

CONVENTIONAL WATER LEAK DETECTION SYSTEM
MAKE: JAY MODEL : JE 3523

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1)DESCRIPTION IN GENERAL

This specification shall be the guideline for Supply, installation, testing and commissioning of Water Leak Detection System installed in the designated Sub-floor Areas, depicted in the drawings.

The water leak system comprises of a Main zone water leak panel, interface modules, sensor cable and alarm sounders. The water leak panel shall be located as shown in drawing and all alarm per zone shall be extended to BMS if required. Other than Linear sensing cable, point alarm locators are considered for areas without sub floor where point detection is desired.

2)SCOPE

The Water leak detection sensor cable typically used to detect water leaks in critical rooms to monitor leakage and optionally extend alarm in the BMS to close water supply to the CRAC by controlling in the solenoid valve.

The zoning of water leak system is as depicted in the drawing and every zone shall extend a relay contact for identifying of zones and interfacing with respective systems.

The Cable shall draw excitation signal from a start of the line module. This module shall serve as the interface between the Water leak detection panel and the Sensor Cable.

The Start of Line Interface Module shall be locally placed in the False Flooring of the areas, and shall be connected to the WLD Panel through standard 2 c x 1.5 mm² Cu- Ar Cable.

The WLD Panel shall be capable of supplying power to the interface modules, and shall serve as the annunciator of alarms through facia mounted zonal LEDs. The panel shall activate sounders programmed Zone wise.

Testing procedure shall involve physical application of a wet cloth to the the cable, to test the relay operation. The Panel should sound the Alarms, and optionally notify the BMS system.

3) APPLICABLE STANDARDS

Original Equipment Manufacturer Standard

4) APPROVALS

The water leak cable shall be approved by

LPCB (Loss Prevention Certification Board), UK

5) SYSTEM COMPONENTS

PANEL

GENERAL DETAILS

The enclosures shall be constructed of 1.0mm mild steel and have a paint finish of siemens grey, semi gloss matt powder coated. The Panel enclosures are designed to afford a degree of protection to IP 52 to BSEN 60529 when the outer door is closed. Each enclosure consists of 4 main components:

CABINET

Inner mounting chassis
Door with LCD display

CABINET

The Cabinet shall be constructed of a single sheet of mild steel with the minimum of welds. Cable entry is via pre-formed 18mm knockouts shall be located on top of the enclosure. The back of the case is provided with a locating hole for positioning of the Cabinet and can then be secured by utilizing the four 6 mm indented holes located near each corner.

Door with LCD Display

The door shall be connected to the cabinet by a pin type hinge located on the right side of the enclosure. The door can be opened through 90 degrees to enable access to the panels terminals, circuit boards, batteries etc. The door is secured by cam lock at the centre. The LCD Display and Membrane keyboard is mounted on the front of the door.

Functional Description:

The WLD panel has LCD display and shall have membranes keypad constructed of a smooth anti static, polycarbonate material, which incorporates tactile switches and LED indications. Their designations are as follows:

PANEL INDICATIONS

- Water leak Twin LED's (red)
- System on LED (green)
- Zone alarm LED's (red)
- LCD Display

KEY OPERATION RELATED INDICATIONS

- Silence LED (yellow)
- Panel Reset LED (green)
- Sound LED (red)

PANEL CONTROL SWITCHES

- Sound alarms
- Silence alarms
- System reset

SENSOR CABLE

The Cable shall be capable of water detection over its entire length. The construction of the cable shall be of PVC Twisted pair, with SS 316 elements, of diameter not exceeding 3.5 mm.

CONTROL CABLING

Wiring shall be in accordance with local, state and national codes (e.g., NEC Article 760) and as recommended by the manufacturer of the Water leak System. Number and size of conductors shall be as recommended by the Water leak system manufacturer, but not less than 1.5 Sq. mm. The Cables used shall be annealed bare copper conductor PVC insulated, shielded with Aluminium Mylar tape or Copper Braiding & Armoured with 1.4 mm G.I wire & PVC sheathed.

All wire and cable shall be ISI approved.

Water Leak Control Panel shall have following features

Micro Controller Based Technology with LCD display.

Operates on 230V \pm 10% Ac 50Hz supply .

Front fascia with membrane keypad and tactile switches.

One Potential Free Relay output per zone

One Common Potential Free Relay output.

THE FRONT FACIA OF CONTROL PANEL SHALL HAVE :

Panel with LCD display

Panel Common LED indication & control keys

Zone LED indications

Panel common LED indication & control keys.

Common water leak twin LED's (Red): - These LED's will flash when water is detected in any zone.

System ON LED (Green): -This LED glows when we ON the power to control panel.

Silence LED (Yellow):- This LED glows when we press silence key.

Sound LED (Red):- This LED glows when we press sound key.

Reset LED (Green):- This LED glows when we press reset key.

Sound key: - The main function of this key is to SOUND i.e. manually ON all the alarms. When we operate this switch once, sound LED (Red) switches ON in ON i.e., hooter & buzzer will be ON

Silence key: - The main function of this key shall OFF the alarm. When we operate this in water leak condition all the alarms will be cut off & silence LED will be latched in ON condition.

Reset key: - This switch resets the control panel. When we operates this switch all LED's will glow for 2 second. (Lamp Test) & then panel goes in normal mode.

ZONE LED INDICATIONS & CONTROL KEYS

Zone Alarm LED's (2 per zone) (Red):- These LED's flashes when water is detected in that zone.

INTERFACE MODULE

The interface module shall have enclosure of ABS plastic. The module enclosures are designed to afford a degree of protection to IP 65. Size of module shall be 120(H)x200(W)x75(D) mm.

The interface module shall be powered through local AC supply. It shall give isolated AC supply to sensor cable.

It shall provide a potential free contact output in case of water leak.

INDICATIONS

Water Leak alarm LED (red)
System On LED (green)

The cable excitation used from the interface module shall be an isolated AC signal which ensures the detectors will not be subject to oxidation or erosion over time, avoiding the degradation problems associated with DC systems.

6. INSTALLATION

To fit the cable sensor to the floor using non conductive supports and to ensure the cable is firmly held on the floor throughout its length without any lagging of the cable. Connect the 2-core leader cable to the interface module and terminate at the sensor input.

Power the input through the panel under the specified zone. AC 24V supply shall be made available at the sensor cable.

The cable excitation used from the interface module is an isolated AC signal which ensures the detectors will not be subject to oxidation or erosion over time, avoiding the degradation problems associated with DC systems.

7. TESTING

Testing the cable by placing a wet cloth over the cable to simulate an water leak , the particular zone on the main water leak panel is displayed and the alarm relay operates. Extension of alarm to the BMS system to be verified. The panel needs to be Reset manually once the cable dries up

8. COMMISSIONING

Sr No	Description	Visual	Test Readings	Documentation
1	All cables are tested for continuity, insulation, resistance etc.			√
2	System installation proper as per drawing	√		
3	Carry out visual checks on all panels, cables, interphase modules etc.to ensure they are clean and free from any mechanical damage	√		
4	Check for proper termination & feruling	√		
5	The Panel output shall be AC not DC to avoid oxidation of the sensor cable		√	
6	Check input A/C supply voltage		√	
7	Check Distribution of Sensing cable Zones as per Drawing.	√		√
8	Check for proper Sensor cable installation for the floor with non conductive supports	√		
9	Apply wet cloth to sensing cable and check for Leak indication on the panel for random zones		√	
10	Check for proper indications of Zones as per drawings		√	
11	Check for extension of alarms in the BMS		√	

9.DOCUMENTATION

The Alarm contractor, upon completion of the commissioning activity, shall hand over the system to the customer.

At the time of hand over, the contractor shall provide the customer with the following documentation:

1. Copy of detailed report
2. Component and equipment list
3. Product description sheets
4. System design drawing(s)
6. System schematic diagram(s)
7. System operating manuals

10. HANDOVER

Prior to final acceptance, the installing contractor shall provide complete operation and maintenance instruction manuals to the owner. All aspects of system operation and maintenance shall be detailed, including wiring diagrams of all circuits, a written description of the system design, sequence of operation and drawing(s), illustrating control logic and equipment used in the system. Checklists and

procedures for emergency situations, maintenance operations and procedures shall be included in the manual.

11. TRAINING

General

The contractor shall provide the customer with details of the training required by personnel to operate and maintain the Smoke detection system.

The Contractor and the customer shall jointly agree the number of staff to attend the training courses.

12. MAINTENANCE

Routine maintenance should be carried out in accordance with relevant is and TAC requirements.

All performance checks undertaken should be recorded in the system log book.

As a minimum, the following performance checks must be undertaken on each maintenance visit. The static handling procedures must be adhered to and extreme

caution must be exercised when working inside the control due to the presence of main voltage 240 V AC.

Carry out verification checks as detailed in the commissioning instructions.

Remove dust and dirt from the panel exterior using a soft brush or a lint cloth. A solvent which is harmless to the finishes of metal and plastic may be applied to more stubborn stains.

Examine the exterior of the enclosure for any signs of damage or loose cable glands and rectify any faults found.

Remove any dust or dirt form the interior of the control panel using a soft brush or a vacuum cleaner.

Examine the printed circuit boards for signs of over heating, dry joints and/or damaged tracks.

Examine the battery terminals for secure connection and for any signs of corrosion. Replace or repair as required.

----- END OF DOCUMENT -----

