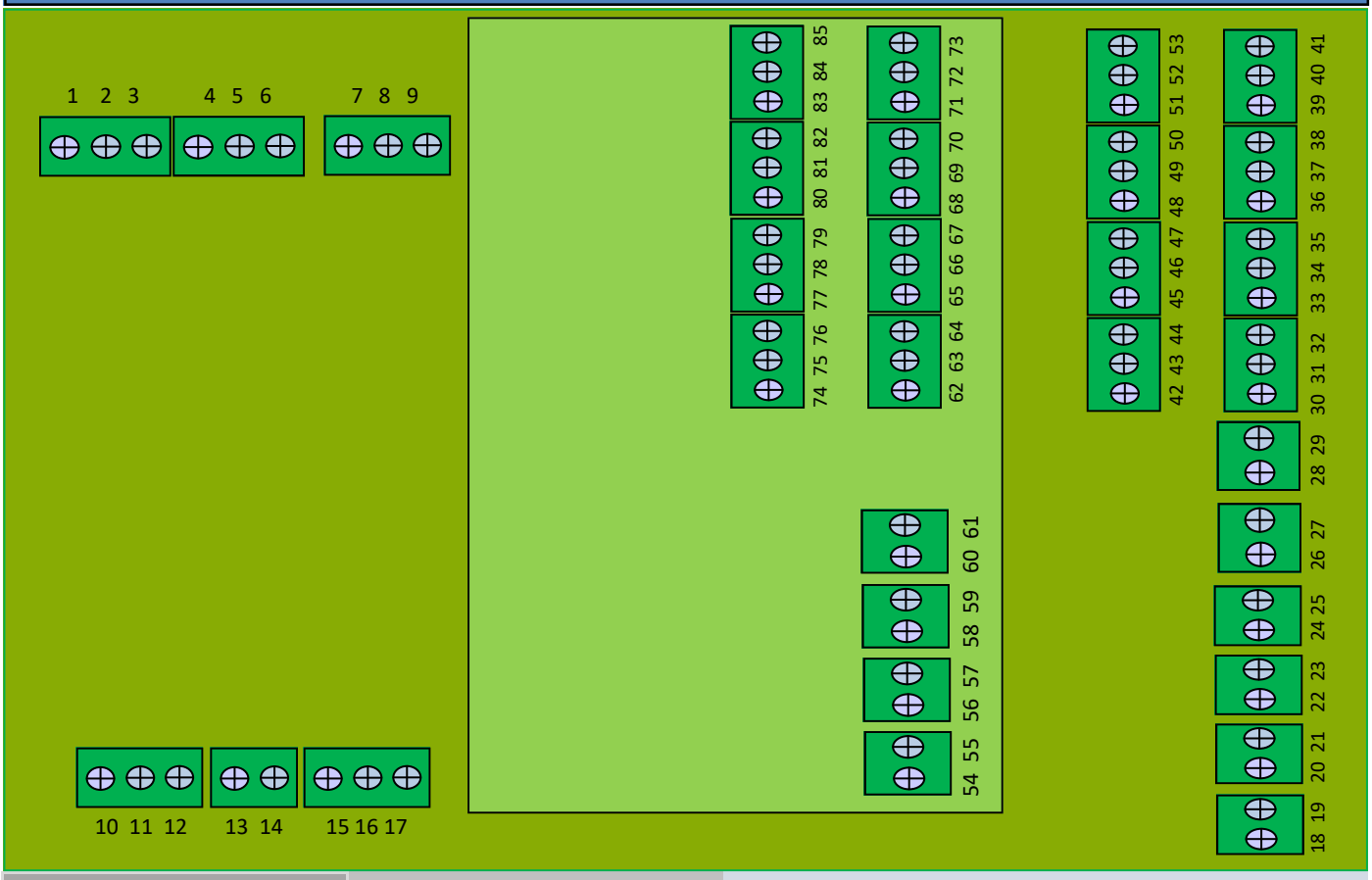
Quick connections guide. Page 2



TERMINAL NUMBER	DESCRIPTION	VOLTAGE	RISK
1	RELAY ENERGISES ON ALL ALARMS	NORMALLY OPEN VOLT-FREE	Assume high
2	RELAY ENERGISES ON ALL ALARMS	COMMON VOLT-FREE	Assume high
3	RELAY ENERGISES ON ALL ALARMS	NORMALLY CLOSED VOLT-FREE	Assume high
4	RELAY ENERGISES ON ALL ALARMS	NORMALLY OPEN VOLT-FREE	Assume high
5	RELAY ENERGISES ON ALL ALARMS	COMMON VOLT-FREE	Assume high
6	RELAY ENERGISES ON ALL ALARMS	NORMALLY CLOSED VOLT-FREE	Assume high
7	RELAY ENERGISES ON ALL FAULTS	NORMALLY OPEN VOLT-FREE	Assume high
8	RELAY ENERGISES ON ALL FAULTS	COMMON VOLT-FREE	Assume high
9	RELAY ENERGISES ON ALL FAULTS	NORMALLY CLOSED VOLT-FREE	Assume high
10	MAINS CONNECTION LIVE	230VAC LIVE MAINS INPUT	HIGH
11	MAINS CONNECTION LIVE	230VAC EARTH MAINS INPUT	HIGH
12	MAINS CONNECTION LIVE	230VAC NEUTRAL MAINS INPUT	HIGH
13	BATTERY CONNECTION LEAD ACID	POSITIVE FLOAT CHARGE BATTERY CONNECTION	LOW
14	BATTERY CONNECTION LEAD ACID	NEGATIVE FLOAT CHARGE BATTERY CONNECTION	LOW
15	RELAY ENERGISES ON POWER FAILURE	NORMALLY CLOSED VOLT-FREE	Assume high
16	RELAY ENERGISES ON POWER FAILURE	COMMON VOLT-FREE	Assume high
17	RELAY ENERGISES ON POWER FAILURE	NORMALLY OPEN VOLT-FREE	Assume high
18	ZONE 1 SENSOR TERMINAL	PLUS 5V DC OUTPUT FOR SENSOR 1	LOW

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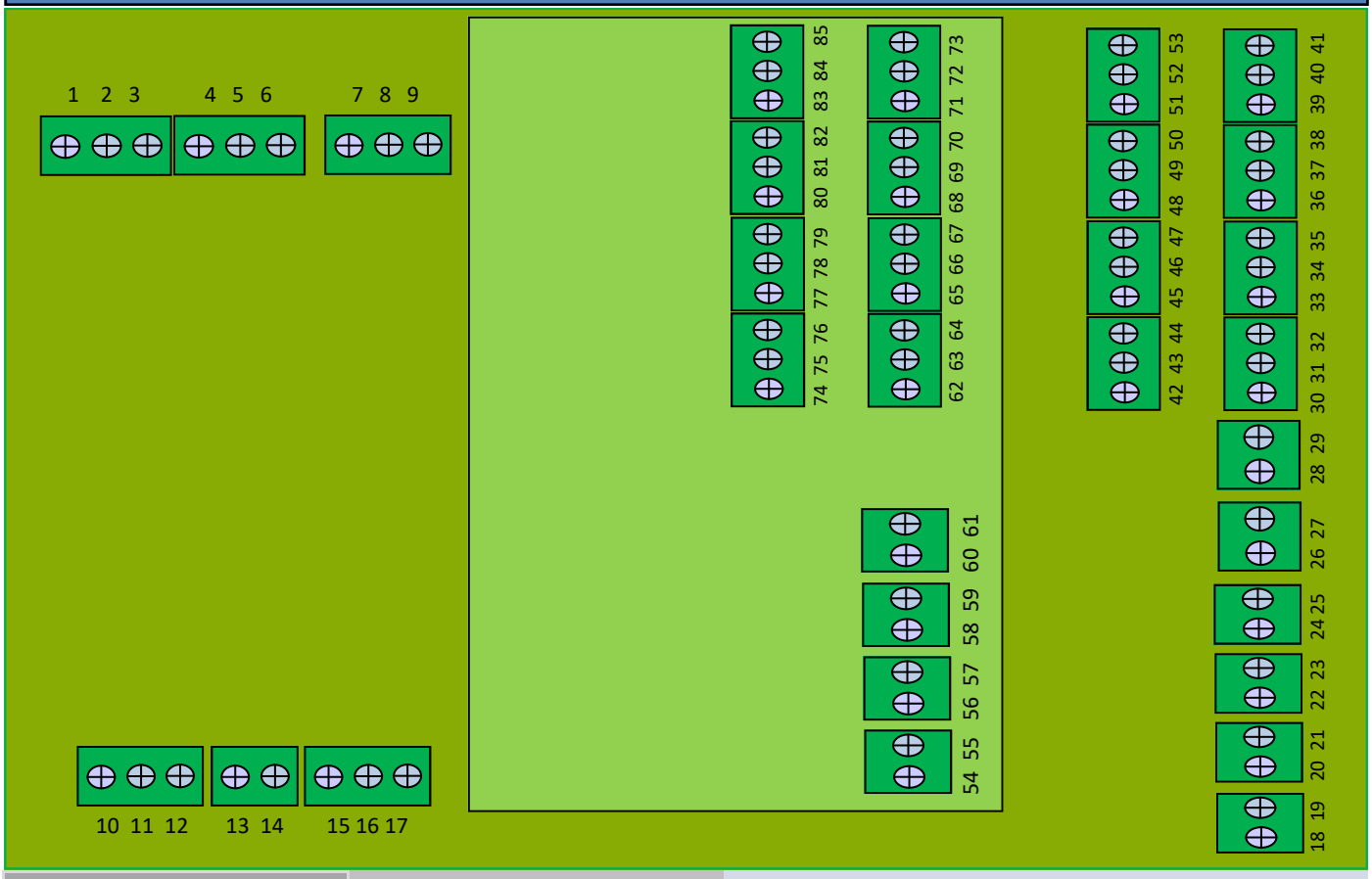
Quick connections guide



TERMINAL NUMBER	DESCRIPTION	VOLTAGE	RISK
19	ZONE 1 SENSOR TERMINAL	MINUS 5V DC OUTPUT FOR SENSOR 1	LOW
20	ZONE 2 SENSOR TERMINAL	PLUS 5V DC OUTPUT FOR SENSOR 2	LOW
21	ZONE 2 SENSOR TERMINAL	MINUS 5V DC OUTPUT FOR SENSOR 2	LOW
22	ZONE 3 SENSOR TERMINAL	PLUS 5V DC OUTPUT FOR SENSOR 3	LOW
23	ZONE 3 SENSOR TERMINAL	MINUS 5V DC OUTPUT FOR SENSOR 3	LOW
24	ZONE 4 SENSOR TERMINAL	PLUS 5V DC OUTPUT FOR SENSOR 4	LOW
25	ZONE 4 SENSOR TERMINAL	MINUS 5V DC OUTPUT FOR SENSOR 4	LOW
26	+ VOLTAGE OUTPUT TERMINAL	PLUS 12V DC AUXILARY OUTPUT 80mA	LOW
27	- VOLTAGE OUTPUT TERMINAL	MINUS 12V DC AUXILARY OUTPUT 80mA	LOW
28	+ BEACON OUTPUT TERMINAL	SWITCHES PLUS 12V DC WHEN THERE IS A CONDITION	LOW
29	- BEACON OUTPUT TERMINAL	SWITCHES MINUS 12V DC WHEN THERE IS A CONDITION	HIGH
30	RELAY ENERGISES ON ALARM ZONE 1.	ZONE 1 NORMALLY CLOSED VOLT-FREE	Assume high
31	RELAY ENERGISES ON ALARM ZONE 1.	ZONE 1 COMMON VOLT-FREE	Assume high
32	RELAY ENERGISES ON ALARM ZONE 1.	ZONE 1 NORMALLY OPEN VOLT-FREE	Assume high
33	RELAY ENERGISES ON ALARM ZONE 2.	ZONE 1 NORMALLY CLOSED VOLT-FREE	Assume high
34	RELAY ENERGISES ON ALARM ZONE 2.	ZONE 2 COMMON VOLT-FREE	Assume high
35	RELAY ENERGISES ON ALARM ZONE 2.	ZONE 2 NORMALLY OPEN VOLT-FREE	Assume high
36	RELAY ENERGISES ON ALARM ZONE 2.	ZONE 1 NORMALLY CLOSED VOLT-FREE	Assume high
37	RELAY ENERGISES ON ALARM ZONE 2.	ZONE 2 COMMON VOLT-FREE	Assume high
38	RELAY ENERGISES ON ALARM ZONE 2.	ZONE 2 NORMALLY OPEN VOLT-FREE	Assume high

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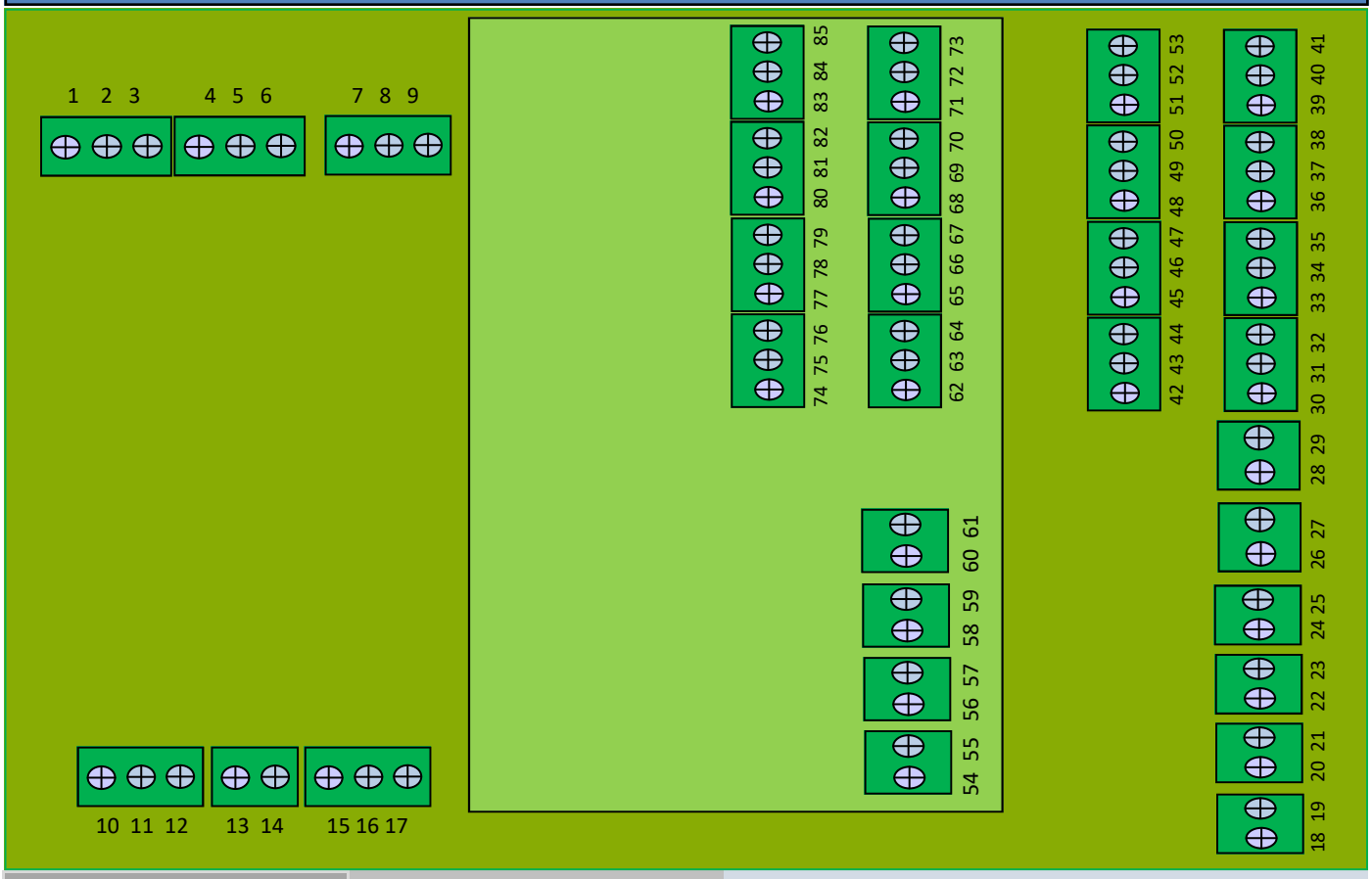
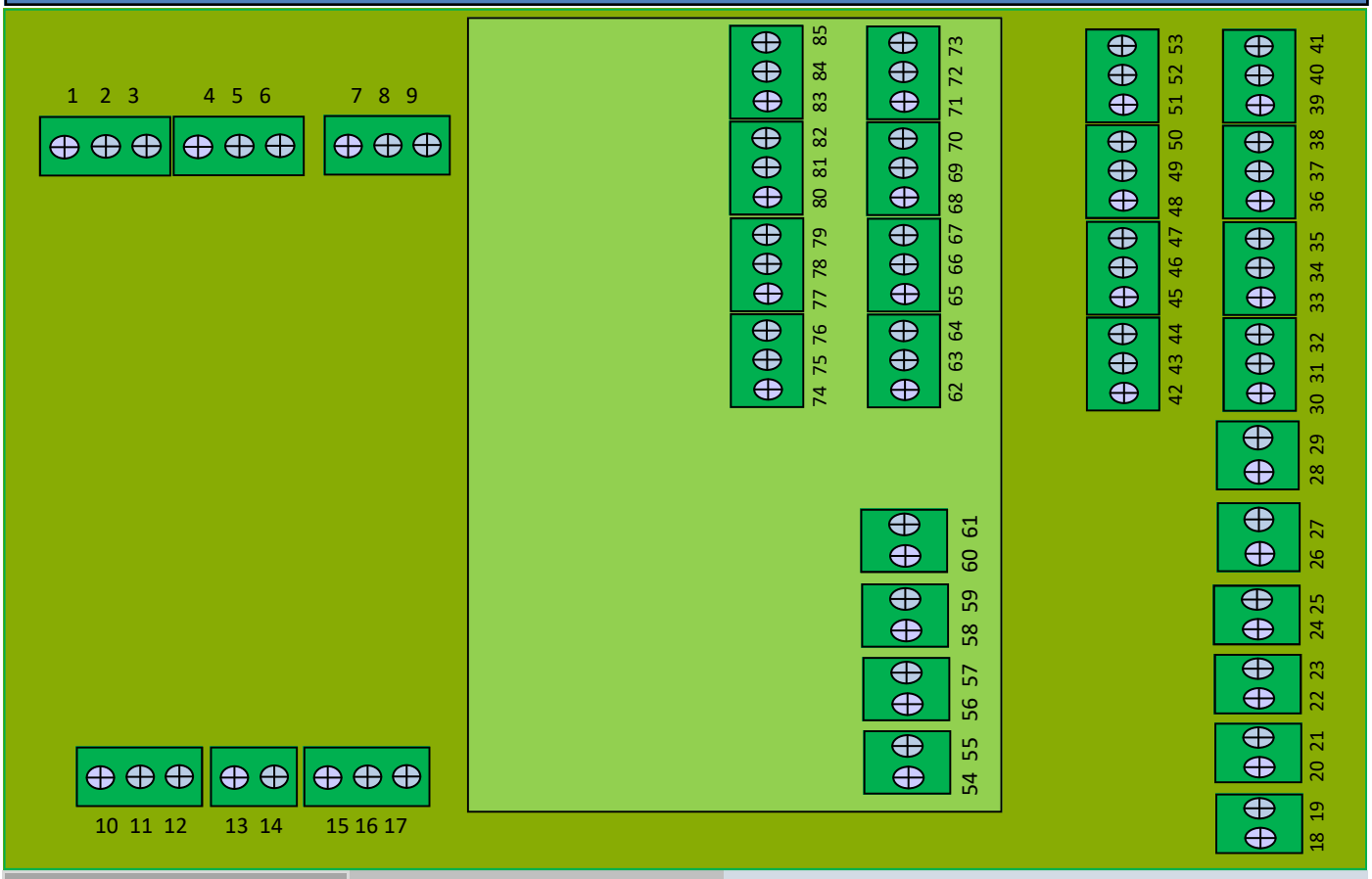
Quick connections guide



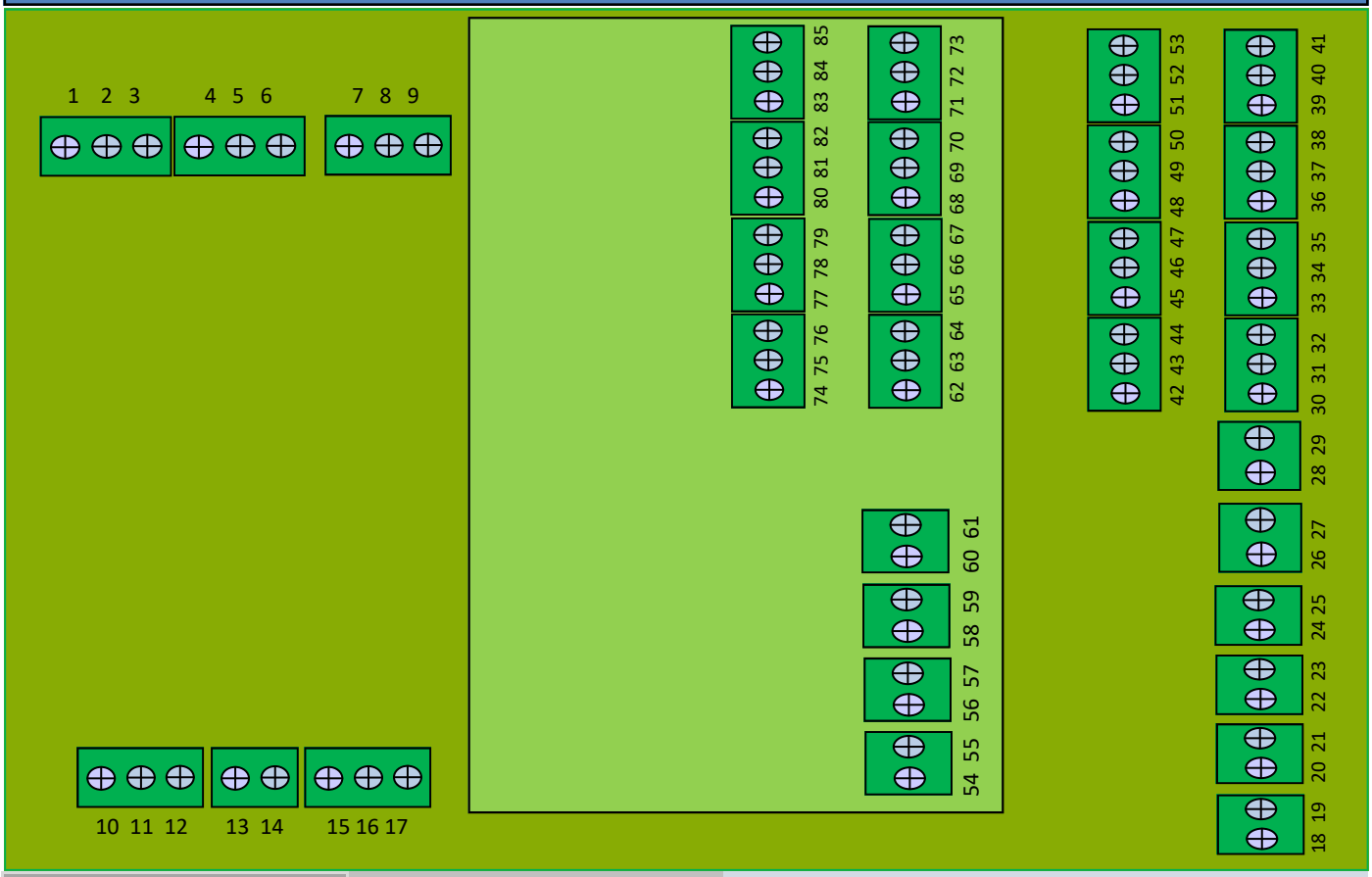
TERMINAL NUMBER	DESCRIPTION	VOLTAGE	RISK
39	RELAY ENERGISES ON ALARM ZONE 4.	ZONE 4 NORMALLY CLOSED VOLT-FREE	Assume high
40	RELAY ENERGISES ON ALARM ZONE 4.	ZONE 4 COMMON VOLT-FREE	Assume high
41	RELAY ENERGISES ON ALARM ZONE 4.	ZONE 4 NORMALLY OPEN VOLT-FREE	Assume high
42	RELAY ENERGISES ON ALARM ZONE 1.	ZONE 1 NORMALLY CLOSED VOLT-FREE	Assume high
43	RELAY ENERGISES ON ALARM ZONE 1.	ZONE 1 COMMON VOLT-FREE	Assume high
44	RELAY ENERGISES ON ALARM ZONE 1.	ZONE 1 NORMALLY OPEN VOLT-FREE	Assume high
45	RELAY ENERGISES ON ALARM ZONE 2.	ZONE 2 NORMALLY CLOSED VOLT-FREE	Assume high
46	RELAY ENERGISES ON ALARM ZONE 2.	ZONE 2 COMMON VOLT-FREE	Assume high
47	RELAY ENERGISES ON ALARM ZONE 2.	ZONE 2 NORMALLY OPEN VOLT-FREE	Assume high
48	RELAY ENERGISES ON ALARM ZONE 3.	ZONE 3 NORMALLY CLOSED VOLT-FREE	Assume high
49	RELAY ENERGISES ON ALARM ZONE 3.	ZONE 3 COMMON VOLT-FREE	Assume high
50	RELAY ENERGISES ON ALARM ZONE 3.	ZONE 3 NORMALLY OPEN VOLT-FREE	Assume high
51	RELAY ENERGISES ON ALARM ZONE 4.	ZONE 4 NORMALLY CLOSED VOLT-FREE	Assume high
52	RELAY ENERGISES ON ALARM ZONE 4.	ZONE 4 COMMON VOLT-FREE	Assume high
53	RELAY ENERGISES ON ALARM ZONE 4.	ZONE 4 NORMALLY OPEN VOLT-FREE	Assume high
54	ZONE 5 SENSOR TERMINAL	PLUS 5V DC OUTPUT FOR SENSOR 5	LOW
55	ZONE 5 SENSOR TERMINAL	MINUS 5V DC OUTPUT FOR SENSOR 5	LOW
56	ZONE 6 SENSOR TERMINAL	PLUS 5V DC OUTPUT FOR SENSOR 6	LOW
57	ZONE 6 SENSOR TERMINAL	MINUS 5V DC OUTPUT FOR SENSOR 6	LOW
58	ZONE 7 SENSOR TERMINAL	PLUS 5V DC OUTPUT FOR SENSOR 7	LOW
59	ZONE 7 SENSOR TERMINAL	MINUS 5V DC OUTPUT FOR SENSOR 7	LOW

Quick connections guide

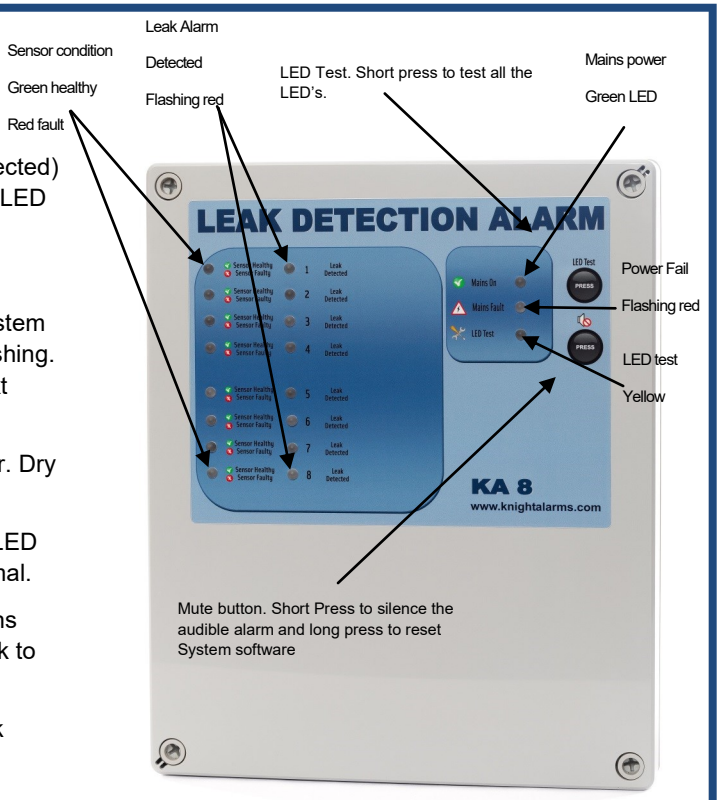


TERMINAL NUMBER	DESCRIPTION	VOLTAGE	RISK
60	ZONE 8 SENSOR TERMINAL	PLUS 5V DC OUTPUT FOR SENSOR 8	LOW
61	ZONE 8 SENSOR TERMINAL	MINUS 5V DC OUTPUT FOR SENSOR 8	LOW
62	RELAY ENERGISES ON ALARM ZONE 5.	ZONE 5 NORMALLY CLOSED VOLT-FREE	Assume high
63	RELAY ENERGISES ON ALARM ZONE 5.	ZONE 5 COMMON VOLT-FREE	Assume high
64	RELAY ENERGISES ON ALARM ZONE 5.	ZONE 5 NORMALLY OPEN VOLT-FREE	Assume high
65	RELAY ENERGISES ON ALARM ZONE 6.	ZONE 6 NORMALLY CLOSED VOLT-FREE	Assume high
66	RELAY ENERGISES ON ALARM ZONE 6.	ZONE 6 COMMON VOLT-FREE	Assume high
67	RELAY ENERGISES ON ALARM ZONE 6.	ZONE 6 NORMALLY OPEN VOLT-FREE	Assume high
68	RELAY ENERGISES ON ALARM ZONE 7.	ZONE 7 NORMALLY CLOSED VOLT-FREE	Assume high
69	RELAY ENERGISES ON ALARM ZONE 7.	ZONE 7 COMMON VOLT-FREE	Assume high
70	RELAY ENERGISES ON ALARM ZONE 7.	ZONE 7 NORMALLY OPEN VOLT-FREE	Assume high
71	RELAY ENERGISES ON ALARM ZONE 8.	ZONE 8 NORMALLY CLOSED VOLT-FREE	Assume high
72	RELAY ENERGISES ON ALARM ZONE 8.	ZONE 8 COMMON VOLT-FREE	Assume high
73	RELAY ENERGISES ON ALARM ZONE 8.	ZONE 8 NORMALLY OPEN VOLT-FREE	Assume high
74	RELAY ENERGISES ON ALARM ZONE 5.	ZONE 5 NORMALLY CLOSED VOLT-FREE	Assume high
75	RELAY ENERGISES ON ALARM ZONE 5.	ZONE 5 COMMON VOLT-FREE	Assume high
76	RELAY ENERGISES ON ALARM ZONE 5.	ZONE 5 NORMALLY OPEN VOLT-FREE	Assume high
77	RELAY ENERGISES ON ALARM ZONE 6.	ZONE 6 NORMALLY CLOSED VOLT-FREE	Assume high
78	RELAY ENERGISES ON ALARM ZONE 6.	ZONE 6 COMMON VOLT-FREE	Assume high
79	RELAY ENERGISES ON ALARM ZONE 6.	ZONE 6 NORMALLY OPEN VOLT-FREE	Assume high

Quick connections guide



TERMINAL NUMBER	DESCRIPTION	VOLTAGE	RISK
80	RELAY ENERGISES ON ALARM ZONE 7.	ZONE 7 NORMALLY CLOSED VOLT-FREE	Assume high
81	RELAY ENERGISES ON ALARM ZONE 5.	ZONE 7 COMMON VOLT-FREE	Assume high
82	RELAY ENERGISES ON ALARM ZONE 5.	ZONE 7 NORMALLY OPEN VOLT-FREE	Assume high
83	RELAY ENERGISES ON ALARM ZONE 8.	ZONE 8 NORMALLY CLOSED VOLT-FREE	Assume high
84	RELAY ENERGISES ON ALARM ZONE 8.	ZONE 8 COMMON VOLT-FREE	Assume high
85	RELAY ENERGISES ON ALARM ZONE 8.	ZONE 8 NORMALLY OPEN VOLT-FREE	Assume high



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

Short press the mute button to silence the alarm.

When the leak has been repaired, and the sensor dried, the system will self reset. The valve will open and the red LED will stop flashing. The Leak Detection Panel (LDP) is now ready to detect the next leak.

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

If a sensor becomes faulty the alarm will sound and the green LED will change to red. Once replaced the system will return to normal.

On mains failure the green power LED will turn off and the mains fault LED will flash. When power returns the system will go back to normal.

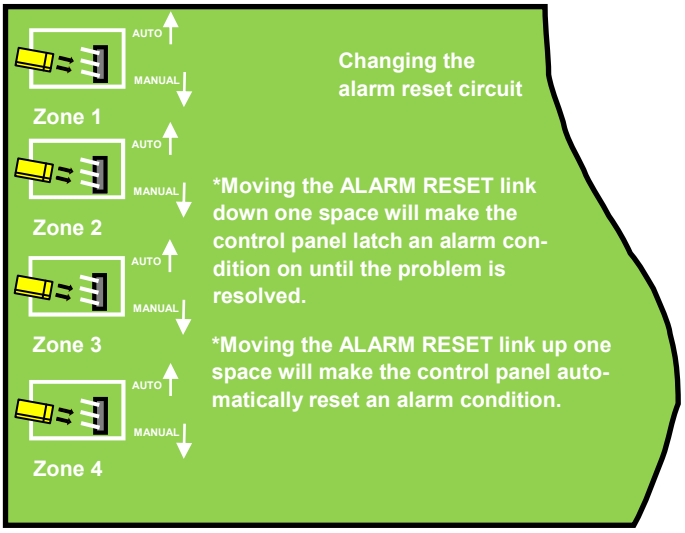
Long pressing the mute button for 5 seconds will reset the Leak Detection Panel (LDP) software to factory default.

Automatic and manual links

Sometimes, for instance, if the leak detection panel (LDP) is in an unmanned area, it is beneficial to have the alarm latch on, needing to be physically reset. If a leak has occurred and dried the LDP will remain in an alarm condition showing what area had a temporary problem.

When the LDP is in a busy 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 manual reset or automatic.

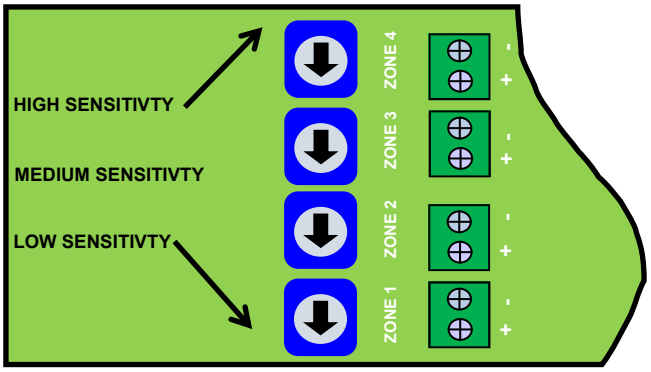


Sensitivity Controls

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



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Technical information. Page 8

The Leak Detection Panel (LDP) has a leak-detected, a sensor healthy, and a sensor fault LED per zone.

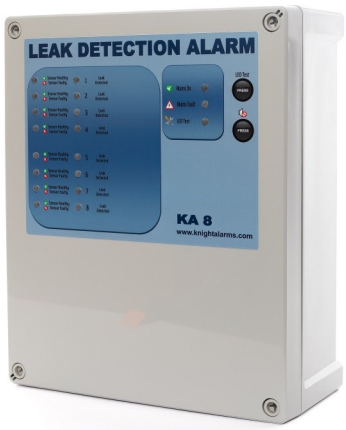
In the event of a leak, the alarm LED will flash red, the buzzer will sound, the valve will operate (if connected) & the relays will energize. Pressing the mute button will silence the buzzer. The Leak LED will remain illuminated until the sensor has been dried.

In the event of a sensor fault, the sensor fault LED will change from green to red, buzzer will sound and the 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 repaired.

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

The LDP test button can be pressed to test the functionality of all LED's.



Model Number KA8

Technical Specifications	Model KA8
Dimensions	**H289mm x W239mm x D107mm**
Weight	589g
Material and IP rating	ABS, UL94-HB ingress IP54
Operating Temperature	Resistant up to 55°C down to –25°C
Common alarm relay x2	230V change-over volt-free Max 2A
Input Main Voltage	110-240 VAC @50Hz
Mains Fuse PCB Mounted	2A quick blow 20mm glass
Battery Fuse PCB Mounted	1A quick blow 20mm glass
Battery Backup	1 x 12V 01.2Ah sealed lead acid
Battery Fuse PCB Mounted	1A quick blow 20mm glass
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
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
Zone 3 Relay Contact Output x2	230V change-over volt-free Max 2A
Zone 4 Relay Contact Output x2	230V change-over volt-free Max 2A
Zone 5 Relay Contact Output x2	230V change-over volt-free Max 2A
Zone 6 Relay Contact Output x2	230V change-over volt-free Max 2A
Zone 7 Relay Contact Output x2	230V change-over volt-free Max 2A
Zone 8 Relay Contact Output x2	230V change-over volt-free Max 2A

Compatible Sensors

Cable Sensor

Probe Sensor

Mini Probe

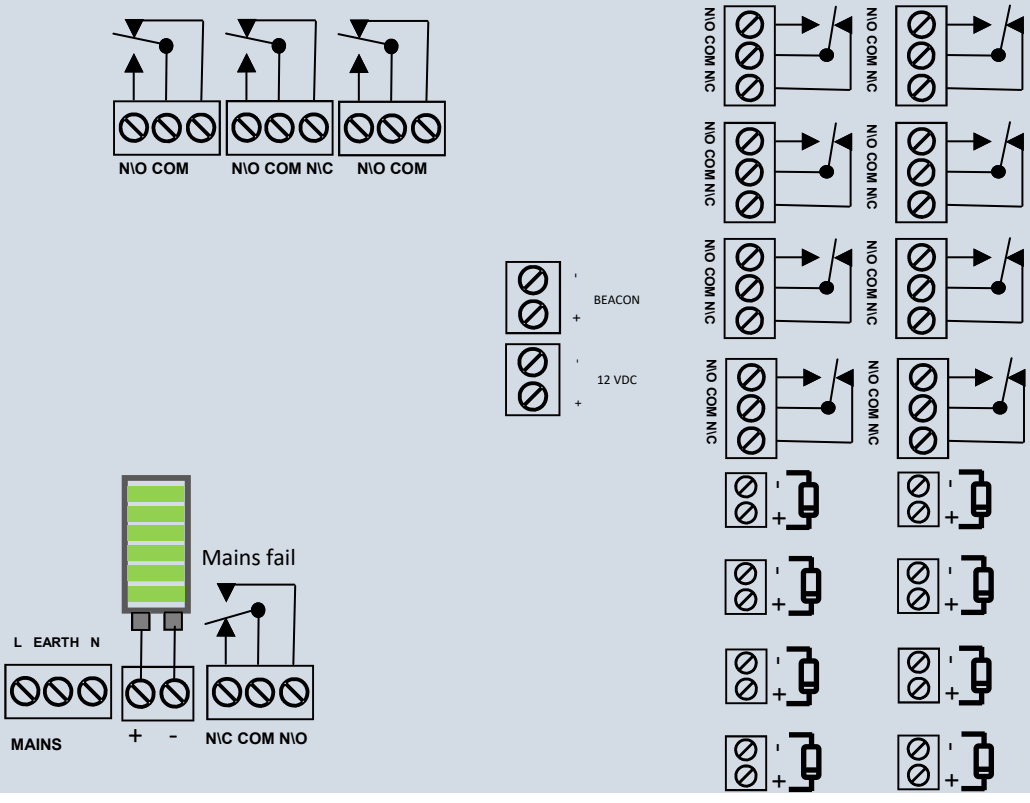
Mini Pad Sensor

Overflow Sensor

Over-Temperature

Technical information continued.

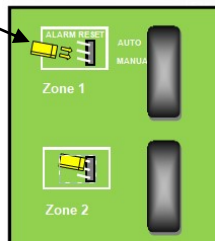
Technical Specifications	8 zone model KA8
LED Test Button.	Tests full operation of all LED's.
Mute Button.	1 Silences the internal sounder. 2. Acts as a system alarm acknowledgement
Mains Healthy LED.	Indicates when the system has a healthy power supply connected.
Leak Detected LED.	Will flash red when 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



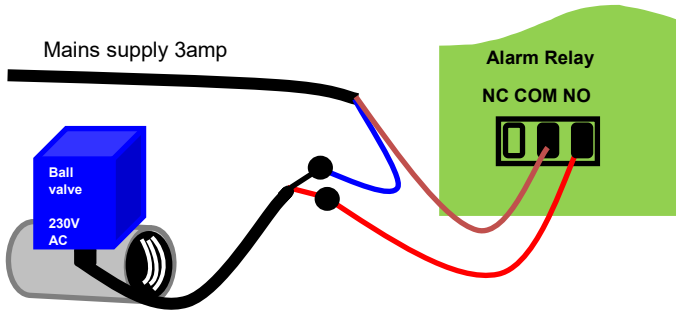
Over-Temperature

Humidity Sensor

Metal Water Probe

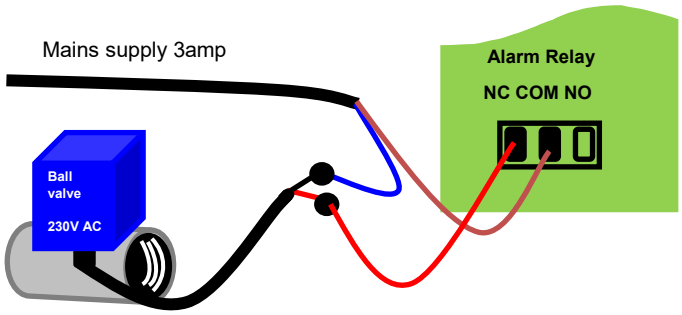
Braided Sensor Tape

Valve Wiring Normally Open Valve.



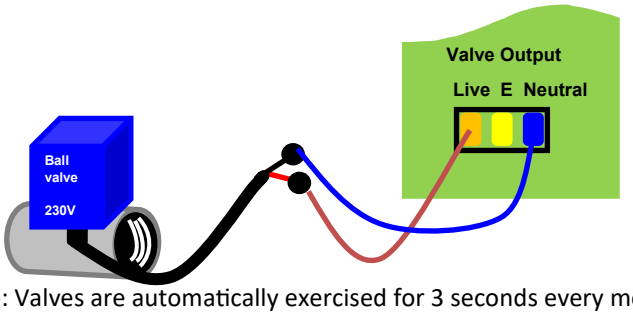
A normally open valve will allow water to flow. When voltage is applied the valve will close and turn off the water. When the power is taken away from the valve it will automatically open again.

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.

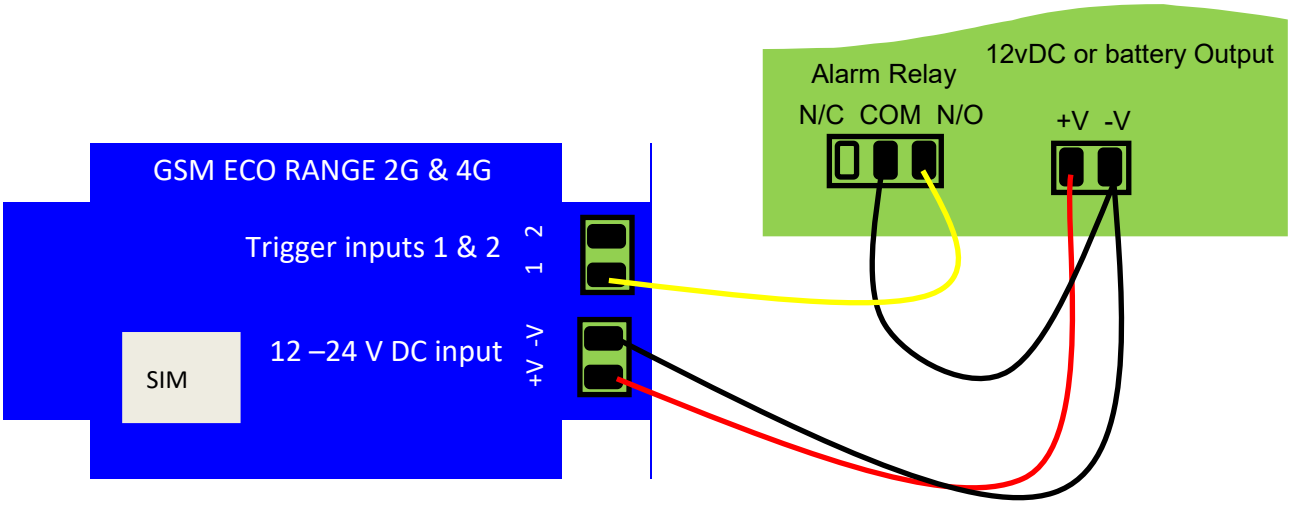
Dedicated Valve Output Terminal.



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.

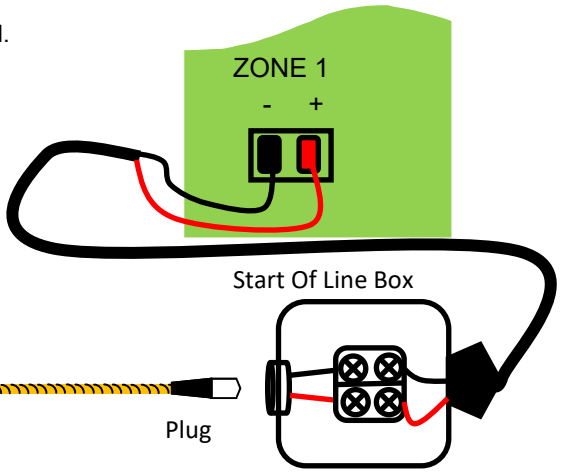
Please note: Valves are automatically exercised for 3 seconds every month to flush out debris and eliminate seizure.

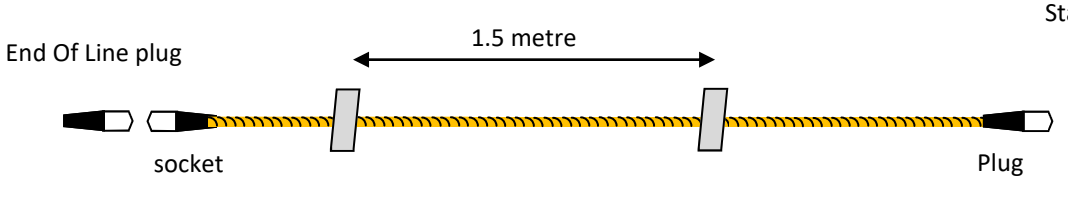
SMS Text dialler wiring.



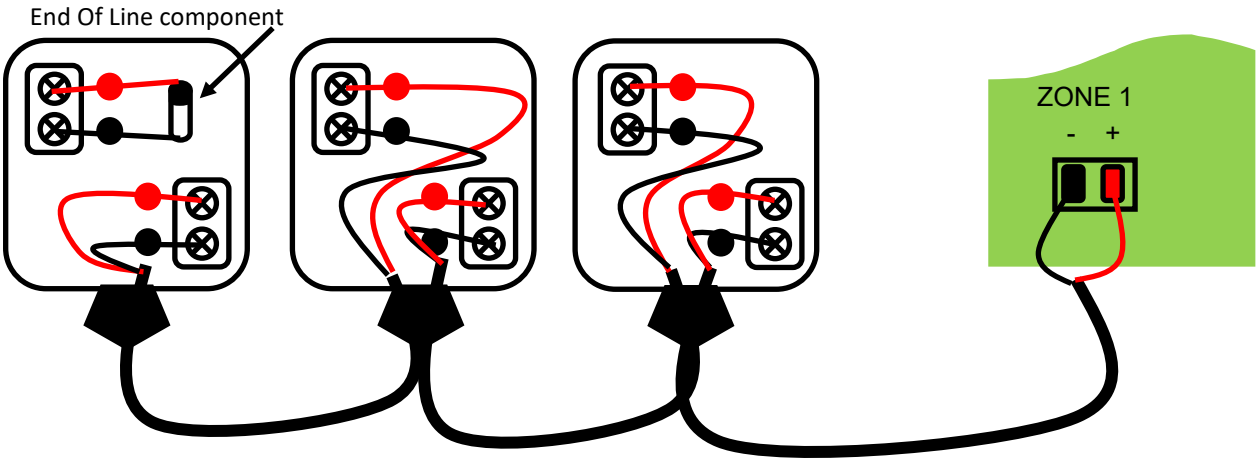
Sensor cable wiring. Page 11

- 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.



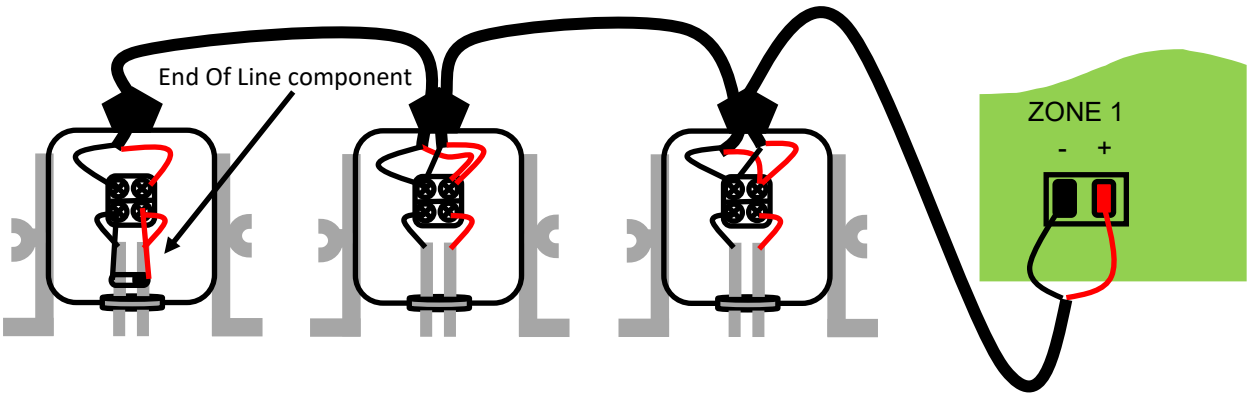


Mini Pad Sensor Wiring.



- 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.

Trouble Shooting guide.

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 wring 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 wring 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 PCB 20mm glass fuses. • Check mains wiring and that the terminals plugs sit neatly in there plugs.
Valve is not turning off water	• Check the 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 mechanical function..