

LEAD

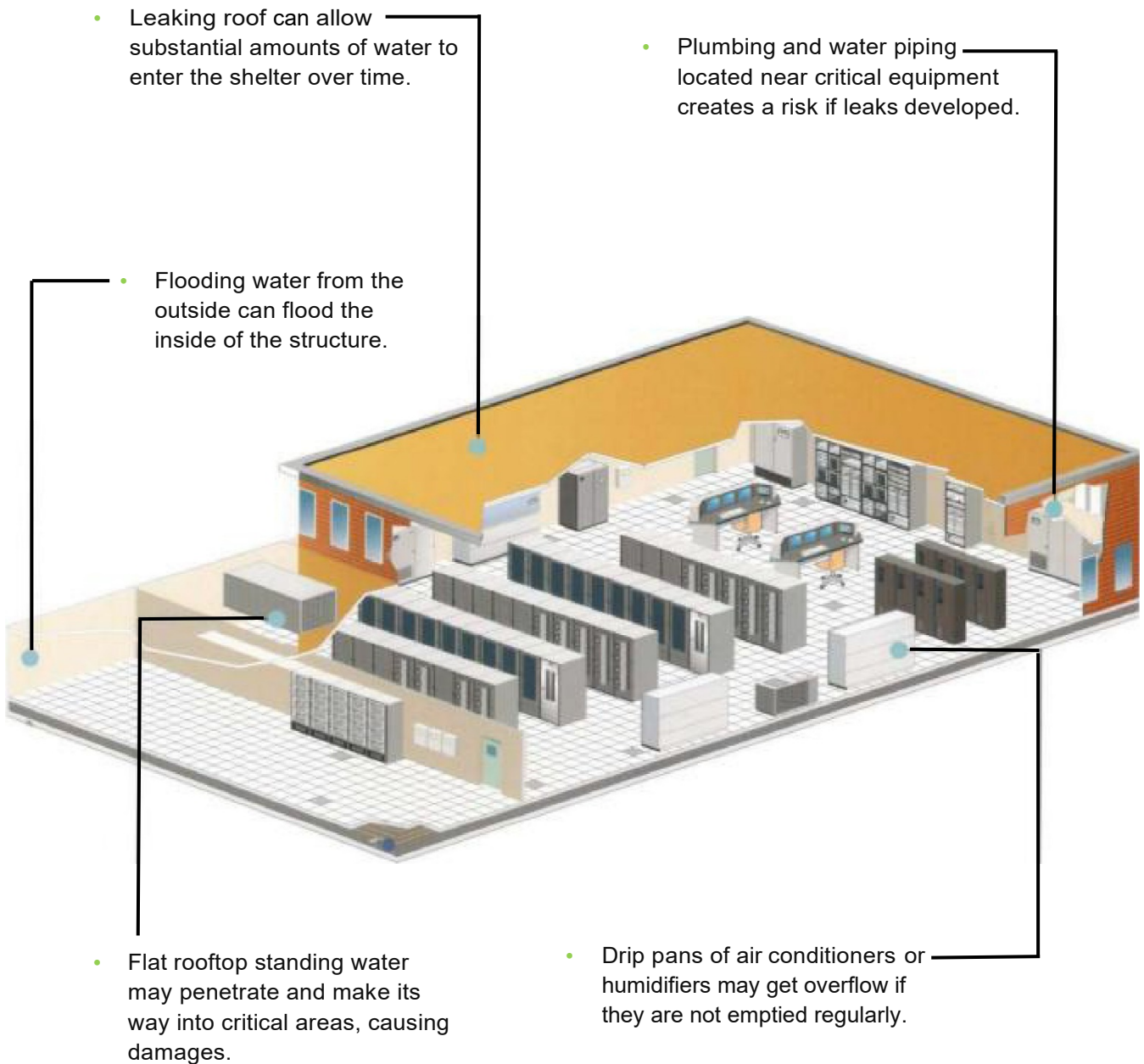
Water Leakage Detection System
Multiple Water Leak Detection System
Sensing Cable Type
Point Type

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Introduction

LEAD water leakage detection system (WLDS) is the one solution that can help you to avoid liquid leak problems with a full range of leak detection and reporting systems.



| Water Sensing Cable

Our water sensing cable (WS) is designed for using with locating or non-locating detection panels. WS detects any presence of water and changes some of its characteristics which are analyzed by a detection panel. The panel will then generate an alarm and pinpoints the exact location of the leak or spill along the cable's length. Sensing cables are designed for the highest accuracy and maximum reliability.

Jumper cables are used to extend the control panel's leader cable to an area where sensing cable is not required. Invisible to the control panel, the jumper cable does not affect the accuracy of readings or limit the amount of water detection cable that can be connected to a control panel. Jumper cables are only compatible with systems using WS water detection cables.

All cables are highly durable and flexible hence they can be laid flat after installation. The cables are plenum rated and UL listed making them ideal for use under raised floors and areas where plenum rated cables required.



| Features

- Strong, durable
- Expansion with mating end connectors
- Available in pre-measured and custom lengths with pre-installed end connectors
- Plenum to CL2P per UL rated and UL 910 listed
- RoHS compliance to EU DIRECTIVE 2011/65/EU
- Non-flame propagating and self-extinguishing
- Made in USA

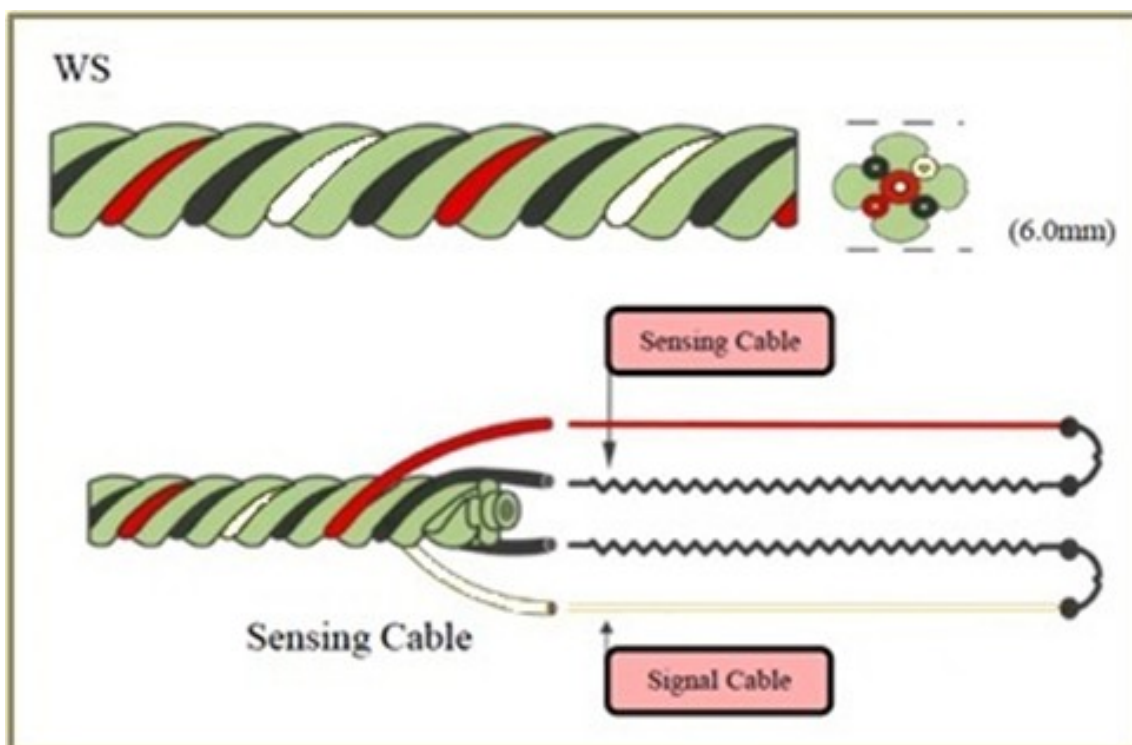
Features

- **Continuity and signal wire:** 2 x 28 AWG black conductive ETFE insulation
- **Sensing wire:** 2x 24 AWG ETFE insulation
- **Core:** fire resistant Fluoropolymer

Operating Environment

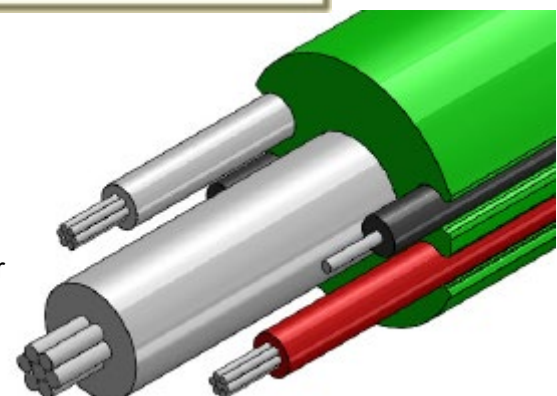
- **Operating temperature:** -20°C to 75°C
- **Humidity:** 5% to 95% non-condensing
- **Storage environment:** -20°C to 75°C

Configuration



Ordering information

- WS-Lxxx: xxx is the length of water sensing cable in meter
- NS-Jxxx: xxx is the length of jumper cable (Belden 8723) in meter



Chemical Sensing Cables

Our chemical sensing cables (CS) are used to reliably sense the presence of acid and other conductive liquid, The cables can endure and function properly after seven days exposure to the following

- 1) sulfuric acid (98%)
- 2) nitric acid (50%)
- 3) hydrochloric acid (37%)
- 4) sodium hydroxide (10%)

Chemical sensing cables are available in standard and custom length. Each end of the cable contains mating connectors to make installation and extension of existing leak detection system quicken and easier.



Features

- Strong, durable
- Expansion with mating end connectors
- Available in pre-measured and custom lengths with pre-installed end connectors
- Plenum to CL2P per UL rated and UL 910 listed
- RoHS compliance to EU DIRECTIVE 2011/65/EU
- Non-flame propagating and self-extinguishing
- Made in USA

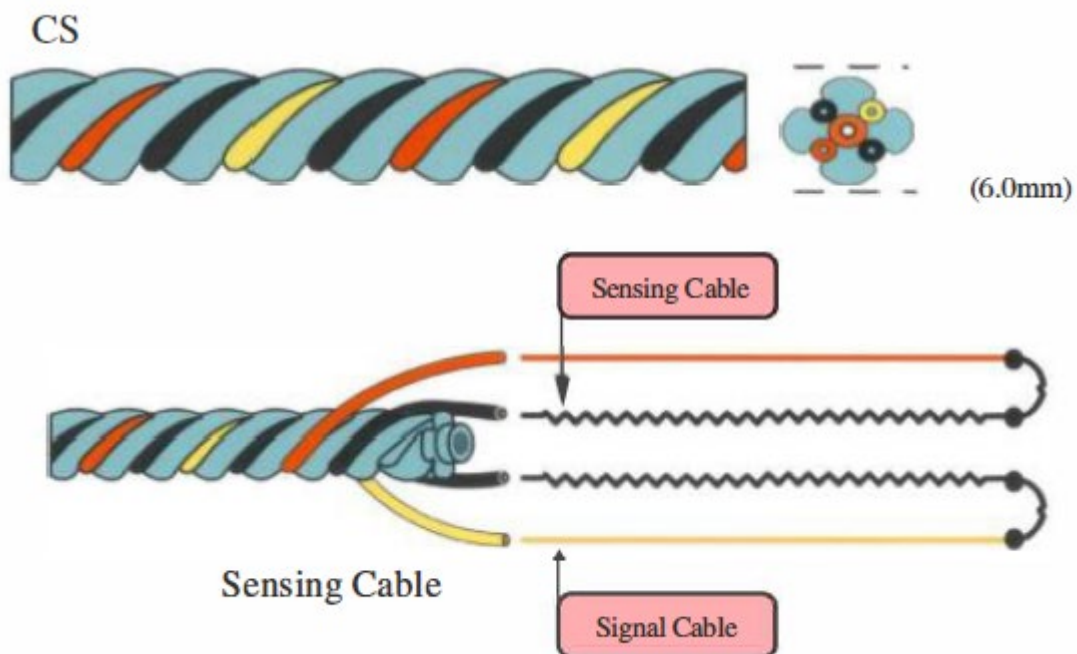
Feature

- **Continuity and signal wire:** 2 x 28 AWG black conductive PVDF insulation
- **Sensing wire:** 2x 24 AWG PVDF insulation
- **Core:** fire resistant Fluoropolymer

Operating Environment

- **Operating temperature:** -20°C to 75°C
- **Humidity:** 5% to 95% non-condensing
- **Storage environment:** -20°C to 75°C

Configuration



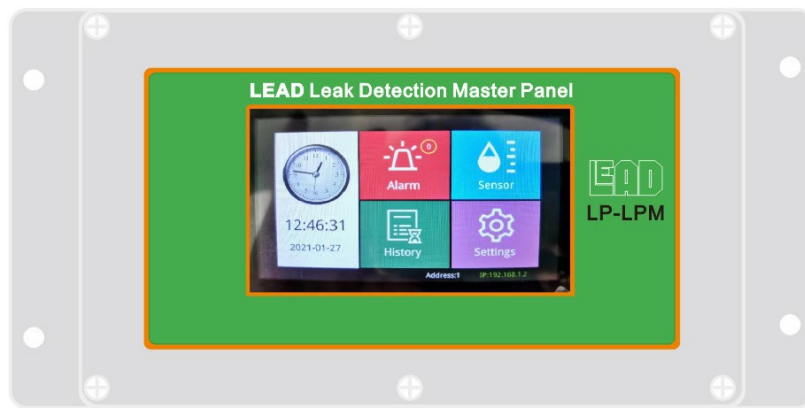
Ordering information

- CS-Lxxx: xxx is the length of water sensing cable in meter
- NS-Jxxx: xxx is the length of jumper cable (Belden 8723) in meter

Master Panel (LP-LPM)

The LEAD leak detection system deploys the advanced Touch Panel Technology as its centre hub. It acts as a master control connecting up to 100 slave devices including locating panel LD-LPD-2RLB or Master Panel LP-LPM.

On top of event logging capability, LEAD Master Panel records every leak point occurs in any connected panel and display the exact location on a detail device address location plan.



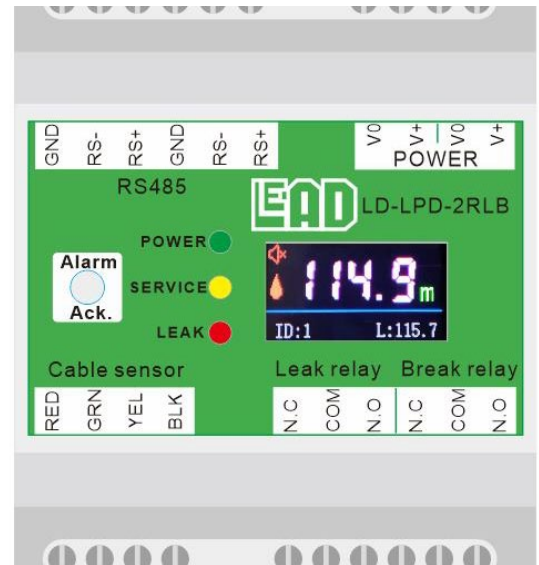
Specification

Model No.	LP-LPM
Power Supply	DC12-24V 1A 10W
Length of Sensing Cable	Up to 500m
Accuracy	±0.5m
Relay Output	1 x SPDT 1NO+ 1NC (Contact Rating 220V AC/1A 30VDC/1A)
Sensitivity	< 3s
Communication Port	1 nos. of RS485 for upstream, 1 nos. of RS485 for downstream and 1 nos. of LAN port
Display	Touch Screen Display
History / event log	Up to 500 events
I/O	DI 4 channel
Communication Protocol	Modbus RTU
Sound Alarm	80dB minimum (Mute function included)
Operating Environment	Temperature: -20-60°C Humidity: 95% non- condensing
Altitude	1000m max.
Degree of Protection	IP65
EMC/EMI	CE approved
Dimension	L200 x W122 x H65(mm) with mounting kit L240 x W145 x H65(mm)

LEAD Locating Panel LD-LPD-2RLB

LEA leak detection system uses Locating Panel to detect the liquid leak and communicates to BMS system. The alarm, fault and power LEDs display the current system status while the built-in distance locating feature can identify where the leak occurs.

Able to connect in a fail-safe loop back configuration.



Specification

Locating Panel Model No.	LD-LPD -2RLB
Power Supply	DC12-24V 150mA 5W
Length of Sensing Cable	Up to 800m
Accuracy	±0.5m
Relay Output	2 x SPDT 1NO + 1NC (Contact Rating 220V AC/1A 30VDC/1A)
Sensitivity	< 3s; The system can be reset by the locating panel within 15 records upon complete removal of leaked water.
Communication Port	RS485
Display	LCD color screen with the length of sensing cable, device address, sound alarm and the status of sensing cable.
Communication	Modbus RTU
Sound Alarm	80dB minimum (Mute function included)
Operating Environment	Temperature: -20-60°C Humidity: 95% non-condensing
Altitude	1000m max.
EMC/EMI	CE approved
Dimension	L93mm x W93 mm x H52 (mm)
Mounting	35mm DIN Rail

LEAD Locating Panel LD-LPD-2RLB (New Housing)

LEAD leak detection system uses Locating Panel to detect the liquid leak and communicates to BMS system. The alarm, fault and power LEDs display the current system status while the built-in distance locating feature can identify where the leak occurs.



Able to connect in a fail-safe loop back configuration.

Specification

Locating Panel Model No.	LD-LPD -2RLB
Power Supply	DC12-24V 150mA 5W
Length of Sensing Cable	Up to 800m
Accuracy	±0.5m
Relay Output	2 x SPDT 1NO + 1NC (Contact Rating 220V AC/1A 30VDC/1A)
Sensitivity	< 3s; The system can be reset by the locating panel within 15 records upon complete removal of leaked water.
Communication Port	RS485
Display	LCD color screen with the length of sensing cable, device address, sound alarm and the status of sensing cable.
Communication	Modbus RTU
Sound Alarm	80dB minimum (Mute function included)
Operating Environment	Temperature: -20-60°C Humidity: 95% non-condensing
Altitude	1000m max.
EMC/EMI	CE approved
Dimension	L93mm x W93 mm x H52 (mm)
Mounting	35mm DIN Rail

LEAD Non-Locating Panel (LP-NP)

LEAD leakage detection system uses non-locating panel to detect liquid leak and communication to BMS system. The Alarm and power LEDs display the current system Status.

Features

- Maximum length of sensing cable connected up to 200m
- Maximum length of jumper cable connected up to 100m
- Accuracy: $\pm 0.5m$
-
- Built-in RS 485 Modbus-RTU
- Optional: LoRa
- Sound Alarm: 80dB minimum
- Temperature: $-20^{\circ}C$ to $60^{\circ}C$
- Humidity: 95% non-condensing
- Altitude: 1000m max.
- Storage: $-40^{\circ}C$ to $60^{\circ}C$
- Power supply: 12-24V DC 3W
- Relay output: 1 no. of NO and 1 no. of NC



New housing

Sensor module (LP-SM)

Multiple Leak Detection System uses sensor module to connect sensing cables for multi-point detection.

Feature

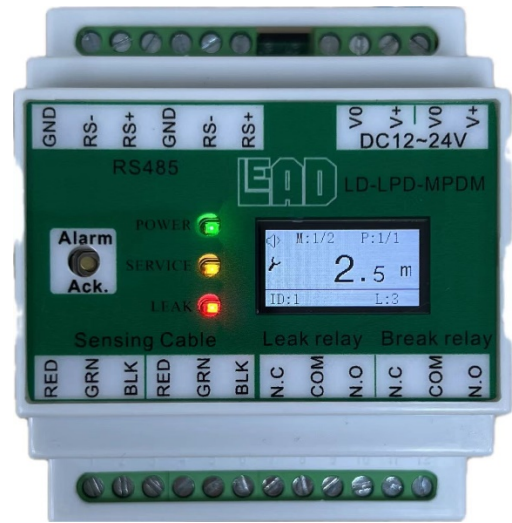
- Maximum 50m sensing cable per each module
- Maximum 16 sensor modules LP-SM for each LD-LPD-MPDM
- RUN LED operation status
- BREAK LED status for cable disconnection alarm
- LEAK LED for water leakage point detected



Lead Locating Panel (LD-LPD-MPDM)

Multiple Water Leakage Detection System uses locating panel to detect the multiple leak location and communicates to BMS system. The alarm, fault and power LEDs display the current system status while the built-in distance locating feature can identify the multiple leak points where the leak occurs.

It needs to be used in conjunction with the sensor module for multi-point detection.



Specification

Product type number	LD-LPD -MPDM
Power Supply	DC12-24V 5W
Length of Sensing Cable	Up to 800m
Accuracy	±0.5m
Relay Output	2 x SPDT 1NO + 1NC (Contact Rating 220V AC/1A 30VDC/1A)
Sensitivity	< 3s; The system can be reset by the locating panel within 15 records upon complete removal of leaked water.
Communication Port	RS485
Display	LCD color screen with the length of sensing cable, device address, Sound alarm and the status of sensing cable.
Communication	Modbus RTU
Sound Alarm	80dB minimum (Mute function included)
Operating Environment	Temperature: -20-60°C Humidity: 95% non-condensing
Altitude	1000m max.
EMC/EMI	CE approved
Dimension	L85mm x W68 mm x H58 (mm)
Mounting	35mm DIN Rail

Point type Water Leak Sensor (1st Generation)

Description

Characteristic features

- Safe operation, impedance measuring principle
- 2 integrated, gold-plated measuring tips
- Potential free switch output (Relay) 30V/4A
- Adjustable sensitivity
- Adjustable measuring level 0...15 mm
- Simple mounting
- Operating voltage 24VDC

Technical Data

Measuring principle	electrolytic conductivity
Measuring medium	conducting liquids, construction material
Application temperature	+5...+60°C
Operating voltage (optionally)	24V DC+ 10 % max. 80mA
Current consumption	13.5mA (without leakage) 58mA (with leakage) Max ... 80 mA (with leakage and extra probe)
Switching power	30V /4A (100 k)
Switching point	approx. 2.60 kΩ (type. 15 kΩ)
Switching output	5A/250 VAC 5A/30 VDC
Cable gland	Cable diameter 8 ... 13 mm
Housing	ABS, Ingress protection IP54
EMC noise emission	EN61000-6-3:2011
EMC noise immunity	EN61000-6-1:2007
CE-Conformance	2014/30/EU
Dimensions (WxHxD)	65x60x38

Ordering information

LP-PS

Functional description

The leakage monitor works as per the operating principle of electrolytic conductance measurement. There are two electrodes beneath the device which are evaluated by means of AC impedance measurement. As soon as the conductance value between the electrodes rises over an adjustable limit, the relay contact closes. Because of the universally conceived model with gold-plated spring-loaded electrodes with height adjustable device feet, it is suitable for a wide variety of applications.

Leakage monitor

In order to detect small liquid quantities, the spring-loaded electrodes are placed directly on an insulating base of absorbent material (for example hardboard, cardboard, cloth). As soon as the leaking out liquid is absorbed by the base, the device gives out an alarm. Construction or wood humidity monitor: For this application, the springy electrodes are put directly on the material to be monitored. If there is high humidity in the underground, the device gives out an alarm.



Point type Water Leak Sensor (2nd Generation)

Description

Characteristic features

- Safe operation, impedance measuring principle
- Screw clamping
- Adjustable sensitivity
- Simple mounting
- Operating voltage 24V AC/DC +/-10%

Technical Data

Material	PA6, similar RAL 9010
Temperature sensor	Electrolytic AC measuring
Application temperature	-30...70°C; 0...98% r.H.
Operating voltage	24V AC / DC+ 10 %
Cable inlet	M16x1.5 for wire diameter 4...10 mm
Switching power	approx. 2.60 kΩ (type. 15 kΩ)
Power consumption	20 mA
Switching output	Relay 60 V / 1A, potential free changer
Protection class	IP65
Sensitivity	Adjustable via potentiometer
CE-Conformance	2014/30/EU
Dimensions (WxHxD)	75x69x56

Functional description

The leakage monitor works as per the operating principle of electrolytic conductance measurement. There are two electrodes beneath the device which are evaluated by means of AC impedance measurement. As soon as the conductance value between the electrodes rises over an adjustable limit, the relay contact closes. The measuring procedure via electrolytic AC voltage allows the leakage-sensor LP-LGM to detect various kinds of conductive liquids. Thanks to the installed passive potentiometer the circuit sensitivity can be adjusted optimally to the required field of application.

Leakage monitor

In order to detect small liquid quantities, the spring-loaded electrodes are placed directly on an insulating base of absorbent material (for example hardboard, cardboard, cloth). As soon as the leaking out liquid is absorbed by the base, the device gives out an alarm. Construction or wood humidity monitor:

For this application, the springy electrodes are put directly on the material to be monitored. If there is high humidity in the underground, the device gives out an alarm.

Ordering information

LP-LGM



Point type Water Leak Sensor (3rd Generation)

Description

Characteristic features

- Safe operation, impedance measuring principle
- Screw clamping
- Adjustable sensitivity
- Simple mounting
- Can be installed on the wall
- Connected with sensing cable
- Operating voltage 24V AC/DC +/-10%

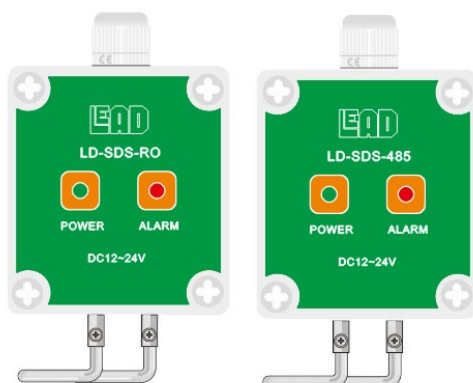
Technical Data

Detection probe	304 stainless steel, L-type probe or electrode or water sensing cable
Detect water level	Adjustable measuring level 0-15mm
Response time	< 3 seconds
Housing	White ABS
Protection class	IP67
Operating voltage	12-24V DC (non-polar connection)
Operating Environment	Temperature: -20 ~ 70°C Humidity: 0 ~ 95% (non-condensing)
Relay Output	1 x SPDT (Contact Rating 220V AC/0.5A 30V DC/1A)
Cable inlet	5 x 0.3mm RVV cable
Weight	80g
Power consumption	<1.5W

Ordering information

LD-SDS-RO: Dry contact relay output

LD-SDS-485: RS485 output



Functional description

The water immersion sensor is an integrally designed water leakage alarm device. The sensor has an integral structure. The connecting wire and the probe are all placed outside, which is easy to install and has no internal adjustable parts. You only need to adjust the detection height of the probe.

Through its output relay contact signals, remote alarms and remote device control can be realized, The module circuit system adopts a highly sensitive detection principle and is designed with a unique anti-surge protection function, which can not only ensure high sensitivity during detection, but also avoid false alarms caused by various external factors.

Leakage monitor

The point type sensor is waterproof and can be used in humid environments for a long time (stainless steel probes are more favourable). The point type sensor can also be installed on the wall through two fixing screws.

When installing the point type sensor, please be make sure with power OFF, follow the operation instructions with the correct wiring and check if it is correct before power ON.

Water sensing cable can be also mounted at probe position as an U-shape detection zone (loop shape detection). Or the water sensing cable can be mounted at probe position along the detection area.

RS-485 I/O Module (LM-D12)

Specification

Product Type number	LM-D12
Power Supply	DC12-24V 3W max. current at standby <70mA, with Alarm< 120mA
Quantity of point type sensors connected	12
Relay Output	one dry contact output AC220V 1A or DC30V IA
Sensitivity	< 3s
Communication Port	RS485
Display	LCD color screen with Sound Alarm for the addressable point type sensor
Communication Protocol	Modbus RTU
Sound Alarm	80dB minimum (Mute function included)
Operating Environment	Temperature: -20-60° C Humidity: 95% non-condensing
Altitude	1000m max.
EMC/EM	CE approved
Dimension	L86mm x W70mm x H58 (mm)
Mounting	35mm DIN Rail



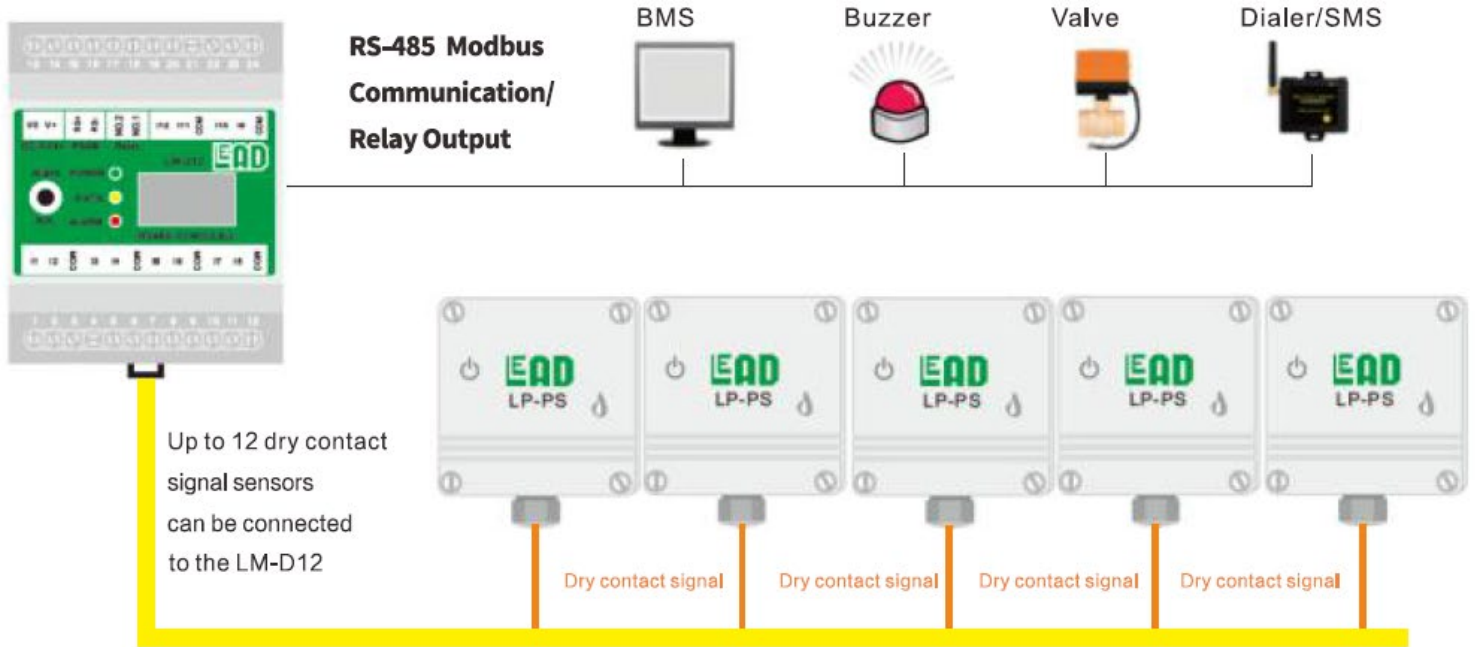
Ordering information

LM-D12

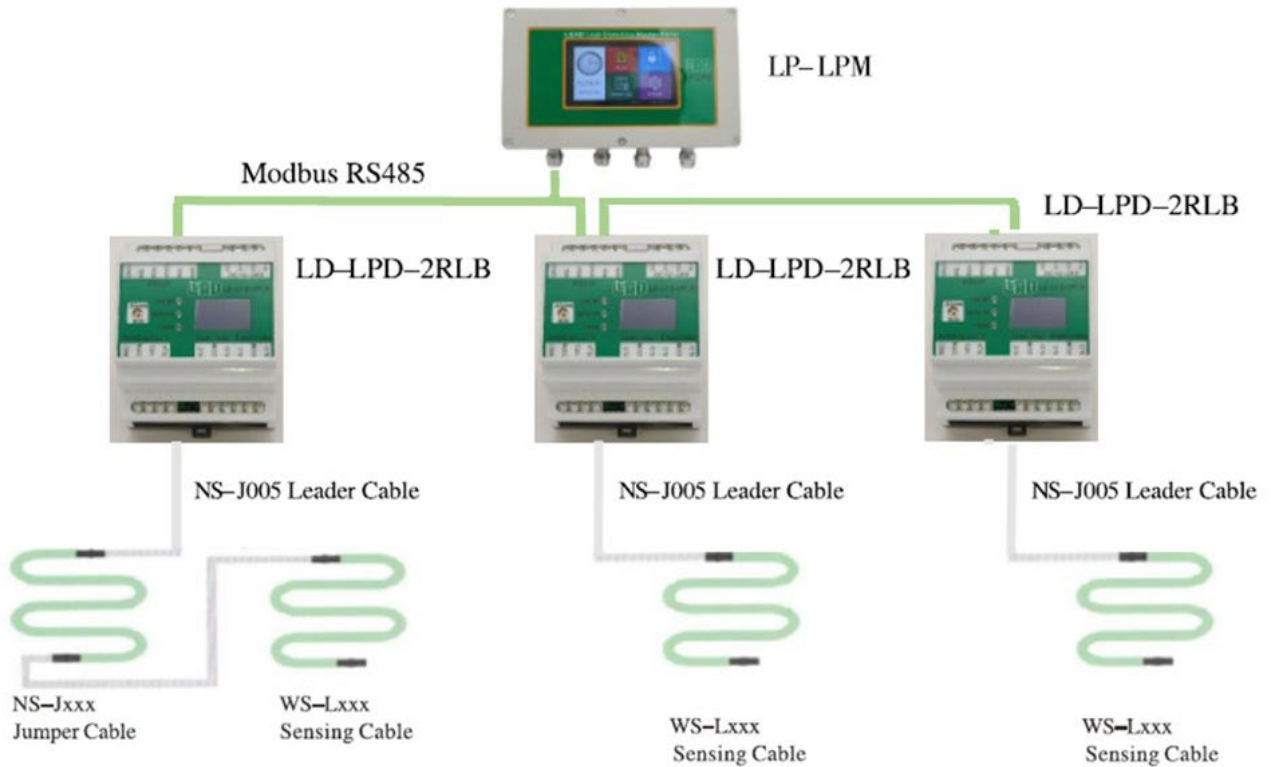
Accessories -Ordering information

- CK-MF: Male/Female connector kit
- P-Box: IP65 plastic enclosure for controller
- M-Box: IP54 metallic enclosure for controller
- HG50: Hold down clip of 50 pieces and glues per pack

I/O Alarm Module



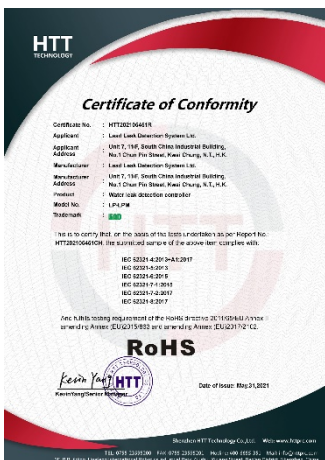
System block diagram reference



Approval and Certification

Lead Leak Detection System Ltd. is approved and certified by UL, EMC, LVD and RoHS.

For a copy of the certification, please contact our Sales Engineer.



Application

Floor computer facility

Data centre for Banks, Finance, Logistics & etc. ISP/co-location facilities

Fiber optic switch sites

Control rooms

Communications and server equipment rooms Museums and historic buildings

Libraries and aquariums

Raised floor office areas

Elevator pits

Semiconductor fabrication plants and packing and testing plants

Water treatment Plant

Underground hot water piping





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