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DLD250 Water Leak Detection Sensor with Distance to Leak Measurement



This leak detection sensor is designed to detect water leaks from pipework, water-containing equipment, server rooms, and other large areas. When a leak is detected, the unit identifies its location and displays the distance from the sensor to the leak.

As standard, the unit includes volt-free relay outputs for both leak alarm and cable fault conditions, allowing easy integration with existing alarm panels, PLC control systems, or Building Management Systems (BMS).

The sensor operates from a 24V AC or DC power supply, enabling it to be powered directly from air conditioning units, BMS installations, or other control systems.

A built-in alphanumeric display provides the leak location in metres, for example: "Leak at 20 m". This feature significantly reduces the time required to locate

leaks, particularly where the detection cable is concealed beneath raised floors, within ceiling voids, or across large monitored areas.

Features

- 💧 Backlit alphanumeric display showing the distance to a detected leak.
- 💧 Displays the total length of the connected detection cable during normal operation (no leaks present).
- 💧 Continuous monitoring of the detection cable for damage or disconnection.
- 💧 Supports detection cable lengths from 20m to 250m.
- 💧 Detection cable can be extended after installation up to a maximum length of 250m.
- 💧 No commissioning required – simply power on the unit and it automatically measures and calibrates to the connected cable length.
- 💧 Volt-free (dry contact) changeover relay for leak alarm.
- 💧 Volt-free (dry contact) changeover relay for cable fault indication.



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- 💧 Wall-mounted control unit with:
 - Pluggable detection cable connection.
 - Pluggable power connection.
 - Removable terminal block for alarm and fault relay connections.
- 💧 Compact enclosure measuring 125 mm × 78 mm × 35 mm.
- 💧 RJ45 connectors for power distribution, screw-lock connector for the detection cable, removable alarm/fault terminals, and two external fixing points for easy wall mounting.

Principle of Operation

When powered on, the unit automatically checks the detection cable for damage, contamination, or the presence of water before performing a self-calibration by measuring the cable length.

If the detection cable is damaged or disconnected, the display will show:

"Sensor Cable Fault"

If contamination, such as water, is detected during start-up, the display will show:

"Cable Length Error"

In either condition, the cable fault relay will activate.

If the detection cable is connected correctly and is free from contamination, the display will show the monitored cable length, for example:

"No Leaks – Cable = 250 m"

When water comes into contact with the detection cable, the controller measures the distance to the leak several times to verify the reading before displaying:

"Leak Detected"

This is followed a few seconds later by the leak location, for example:

"Leak at 45 m"

At the same time, the leak alarm relay is energised.

Once the water has been removed and the cable has dried, the unit automatically resets and resumes normal monitoring without requiring user intervention.

Installation on Conductive Surfaces

For most applications, such as installation on concrete floors, within drip trays, or similar non-conductive surfaces, the standard unbraided detection cable can be used. The sensing elements are recessed below the cable's outer diameter, preventing accidental contact with the surface.

Where the detection cable is to be secured directly to a conductive surface, such as the underside of water pipes with aluminium cladding or lagging, an externally braided version of the cable is available on request. The additional braid provides an insulating barrier between the sensing elements and the conductive surface, helping to prevent false alarms.



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Power Connectors

The unit is supplied with a 3 m power cable fitted with an RJ45 connector at one end. The opposite end provides flying leads for connection to a 24 V AC or 24 V DC power supply.

The RJ45 connector can be plugged into either of the two RJ45 sockets located on the bottom of the sensor.

The supplied power cable may be extended up to 250 m using CAT6 cable.

The sensor is not polarity sensitive, allowing either AC or DC power supplies to be used.

Two RJ45 power connectors are provided to simplify daisy-chain wiring. The second connector can be used to supply power to the next LD250 sensor, allowing up to 16 sensors to be powered from a single CAT6 cable, subject to the power supply capacity.

Mechanical Specifications

Parameter	Specification
Housing	ABS plastic, light grey
IP Rating	IP51
Mounting	Wall or surface mounted
Dimensions	125 mm (H) × 80 mm (W) × 35 mm (D)
Detection cable connector	4-pin metal screw-lock connector
Detection cable diameter	4.5 mm

Electrical & Performance Specifications

Parameter	Specification
Supply voltage	24 V AC/DC
Power consumption	< 1 VA
Maximum sensors per power line	16
Measurement accuracy	±1 metre
Minimum detection cable length	20 metres
Maximum detection cable length	250 metres
Maximum power cable length	500 metres
Power connection	RJ45 connector with CAT6 cable
Alarm relay rating	Volt-free changeover contact, 24 V AC/DC, 0.5 A
Fault relay rating	Volt-free changeover contact, 24 V AC/DC, 0.5 A



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Optional Accessories

- 💧 Combined beacon and sounder.
- 💧 Beacon only.
- 💧 Muteable onboard audible warning device.
- 💧 SMS text messaging unit for remote alarm notification.

As part of our policy of continual product development, specifications and product designs may be changed without prior notice.