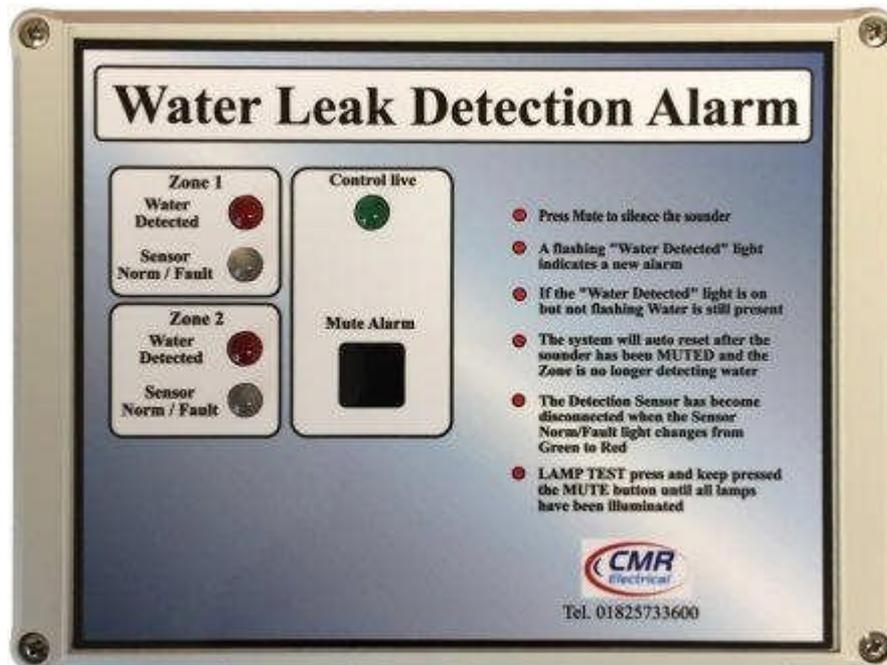




CMR Electrical Ltd  
Bolton House  
Five Chimneys Lane  
Hadlow Down  
East Sussex  
TN22 4DX  
Tel: 01825 733600

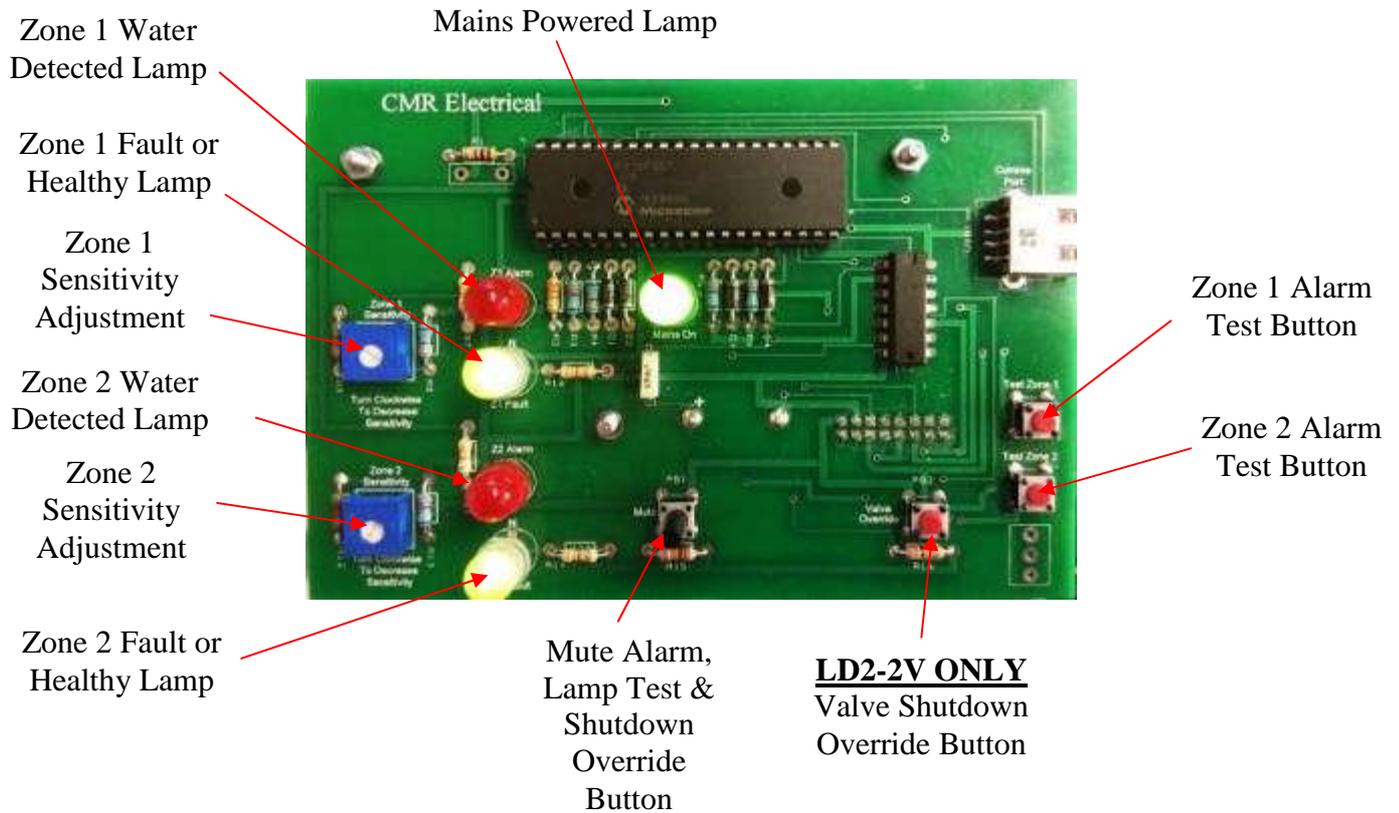
# LD2-2 & LD2-2V One & Two Zone Water Detection Alarm Installation and Operation Manual



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- 2) *Operation*
- 3) *Lamp and Horn Test*
- 4) *Water leak detected Alarm Test*
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## 1) Display and Control



## 2) Operation

In normal mode with no alarms or faults, the audible warning device will be OFF, the “Water Detected” alarm lamp will be OFF, the “Sensor Norm/Fault” lamp will be ON and green and the Control Live lamp will be ON.

## 3) Lamp, Horn and Relay Test

The unit has a test feature which starts the horn and turns ON each lamp in turn one at a time. The test facility can only be used when the system is clear from any alarms or faults. To start the test procedure, press and hold down the “Mute Alarm” button for approximately 5 seconds, when the test starts release the Mute button.

## 4) Water leak detected Alarm Test

To test that the unit is functioning correctly, pressing the red “Test Zone” button will simulate water being detected by the sensor and put the system into Water detected alarm. This test alarm, like the normal alarm, will need muting. Using the test facility will operate the alarm relays generating a BMS alarm and on the LD2-2V systems, close the water shutoff valves.

## 5) Water Detected Alarm

When the detection cable comes into contact with water anywhere along its length, the audible warning device will start, the alarm relay will close and the red “Water Detected” lamp will start flashing. To stop the audible warning press the “Mute Alarm” button. On muting, the “Water Detected” lamp will stop flashing and remain permanently ON indicating an acknowledged alarm. The system will remain in this state until the water is removed from the cable when the “Water Detected” lamp and alarm relay will automatically turn OFF.

### 6) Sensor Fault

Because of the exposure of the detection cable on the floor the system monitors for any breaks in the detection cable and of the interconnection cable between the control unit and the detection cable. Provided continuity is maintained the “Sensor Norm / Fault” lamp will remain ON and Green. If a break within the cable is found, the audible warning device will start, the Green lamp will turn RED and start flashing. To stop the audible warning press the “Mute Alarm” button. On muting, the red “Sensor Norm / Fault” lamp will stop flashing and remain permanently ON indicating an acknowledged alarm. The system will remain in this state until the cable fault is repaired when the “Sensor Norm / Fault” lamp will revert back to Green. If the controller detects a break in the cable, the system will continue to detect water up to the point of the break.

### 7) Water Detection Sensitivity Adjustment

To increase the sensitivity of the cable turn the potentiometer ANTICLOCKWISE, to decrease the sensitivity turn CLOCKWISE.



Increase Sensitivity



Decrease Sensitivity

### 8) Installation

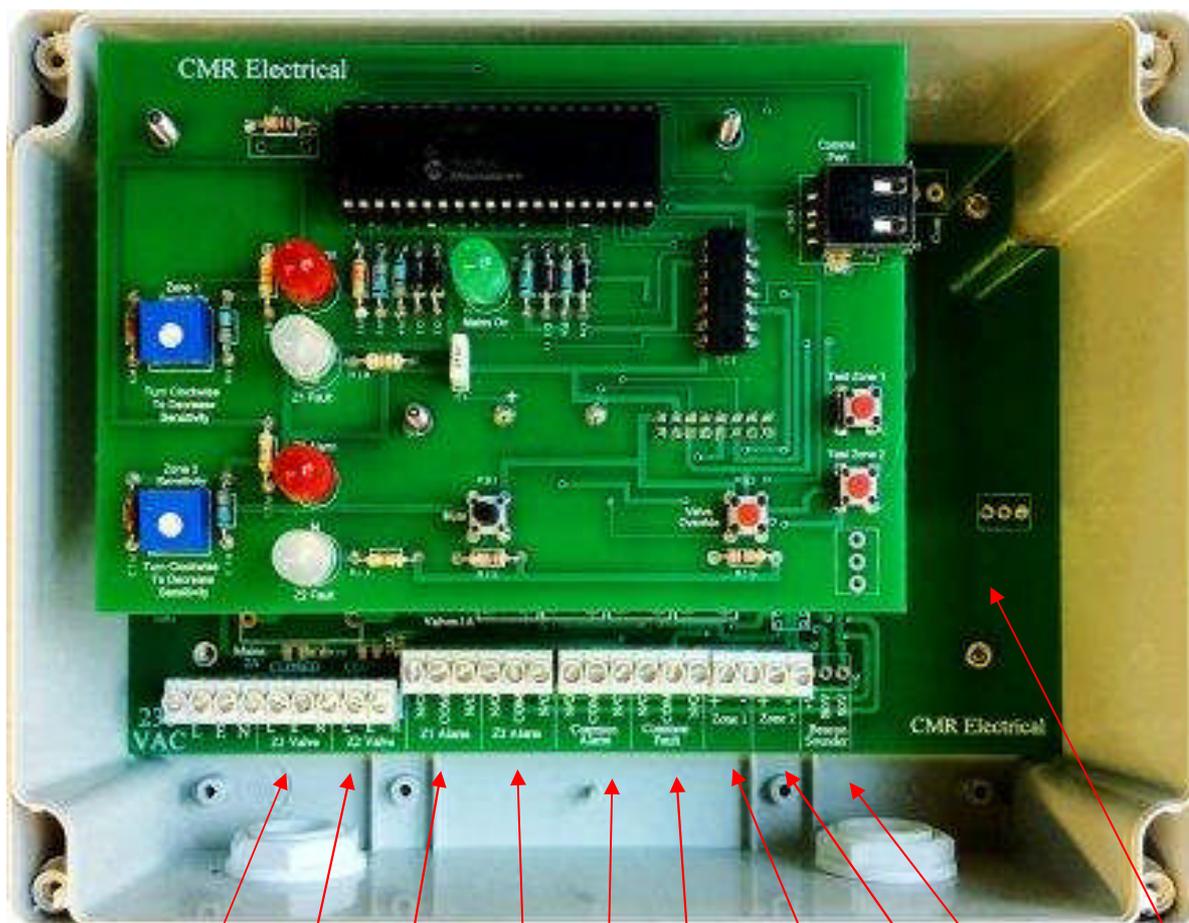
**THIS EQUIPMENT SHOULD ONLY BE CONNECTED AND WORKED ON BY A QUALIFIED ELECTRICIAN.**

To mount the unit to a wall, first remove the front cover to expose the internal equipment. In each corner of the housing positioned below/above the front cover fixings will be found the mounting holes.

Plastic glands have been provided for incoming power and outgoing signal cables. The large gland requiring a 20mm hole within the housing is for the power cable and the smaller gland requiring a 13mm hole within the housing is for the signal cable. Care should be taken when drilling the holes to ensure no damage occurs to the electronic equipment.

A suitably rated 230VAC power cable supply should be run from a fused spur to the unit and terminated to the internal terminal block marked “L”, “E” & “N”. The fuse within the fused spur should be rated at 5 Amps.

## Connections within the Alarm Housing

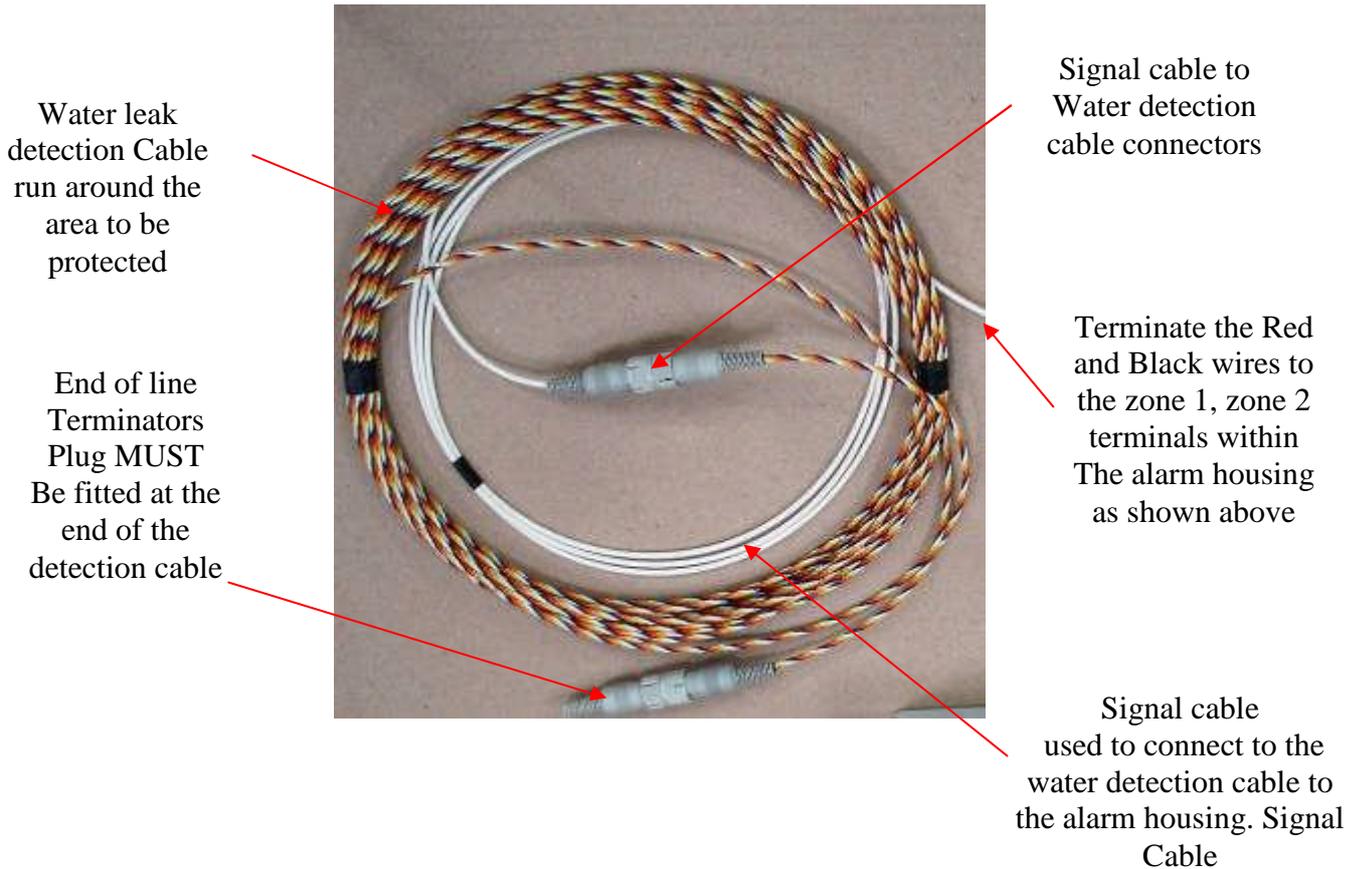


- If Fitted**  
230VAC  
To Zone 1  
Shutdown  
Valve
- If Fitted**  
Zone 1  
Output  
Alarm  
Contact
- If Fitted**  
Zone 2  
Output  
Alarm  
Contact
- Common  
Fault  
Output  
Alarm  
Contact
- Zone 1 white  
signal cable  
Red to "+"  
Black to "-"
- If Fitted**  
Battery
- If Fitted**  
Beacon/Sounder
- Zone 2 white  
signal cable  
Red to "+"  
Black to "-"
- If Fitted**  
230VAC  
To Zone 2  
Shutdown  
Valve
- Common  
Alarm  
Output  
Alarm  
Contact

### Output Volt Free contacts for use by a Building Management System.

<i>Function Required</i>	<i>Fitted as Standard</i>	<i>Relay Output Terminals</i>
Zone 1 alarm	No	Z1 Alarm
Zone 2 alarm	No	Z2 Alarm
Water detected alarm any zone	Yes	Common Alarm
Cable Disconnected Alarm	Yes	Common Fault
Power Fault	Yes	Common Fault

## Connection of the Signal cable, Water detection cable & End Of Line Terminator

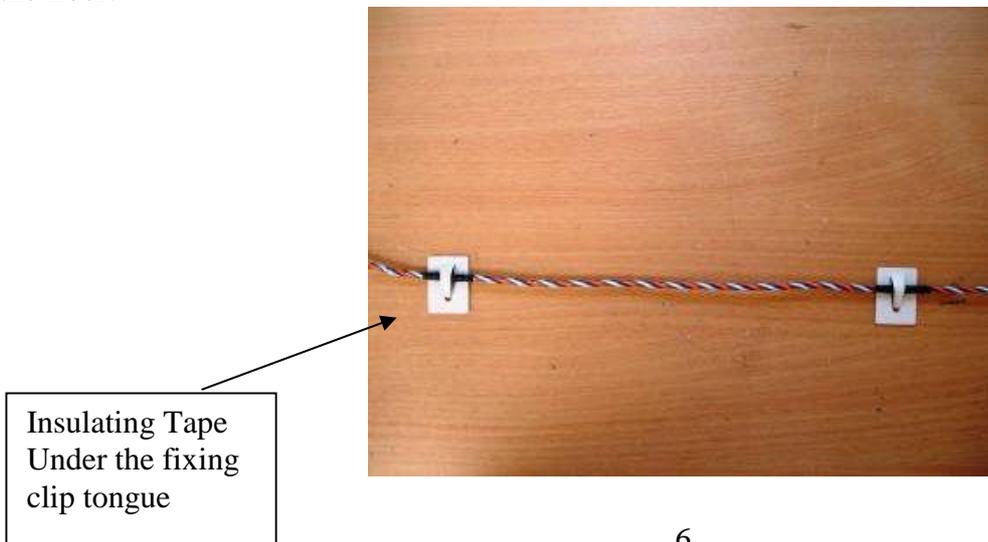


### 9) Positioning the water detection cable

The detection cable is susceptible to damage and should not be fitted to areas where the cable is likely to be damaged or walked on. If fitting the cable around Air Conditioning Units with humidifiers, ensure that cable is positioned at least one metre from the ACU to stop intermittent alarms being generated from over humidity or water droplets from the AHU. Having positioned the detection cable, ensure that the End of line terminator is plugged into the end of the cable (see drawing above).

### 10) Fitting Cable Clips

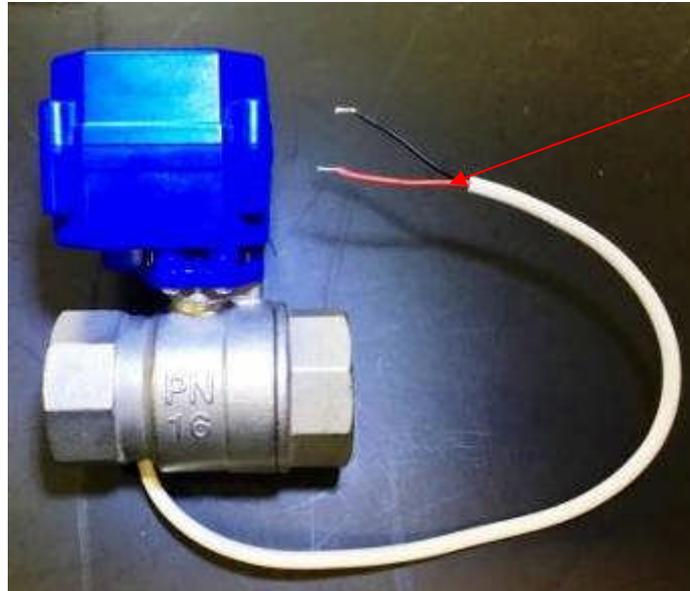
If Cable Clips are required, to protect the small sensor wires and to stop false water detected alarms from occurring insulating tape should be first applied around the detection cable before the clip tongue is closed. Clips should be fitted approximately every 1 to 1.5 metres apart. When using clips make sure that the cable touches the floor between the clips, **DO NOT** tighten the cable so that the cable does not touch the floor.



### 11) Water Shutdown Valve

If the system is supplied with water shutoff valves, once a water leak has been detected the unit will remove the 230V supply holding open the valve thereby closing it and stopping the flow of water. Once the leak has been rectified the detection cable may take some hours to dry out. During the dry out period the valve can be opened and closed using the procedure outlined in *Item 10* below.

#### Connection of Water Shutdown Ball Valve



The 230VAC supply to the valves is generated from within the alarm unit. 15 to 25mm valves are supplied with a red and black cable whilst larger valves are red and green. For good practice connect live to the red wire and neutral to the black or green wire.

The Valve is supplied with a short length of cable that will need extending back to the Z1 or Z2 Valve terminals within the alarm unit.

**WARNING, In order to shut properly, this type of valve need powering for at least 3 minutes.**

#### Connection of Water Shutdown Solenoid Valve



The 230VAC supply to the valves is generated from within the alarm unit.

Having removed and opened the 3 pin socket, connect live to terminal "1", neutral to terminal "2" and Earth to the earth terminal

#### PLEASE NOTE;

**The type of valve MUST be fitted with the arrow on its body facing the direction of flow, if not, the valve will not stop the flow of water.**

### **12) Water Shutdown Valve Override Procedure**

This feature will only work if there is a current water leak detected alarm, the alarm has been “Muted” and the alarm lamp is on but not flashing. To put the system into shutdown override and re-open the valve, press and keep pressed the “Mute” push button. On pressing the button the unit will start beeping. Keeping the finger on the button and wait until the beeping stops when the Fault/Healthy lamp will change from green to Red. Once this happens stop pressing the Mute button, the Fault/Healthy will flash between green and red to indicate that the shutdown valve is in override and is open. The system will automatically cancel the override once the zone stops detecting a water leak and the red “Water Detected” lamp turns off. If Override needs cancelling and the valve needs closing again, Press the “Mute” button again and following the same procedure will cancel the override and close the shutdown valve.

### **13) Beacon and beacon sounder**

If a beacon or beacon sounder is supplied connect to the three terminals identified as “Beacon Sounder” as follows.

#### **13a) Non Mutable Beacon or beacon sounder**

If the beacon or the beacon sounder is to be active (On all the time) until the water leak alarm has cleared, connect as follows

Terminal reference		Connect Beacon / beacon sounder terminals to the following terminals
+V		Beacon +V or Strobe /Tone + terminal
BOV		Beacon -V or Strobe /Tone - terminal
SOV		NO connection to this terminal

#### **13b) Mutable Beacon or beacon sounder**

If the beacon or the beacon sounder is to turn off when the “Mute” push button is pressed connect as follows.

Terminal reference		Connect Beacon / beacon sounder terminals to the following terminals
+V		Beacon +V or Strobe /Tone + terminal
BOV		NO connection to this terminal
SOV		Beacon -V or Strobe /Tone - terminal

#### **1c) Mutable sounder Beacon on all the time**

If the beacon is to remain alight all the time an alarm is current but the sounder is to be turned off when the “Mute” push button is pressed connect as follows.

Terminal reference		Connect Beacon / beacon sounder terminals to the following terminals
+V		Strobe and Tone + terminal
BOV		Strobe - terminal
SOV		Tone - terminal

**Warning; if the above option “1c” is required, remove the electrical link connected between the second (Strobe -) & third terminals (Tone -) terminals within the sounder.**

#### 14) Fitting the battery backup

The battery should be fitted connected after the system as been commissioned. Place the battery within the housing in the space provided. Connect the small BLACK cable to the “—“ battery terminal and the RED with black dots wire to the batteries “+” terminal. If the battery is misconnected, the battery fuse located on the small PCB will blow.

#### 15) Commissioning

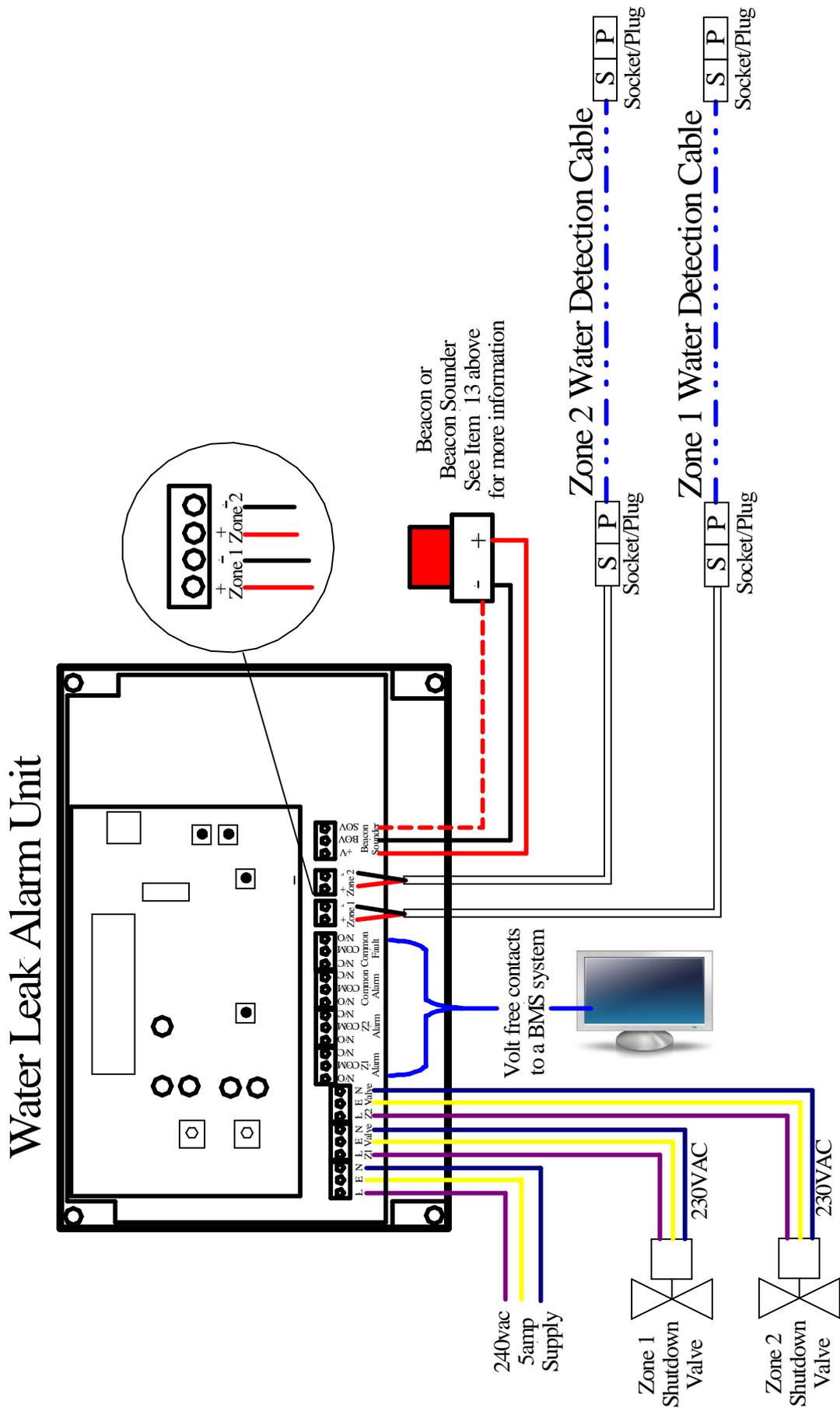
Having connected the unit as described above, turn of the mains power to the unit. The “Control Live” should illuminate and the “Sensor Norm/Fault” lamp should be ON and green. If not, refer to the “Fault Diagnostics” below. If the unit powers up with the audible warning going and one of the lights flashing RED, press the mute button and wait to see if the alarm clears. If the alarm remains ON after approximately 20 seconds , refer to the “Fault Diagnostics” below. With the unit powered and both lamps green, unplug the End of line terminator positioned at the end of the detection cable. The controller “Sensor Norm/Fault” lamp should start to flash RED and the audible warning device should be ON, if not refer to the “Fault Diagnostics” below. With the “Sensor Norm/Fault” lamp flashing, press the “Mute” button. The audible warning device should stop and the “Sensor Norm/Fault” lamp should stop flashing but remain ON. Replace the End of line terminator, the “Sensor Norm/Fault” lamp should turn from RED to GREEN, if not refer to the “Fault Diagnostics” below. Using a cup of CLEAN water, immerse a small area (50mm long) of cable into the water. The controller “Water detected” lamp should start to flash RED and the audible warning device should be ON, if not refer to the “Fault Diagnostics” below. With the “Water detected” lamp flashing, press the “Mute” button. The audible warning device should stop and the “Water detected” lamp should stop flashing but remain ON. Remove the water and wipe the cable with some tissue, the “Water detected” lamp should turn OFF, if not refer to the “Fault Diagnostics” below.

#### 16) Fault Diagnoses

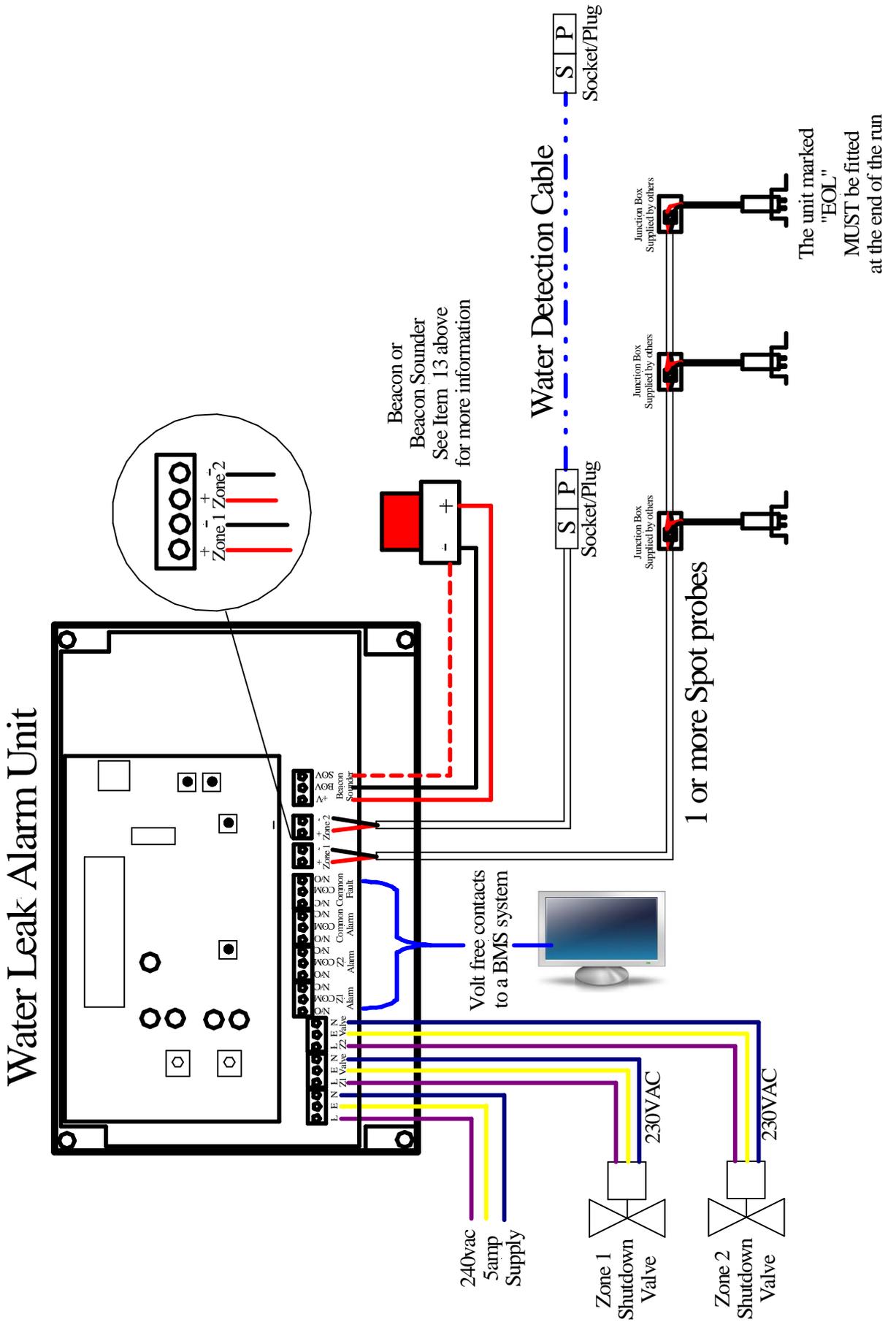
<b>Fault</b>	<b>Possible Reason</b>
ALL LEDS are OFF and the unit appears dead	<ol style="list-style-type: none"> <li>1) No power to the control unit. <i>Test with a meter</i></li> <li>2) The power fuse has blown. <i>Test the fuse with a meter</i></li> </ol>
The Water Detected LED remains ON all the time.	<ol style="list-style-type: none"> <li>1) The cable needs drying out after detecting water. <i>Using tissue paper dry the cable.</i></li> <li>2) The cable has a short between the sensors due to Contaminants. <i>Clean the cable using water and tissue paper dry out afterwards</i></li> <li>3) The cable has been damaged. <i>Visually check the cable for damage.</i></li> <li>4) The sensitivity of the detection system is too sensitive. <i>Remove the lid from the small plastic box connected to the detection cable and turn the potentiometer until the system resets.</i></li> <li>5) System fault. <i>Return to manufacture</i></li> </ol>
When the system has a water detected alarm, the LED remains OFF, but the audible warning devise sounds.	<ol style="list-style-type: none"> <li>1) LED fault. <i>Go into lamp test mode to test the LEDS</i></li> <li>2) System fault. <i>Return to manufacture</i></li> </ol>
The system will not record a water detected alarm, the LED and audible warning devise remain OFF	<ol style="list-style-type: none"> <li>1) Sensitivity could be too low or a Possible system fault. <i>Remove the lid from the small plastic box connected to the detection cable and turn the potentiometer until the system goes into alarm.</i></li> <li>2) System fault. <i>Return to manufacture</i></li> </ol>
The water detected fault LED remains on.	<ol style="list-style-type: none"> <li>1) The detection or signal cable is broken or disconnected. <i>Check for cable faults or breaks.</i></li> <li>2) Detection module fault. <i>Dip part of the detection cable into a cup of water and see if it sets up an alarm.</i></li> <li>3) Controller fault. <i>Temporally short terminals 1 &amp; 5 in the control unit to setup an alarm.</i></li> <li>4) System fault. <i>Return to manufacture</i></li> </ol>
Horn not working	<ol style="list-style-type: none"> <li>1) Faulty horn. <i>Use the Test facility.</i></li> <li>2) System fault. <i>Return to manufacture</i></li> </ol>
The battery will not power the system	<ol style="list-style-type: none"> <li>1) Battery discharged, disconnect a lead and test with meter.</li> <li>2) Battery fuse blow, see item 10</li> <li>3) Charger fault, disconnect a battery lead &amp; check for 13.5V</li> </ol>

17) Installation Drawings

System using Water Detection Cable. Not all the shown devices may be available on your system



**System using Water Detection Cable on one zone and Spot probes on the other**  
**Not all the shown devices may be available on your system**



System using Water Detection Cable, back to signal cable finally back to water detection cable on 1 zone, with the other zone have Water detection cable followed by a spot probe on the other.

Not all the shown devises may be available on your system

