ANDEL

LEAK DETECTION SYSTEMS

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Business Link
The Royal Academy of Engineering
PEIMF
Environment Agency
Millennium Products
Investor in People
defra
Department for Environment Food and Rural Affairs
Business Link for West Yorkshire
CIBSE
IFMAAF
International Flood Monitoring and Alarm Foundation
small business service
OFTEC
sapira:network

Informations about ANDEL

The ANDEL company has been on the market for several decades. Established in Great Britain, it began operating on the local market to conquer North America, South America, the Far East and, above all, Europe.

As a leader on the Polish and European market, we have extensive technical and practical experience. We provide comprehensive project support from the concept, technical design to the selection of equipment, pricing, installation, and service. We provide full technical support for every project, regardless of its size.

The company's mission is to ensure the safe functioning of our partners in the broadly understood field of business operations. We do not limit ourselves to enterprises, we secure national heritage, the environment, intellectual values and, most importantly, data, both stored on servers and in paper archives.

We design and implement innovative, modern, effective and durable solutions. Many years of experience, gained partners' trust in our professionalism, reliability and modernity is the most important factor influencing the perception of our brand.

Company Activity

ANDEL provides a full spectrum of support.
From initial design consultations, through delivery and implementation,
to warranty services.

Consulting

As a company specializing in leak detection for years, we consult projects from the very vision to the detailed design.

Installations

Installation of the system by a qualified team allows for trouble–free operation of the system for years.

Projects

A correctly designed system provides immediate and detailed information about the detected leak.

Service

Provision of service is an essential element to maintain the terms of the warranty, which can be up to 120 months.

An example of the use of a ANDEL hybrid system – zone & line measurements

The diagram shows an exemplary protection of various rooms with means of a hybrid system. On its example, the individual stages of system design will be discussed.

Server room
Protection of leak sources, i.e. precision air-conditioning cabinets. The use of the M8 sensor cable in the underfloor space. Laying the cable around the perimeter of the room with the separated logical zones, respectively for each cabinet. When using the M8 sensor cable with division into zones, you may implement the control of valve closing for a particular air-conditioning zone.

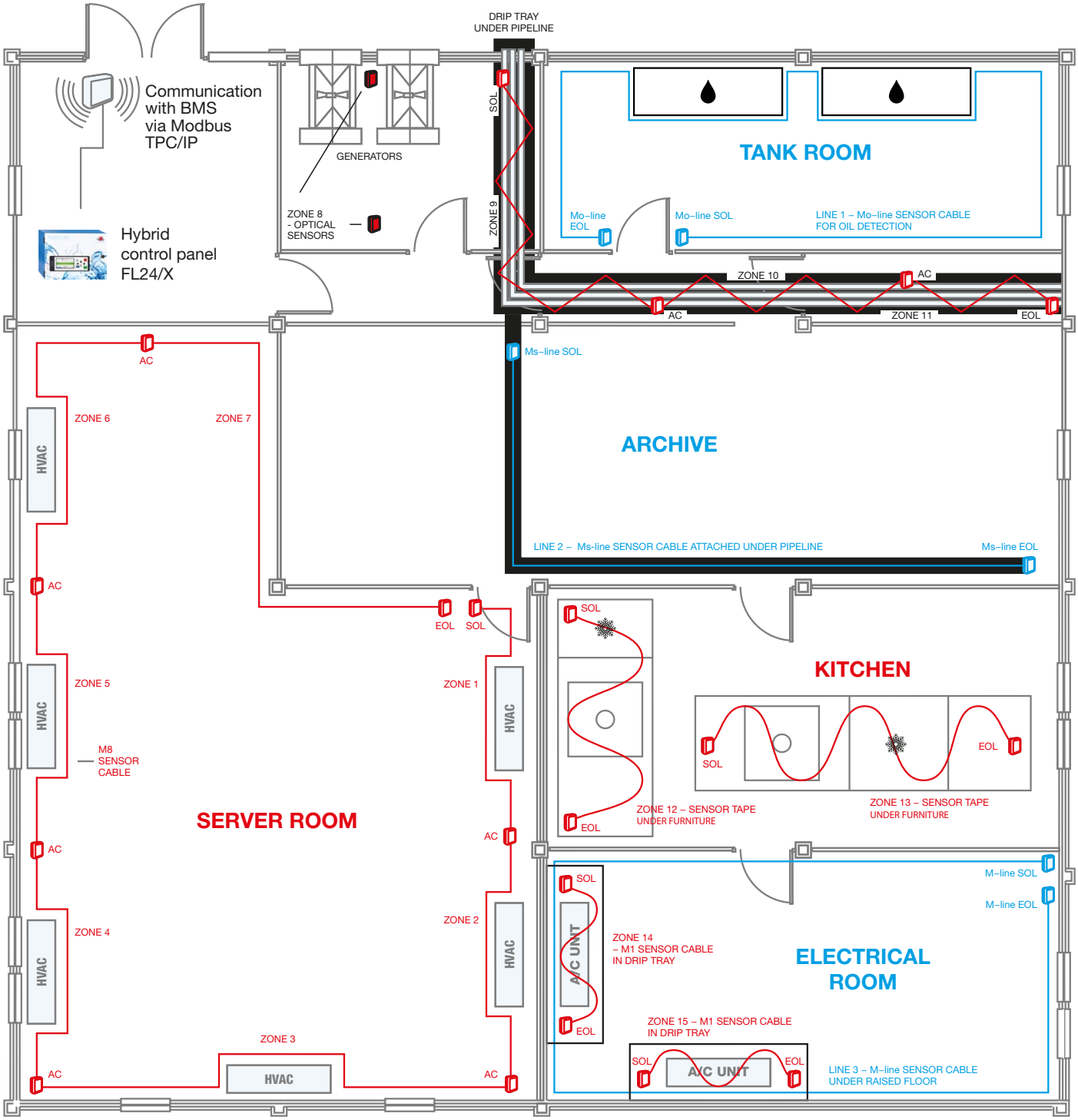
Electric power generator
Diesel oil, which may escape from the generator installation, poses a threat in these rooms. Spot optical sensors for oil detection should be installed in such places. They should be located at the lowest point of the room or in places of greatest danger.

Fuel tank room
Danger of large amounts of diesel fuel leaking from the tanks. The use of the Mo-line sensor cable with measurement in metres. Combined source and target monitoring (tank and room perimeter).

Archives
The Ms-line cable suspended directly under the pipeline was used in the room. The distance-measurement solution with metre-related measurement was selected due to one long pipeline running in the room and one shut-off valve.

Social rooms / toilets
In rooms of this type, the most common places where a leak occurs are flexible connectors for dishwashers or siphons under washbasins / sinks. Protection with a single-zone sensor tape located under the kitchen furniture. In the case of toilets, a section of sensor tape should be provided in built-up spaces and access points should included.

Electric room
The monitored room is protected with the use of drip trays and the M1 sensor cable. In addition, target monitoring is designed using the M-line cable for distance measurement placed around the perimeter of the room.


DRIP TRAY
UNDER PIPELINE
Communication
with BMS
via Modbus
TPC/IP
GENERATORS
SOL
ZONE 9
TANK ROOM
Mo–line
EOL
Mo–line SOL
LINE 1 – Mo–line SENSOR CABLE
FOR OIL DETECTION
ZONE 8
- OPTICAL
SENSORS
Hybrid
control panel
FL24/X
ZONE 10
AC
AC
ZONE 11
EOL
Ms–line SOL
AC
ZONE 6
ZONE 7
HVAC
ARCHIVE
LINE 2 – Ms–line SENSOR CABLE ATTACHED UNDER PIPELINE
Ms–line EOL
AC
EOL
SOL
SOL
KITCHEN
ZONE 5
ZONE 1
HVAC
HVAC
M8
SENSOR
CABLE
SOL
EOL
ZONE 12 – SENSOR TAPE
UNDER FURNITURE
ZONE 13 – SENSOR TAPE
UNDER FURNITURE
SERVER ROOM
AC
M–line SOL
M–line EOL
SOL
ZONE 4
ZONE 2
HVAC
HVAC
A/C UNIT
EOL
ZONE 14
– M1 SENSOR CABLE
IN DRIP TRAY
ELECTRICAL
ROOM
ZONE 15 – M1 SENSOR CABLE
IN DRIP TRAY
ZONE 3
AC
HVAC
AC
SOL
A/C UNIT
EOL
LINE 3 – M–line SENSOR CABLE
UNDER RAISED FLOOR

Office buildings

Office spaces are characterized by a huge amount of water installations. The specificity of cascade leaks in this type of buildings, caused that the demand for leak monitoring is very high. The most common source of leakage are flexible hoses supplying water to social rooms. The Floodline system is mainly used in built–in kitchen spaces, server rooms, which occur on many floors and technical rooms. Electrical rooms, transformer rooms or generator rooms are other places mostly secured with leak detection systems.

Server rooms

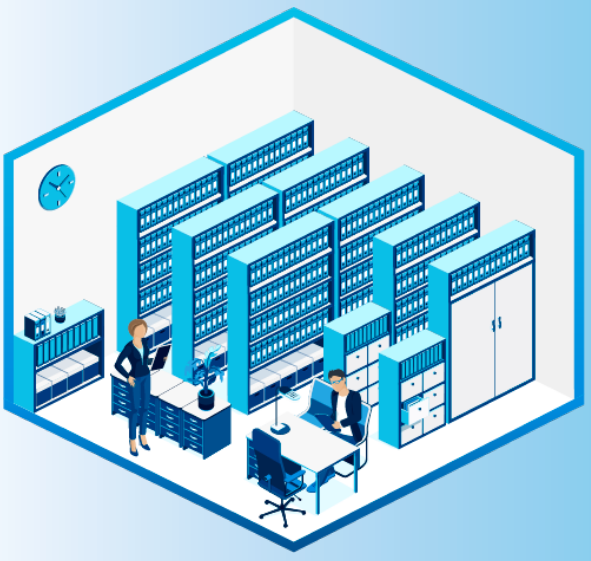
Data centers are built according to the latest technologies. The greater part of the network and cabling is installe d under raised floors. Leak detection mainly includes air–conditioning devices and refrigerant pipelines, which are the greatest threat to the equipment contained in server rooms. Elements of the leak detection system are installed in the space of technical floors, where the previously mentioned routes run. In cases where the pipelines are installed under the ceiling or in a built–in suspended ceiling, drip trays with a sensor cable located inside are used to immediately take over and detect the leak in such a way as to minimize the risk of damage to property to zero.

Museums

In numerous museums and art galleries, due to their age and scale, heating pipelines and cooling systems can be extremely difficult to maintain, which consequently necessitates the installation of a leak detection system to allow rapid response to detection of any potential leak that may damage wealth. Liquid detection systems are mainly installed in these facilities to protect the building structure, i.e. decorative ceilings, walls or floors. The attic and basements are the most endangered places. In addition, the system guarantees an early warning of a leak that can damage works of art contained in both the exhibition and the art magazines.

Apartments

Leak detection is increasingly being fitted into the market of modern apartments, where it is important to protect leaking built–in installations located in bathrooms, kitchens or water heaters. New hot and cold water installations are installed separately for each apartment – creating a potential place for leaks. Without a leak detection system, the first signal of its occurrence is water overflowing to the premises below, which causes a series of serious damage and generates very high repair costs. The Floodline system is installed mainly in built–up bathrooms to protect sanitary installations for each apartment.



Archives

Archives in various buildings are mostly located in underground. Also at this level there are water or sewage installations, which pose a direct threat to the documents stored there. Due to the high costs of possible drying of documents after leaks, the Floodline system is designed to protect against leaks both from internal (sanitary and heating installations) and external (leaks from upper floors or from outside the building). Peripheral protection of these rooms with linear sensors that inform about leakage from any source is a particularly common solution.

Industry

Industrial buildings threatened by leaks are mainly energy segment facilities. Combined heat and power plants, manufacturing plants, factories and oil concerns are objects where business continuity is an indispensable element of their functioning. At the same time, inside them there are huge amounts of various water or oil installations, which in the event of a leak may disrupt the proper operation of the facility. The Floodline system here is not only informative, but mainly protective, which is implemented by means of a set of drip trays or automatic valves cutting off the inflow of the refrigerant in the event of a leak from the installation.

Office buildings

- Warsaw Spire
- Q22
- Olivia Business Centre
- Alchemy
- Sagittarius Business House
- West Gate & West Link
- Tertium Business Park
- Quattro Business Park

Data centres

- T–Mobile
- Polkomtel
- Netia
- Orange
- Beyond
- Onet
- ATM
- NASK

Museums

- Windsor Castle
- Tate Modern & Tate Britain
- Palace of Westminister
- National museum facilities
- Historical musem facilities
- Japanese Art Museum – Manggha
- Auschwitz–Birkenau buildings
- Manufaktura in Lodz

Government institutions

- Ministry od Finance
- National Library
- Ministry of Defence
- PWPW
- Police facilities
- Social Insurance facilities
- City halls
- Courts

Industry

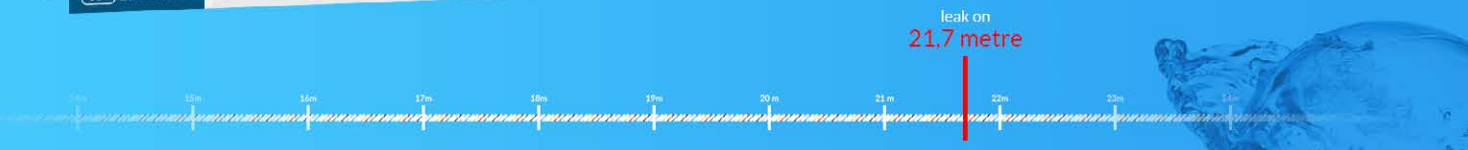
- Power plants
- Oil companies facilities
- Manufacturing plants
- Mechanical equipment factories
- Polpharma
- BOT Mining and Energy
- Cold storage facilities
- Laboratories

Military institutions

- Military data centres
- Military archives
- Pentagon (USA)
- RAF Coningsby
- HMS Warrior
- DVLA
- MOD Procurement HQ
- Menwith Hill

Hybrid control panel FL24/X

FL24/X is a connection of zone & system in one control panel



Intuitive and easy in use, modern control panel with possibility of setting **individual sensitivity for each zone**

English, Polish and German language availability

FL24/X

Floodline 24x is a modern, fully individualized series of control panels with innovative features. It is primarily characterized by ease of use, updated algorithms and an original design.

The system is intuitive – it's parameters can be set via USB. Unlike other series, it is possible to individually set the sensitivity threshold for each zone separately, current view of the measurements, any configuration of relay outputs, adding and removing users, restoring factory settings and many others.

All information regarding service and alarms are displayed on an industrial control panel.

Function
Detection of water, liquids and any environmental factors. The system can be configured to connect both-Floodline and other sensors, such as digital, temperature, humidity, gas, wireless sensors and Ranger cables.

Zone capacity: 6, 12, 18, 24
Line capacity: 4, 8, 12, 16

Power
230VAC, 50Hz mains operated, 12VDC internal and battery backup.

Construction
Blue–white ABS housing with digital print.

Dimensions
H232 x W322 x D121 [mm].

Fixing
Wall or surface mounted through four dedicated holes on the built–in distances.

Monitoring of zones
LEAK – continuous water and liquid detection – each zone reports separately.
SYSTEM FAULT – sensor or leader cable damage, failure or disconnection.

Alarm indicators
All information are displayed on control panel in case of any alarm. Additionally two flashing LED's ALARM and POWER that are displaying separately until corrected and reset.

Controls
Buttons for navigating the menu arrows (enter and esc) and an additional reset button.

Outputs
Control panel is equipped with four configurable main relays and six configurable individual relays (NO / NC) on each input card. They can be programmed in any way depending on demand

Communication
Modbus TCP/IP, Modbus RTU and GSM extension.

Floodline **HLD 128/224**

FLOODLINE HLD builds on the success of the award–winning FLOODLINE System and comes packed with updated technology and enhanced installer and end–user functionality. FLOODLINE HLD is a truly multi–functional and customisable water, oil and multi–gas leak detection panel.

FLOODLINE HLD reports status on up to 128 traditional FLOODLINE zones and in addition reports status and sensor values from the FLOODLINE Distance Measurement Ranger modules, temperature and humidity modules via a MODBUS communications network of up to 224 devices, giving a total zone capacity of 352 zones. All alarm information and control is via a large 8" touch screen display.

Function
Water/liquid, oil and multi–gas leak detection, temperature and humidity monitoring panel. The system can also be configured to accept a volt–free contact input for connection to third–party sensors.

Zone capacity
352 total zone capacity:
- 4 to 128 traditional zones in 32–zone modules
- Up to 224 MODBUS enabled zones

Zone Sensitivity
Each traditional zone input sensitivity can be configured individually. The temperature and humidity sensor can be configured for four separate alarm levels. (High and low temperature and Humidity thresholds).

Communications
- MODBUS over RS485 and TCP/IP
- Alarm alerts via email
- Alarm alerts via GSM Text message
- Ethernet connection
- Relay Outputs

Data Logging
There are two types of data logged by the system:
- Events Log – last 500 alarm/system events with date and time
- Traditional zone data logging – each zone's input levels are recorded every 5 minutes over 7 days on a FIFO basis.

Power
85 – 264 VAC – 50/60HZ – 100W MAX.

Construction
Powder coated steel enclosure, colour RAL 704, Fine Textured.

Dimensions
Width 335mm | Height 400mm | Depth 115mm

Floodline 128

The 128 Multi–Zone System operates a network of leak detection cables and sensors up to a total of 128 zones. A zone can be a single point or many metres of detection cable and the whole network is continuously monitored for leaks and continuity. Zones are electrically isolated from each other and individually displayed so the system can accept and report any number of simultaneous or consecutive zone alarms. An alarm in one zone has no effect on the normal monitoring of its neighbours or the rest of the system.

Function
Water/Liquid detection, Temperature, Humidity

Zone capacity: 32, 64, 96, 128

Power
110/230 VAC 50/60Hz mains operated 160 Watts (max), 12 VDC internal + battery backup

Construction
Base and control unit powder coated steel enclosure

Dimensions
Base Unit: H555 x W490 x D160mm
Control Unit: H185 x W55 x D62mm

Monitoring
LEAK – continuous water/liquid detection – each zone reports separately
SHORT/OPEN CIRCUIT – sensor or leader cable damage, failure or disconnection
Display (control unit) Disconnected – connection cable between control unit and base unit damaged or disconnected
Display (control unit) Communication Failure – control unit and base unit damaged or disconnected
Module Communication Failure – Internal communication between base unit motherboard and 32 zone module/comms module failure
Remote Disconnected – connection cable between base unit and optional Floodline Remote Alarm damaged or disconnected

Output
1. Leak in any zone – SPCO Relay (5A @ 230VAC)
2. System Fault – open, short circuit any zone – SPCO Relay (5A @ 230VAC)
3. Mains Fail – SPCO Relay (5A @ 230VAC)
4. Complete Power Failure – SPCO Relay (5A @ 230VAC)
5. Self Test – Low battery, comms failure, remote/display disconnected – SPCO Relay (5A @ 230VAC)
6. Leak in each individual zone – SPCO Relay
7. Moduł RS 232, RS 485 – optional.
8. Potential free relays

Floodline 4–16

The Multi–Zone Control Panel operates the network of leak detection zones. A zone can be a single point or many metres long and the whole network is continuously monitored for leaks and continuity. Zones are electrically isolated from each other and individually displayed so the system can accept and report any number of simultaneous or consecutive zone alarms – true multiple leak reporting – an alarm in one zone has no affect on the normal monitoring of its neighbours or the rest of the system.

Function
Water/Liquid detection, Temperature, Humidity

Zone capacity: 4, 8, 16

Power
110/230 VAC, 50/60Hz mains operated, 25Watts (32 zones 50watts), 12VDC internal + battery backup

Construction
Powder coated steel enclosure

Dimensions
H292 x W285 x D90 mm

Fixing
Wall/Surface mounted (special mounting arrangements to order)

Monitoring
LEAK – continuous water/liquid detection – each zone reports separately
SYSTEM FAULT – sensor or leader cable damage, failure or disconnection

Alarm Indicators
Flashing LEDs for LEAK or SYSTEM FAULT (all alarms displayed separately and continuously until corrected and reset).
Audible alarm.

Status Indicators
Mains power supply, battery operation, internal 12VDC supply, low battery, alarm accept (mute).

Controls
Mute (buzzer silence/alarm accept) button, security key – switch output disable/reset.

Outputs
1. LEAK in any zone – DPCO relay (5A @ 230VAC)
2. SYSTEM FAULT in any zone – SPCO relay (5A @ 230VAC)
3. Complete power fail – SPCO relay (5A @ 230VAC)
4. LEAK in each individual zone – SPCO relay – optional (1A @ 30VDC)

All relays have “clean” volt–free contacts

Floodline 1

The Floodline One–Zone water leak detection control panel offers a low cost, stand–alone system where a small amount of detection is required. One or more Floodline sensors can be connected.

Output relays are provided for connection to remote alarm, BMS etc. LEDs provide clear and easy to understand status and alarm information.

Function
Water/Liquid detection, Temperature, Humidity

Zone Capacity: 1

Power
110/230 VAC, 50/60Hz mains operated, 23Watts

Construction
Powder coated steel enclosure

Dimensions
H200 x W225 x D70 mm

Fixing
Wall/surface mounted (special mounting arrangements to order).

Monitoring
LEAK – continuous water/liquid detection
SYSTEM FAULT – sensor or leader cable damage, failure or disconnection

Alarm Indicators
Flashing LEDs for LEAK or SYSTEM FAULT
(all alarms displayed separately and continuously until corrected and reset)
Audible alarm

Status Indicators
Mains power supply

Controls
Mute (buzzer silence) button
Reset

Outputs
1. LEAK
   – DPCO relay (5A @ 230VAC)
2. SYSTEM FAULT/Complete Power Fail
   – DPCO relay (5A @ 230VAC)

All relays have “clean” volt–free contacts

Leak
One V

Floodline Leak One V is a self–contained single zone leak detection module specially designed for incorporation into other control / alarm systems, air conditioning units, BMS etc. The module can be used with all Floodline sensors.

Leak One V is dedicated to be used within small leak detection systems. It is provided with two volt–free outputs, which can signal independently both leak and system fault (damage of sensor, device plate or lack of power).

Module is provided with:
– control of leak sensitivity,
– switching between manual and automatic operating mode,
– history of five recent actions,
– test of output relays,
– possible connection of remote device Reset.

Function
Water / liquid detection

Zone capacity
Few sensors in one zone

Power
Multi–Voltage 12 or 24 V, AC or DC, 0,5 W

Construction
PC/ABS

Dimensions
Length 90,20 mm x width 36,30 mm x depth 57,50 mm

Fixing
Din–rail mounted

Monitoring
LEAK – continuous water / liquid
SYSTEM FAULT – sensor or leader cable damage, failure or disconnection

Numeric display:
– operating mode: AUTO or MANUAL,
– information about leak – flashing text: LEAK,
– information about system fault – flashing text: FAULT

Alarm indicators
Flashing LEDs for LEAK or SYSTEM FAULT. All alarms displayed separately and continuously until corrected and reset.

Outputs:
– LEAK – signaling leak detection,
SPCO 2A relay, 30VDC or 250VAC,
– FAULT – signaling system fault,
SPCO 2A relay, 30VDC or 250VAC.

Groundhog

The Floodline Groundhog Mk II is a self–contained, single–zone leak detection system which can be mounted vertically or horizontally. It can be connected to any control/building management system that has the facility to accept volt–free contacts.

Additional Floodline Point Sensors or Leak Detection Tape can be slaved off the Groundhog.

Function
Water/Liquid detection

Zone capacity: 1

Power
Multi–voltage operation 12 or 24V AC or DC at 0.8watts

Construction
Built into a stainless steel Guard Plate which provides protection and assists fixing

Dimensions
L130 x W90 x D37 mm

Fixing
Fixed or free–standing on floor or in drip tray
Vertically at base of wall or plant

Monitoring
LEAK – continuous water/liquid built–in sensor and aux sensor input
SYSTEM FAULT – aux sensor or Leader Cable damage, failure or disconnection

Alarm Indicator
Flashing LEDs for LEAK and SYSTEM FAULT
All alarms displayed separately and continuously until corrected and reset if in manual mode

Status Indicator
Power LED

Controls
Manual/Auto reset select
Sensitivity setting

Outputs
Leak/system fault – SPCO Relay 1Amp@24Vdc

FlowStop

FlowStop is ideal for residential properties, such as apartments, student accommodation, hotel rooms, offices and other commercial units. It can monitor and manage up to two mains supplies for both hot and cold water.

FLOWSTOP FEATURES AND FUNCTIONS

Freeze Protection
Turns the water OFF if the temperature falls below (-1°C) to (+5°C) - (user adjustable).

Time Out Protection
Turns the water OFF if water has been running for more than 10-60 minutes (user adjustable).

Excess Flow Protection
Turns the water OFF if the system senses that there has been a burst pipe or there is an abnormal flow of water between 2 and 40 litres per minute (user adjustable).

Additional leak detection sensors can be added to detect leaks in vulnerable areas such as under washing machines and dishwashers as well as in bathrooms and toilets (optional).

Reset button resets the system following activation and allows water to flow again.

Override feature turns the monitoring off to allow for prolonged water use such as watering the garden.

TECHNICAL SPECIFICATION

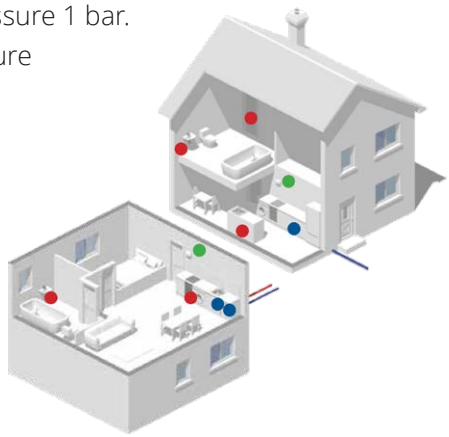
Power
Mains 230V or battery operated (long life 1-year battery).

Output
Volt-free relay contact rated 30V/1A per input.

Housing
Discreet ABS design featuring 2-digit LED number display, red LED warning light and 4 navigation buttons.

Dimensions
Control Unit: W145mm x H85mm x D9mm.
Valve/Flow Assembly: W95mm x H85mm x D60mm
Total Width including threaded fittings: 145mm

Operation
- Max working pressure 10 bar.
- Min operating pressure 1 bar.
- Working temperature 4-80°C.
- Can handle up to 2no valves.



Valve
Control Unit
Leak Sensors

M8 Sensor Cable

The unique “Multi–Zone” construction of the M8 sensor cable allows up to eight separately reporting detection zones to be provided from one length of cable.

The zone changeover points along the cable are provided by either traditional Floodline 8–zone junction boxes or the Plug And Play system. The zones can be any length but the usual length is between 5 and 15 metres.

The sensor can be wetted and dried any number of times provided the cable is not contaminated with a substance that permanently changes its electrical characteristics. If the contamination is soluble then the cable can be removed, washed (clean water only), dried and returned to use subject to the level of contamination.

Applications
– Below raised floors
– Above suspended ceilings
– Run in drip trays
– Laid around the base of plant, apparatus or tank
– Laid in loops or wave pattern for general monitoring of larger areas
– Attached to pipework within lagging

Detection
– Activates with any conductive liquid anywhere along the entire length of the detection cable.
– Once dry can be returned to use

Construction
A tough, all polymeric, low smoke and fume, zero halogen construction

Dimensions
5mm Diameter

Fixing
For fixing to floor or other surface, use standard 6mm tower clips, self–adhesive clips or tie–wraps.
Detection cable is laid loosely with special Caution Tags attached at regular intervals to identify zone.

M8s Sensor Cable

The unique “Multi–Zone” construction of the 8 Zone high sensitivity cable allows up to eight separately reporting detection zones to be provided from one length of cable and builds on the success of our original Multi–8 cable. This is more suited than our regular Multi– 8 cable when attached to the underside of pipework or soffits.

The zone changeover points along the cable are provided by either traditional Floodline 8 zone junction boxes or the Plug And Play system. The zones can be any length but the usual length is between 5 and 15metres.

The sensor can be wetted and dried any number of times provided the cable is not `contaminated with a substance that permanently changes its electrical characteristics If the contamination is soluble then the cable can be removed, washed (clean water only), dried and returned to use subject to the level of contamination.

Built to meet and exceed these Standards: CPR (Construction Products Regulation) Testing.

Applications
Attach to the underside of the pipes (inside or outside the lagging).
Laid in drip–trays and catchment troughs. Fix to soffits and ceilings to detect water ingress.

Detection
Activates with any conductive liquid anywhere along the entire length of the detection cable. Once dry can be returned to use.

Dimensions
5mm Diameter

Construction
9 core – HSLSF core insulation, polyester fabric wrap, nylon outer braid.

Fixing
For fixing to floor or other surface, use standard 6mm tower clips, selfadhesive clips or tape.
Fix to underside of pipe with tiewraps or tape inside/ outside of lagging.

Detection cable is laid with special Caution Tags attached at regular intervals to identify zone.

M1 Sensor Cable

The unique construction of M1 sensor cable allows to detect liquids in various applications. It is mostly used in one zoned systems, where simple, not expensive system is needed.

The sensor can be wetted and dried any number of times, provided the cable is not contaminated with a substance that permanently changes its electrical characteristics. If the contamination is soluble then the cable can be removed, washed (clean water only), dried and returned to use subject to the level of contamination.

Applications
– below raised floors,
– above suspended ceilings,
– in drip trays,
– laid around the base of plant, apparatus or tank,
– laid in loops or wave pattern for general monitoring of larger areas.

Detection
Activates with any conductive liquid anywhere along the entire length of the detection cable. Once dry can be returned to use.

Construction
A tough, all polymeric, low smoke and fume, zero halogen construction.

Dimensions
5mm Diameter.

Fixing
For fixing to floor or other surfaces, use standard self–adhesive clips. Detection cable is laid loosely with special Caution Tags attached at regular intervals to identify zone.

One Zone Sensor Tape

For high sensitivity applications where a more basic, low cost system is required. The Single Zone Tape is a very strong, easy to install sensor. The sensor can be wetted and dried any number of times. The zones can be any length but the usual length is between 5 and 15m.

Applications

– In the voids below raised floors
– Above suspended ceilings
– Tie–wrapped to individual pipes
– Run in drip trays
– Laid around the base of an item of plant, apparatus or tank
– Laid in loops or wave pattern for general monitoring of larger areas
– No minimum or maximum length

Detection

Activates with any conductive liquid anywhere along its entire length
Multiple re–use, dry and reset
Easy to replace or splice–in new length if damaged or hopelessly contaminated

Construction

Polyester "woven" construction. No exposed conductors. Very high strength and abrasion resistance.

Dimensions

20mm x 3mm thick. Supplied in any length either pre–connected at the factory or for cutting on site.

Fixing

Fix to floor or other surfaces with at ribbon type clips or self–adhesive clips or tie–wraps. Detection Tape is laid loosely with warning labels attached at regular intervals to warn of its function.

System

Connection can be made directly to any Floodline Control Panel/Unit or via Leader Cable.

M–line Sensor Cable

Dedicated to the hybrid leak detection system, the M–line sensor cable detects the presence of water along its entire length. Connected to of the LG24/X control panel identifies a leak on the indicated meter. Wire can be used any number of times (after flooding it is enough dry), is made of a polymeric material with constant properties electric. In the event of damage, the M–line cable can easily be replaced, cleaned and re–installed.

Applications
– to protect long pipelines and long straight sections,
– in underfloor spaces, loop or wave for general monitoring of larger areas.

Detection
– Detects water along its entire length.
– Identifies a leak on the indicated meter

Dimensions
Diameter about 6mm.

Operating temperature range
–20°C to 60°C

Construction
Durable, made of polymers, resistant to smoke and fumes

Fixing
Standard "P" clips or self–adhesive clips should be used when attaching to the floor or other surface. This wire lays loosely, marking it with special markers glued in the regular ones intervals, indicating the cable type and line numer.

Ms–line Sensor Cable

Ms- line cable detect the presence of water at any point along their length. Installed with a Ms-line Leak Detection Panel, the cable senses the presence of water, triggers an alarm and pinpoints the exact location.

This high sensitivity cable is more suited than our regular M-line cable when attached to the underside of pipework or soffits.

Applications
Attach to underside of pipes outside the lagging.
Above suspended ceilings.
Run in drip trays.
Fix to soffits and ceilings to detect water ingress.

Detection
Activates with any conductive liquid anywhere along the entire length of the detection cable and pinpoints the leak to +/- 1m. Once dry can be returned to use.

Dimensions
Diameter about 6mm.

Construction
A tough 4 core, all polymeric, low smoke and fume, zero halogen construction with a polyester fabric wrap and protective outer braid.

Fixing
For fixing to floor or other surfaces, use standard 6mm tower clips or self-adhesive clips. Fix to underside of pipes using tie wraps outside the lagging Detection cable is laid loosely with special caution. Tags attached at regular intervals to identify distance.

Distributed Sensing
Ms-line cables provide distributed leak detection and location over a wide range of areas. The cable is available in a variety of lengths to provide as much coverage as needed.

Design Flexibility
Ms-line cable can be supplied with factory installed metal connectors that plug together. The cable is designed for a range of applications - including data centre floor voids, telecommunication rooms, HVAC equipment locations, pipes, electrical rooms, storage areas, tanks and roofs. The cable is small, lightweight and flexible, allowing for easy installation.

Mo-line Sensor Cable

ANDEL Ranger Hydrocarbon Fuel Detection Cable detects the presence of liquid hydrocarbon fuels at any point along its length, yet does not react to the presence of water. Installed with a Floodline Ranger Control Panel, the cable senses the liquid, triggers an alarm, and pinpoints the location of the leak within one meter. ANDEL Ranger Hydrocarbon Fuel Detection Cable detection cable provides distributed leak detection and location for a wide range of applications. The cable is available in a variety of lengths to provide as much coverage as needed.

Applications

These modular sensing cables may be connected in series to provide distributed monitoring for trenches, subfloors, and double-containment piping, or used individually for double-containment tanks, sumps, and small areas.

Detection

Mo-line cable detects the presence of liquid hydrocarbon fuels at any point along its length, yet does not react to the presence of water. Installed with a Mo-line cable Control Panel, the cable senses the liquid, triggers an alarm, and pinpoints the location of the leak within one meter. Mo-line cable provides distributed leak detection and location for a wide range of applications. The cable is available in a variety of lengths to provide as much coverage as needed.

Construction

Radiation-crosslinking and conductive-polymer technology is used to make Mo-line mechanically strong and chemically resistant. The core of the cable is constructed of two sensing wires, an alarm signal wire, and a continuity wire. The core is encased in a conductive-polymer jacket and surrounded with a fluoropolymer braid. This rugged construction allows the cable to perform reliably in the most demanding environments.

Dimensions

Cable diameter: 8mm nominal.
Cable diameter with nominal connector: 13mm nominal.

Fixing

For fixing to floor or other surface, use standard 6mm tower clips, selfadhesive clips or tape.
Fix to underside of pipe with tiewraps or tape inside/outside of lagging.

Chemical resistance

Cable functions normally after exposure in accordance with ASTM D 543 at 23°C for seven days

Water Resistance

Sensing cable: Less than 10 µA leakage when immersed in salt water for 90 days. Connector system: Less than 10 µA leakage when immersed in water at 10 psig for 24 hours.

Water sensor **ABS**

The Point Sensor is a compact sensor for vertical or horizontal mounting.

Water touching its stainless steel probes activates the alarm. The height is adjustable. It is made from robust ABS material to give heavy duty, physical protection and assist fixing and adjustment.

The Point Sensor is used where Detection Cable could be damaged or where some damp, minor wetting or spillage is expected or of little concern.

The sensor can be connected in any number and/or combination with our other sensors.

Applications
Plant rooms
Solid floor area
Basement/tunnels

Detection
Activates when any conductive liquid makes contact across the probes.
Multiple re-use.
Instant return to use after water is cleared up.

Construction
High density plastic body, stainless steel/nickel plated brass probes.
Encapsulation option for immersion proofing.

Dimensions
Sensor: L101mm x W94mm x H40mm

Fixing
Base of wall or apparatus.
Floor – fixed direct to floor by slotted fixing holes for easy adjustment.

System
Connected in any number and/or combination with our other sensors.

Water sensor **INOX**

The Floodline Point Sensor is a compact sensor for vertical or horizontal mounting. Water touching its stainless steel probes activates the alarm. Used with the stainless steel Floodline Guard Plate to give heavy duty physical protection and assist fixing and adjustment.

The Point Sensor is used where Detection Cable could be damaged or where some damp, minor wetting or spillage is expected or of little concern. The sensor can be connected in any number and/or combination with other Floodline sensors.

Applications
Plant rooms
Solid floor area
Basement/tunnels

Detection
Activates when any conductive liquid makes contact across the probes
Multiple re–use
Instant return to use after water is cleared up

Construction
High density plastic body, stainless steel/nickel plated brass probes
Heavy duty, stainless steel Guard Plate
Encapsulation option for immersion proofing

Dimensions
Sensor: H71mm x W44mm x D25mm
Guard Plate: H110mm x W105mm x D30mm

System
Connected in any number and/or combination with other Floodline sensors

Optical Sensor

The Floodline Oil Sensor can be included as part of a larger water leak detection system or one or more can be used to provide a dedicated oil leak alarm system.

Oil Sensors are connected to a standard Floodline Control Panel giving visual and audible alarm features in addition to the facility for onward, remote, communications to BMS etc.

Applications
Internal oil tanks
Plant rooms
Pump sets
Backup generators

Detection
Activates with oil (or other liquid)
Multiple re–use
Instant return to use

Construction
High density plastic body/sensor
Sealed against immersion
Heavy duty stainless steel guard

Dimensions
Sensor: H71mm x W44mm x D25mm
Guard Plate: H110mm x W105mm x D30mm

Fixing
Vertically at base of wall or apparatus using Guard Plate
Floor – free standing or fixed using Guard Plate/bracket
Tank/Sump etc requires special bracket

Pipe–in–Pipe Sensor

The Floodline Pipe–in–Pipe Sensor is based around a Point Sensor but designed for fitting into a female threaded socket provided at strategic points in the outer pipe. Short stainless steel probes extend into the cavity, or annulus, created between the inner and outer pipes. When liquid escapes into the cavity and contacts a sensor the alarm is activated. Two types of device are available for water and oil (oil/any liquid).

Applications
Double containment pipe or tanks
High level alarm in tanks

Detection
Activates when any conductive liquid contacts the stainless steel probes or touches the tip (depending on the type of device used)
Multiple re–use
Instant return to use

Construction
High density plastic body,
stainless steel
probes fully encapsulated
Resistant plastic tip (oil pipe–in–pipe)

Dimensions
Length of body approx 70mm,
diameter 30mm

Fixing
½" BSP fitting as standard (other sizes available)

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Pipe-in-Pipe Optical Sensor

ANDEL worked together with Durapipe, one of the world's largest double containment pipework manufacturers to develop the ANDEL – Floodline DP01 Pipe-in-Pipe Sensor for use in pipe-in-pipe systems, double contained tanks and other projects where interstitial monitoring is required.

Applications
The ANDEL - Floodline DP01 Pipe-in-Pipe Sensor is designed for use either as a stand-alone leak detection system which can be connected directly to a standard monitoring system OR can be interfaced eithersingly or in multiples with one of ANDEL's range of Floodline leak detection control panels.

Detection
The sensor uses infra-red to detect the presence of any liquid touching the sensor dome. When liquid is detected the relay within the local control unit will turn off and this is detected by either a monitoring system or a Floodline panel. The relay will also turn off if the sensor should become disconnected or if the power should fail.

Function
Water/Oil leak detection. Can be used with most liquids, call for confirmation.

Control construction
IP65 rated polycarbonate enclosure in light grey (RAL 7035)

Control dimensions
L120 x W80 x D55 mm

Control fixing
Screw holes in enclosure back

Sensor construction
IP65 rated, encapsulated uPVC in a mid/dark grey

Sensor Cable
2m length

Sensor fixing
Standard fitting ½" or 1" BSP male thread (please specify when ordering)

Power
Supply Voltage: 9-30 Vdc
Supply current: 18mA (standby)
7mA (when in alarm)

Flexi–Pad Sensor

The Flexi–Pad Sensors have been specifically designed for laying in narrow voids (too small for point sensors) or wrapped around pipes at valves or joints where leaks are more likely to occur. The Flexi–Pad Sensor can be used singly, or in groups with a number of sensors being connected together to form one zone.

A removable fabric cover assists absorption and protects the sensing surfaces. Flexi–Pad Sensors can be wetted and dried any number of times provided the sensor element/fabric cover is not contaminated with a substance that irrevocably changes its electrical characteristics. Examples may be vending machine syrup, chemical floor treatments, paints etc. After wetting, the cover can be replaced with a spare or removed for drying.

Applications
Wrapped round pipes
Placed in drip trays under plant or equipment

Detection
Activates with any conductive liquid. Once dry can be returned to use

Construction
Tough, flexible plastic sheet with bonded "carbon loaded" detection tracks. Complete with removable fabric cover.

Dimensions
Sensor 400mm x 300mm x 1mm (16mm at connection point)
Envelope 430mm x 350mm x 1mm

Fixing
Lay loose, pin/glue at corners or tie–wrap loosely around pipe

Leader cable
Standard PVC/PVC 7/0.2 multi–core alarm/comms type cable or similar. LSF or other light cables can be substituted as required.
10m pre–fitted unless otherwise specified.

Bespoke Designs:
ANDEL Ltd can offer a custom design service. The Flexi–Pad Sensor's size, shape and base material can be tailored to the client's individual requirements.

Typical clients for this service are clean room equipment manufacturers and process equipment manufacturers.

SOL/AC/EOL connectors

ANDEL's tried and tested Floodline multizone leak detection systems are well known for being the most reliable, effective and easy to use. The "Plug & Play Auto-Connect" system allows instant, fool-proof connection for quick, no-hassle installation by any engineer, contractor or competent person.

Using a special version of the industry standard "RJ" type network connector, Floodline Plug & Play has universal acceptance. This robust, stable plug and socket system gives quick, easy, positive connection every time. Maintenance, replacement and modification couldn't be easier

8 Zone Detection Cable and patchleader cables are available in a range of standard pre terminated lengths. Other non-standard lengths can be supplied at no extra surcharge. All cables can also be cut and connected on site by trained engineers.

Standard lengths
5m, 7.5m, 10m, 15m

Couplers
In/out couplers perform all connection and zone change functions.
No setup or links to change.
No wire stripping.
No confusion.

SOL – Start of Line
Connects Leader Cable to Detection Cable

Autocoupler
Connects one detection cable zone to another.
In-built system logic automatically sets its relative position and zone address.

EOL – End of Line
Terminates last zone in line

M-line connectors

Easy to assemble circular connectors feature a cable gland with integral strain relief and clamping for optimal cable retention. With simple screw termination, they require no additional tooling reducing valuable downtime and productivity

An IP67 protection rating makes these connectors ideal for harsh environments and applications that demand a more rugged connector solution. Supplied as a set (one male and one female) for Detection Cable assembly and singularly (male) for Leader Cable assembly.

Features and Benefits

IP67 ingress protection rating
M12 x 1 mm thread.
Robust and compact design offering maximum performance.
Easy to assemble, no special tooling required.

Number of Contacts	4
Connector Size	M12
Plug/ Socket	Socket of Plug
Termination Method	Screw
IP Rating	IP67, IP68
Contact Gender	Female or Male
Current Rating	4.0A
Shell Size	20mm
Voltage Rating	250 V
Mating Type	Threaded
Body Orientation	Straight
Contact Plating	Gold
Housing Material	Nylon
Minimum Operating Temperature	-40°C
Maximum Operating Temperature	+85°C
Contact Material	Bronze

ANDEL leader cable

ANDEL supply dedicated leader cabling.

Used for connecting Floodline Sensors to Floodline Alarm Panels and for branching between detection areas on the same detection string.

ANDEL's purpose–made Leader Cable is all LSF0H construction for use in modern industrial/commercial environments. The core colours of the detection cable match the colours of the detection cable making installation simpler.

Awards presented to ANDEL

The following awards recognise our ongoing eorts in the advancement of leak detection products and systems. Specically – research, innovation, engineering, product design and installation services.

Kirklees Business of the Month
– winner
Kirklees Business of the Year
– runner up

HM Queen Elizabeth II
Special medal recognising ANDEL's work in the restoration of Windsor Castle after the fire in 1992

Royal Academy of Engineering &
Teaching Company Directorate
"Engineering Excellence"

Department of Trade & Industry
"Champions of Electronics Design"

UK Design Council
"Millennium Product"
("Floodline 128" in top 1000 products of the millennium)

Queen's Award for Enterprise:
Innovation

First "leak detection company" to be accredited by CIBSE to provide CPD seminars

Very soon

new website

www.Andel.com.pl

ANDEL

59 Grębałowska Street

31-764 Cracow

Poland

tel. +48 12 616 23 51

mail: leakdetection@AndelLeak.com

www.AndelLeak.com

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