

#### WHAT DOES THE PRODUCT DO?

The LeakMonitor alarm panel is a microprocessor controlled fully adjustable alarm system.

The Addressable alarm panel can monitor many different sensors including sensor cable (which senses water along its entire length). It can also monitor pads and probes, gas sensors, temperature, oil, heat and smoke sensors as well as overflow sensor probes.

#### HOW DOES IT WORK?

The LeakMonitor interrogates addressable outstations situated in appropriate areas and reports back the location of the leak.

The microprocessor controlled addressable alarm panel can simultaneously monitor all alarms and faults and log them chronologically in the memory.

The LeakMonitor alarm panel is provided with output signalling relays to provide remote alarm and BMS connection for alarms, faults and power/battery fault.

The unit comes with a battery backup and the control panel has been designed to be wall mounted and requires a 240V AC 2 amp power supply. Connections are direct to the Main PCB via easy wire un-pluggable terminal connectors the LeakMonitor leak detection system complies with class 3K5 of EN 60721-3-3:1995.

#### KEY FEATURES.

The alarm unit will monitor up to 100 remote outstations connected via a twisted pair combined communications and low power cable. Each outstation can have up to four sensors connected. The unit will sound an alarm if:

- Any sensor becomes faulty (either disconnected broken)
- Any sensor detects a leak
- Any outstation fails to communicate
- Power to the alarm system fails.
- In addition the unit will operate one of three relays to provide signals to other equipment.
- All alarm events are displayed on the Alarm Screen and all alarms and events are saved to memory.



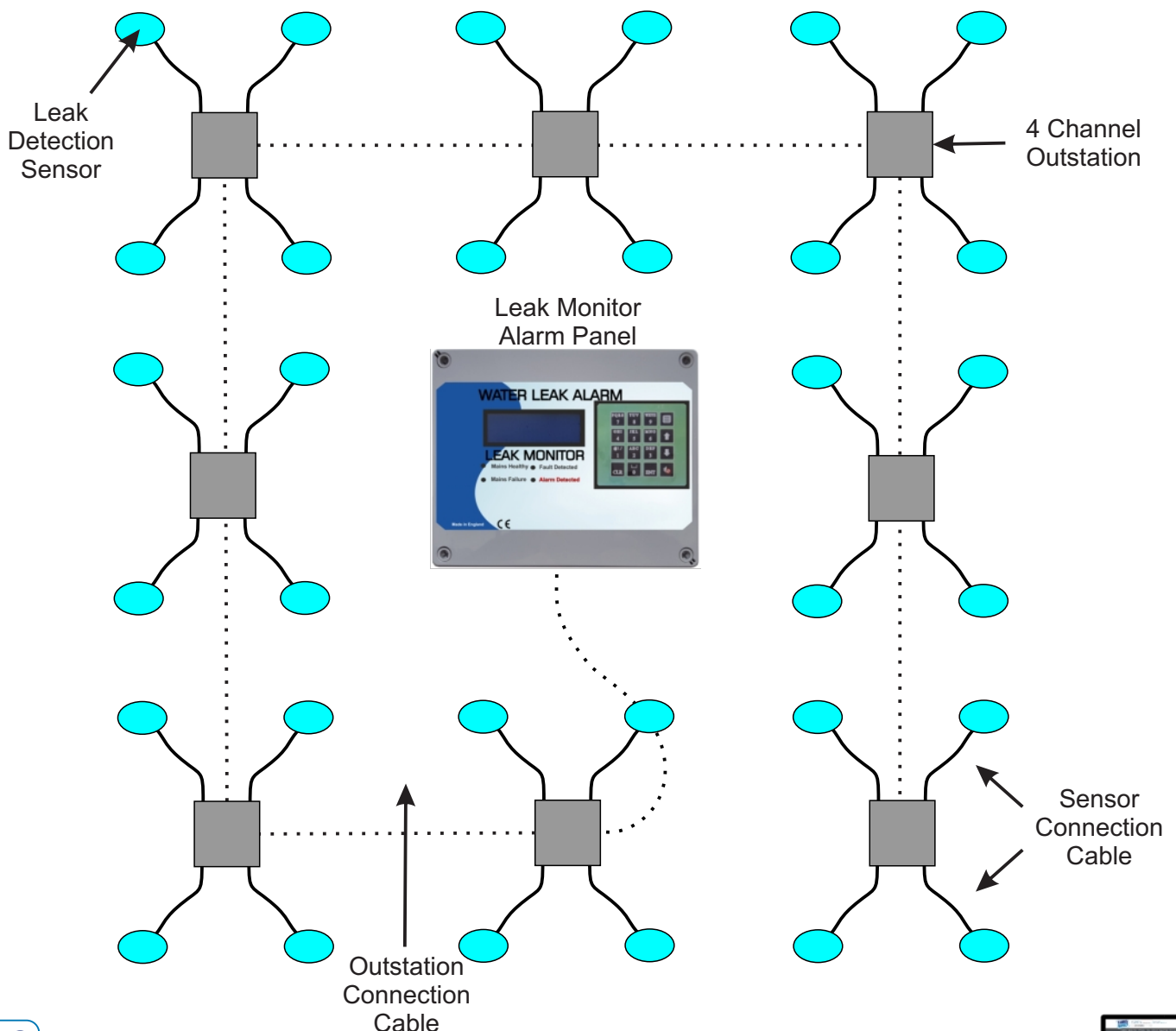
- When an alarm or fault is detected the location of the occurrence is reported via the LCD screen. The sounder will sound if it is an alarm and the relevant fault or alarm relay will energise providing onward signalling. An "alarm relay" is standard and will reset when the mute button is pressed to silence the sounder. This stops nuisance alarms and prevents the system becoming congested with alarms. To clear the fault or alarm the problem must be rectified for example if it is a leak, the cause needs to be fixed and the sensor dried.
- Modbus TCP/IP and RTU for onward signalling to building management systems are available as an option.
- Each outstation has 4 zones of detection as well as 2 optional 8 amp 230v ac relays for local switching of valves, pumps etc. Every outstation has a unique address from 1 to 100, set via on board micro switches. This gives the possibility of 400 zones (areas) that can be monitored simultaneously. It is recommended that the sensor tape length is no greater than 50 metres.
- All alarms are kept in a log file. The alarm log screen shows the alarms and events that have occurred. The full list can be viewed by scrolling up or down on the keypad.
- The sensor status can be viewed manually in the view sensor menu, this can be a handy feature if a particular sensor is giving spurious alarms.
- Water sensors have full sensitivity adjustment via the set points menu offering great flexibility to suit most environments.



## LEAKMONITOR ALARM PANEL SPECIFICATION

Sensor or Outstation Fault Relay	230Vac 8 amp change-over contacts DPDT
Alarm Detected Relay	230Vac 8 amp change-over contacts DPDT
New Alarm Detected Relay	230Vac 8 amp change-over contacts DPDT
Power Fault Relay	230Vac 2 amp change-over contacts SPDT
Sounder level	80db @ 10 cm oscillating tone
System operating Voltage	230Vac to 110 Vac self sensing SMPS 10 watt max
Mains Fuse	2 amp quick blow 20mm
Battery Fuse	1 amp quick blow 20mm
12 V supply Output	500 mA quick blow 20mm
Battery Backup	2v 1.2Ah run time standby 1—6 hours fully charged
System memory Battery	Battery 3v CR123A 10 year non recharge
LCD	20 x 4 Liquid Crystal
Alarm LED	Red 5 mm 2.2v when on alarm condition detected
Fault LED	Yellow 5 mm 2.2v when on sensor fault detected
Power Fault LED	Red 5 mm 2.2v when on a power fault detected
Power LED	Green 5 mm 2.2v when on system power is healthy
End Of Line Connector	47 K ohm resistor no polarity

## TYPICAL CONFIGURATION





## GENERAL INFORMATION

### SYSTEM FUNCTIONS

The addressable alarm system constantly monitors its sensors for signs of leaks before they become serious. The alarms are then displayed on the LCD display locating which sensor in which area has a potential problem. On detection of an alarm, a soft audible pulsing sounder is activated to alert personnel to its status. Internally 2 relays will energise, one is called alarm detected and the other is called new alarm. These are for onward signalling to a BMS or for shutting off valves, turning on pumps or telephone diallers etc.

### WHEN AN OUTSTATION DETECTS A LEAK

When an alarm is detected on the system, the horn will sound, the alarm LED will flash red and the LCD display will report which area the alarm is in. Internally 2 relays will energise: "New Alarm Detected" & "Leak Alarm Detected". Pressing the mute button will silence the horn and also tell the system that someone has acknowledged the leak. Once the sensor has dried the system will automatically reset and will now be ready to detect a leak again. If the mute button is not pressed the system will report an alarm until it has acknowledgement. Pressing the mute button gives the system acknowledgement and only then will the system self-reset.

NOTE: Sensors must be kept clean and free from debris to maintain full working ability.

### WHEN AN OUTSTATION REPORTS A FAULT

When a system fault is detected on the system the Faults LED will flash and the LCD display will report which area the fault is in and the nature of the fault. Internally the Fault Relay will energise. The fault will stay on the system until the fault is rectified then will self-reset. Faults are usually Sensors disconnected or the system is unable to interrogate the outstation. It is best to telephone the supplier who will be happy to talk to help & explain the nature of the fault.

### MAINS POWER FAULT

When a Power Fault is detected The green LED will turn off and the Mains Power Fault Red LED will turn on. This is not reported in the display and does not activate the sounder. Internally a relay will energise called power fault detected. This is used for onward signalling. The system will self-reset when the power is restored.

### BATTERY BACK UP

When a Power Fault is detected The battery will automatically power the panel for up to 8 hours. The battery is float charged internally and should be replaced every 3 years.

### NEW ALARM DETECTED RELAY

The new alarm detected relay will energise when any new leak alarm condition has been detected. The relay will self-reset once the mute button has been pressed. This relay is to allow the user to externally monitor up to date alarm conditions.

This relay is rated at 240 Volts AC and can switch loads up to 8 amps

This Relay has 2 sets of volt free change over contacts

### LEAK ALARM DETECTED RELAY

The fault relay will energise when a fault condition has been monitored. The relay will self-reset once the fault has been rectified.

This relay is rated at 240 Volts AC and can switch loads up to 8 amps

This relay has 2 sets of volt free change over contacts.

### MAINS POWER FAULT RELAY

The mains power fault relay operates on the loss of mains power.

The contacts are rated at 240VAC and can switch loads up to 2amps

This relay has 1 set of volt free change over contacts.

### FAULT ALARM DETECTED RELAY

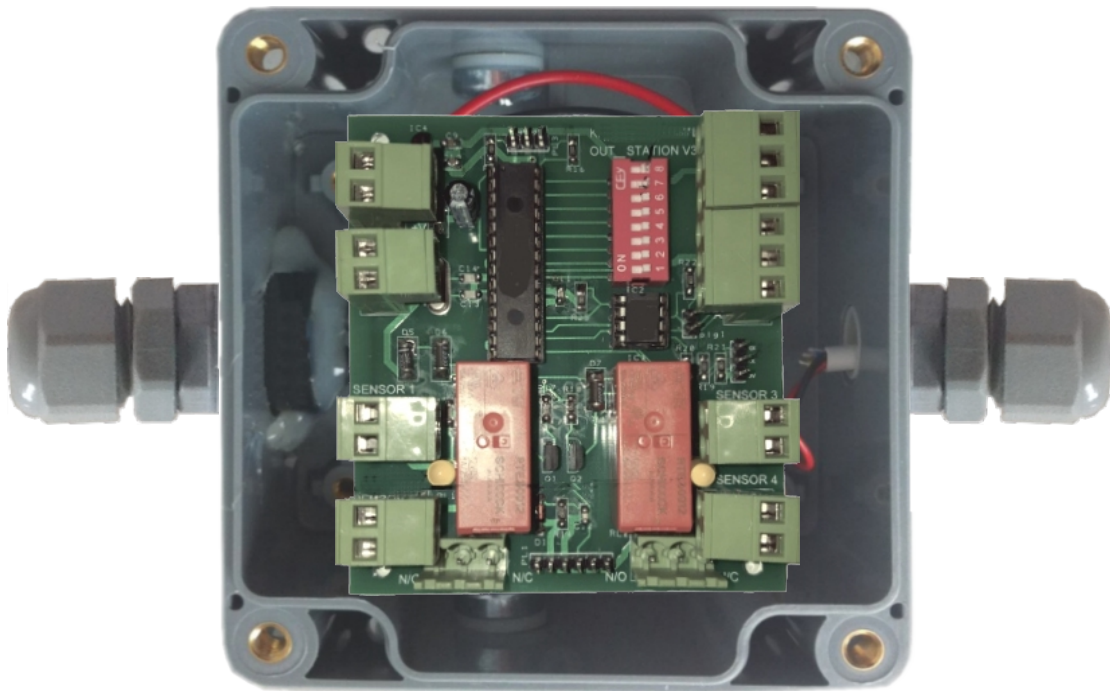
The fault alarm detected relay will energise when any fault condition has been detected. The relay will self reset once the fault has been cleared.

The contacts are rated at 240VAC and can switch loads up to 8amps

This relay has 2 sets of volt free change over contacts.



### THE 4 ZONE OUTSTATION



A maximum of 100 four zone outstations can be connected to one LeakMonitor alarm panel giving a multizone system capable of monitoring 400 different areas simultaneously.

Outstations require 12 to 24 VDC to operate this can be taken from the LeakMonitor alarm panel and all terminals are unpluggable for easy wiring connections.

Relays 1 and 2 are rated at 230VAC 8 amps and have dry change over contacts (these are only fitted if ordered as an option). Relay 1 switches when sensors 1 or 2 detect a leak and relay 2 switches when sensors 3 or 4 detect a leak.

Each outstation has four channels (zones) designed to monitor sensors using an open contact. An end of line resistor (47K ohms) must be fitted at the end of each zone. This is used as a reference that the sensing circuit is being completed.

Outstations must be addressed numerically with a unique address manually selected using the 8 way switch. This is required so that the LeakMonitor control panel can identify which outstation is located in what area. When all 8 switches are set in the off position, the outstation is OFF. To set a unique address the switches need to be moved to the on position. The order in which they are switched relates to the identification of the particular outstation. The switches are labelled 1 to 8 and each has a value as follows: 1 = 1 2 = 2 3 = 4 4 = 8 5 = 16 6 = 32 7 = 64 and 8 = 128.

**TECHNICAL SPECIFICATION FOR WATER LEAK DETECTION SENSOR TAPE**

**Product Overview:**

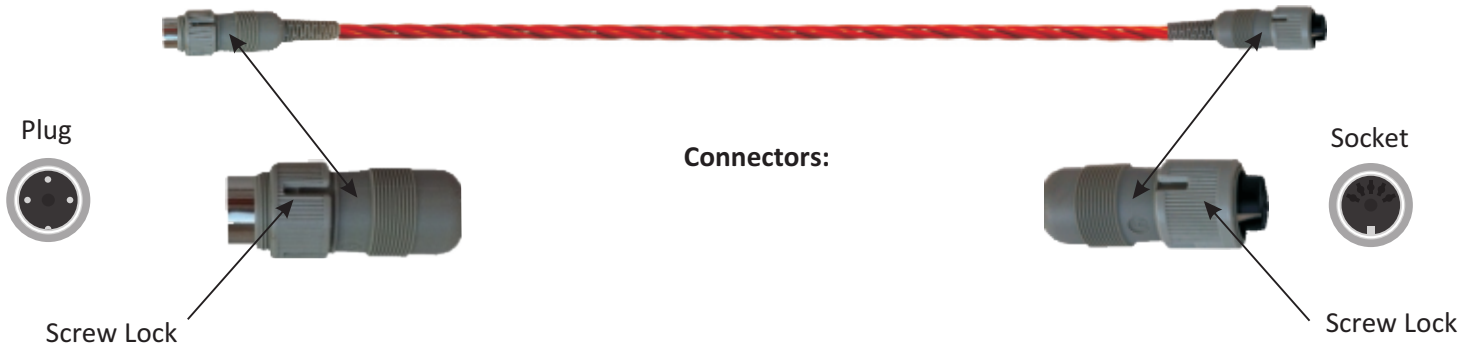
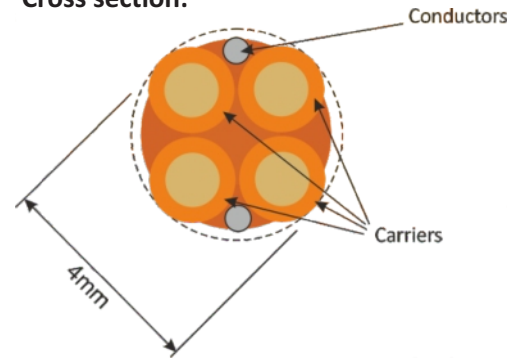
The sensor tape used with the LeakMonitor leak detection alarms has been specifically designed to detect the presence of water.



**Product Specification:**

<b>Category Type:</b>	4C Sensor Cable Orange
<b>Conductor Material:</b>	Stainless steel wire
<b>Conductor Diameter:</b>	0.40mm x 2
<b>Insulation Material:</b>	PVC
<b>Insulation Diameter:</b>	1.8mm(+/-0.10mm) x 4 twisted
<b>Compliant:</b>	RoHS2 (2011/65/EU)
<b>Temperature rating:</b>	-20°C to +80°C
<b>Voltage rating:</b>	5Volts @ 10 Milliamps

**Cross section:**



**TECHNICAL SPECIFICATION FOR WATER LEAK DETECTION SENSOR PROBE**

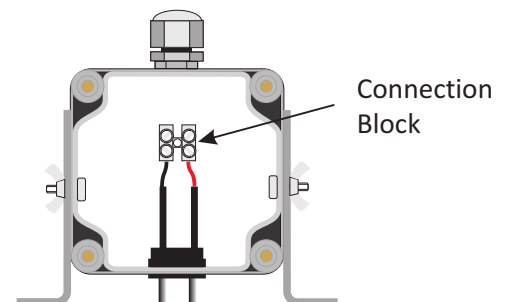


**Product Overview:**

The sensor probe is a height adjustable water leak detection sensor for use in areas susceptible to leaks. It's contained in a rigid plastic housing to offer protection against possible damage. The floor brackets allow for vertical adjustment of the sensor height from the floor. This is particularly useful if the probes are used in an environment where a small amount of liquid is permissible due to a manufacturing or cleaning process.

**Product Specification:**

<b>Enclosure:</b>	High impact ABS plastic
<b>Enclosure dimensions:</b>	82mm x 80mm x 55mm
<b>Enclosure rating:</b>	IP65 and NEMA4 (dust and hose proof)
<b>Height Adjustment:</b>	0mm to 25mm
<b>Probe Material:</b>	Stainless steel
<b>Probe Diameter:</b>	3mm
<b>Voltage at probe:</b>	5 volts @ 10 micro amps
<b>Temperature rating:</b>	-10°C to +40°C





## TECHNICAL SPECIFICATION FOR WATER LEAK DETECTION SENSOR PAD



The sensor pad is ideal for using in the drip trays of equipment where water is produced by process of condensation. Typically used where air cooling is fundamental to keeping an environments temperature stable such as data centres or comms rooms.

This low profile sensor can be simply placed face down in the drip tray under an AHU or CRAC unit.

A number of pads can be connected in series to allow several drip trays to be monitored by a single alarm panel or one zone of a multizone panel.

### Product Specification:

Enclosure:	ABS
Enclosure dimensions:	55mm x 55mm x 40mm
Pad Material:	Tinned Copper
Pad Dimensions:	55mm x 55mm
Voltage at probe:	5 volts @ 10 micro amps
Temperature rating:	-10°C to +40°C

## TECHNICAL SPECIFICATION FOR WATER LEAK DETECTION TEE PIPE SENSOR

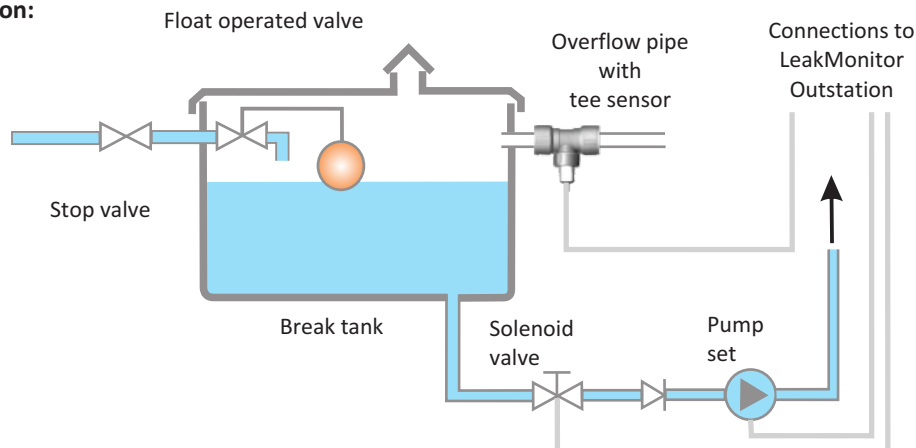


The tee sensor has been designed to go into the over flow pipes on break tanks, toilet cistern and header tanks. The sensor is located inside the tee piece and gets installed on the overflow pipe with the sensor at the bottom. Any water that travels down the pipe and into the tee sensor will make contact with the conductors of the sensor and set off the alarm.

### Product Specification:

Tee Piece:	Speed-fit plumbing fitting
Tee Piece Sizes:	15mm, 22mm, 28mm (other sizes are available)
Tee Piece Materials:	Plastic or Brass
Probe Material:	Stainless steel
Probe Diameter:	3mm
Voltage at probe:	5 volts @ 10 micro amps
Temperature rating:	-10°C to +40°C

### Typical Installation:



## TECHNICAL SPECIFICATION FOR GAS LEAK DETECTION SENSOR



### **Product Overview:**

This is a fully configurable refrigerant gas leak detector for dual gas detection of CO<sub>2</sub> & HFC's, robustly designed for the refrigeration and air conditioning industry. The sensor offers user defined gas alarms, outputs, communications and power supply options to give a refrigerant leak detector that's adaptable to your leak detection needs. It is ideal for applications where continuous monitoring is required to meet compliance under the BREEAM & F-Gas Regulations.

### **BENEFITS**

- Fully Configurable to Your Needs – User defined gas alarms, outputs, communications and power supply options
- Compliant Solution – Early detection of refrigerant gas leaks help minimise emissions and costs. It complies with BREEAM & F-Gas Regs
- System Back Up - Can be used to provide 100% back up to a multipoint sampling system.

### **Product Specification:**

<b>Enclosure:</b>	High impact ABS plastic
<b>Enclosure dimensions:</b>	148mm x 120mm x 60mm
<b>LED Indication:</b>	Green - OK, Red - Alarm
<b>Audible Indication:</b>	Buzzer
<b>Operating Temperature:</b>	-30°C to +60°C
<b>Power Requirements:</b>	24VDC
<b>Gases Detected:</b>	Co <sub>2</sub> (0-3%) HFC (0-2000ppm)
<b>Outputs:</b>	2 relays maximum

### **Periodic Maintenance:**

The sensors should be re-calibrated at least once a year to ensure they remain in full operational mode.

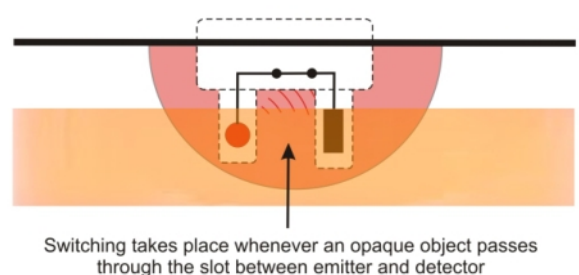
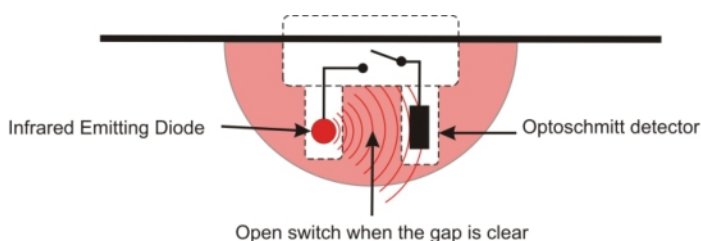
## TECHNICAL SPECIFICATION FOR OIL LEAK DETECTION SENSOR



### **Product Overview:**

The Oil Leak Probe detects the presence of non conductive fluids such as oil in environments where it shouldn't be. Should this be detected the alarm panel will trigger an internal buzzer and an LED will start to flash. There is also a volt free relay that will switch when oil has been detected.

The principle of oil leak detection involves the use of a sensor. Working on the principle of light passing between two points the oil sensor detects any change in opacity between an emitting diode and a detector. This causes the sensor to switch state and signal that oil is present.



## OPTIONS AVAILABLE WITH THE LEAK MONITOR ALARM



### **Solenoid Valves**

Normally open and normally closed solenoid valves from 15mm (1/2") to 80mm (3").

WRAS approved solenoid valves available.

230VAC, 24V and 12V options



### **SMS Text Dialler**

The SMS dialler acts like a mobile phone sending a bespoke text message to as many as 500 different telephones. It has four inputs that allow different devices to be linked to the dialler and a different message set for each.

It works by using a standard SIM card inserted into the PCB and most larger network providers such as Vodafone and O2 will work perfectly well. Setting up the system is simply done by texting simple commands to the unit, e.g. Textnum (followed by the desired telephone number) and hitting send will store the first number the unit will text if triggered by an alarm. Contract and PAYG SIMs can both be used.

### **Beacons and Beacon/Sounders**

Both the Beacon Alarm and the Beacon/Sounder Alarm can be connected to any Envirotech alarm panel. Should the master panel detect a leak, the beacon will flash and the sounder sound.

These panels simply plug straight into the LeakMonitor alarm panels using a 4 core alarm cable (no local power required as power is taken directly from the master panel). As soon as the master panel has an alarm triggered a signal is sent straight to the Beacon alarm illuminating the ultra bright beacon and sounding the 102 dB sounder. Automatically resets as soon as the master panel resets.



### **Echo Repeater Panel**

Different to a beacon/sounder, the Echo Repeater mimics the alarm outputs from any of the EnviroTech alarm panels. It can be used in areas away from where the main panel such as receptions or security stations and is more subtle when an alarm is triggered. It is connected via a dedicated terminal that connects from the main panel to the Echo Repeater. When the main panel detects a leak, a signal is sent and the Echo Repeater sounds a buzzer and the LED turns from green (healthy) to red (alarm). This alerts that an alarm has occurred, the sounder can be silenced if required by pressing the "Mute" button.

