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Water Leak Detection with Distance Measurement to the Leak Type DMWD

The DMWD has been designed to monitor up to four independent zones for water leaks in critical areas via linier detection cables and display the source of the leak as a distance from the start of the detection cable. The system can be factory configured between 1 and 4 zones. Each zone can be fitted with a minimum of 10m to a maximum of 50 metres of pre-made linier water detection cable. Unlike some other systems on the market, the DMWD detects leaks by using a conventional AC current detection circuit to stop erosion of the sensors by electrolysis. Once a leak has been detected the system activates the distance measurement circuit to ascertain the distance to the leak from the start of the detection cable run. Having determined and displayed the distance the unit will automatically revert back to the AC detection circuit to allow the system to automatically reset once the leak has been cleaned up. The unit also comes as standard with monitoring for disconnection / damage to any or all of the four zone water detection cables including the interconnecting cable. Any disconnection of any detection cable from the controller will instigate a Sensor Fault alarm. The unit contains an audible warning device, Mute push button, and volt free contacts for onward signalling.

Features

- **The unit can be supplied as a 1, 2, 3 or 4 zone system**
- **Distance measurement in metres to the source of a leak**
- **Large back lit alpha numeric display**
- **Internal Zone Alarm and Fault lamps**
- **With the exception of mains power, all terminals are of the plug and socket type**
- **Bi-directional DC signal in the sensors to stop electrolyses and polarisation**
- **Individual Zone sensitivity adjustment allowing any zone to be set for high to low sensitivity**
- **Monitoring of each zone cable and sensor to ensure continuity and integrity**
- **On board audible warning device to alert local operators of a problem**
- **Alarms latched until Mute operated to give indication of transient water leaks**
- **Zone signal isolation to stop multiple alarms due to sensors coming into contact with Earth**
- **Common alarm relay contact for onward signalling to a BMS**
- **Common cable Fault and power fault relay contact for onward signalling to a BMS**
- **Optional water shutoff valve control with internal valve closed lights**
- **Optional individual zone alarm relay contacts for onward signal to a BMS**
- **Optional zone alarm water shutoff valves to turn off the water source when a leak is detected**
- **Optional alarm output to a flashing Beacon**
- **Optional alarm output to a flashing Beacon and Mutable Sounder**
- **Optional SMS text messaging to two phone numbers**
- **Optional battery backup**

Operation

With the system clear from any alarms or faults the display screen will show "***The System has No Alarms or Faults***". When water is detected by one of the zones, the Display will change to " ***Water Leak Detected Zone 1 Please Wait***", the audible warning devise will sound, the common alarm relay will energise and if fitted the optional BMS zone alarm relay, remote Beacon and SMS text messaging will activate. After a few seconds the display will change to "***Water Leak Detected Zone 1: 10 Metres***" to show the distance to the leak from the start of the detection cable. The unit will remain in this condition even if water is removed from the detection cable. Muting the alarm will stop the sounder. If multiple alarms occur at the same time, the audible warning will start again immediately after the first muting and the display will show the next leak detected zone and distance. Once all current zone alarms have been muted, the display will revolve between each zone in alarm i.e. "***Water Leak Detected Zone 1: 10 Metres***"……. "***Water Leak Detected Zone 4: 25 Metres***"……. back to "***Water Leak Detected Zone 1: 10 Metres***" etc.
After "Muting" the alarm, providing the water leak has been cleaned up and the detection cable dried, the system will automatic reset.

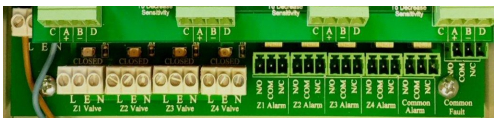
Each zone is provided with its own sensitivity potentiometer allowing it to be set to high or low sensitivity and should be used for areas known to experience high humidity or water splashes (low sensitivity) or areas requiring small leaks to be detected (High Sensitivity).

As standard a common alarm and common fault / power fault relay is provided that can be used for onward signal to a Building Management Systems, telephone dialler or control systems. The unit if required can also be fitted with individual Alarm relays that will advise a BMS system which zone is in alarm.

If required the unit can be fitted a 230VAC output to control Water Shut Off valves. Once a zone detects a water leak the zone shutoff valves will turn off the water source until the leak has been cleaned up. If required, the shutdown can be override by using the "Shutdown Override" push button. The button will only be active providing the system has a leak and will need operating for a number of seconds until the horn stops beeping. The same procedure can be used to reclose the shutoff valve and turn off the water source again. A lamp has been provided internally to show if the water shutoff valve is "Close" This is provided for maintenance engineers.

Unlike other water detection units on the market, the range from CMR electrical uses a bi-directional (AC) signal within the sensors. Using alternating current stops electrolyses which causes the sensors to disintegrate leaving the system unable to detect water. The use of alternating current also allows the sensors to be continually monitored even when submersed in water. This allows the system to self reset after water has been removed for the sensor and no further action to reinstate or reset the system is required from the operator. Battery backup for up to six hours can be provided, however if requested, longer backup times can be provided.

Internal Plug-in Zone Terminal connections



Shutdown Valve and BMS plug-in Terminal connections

Specification

Housing type ……	ABS, colour light grey similar to RAL7035 Rated IP50
Mounting …….	Wall, flush or surface
Access into Housing …….	Bottom or bottom back
Size Standard unit ……..	180mm wide x 180mm high x 80mm deep
Input power ……..	50 Hz single phase 230VAC +10% - 6%
Burden ……..	< 4VA
Power termination …….	Internal 3 way terminal block
Voltage to sensor ……..	Bi-directional 5VDC
Connections to sensor ……...	Internal plug-in terminal block
Distance measurement accuracy ……...	+/- 1 metre
Common Alarm output contacts ……...	Changeover contact rated at 1 amp 30VAC/DC
Common Fault output contacts …….	Changeover contact rated at 1 amp 30VAC/DC
Individual Alarm output contacts …….	Changeover contacts rated at 1 amp 30VAC/DC
Display character size ……...	White backlit 5.95mm high x 3.2mm wide