# LeakFilm

**Protecting your high-tech assets with innovative, user-friendly technology for liquid leak detection**

# LeakFilm

## The most reliable, durable, cost-effective solution

Unlike some other forms of liquid leak detection, LeakFilm stands up to the challenges of your facility:

- **Durable and flexible.** You can walk on it, roll carts over it, wrap it around pipes, and subject it to varying levels of temperature, humidity and dust — with no false alarms.

- **Fast response.** When LeakFilm senses a liquid leak, the LeakFilm controller immediately notifies you so you can address the situation without delay. Additionally, certain LeakFilm configurations can measure the distance from the leak point to the controller giving you increased visibility to the location of the leak.

- **Long life.** Unlike sensing cables, which may need to be replaced after exposure to some liquids, LeakFilm withstands water and conductive liquids*. In the event of exposure, just wipe off the ribbon and reuse it — no replacement costs.

- **Easy to install and maintain.** Use the adhesive backing and supplied connectors to install LeakFilm wherever you need it. And if it tears, simply cut and reconnect the film — no need to replace the whole section. You can even write on the ribbon if needed.

**\*NOTE:** Conductive and Conductive_D are reusable. Chemical and hydrocarbon LeakFilm detection must be replaced at the spot of the leak after contact.

What happens if a leak causes liquid to come into contact with the sensitive equipment in your semiconductor facility? Would you know about it? Would you have time to correct the problem, preventing damage and costly downtime?

LeakFilm uses innovative technology to alert you to leaks of water, chemicals and hydrocarbons — so you can take immediate action to protect your assets, manage costs and ensure constant uptime.

In addition to protecting your equipment, LeakFilm helps you protect your people — by monitoring for liquid leaks that cause life-safety hazards such as slips, falls and inhalation of dangerous vapors.

## Flexible applications for liquid leak detection

LeakFilm is a liquid leak detection system that combines unique liquid-sensing film which can be networked into broader building alarm systems. When liquid comes into contact with the LeakFilm, your controller will alarm within a few seconds, allowing you address the situation without delay.

LeakFilm sensors can detect water, conductive liquids, strong acids, and hydrocarbons. The sensor can easily be installed with the adhesive tape backing, and in the event a sensor needs to be replaced LeakFilm can be easily spliced using the available connectors allowing easy and cost efficient replacement of LeakFilm sensors.

Thanks to its flexible form and adhesive backing, our patented LeakFilm is easy to install in numerous applications — on floors, walls, pipes, equipment and other areas that could be susceptible to leaks of hazardous chemicals. Use LeakFilm to monitor for liquid leaks around:

- Wet benches
- Photolithography equipment
- Chemical storage rooms
- Gas cabinets
- Boilers
- Distribution boxes

And if your facility has a computer room or communications room, use LeakFilm to monitor for one of the biggest threats — water. Leaks can come from such sources as air conditioning systems, concealed piping and plumbing in adjacent rooms.

# LeakFilm
# System Components



## LeakFilm Sensor

**LeakFilm Conductive**
Water and conductive liquids leak detection film sensor

**LeakFilm Conductive_D**
Water and conductive liquids leak detection film sensor with leak location detection

**LeakFilm Chemical**
Strong acid liquids leak detection film sensor with leak location detection

**LeakFilm Hydrocarbon**
Hydrocarbon liquids leak detection film sensor

## LeakFilm Controller

**LeakFilm Mini**
One channel mini conductive liquid leak detection controller with broken sensor detection

**LeakFilm 5**
Five channels conductive liquid leak detection controller with broken sensor detection

**LeakFilm Pro**
One channel conductive and chemical liquid leak detection controller with leak location detection

**LeakFilm HC**
One channel hydrocarbon liquid leak detection controller with broken sensor detection

**LeakFilm MC**
Master liquid leak detection controller

## LeakFilm Connector

**Start Connector**
Connects controller and sensor

**Jump Connector**
Connect the sensor and sensor

**Elbow Connector**
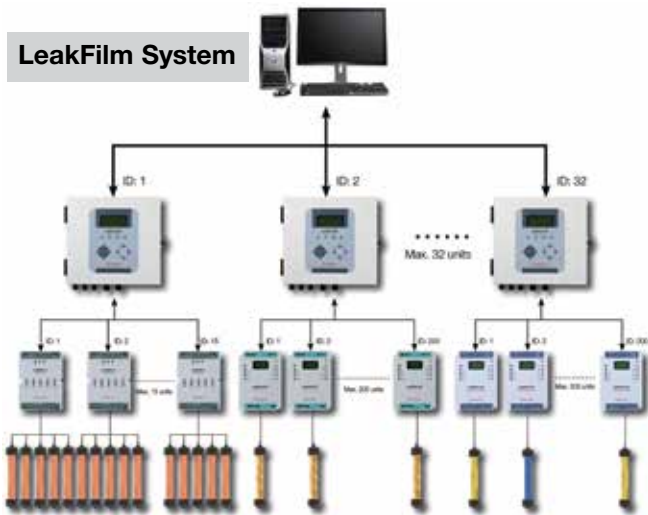Connect the sensor and sensor

**End Connector 4 Lines**
End connector to LeakFilm Conductive_D, LeakFilm Chemical and LeakFilm Hydrocarbon film sensor
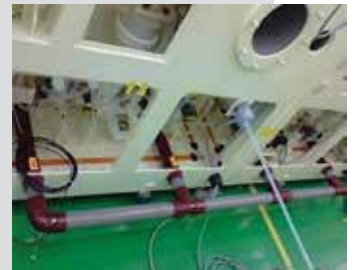
**End Connector 2 Lines**
End connector to LeakFilm Conductive film sensor

**LeakFilm System**



## How LeakFilm Works

LeakFilm is a one-inch wide ribbon with tiny holes on top and a conductive solution inside. When liquid passes through the holes and touches the circuit film's wires, a change in the electrical resistivity will be detected by the LeakFilm controller's algorithm, and will signal a leak detection — so you can protect your assets and prevent downtime.

# The perfect complement to your toxic gas monitoring system

Monitoring for liquid leaks is another important way to prevent costly downtime and ensure life safety, and LeakFilm delivers the best combination of accuracy, flexibility and ease of use.

# LeakFilm Specifications

## Specifications - Sensor

| Product Name | LeakFilm Conductive | LeakFilm Conductive_D | LeakFilm Chemical | LeakFilm Hydrocarbon |
|---|---|---|---|---|
| Target | Water and conductive liquid | Water and conductive liquid | Sulfuric acid, Hydrofluoric acid, Nitric acid | Liquid organic solvent |
| Material | PET | PET | PET | PET |
| Circuit Thickness | 5 to 10 µm | 5 to 10 µm | 5 to 10 µm | 5 to 10 µm |
| Film Thickness | Base Film 120 to 200 µm Cover Film 100 to 200 µm | Base Film 120 to 200 µm Cover Film 100 to 200 µm | Base Film 120 to 200 µm Cover Film 100 to 200 µm | Base Film 120 to 200 µm Cover Film 100 to 200 µm |
| Connector Material | PBT | PBT | PBT | PBT |
| Storage Temperature | -10 to 80 °C | -10 to 80 °C | -10 to 80 °C | -10 to 60 °C |
| Operating Temperature | -10 to 55 °C | -10 to 55 °C | -10 to 55 °C | -10 to 55 °C |
| Operating Humidity | 5 to 85 %RH | 5 to 85 %RH | 5 to 85 %RH | 5 to 85 %RH |
| Weight | Under 20 g/m | Under 20 g/m | Under 20 g/m | Under 20 g/m |
| Response Time for Leakage* | Under 4 sec | Under 4 sec | Under 10 sec | Toluene: under 1min Benzene: under 1min Gasoline: under 1min Diesel: under 5min Kerosene: under 5min Chloroform: under 1min |
| Response Time for Open | Under 4 sec | Under 10 sec | Under 10 sec | Under 17sec |
| Leak Location Accuracy | N/A | ±1 m (above 10 m) | ±1 m (above 10 m) | N/A |
| Length | 0.5 m to 50 m | 3 m to 200 m | 3 m to 200 m | 0.5 m to 50 m |

## Specifications - Controller

| Product Name | LeakFilm Mini | LeakFilm 5 | LeakFilm Pro | LeakFilm HC | LeakFilm MC |
|---|---|---|---|---|---|
| Applicable Sensor | LeakFilm Conductive | LeakFilm Conductive | LeakFilm Conductive_D LeakFilm Chemical | LeakFilm Hydrocarbon | N/A |
| Applicable Controller | N/A | N/A | N/A | N/A | LeakFilm Pro, LeakFilm 5, LeakFilm HC |
| Display | N/A | N/A | 8 X 2 Character LCD / LED back light | 8 X 2 Character LCD / LED back light | 20 X 4 Character LCD / LED back light |
| Power | 20 to 36 VDC | 20 to 36 VDC | 20 to 36 VDC | 20 to 36 VDC | 100 to 240VAC 50/60 Hz |
| Power Consumption | Max 1 Watt | Max 4 Watt | Max 4 Watt | Max 4 Watt | Max 10 Watt |
| LED Indication | Green - Power On Yellow - Fault Red - Leak | Green - Power On Yellow - Fault Red - Leak | Green - Power On Yellow - Fault Red - Leak | Green - Power On Yellow - Fault Red - Leak | Green - Power On Yellow - Fault Red - Leak |
| Sound Level | Over 80dB @ 10 cm | Over 80dB @ 10 cm | Over 80dB @ 10 cm | Over 80dB @ 10 cm | Over 80dB @ 10 cm |
| Output | Relay (NO) 30 VDC 5A, or 250VAC 5A | Relay (NO) 30 VDC 5A, or 250VAC 5A | Relay (NC, NO) 24VDC 2A or 120 VAC 1A (Max. Switching voltage 60VDC or 240VAC) | Relay (NC, NO) 24VDC 2A or 120 VAC 1A (Max. Switching voltage 60VDC or 240VAC) | Relay (NC, NO) 24VDC 2A or 120 VAC 1A (Max. Switching voltage 60VDC or 240VAC) LEAK Relay (NC, NO) BROKEN Relay (NC, NO) Com Err Relay (NC, NO) |
| Communication | N/A | RS485 (**Modbus®) | RS485 (**Modbus®) | RS485 (**Modbus®) | RS485 (**Modbus®) |
| Communication Function (Status Transmission) | N/A | • Leak Detection • Leak Clearance • Broken Detection • Broken Clearance | • Leak Detection • Leak Location • Leak Clearance • Broken Detection • Broken Clearance | • Leak Detection • Leak Clearance • Broken Detection • Broken Clearance | • Leak Detection • Leak Location • Leak Clearance • Broken Detection • Broken Clearance • Communication Error and Clearance |
| Data Recording | N/A | N/A | 9 event - year / month / day / hour / min / Leak location | 9 event - year / month / day / hour / min / Leak or Broken message | 999 event - Detector ID / Leak and Leak location or Broken or Communication error/ year - month - day hour : min : sec / |
| Storage Temperature | -10 to 65 °C | -10 to 65 °C | -10 to 65 °C | -10 to 65 °C | -10 to 65 °C |
| Operating Temperature | -10 to 55 °C | -10 to 55 °C | -10 to 55 °C | -10 to 55 °C | -10 to 55 °C |
| Operating Humidity | 5 to 85 %RH | 5 to 85 %RH | 5 to 85 %RH | 5 to 85 %RH | 5 to 85 %RH |
| Leak Location Accuracy | N/A | N/A | ±1 m (above 10 meter) | N/A | N/A |
| ID Setting | N/A | 1 to 15 | 1 to 200 | 1 to 200 | 1 to 32 |
| IP Rating | IP20 | IP20 | IP20 | IP20 | IP43 |
| EMC Directive 2004/108/EC | EN61000-6-4/A1:2011, EN61000-6-2:2005, EN61000-3-2/A2:2009, EN61000-3-3:2008 | | | | |
| Electrical Safety | 1) Low Voltage Directive 2006/95/EC:EN 61010-1:2010 2) US:UL 61010-1 3rd Edition 3) Canada: CAN/CSA-C22.2 No.61010-1 3rd Edition | | | | |

* Typical response time at 20°C(68°F).
** To use the digital communication, please contact a Honeywell Analytics Representative for further details.

# Order Information and Configuration Rules

## Order Information

### 1. LeakFilm Controller

| Part Number | Product Name | Description |
|---|---|---|
| HLFC1MNN | LeakFilm Mini | 1 Channel Mini Conductive Controller with Broken Sensor Detection |
| HLFC5CRN | LeakFilm 5 | 5 Channel Conductive Controller with Broken Sensor Detection |
| HLFC1HRN | LeakFilm HC | 1 Channel Hydrocarbon Controller with Broken Sensor Detection |
| HLFC1DRD | LeakFilm Pro | 1 Channel Conductive & Chemical Controller with Leak Location Detection |
| HLFCMSRD | LeakFilm MC | Master Controller with RS485 |

### 2. LeakFilm Sensor

| Part Number | Product Name | Description |
|---|---|---|
| HLFSSCNN-100 | LeakFilm Conductive | 100 m Conductive Sensor |
| HLFSSCNN-050 | | 50 m Conductive Sensor |
| HLFSSCNN-001 | | Custom Length Conductive Sensor (per meter) |
| HLFSSCND-100 | LeakFilm Conductive_D | 100 m Conductive Sensor with Leak Location Detection |
| HLFSSCND-050 | | 50 m Conductive Sensor with Leak Location Detection |
| HLFSSCND-001 | | Custom Length Conductive Sensor with Leak Location Detection (per meter) |
| HLFSSAND-100 | LeakFilm Chemical | 100 m Chemical Sensor with Leak Location Detection |
| HLFSSAND-050 | | 50 m Chemical Sensor with Leak Location Detection |
| HLFSSAND-001 | | Custom Length Chemical Sensor with Leak Location Detection (per meter) |
| HLFSSHNN-100 | LeakFilm Hydrocarbon | 100 m Hydrocarbon Sensor |
| HLFSSHNN-050 | | 50 m Hydrocarbon Sensor |
| HLFSSHNN-020 | | 20 m Hydrocarbon Sensor |
| HLFSSHNN-001 | | Custom Length Hydrocarbon Sensor (per meter) |

### 3. LeakFilm Connector

| Part Number | Product Name | Description |
|---|---|---|
| HLFNCSND-005 | Start Connector | Start Connector with 5 meters Lead Wire |
| HLFNCJND-000 | Jump Connector | Jump Connector with 15 cm Lead Wire |
| HLFNCJND-001 | Jump Connector | Jump Connector with 1 meter Lead Wire |
| HLFNCLND-000 | Elbow Connector | Elbow Connector |
| HLFNCEND-000 | End Connector 4 Lines | End Connector 4 Lines with Leak Location Detection |
| HLFNCENN-000 | End Connector 2 Lines | End Connector 2 Lines |

## Configuration Rules

| | | | | |
|---|---|---|---|---|
| Master Controller | LeakFilm MC | Leak Film MC | Leak Film MC | |
| Controller | LeakFilm Pro | LeakFilm HC | LeakFilm 5 | LeakFilm Mini |
| Sensor | LeakFilm Conductive_D LeakFilm Chemical | LeakFilm Hydrocarbon | LeakFilm Conductive | LeakFilm Conductive |
| End Connector | End Connector 4 Lines | End Connector 4 Lines | End Connector 2 Lines | End Connector 2 Lines |
| Other Connectors | Start Connector Jump Connector Elbow Connector | Start Connector Jump Connector Elbow Connector | Start Connector Jump Connector Elbow Connector | Start Connector Jump Connector Elbow Connector |

# Honeywell Gas Detection

Honeywell is able to provide gas detection solutions to meet the requirements of all applications and industries. Contact Honeywell in the following ways.

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**Honeywell Analytics**
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**Please Note:**

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