



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

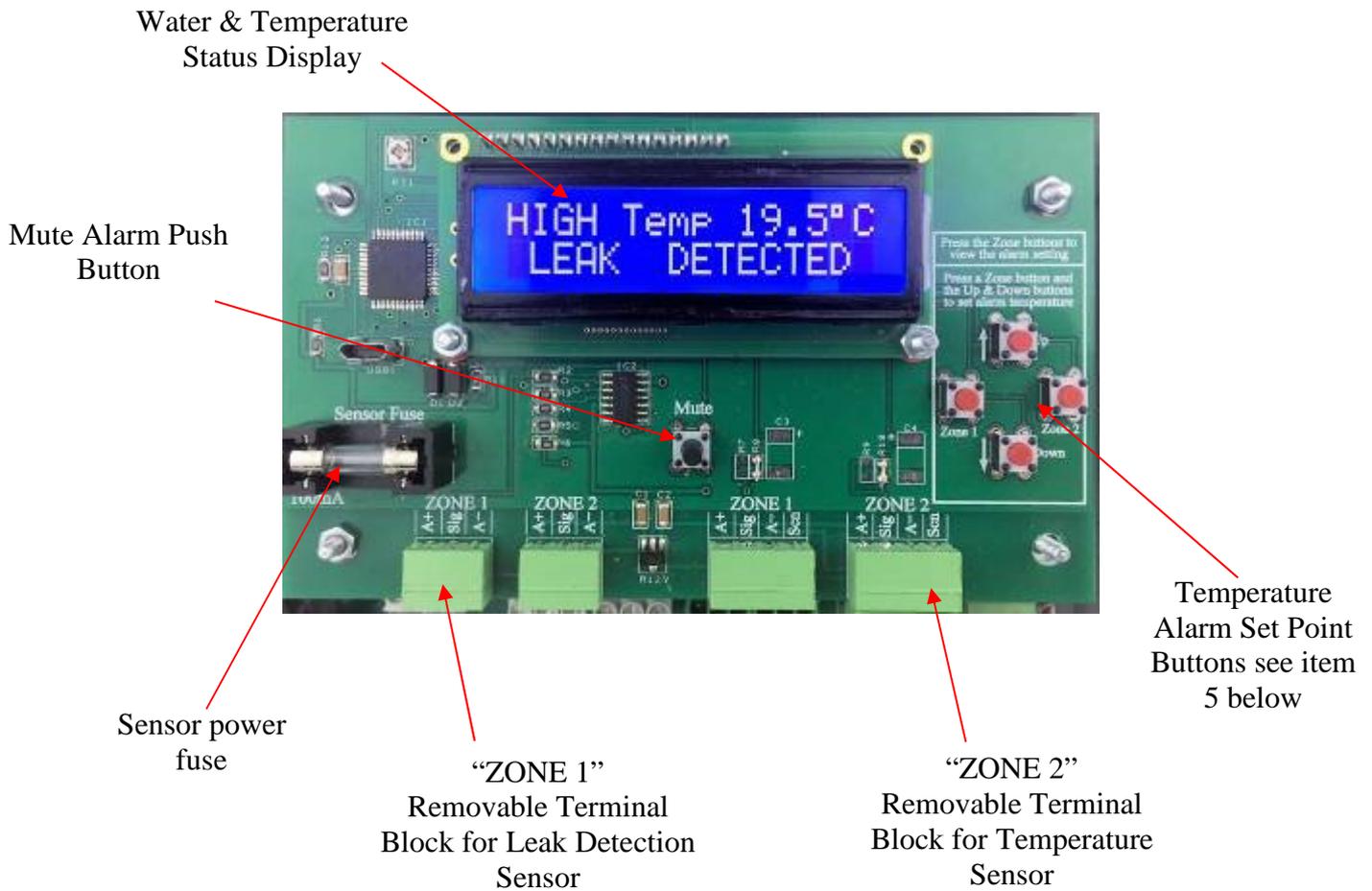
Water Leak and Room Over Temperature Alarm Installation and Operation Manual



Contents

- 1) *Display and Control*
- 2) *Operation*
- 3) *Display Screens*
- 4) *Water detection Sensor wiring*
- 5) *Temperature Sensor wiring*
- 6) *Setting the alarm trip set point*
- 7) *Positioning the temperature sensor*
- 8) *Power, BMS, beacon and SMS connections*
- 9) *Beacon and beacon sounder*
- 10) *Fitting an SMS / Email messaging system*
- 11) *Commissioning*
- 12) *Fault Diagnoses*
- 13) *Installation Drawings*

1) Display and Control



2) Operation

In normal operation with no alarms or faults, the audible warning device will be OFF and the display will be showing screen 2 below. The Temperature alarm trip point (setpoint) can be adjusted using the three red buttons on the top board, see “Setting the alarm Trip Setpoint”. When the ambient temperature exceeds the alarm setpoint, the audible warning will start pulsing, the display will show the alarm, see screen 3, the common alarm BMS contact will operate, and if fitted, zone 2 BMS relay will operate, the remote beacon/beacon sounder will operate and the SMS will send an Alarm message. The unit will remain in this mode until the “Mute” button has been pressed when the display will change to show the status of both temperature and water detection alarms, see screen 5, the audible warning will stop and if fitted the remote sounder will stop. Once the temperature drops below the setpoint by 2°C, the system will automatically reset to normal operation provided the “mute” button has been operated. If the temperature falls below 0°C or above 50°C, the audible warning device will sound, and the display will change to screen 7. The water detection alarm will operate in the same way as described above but screen 4 will be displayed when a leak has been detected, again this will stay in this mode until the “Mute” button has been operated to acknowledge the alarm. If a temperature sensor becomes disconnected or damaged, the audible warning will sound and the display will show the faulty sensor, see screen 6. Again unit will remain in this mode until the “Mute” button is pressed. Once the sensor fault has been rectified, the system will automatically revert to normal running. If the water leak detection sensor becomes disconnected, the unit will go into “Leak Detected” alarm as described above. If the sensor power fuse blows or is removed, the audible warning will sound and the display will show screen 8. The unit will remain in this mode until the “Mute” button is pressed. Once the fuse has been replaced, the system will automatically revert to normal running provided the “mute” button has been operated.

3) Display Screens

Screen 1



The unit will display this for a few seconds after powering up

Screen 2



The unit has no alarms and is showing the current temperature

Screen 3



High temperature Alarm; this statement will flash until the "Mute" button is pressed

Screen 4



Water leak Alarm; this statement will flash until the "Mute" button is pressed

Screen 5



After "Muting" an alarm the display will show the status and current temperature

Screen 6



The temperature sensor has become disconnected or faulty

Screen 7



The temperature has gone below 0°C or above 50°C

Screen 8



The sensor power fuse has blown

Screen 9



Alarm setpoint adjustment

4) Water detection Sensor wiring (Zone 1)

Using the 3 way terminal block as shown in Item 1 above, connect the sensor to the alarm unit as follows using a 4 core 0.22mm cable. The sensor cable should not exceed 100m in length, and should not be run in parallel to, or near, any power cables, bus-bars or any source of electrical or radio interference.

<i>Alarm unit Terminal reference</i>	<i>Sensor Cable colour</i>
<i>A+</i>	<i>Red and Yellow</i>
<i>Sig</i>	<i>Blue</i>
<i>A-</i>	<i>Black</i>

5) Temperature Sensor wiring (Zone 2)

Using the pluggable 4 way terminal block as shown in Item 1 above, connect the temperature sensor to the alarm unit as follows using a 4 core 0.22mm screened cable such as RS 8124725. The sensor cable should not exceed 100m in length, and should not be run in parallel to, or near, any power cables, bus-bars or any source of electrical or radio interference.

Alarm unit Terminal reference	Cable colour	Sensor terminal reference
A+	Red	A+
Sig	White	Sig
A-	Black	A-
Scn	Screen	No connection

Do NOT connect the screen to any terminal or earth at the sensor box end

6) Setting the alarm trip setpoint

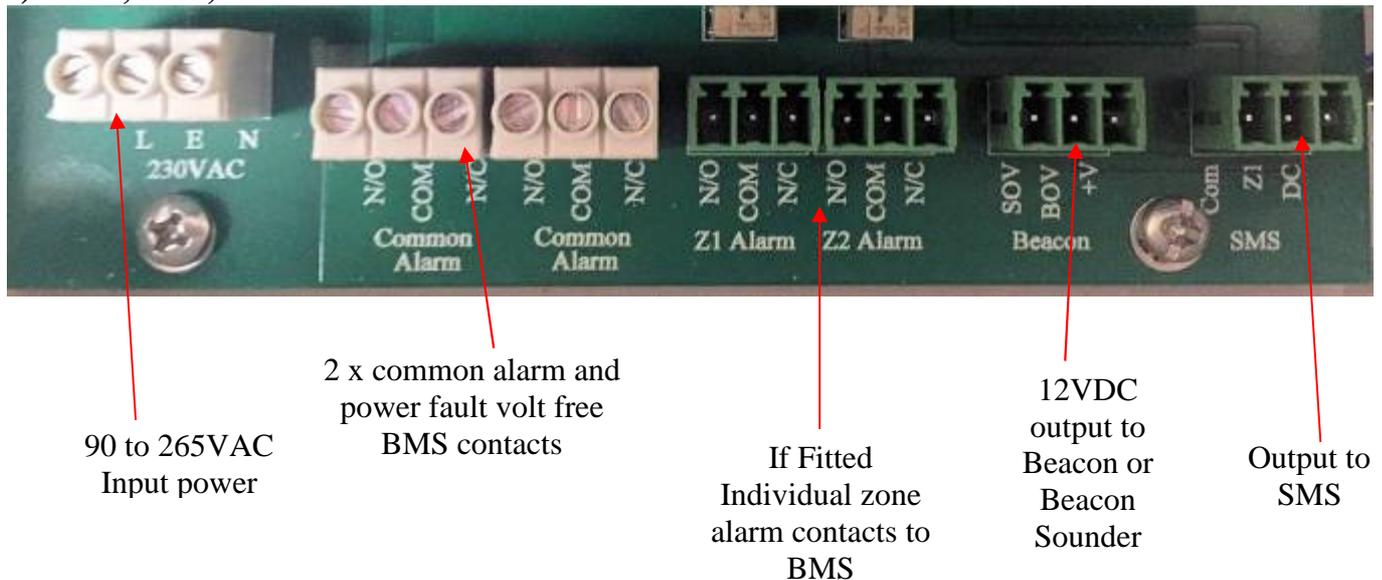
Three buttons have been provided to allow the alarm trip point adjustment between 0 and 50°C. To set the desired alarm trip point, first press the “Zone 2” button until the display changes to screen 9, the display will show the current alarm trip point. Whilst holding down the “zone 2” button, repeatedly press the “Up” or “Down” buttons until the desired alarm temperature is displayed in the screen. Once the desired alarm temperature is on display, release both buttons. If required, the new setpoint can be verified by pressing just the “zone 2” button again. The alarm trip point is held into non-volatile memory, so no further adjustments will be needed unless a new alarm temperature setpoint is required. Please note; the unit is factory set to 25°C

Warning setting the alarm to 0 or 50°C will setup an alarm but the display will change to screen 7 once the temperature drops below 0°C or above 50°C.

7) Positioning the temperature sensor

Care should be taken when positioning the sensor. Remember, hot air rises and forms hot spots, i.e. a room left hand corner away from any heat source could be 21°C, whereas the right-hand corner next to the heat source could be 25°C. Also positioning the sensor one metre from the floor when the bulk of the heat source being at two meters, could lead to damage to sensitive equipment because the sensor is measuring the lower ground floor temperature. Therefore, it is important to mount the sensor in a position where the room is likely to get the hottest and at a height to cover the whole equipment i.e. a 2m high server rack would be best if the sensor were mounted at an approximate height of 2 or 2.5 metres on a wall or column next to the server racks. If the location and type of heat source are unknown at the time of installation, try positioning the sensor between 1.8 and 2.5 metres (depending on room height) from the floor in the centre of the room.

8) Power, BMS, beacon and SMS connections



The Common alarm relay is normally energised, de-energised in alarm or power fault, therefore both “Common Alarm” contacts are identified correctly when the unit is powered and has no current alarms.

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>
Temperature alarm (Zone 1)	No	Z1 Alarm
Leak alarm (Zone 2)	No	Z2 Alarm
Over temp, Leak alarm or power fault contact No. 1	Yes	Common Alarm & power fault
Over temp, Leak alarm or power fault contact No. 1	Yes	Common Alarm & power fault

BMS relays do not operate for blown fuse or sensor fault

9) Beacon and beacon sounder

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

9a) 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

9b) 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

9c) 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 “9c” is required, **remove** the electrical link connected between the second (Strobe -) & third terminals (Tone -) terminals within the sounder.

10) Fitting an SMS / Email messaging system

If an SMS text messaging or Email messaging unit is supplied connect it as follows to the 3 way terminal block identified as “SMS”.

Terminal reference.	Cable wire colours fitted to the messaging system
Z1	BLUE
COM	BLACK
DC	RED

11) Commissioning

Having connected the unit as described above, turn on the mains power to the unit. The display should illuminate displaying screen 1 and after a few seconds display screen 2. To test the temperature alarm, first note the current temperature, press and keep pressed, the internal red “Zone 2 push button, screen 9 should appear. Keeping the “Zone 2” button pressed, repeatedly push and release the “Down” button until the temperature on display is below the noted ambient temperature. Now release both push buttons, the audible warning should start pulsing, screen 3 should appear and flash, the “common alarm” contact should change state, if fitted, the beacon / beacon sounder should start, the “Zone 2 Alarm” relay should operate and the SMS messaging system should activate. Pressing the “Mute” button will stop the sounder, change the display to screen 5 and if fitted and connected as shown in (9c), the sounder in the remote beacon sounder will stop. Once muted, clear the alarm by pressing the “Zone 2” button only this time using the “Up” button to set the unit to the desired high temperature set point.

To test the water leak alarm, Use a cup of CLEAN water and immerse a small area (50mm long) of cable into the water. The audible warning should start pulsing, screen 4 should appear and flash in the display, the “common alarm” contacts should change state and if fitted, the beacon / beacon sounder should start, the “Zone 1 Alarm” relay should operate and the SMS messaging system should activate. Pressing the “Mute” button will stop the sounder, change the display to screen 5 and if fitted and connected as shown in (9c), the sounder in the remote beacon sounder will stop. Once tested, dry the tested area with clean paper towel.

12) Fault Diagnoses

<i>Fault</i>	<i>Possible Reason</i>
Display is OFF and the unit appears dead	<ol style="list-style-type: none"> 1) No power to the control unit. <i>Test with a meter</i> 2) The power fuse has blown. <i>Test the fuse with a meter</i>
Screen 1 remains on display all the time	<ol style="list-style-type: none"> 1) Power down the unit and turn on after 1 minute 2) System fault. <i>Return to manufacturer</i>
Sensor fault, Screen 6	<ol style="list-style-type: none"> 1) Check the sensor cable for bad terminations or crossed wiring. 2) Remove the sensor and using 3 short lengths of cable, re-terminate the sensor at the alarm unit to illuminate the field wiring. If the sensor is found to function correctly, the sensor cable is either too long, faulty or being subjected to electrical interference. 3) Crossover the zones to see if the fault transfers to the healthy zone i.e. fault on zone 1, after crossing over fault on zone 2. 4) Faulty sensor <i>Return to manufacturer</i>
Screen 8 appears in the display	<ol style="list-style-type: none"> 1) The internal sensor fuse has blown due to over current. Remove both 4 way sensor terminal connections and check the sensor wiring for short circuits. Before re-connecting the sensors, replace the 100mA fuse, the display should change and display zone 1 and 2 as faulty (screen 5). If this screen does not appear, <i>Return unit to manufacturer</i>. If it does appear, plug each zone sensor back in one at a time noting if the fuse blows again and on what zone.
Horn not working	<ol style="list-style-type: none"> 1) System fault. <i>Return to manufacture</i>

13) Installation Drawings

Not all the shown devices may be available on your system

