Technical Manual

Honeywell

LeakFilm Mini

Single Channel Conductive Liquid Leak Detection Controller

1. Safety

Ensure that this Operating Manual is read and understood **BEFORE** installing / operating / maintaining the equipment. Pay particular attention to **Warnings** and **Cautions**. All document Warnings are listed here and repeated where appropriate at the start of the relevant chapter(s) of this Operating Manual. **Cautions** appear in the sections/sub-sections of the document where they apply.

WARNINGS

LeakFilm controllers and sensors are designed for installation and use in ordinary areas only. Do not install the controllers and the sensors in hazardous areas.

Installation must be in accordance with the recognised standards of the appropriate authority in the country concerned.

Access to the terminal block for wiring and switches for configuration of the controller, when carrying out any work, must only be conducted by trained personnel.

Before carrying out any work ensure local regulations and site procedures are followed. Appropriate standards must be followed to maintain the overall certifications.

Never attempt to open a plastic enclosure or connector or replace/refit the wire of the sensor while power is still applied to the controller.

LeakFilm controllers must be earthed/grounded for electrical safety and to limit the effects of radio frequency interference. Earth/ground points are provided "F.G." or "SHIELD" terminal of the controllers.

Ensure that all screens/instrument earth/clean earth wiring is earthed/grounded at a single point (either at the controller or master controller - BUT NOT BOTH) to prevent false readings or alarms that may occur due to potential earth/ground loops.

The plastic enclosure of the controllers is a potential electrostatic charging hazard. Avoid any conditions that could result in the controllers becoming electrostatically charged.

Take care when handling LeakFilm sensors as they may be damaged by sharp tools.

LeakFilm controllers should be handled with care to avoid mechanical shock and impact.

Do not expose to temperatures, humidity and other conditions beyond the storage and operating ranges.

LeakFilm controllers must have a suitably rated fuse.

LeakFilm controllers and sensors should be installed in a location free from dust, direct sunlight, temperature extreme, strong magnetic field and heavy vibration.

2. Information

This manual is for use with LeakFilm Sensors and Controllers range only.

The Start-up/Surge/In rush current is dependent on the type of power supply used. The typical start-up current for LeakFilm Mini is less than 180mA at 24VDC. Measure the start-up current using the specific power supply before installation to ensure suitability for your application.

Honeywell Analytics can take no responsibility for installation and/or use of its equipment if not done so in accordance with the appropriate issue and/or amendment of the Technical Manual.

The reader of this Operating Manual should ensure that it is appropriate in all details for the exact equipment to be installed and/or operated. If in doubt, contact Honeywell Analytics for advice.

The following types of notices are used throughout this Operating Manual:

WARNING

Identifies a hazardous or unsafe practice which could result in severe injury or death to personnel.

Caution: ***Identifies a hazardous or unsafe practice which could result in minor injury to personnel, or product or property damage.***

Note: Identifies useful/additional information.

Every effort has been made to ensure the accuracy of this document, however, Honeywell Analytics can assume no responsibility for any errors or omissions in this document or their consequences.

Honeywell Analytics would greatly appreciate being informed of any errors or omissions that may be found in the content of this document.

For information not covered in this document, or if there is a requirement to send comments/ corrections about this document, please contact Honeywell Analytics using the contact details given on the back page.

Honeywell Analytics reserve the right to change or revise the information supplied in this document without notice and without obligation to notify any person or organisation of such revision or change. If information is required that does not appear in this document, contact the local distributor/agent or Honeywell Analytics.

3. Table of Contents

4. Introduction

LeakFilm Mini is a controller connected to the LeakFilm Conductive sensor to detect conductive liquid leaks. The controller features a buzzer and 3 LEDs indicating the status of fault, leak and power. The controller also provides a normally open relay for controlling external equipment such as alarms, sirens, valves or switches.

Due to the fast response time of the LeakFilm sensors, the controller can detect a leak within a few seconds and up to 50m of sensor can be connected to LeakFilm Mini. The controller can detect a broken sensor as well as a leak and the fault LED is activated when the broken sensor is detected.

LeakFilm Mini has been designed to be mounted on a 35mm small form factor DIN rail mounting strip, so that the user can easily install the controller on a wall or in the interior of an electrical control panel.

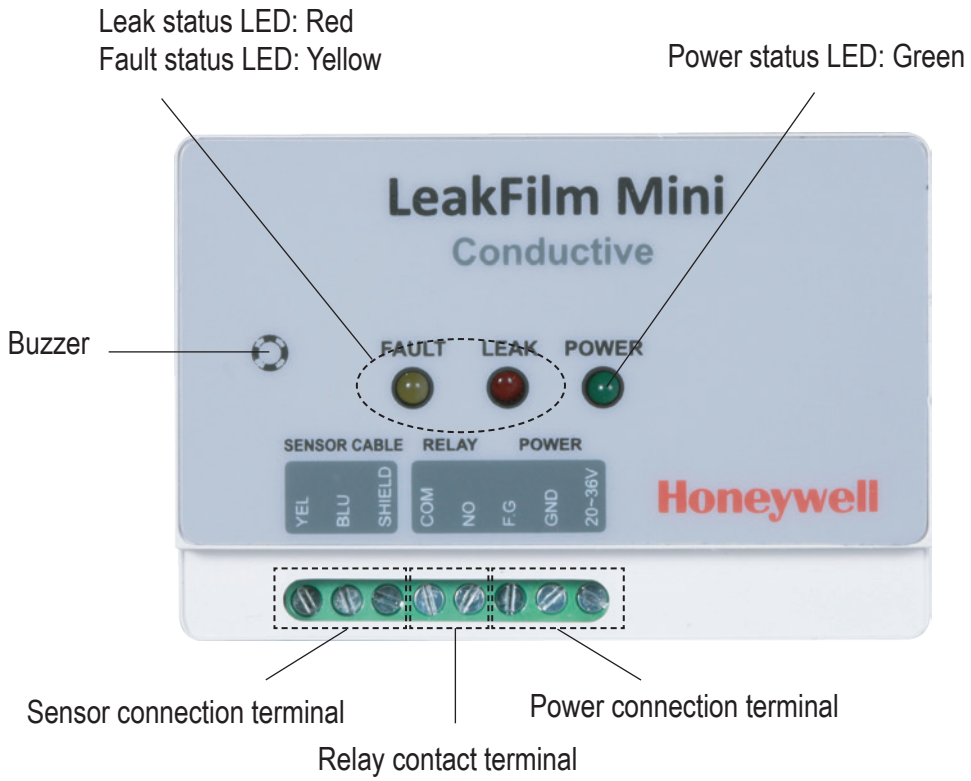


Diagram 1: LeakFilm Mini Overview

***Caution:* LeakFilm Mini can only be used with the LeakFilm Conductive sensor to detect water or conductive liquid. For a chemical or hydrocarbon leak, use LeakFilm Pro or LeakFilm HC.**

***Caution:* LeakFilm Mini cannot detect leak location. For leak location detection, use LeakFilm Pro.**

4. Introduction

4.1 Package Contents

LeakFilm Mini is supplied with pre-configured and 100% tested controller, manual CD-ROM and package box as shown in below.

The CD-ROM should run automatically when put into a computer CD-ROM player. If the CD-ROM does not start, click on ‘My Computer’, locate the CD-ROM and double click the file ‘start.exe’.

LeakFilm Mini Manual CD

Diagram 2: Package Box Contents

WARNINGS

When unpacking the product, handle with care to avoid any damage to the product.

Do not throw away the box, which may be required for product storage or transport, and keep it together with the manual.

4. Introduction

4.2 LeakFilm Sensors

LeakFilm Mini can only be used with the LeakFilm Conductive sensor, to detect only water or conductive liquid. There are 3 different types of ordering part numbers for LeakFilm Conductive depending on the length.

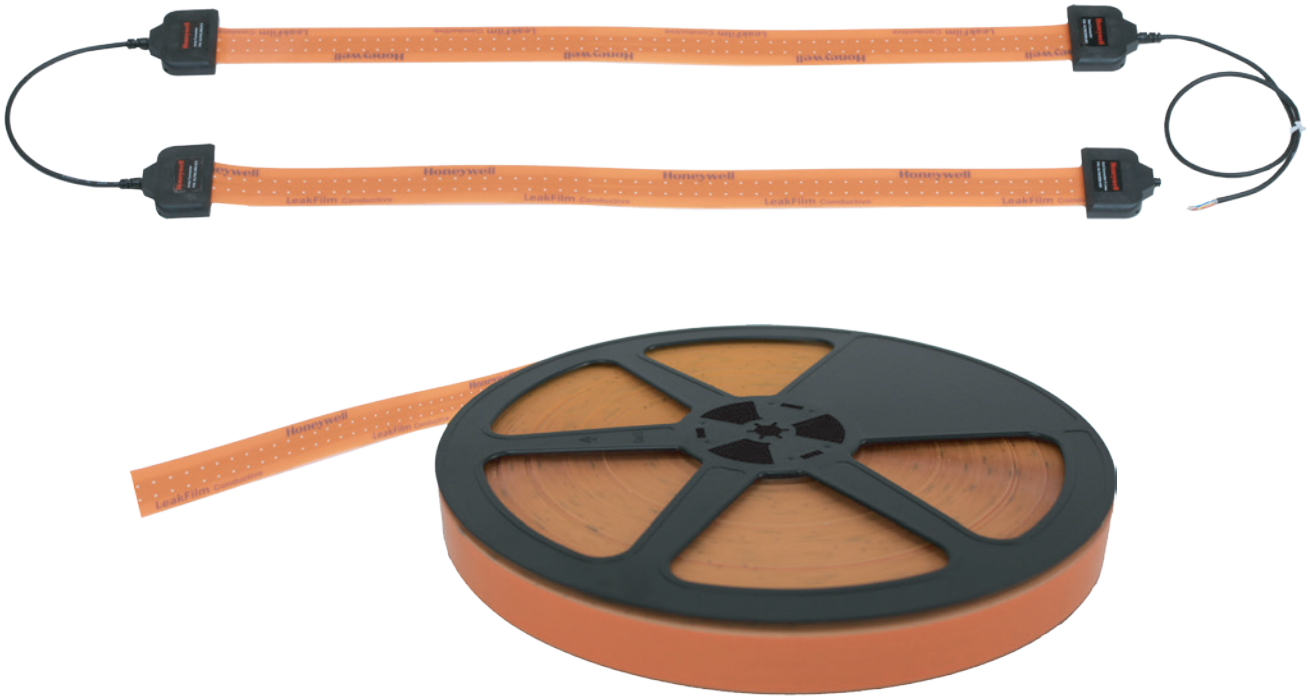


Diagram 3: LeakFilm Conductive

Part number	Product Name	Description
HLFSSCNN-100	LeakFilm Conductive	100 meter Conductive Sensor
HLFSSCNN-050		50 meter Conductive Sensor
HLFSSCNN-001		Custom Length Conductive Sensor

Table 1: LeakFilm Conductive Sensors

4. Introduction

4.3 LeakFilm Connectors

LeakFilm provides 4 different types of connectors which are suitable for various installation environments. LeakFilm connectors were designed to be assembled by snapping, so that only a screw driver is required for assembly. Refer to the LeakFilm Sensor Technical Manual (3013M5006) for instructions on how to assemble the sensor into the connector.

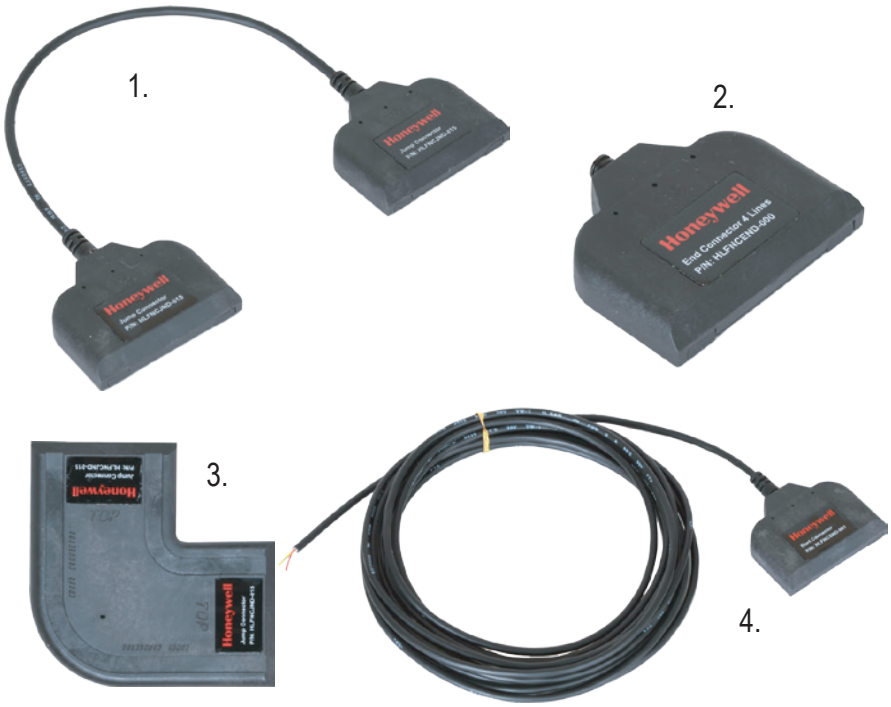


Diagram 4: LeakFilm Connectors

No	Part number	Product Name	Description
1	HLFNCJND-000	Jump Connector	Cable Jump Connector with 15cm Lead Wire
	HLFNCJND-001		Cable Jump Connector with 1m Lead Wire
2	HLFNCENN-000	End Connector 2 Lines	End Connector 2 Lines
3	HLFNCLND-000	Elbow Connector	Elbow Connector
4	HLFNCSND-005	Start Connector	Start Connector with 5 meter Lead Wire

Table 2: LeakFilm Connectors

***Caution:* LeakFilm Conductive sensor should be used with 2 lines end connector (HLFNCENN-000). 4 lines end connector is not applicable.**

5. Installation

WARNINGS

LeakFilm controllers and sensors are designed for installation and use in ordinary areas only. Do not install the controllers and the sensors in hazardous areas.

Installation must be in accordance with the recognised standards of the appropriate authority in the country concerned.

Access to the terminal block for wiring and switches for configuration of the controller, when carrying out any work, must only be conducted by trained personnel.

Before carrying out any work ensure local regulations and site procedures are followed. Appropriate standards must be followed to maintain the overall certifications.

Never attempt to open a plastic enclosure or connector or replace/refit the wire of the sensor while power is still applied to the controller.

LeakFilm controllers must be earthed/grounded for electrical safety and to limit the effects of radio frequency interference. Earth/ground points are provided "F.G." or "SHIELD" terminal of the controllers.

Ensure that all screens/instrument earth/clean earth wiring is earthed/grounded at a single point (either at the controller or master controller - BUT NOT BOTH) to prevent false readings or alarms that may occur due to potential earth/ground loops.

The plastic enclosure of the controllers is a potential electrostatic charging hazard.Avoid any conditions that could result in the controllers becoming electrostatically charged.

Take care when handling LeakFilm sensors as they may be damaged by sharp tools.

LeakFilm controllers should be handled with care to avoid mechanical shock and impact.

Do not expose to temperatures, humidity and other conditions beyond the storage and operating ranges.

LeakFilm controllers must have a suitably rated fuse.

LeakFilm controllers and sensors should be installed in a location free from dust, direct sunlight, temperature extreme, strong magnetic field and heavy vibration.

5. Installation

5.1 Mounting and Location

LeakFilm Mini is designed to be mounted on a 35mm small form factor DIN rail mounting strip, so that the user can easily install the controller on a wall or in the interior of an electrical control panel. The following points should be noted when locating the controllers.

- When locating the controllers, consider the possible damage caused by natural events e.g. rain or flooding. LeakFilm Mini is not waterproof (IP20).
- Consider ease of access to the controller for repair and maintenance.
- Avoid any location mentioned in the above warnings.

See the installation drawing at the end of this manual for mechanical dimensions.

5.2 Sensor installation

LeakFilm sensor has double sided tape to adhere to the floor or a flat surface. The following points should be noted when installing the sensors.

- The surface should be clean for better adherence to the sensor.
- Glue or adhesive can be used in addition to standard double sided tape if the surface is not flat or not suitable for double sided tape.

5.3 Typical examples of installing the sensor

Overall length of the sensor should be less than 50 meters and overall length of the lead wire should also be less than 50 meters.

Case 1: Standard lead wire and custom length of single sensor

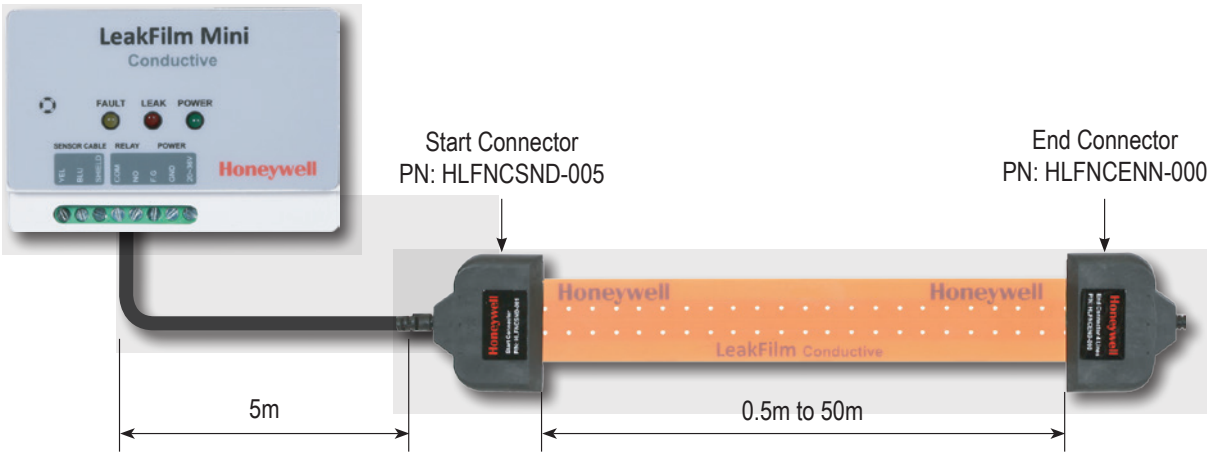


Diagram 5: Case 1

5. Installation

Case 2: Standard lead wires and custom length of multiple sensors

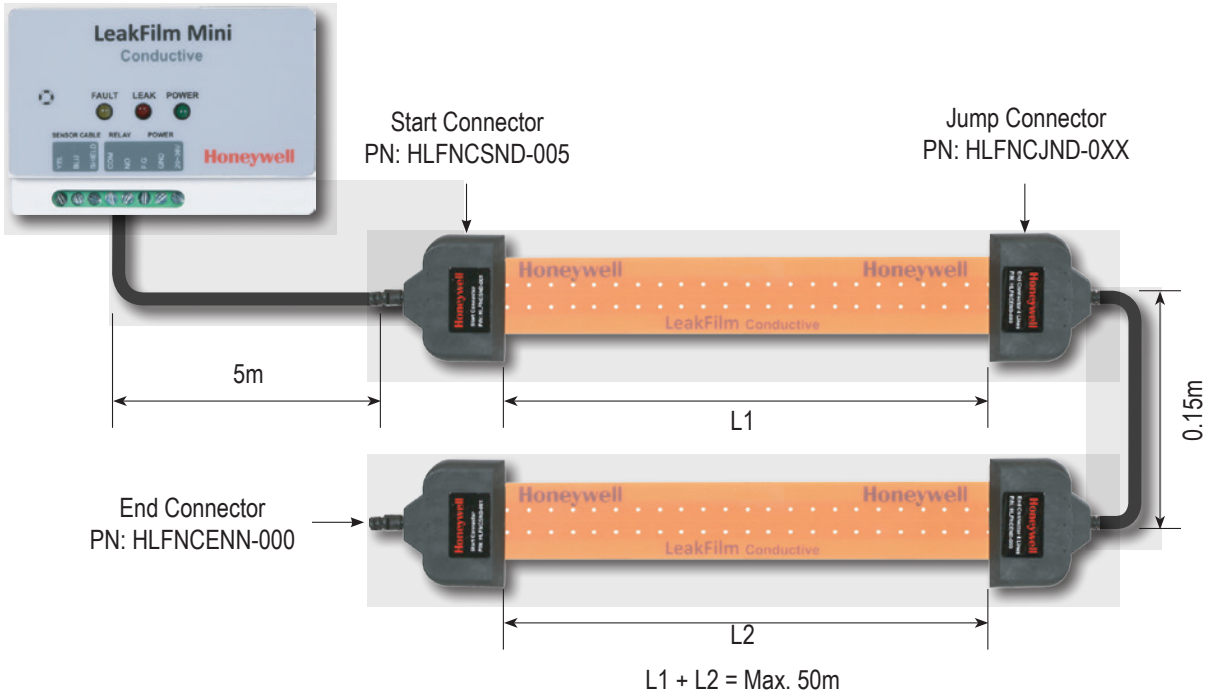


Diagram 6: Case 2

Case 3: Custom length of lead wire and custom length of single sensor

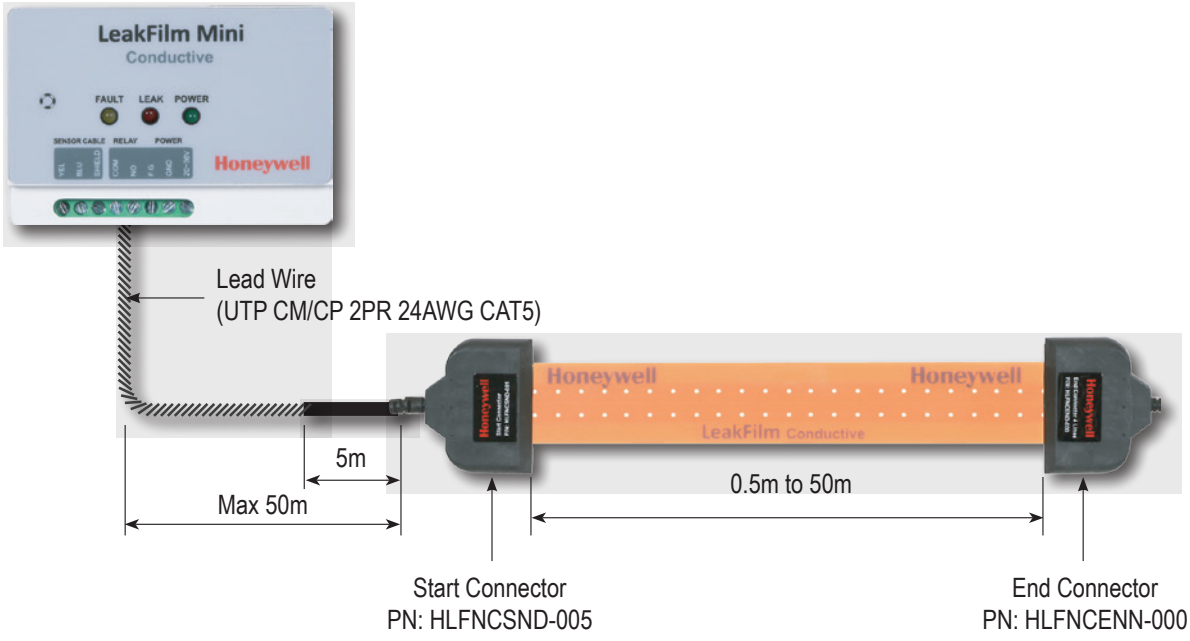


Diagram 7: Case 3

5. Installation

Case 4: Custom length of lead wires and custom length of multiple sensors

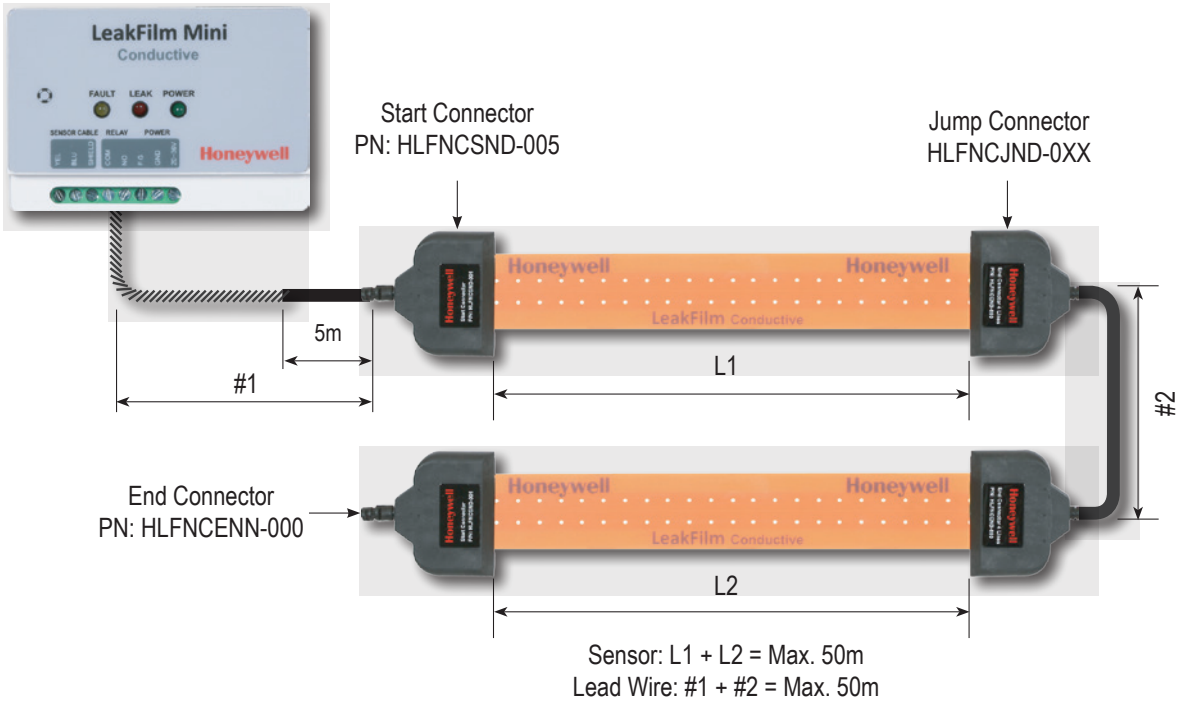


Diagram 8: Case 4

Caution: *Maximum length of sensor and lead wire depends on the sensor and controller type.*

6. Electrical connections and power on

6.1 Terminal connections

WARNINGS

All electrical connections should be made in accordance with any relevant local or national legislation, standards or codes of practice.

LeakFilm controllers must be earthed/grounded for electrical safety and to limit the effects of radio frequency interference. Earth/ground points are provided "F.G." or "SHIELD" terminal of the controllers.

All electrical connections must be terminated correctly as per below wiring diagram. Otherwise the controller will not operate properly.

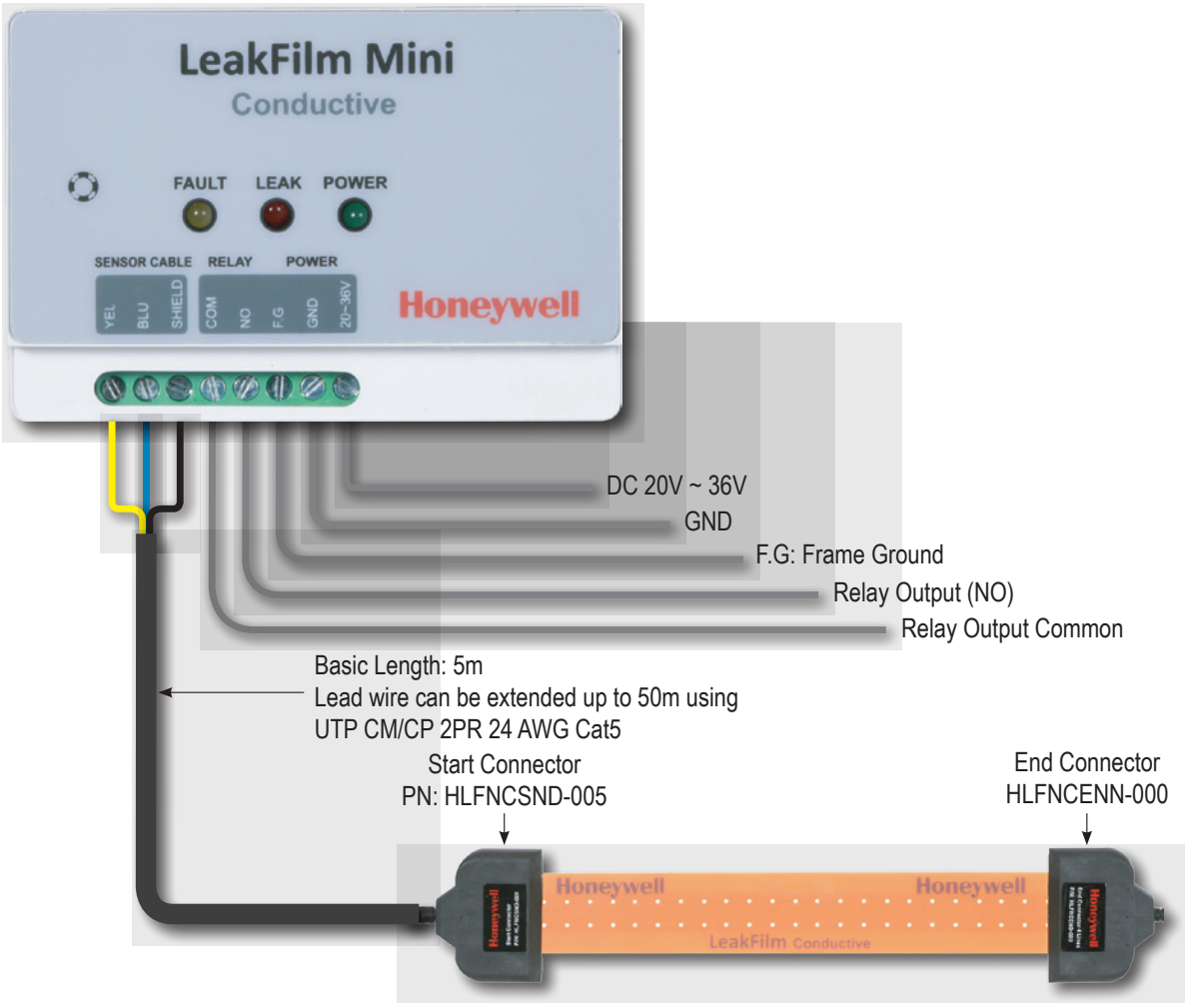


Diagram 9: Wiring Diagram

6. Electrical connections and power on

Marking	Group	Description
YEL	Sensor Cable	Yellow wire of LeakFilm Conductive sensor
BLU		Blue wire of LeakFilm Conductive sensor
SHIELD		Shield wire of LeakFilm Conductive sensor
COM	Relay	Common of the relay
NO		Normal open of the relay. NO and COM closed when leak or fault.
F.G	Power	Frame ground
GND		Ground (0VDC) of power supply
20~36V		+V of power supply. 24VDC Nominal.

Table 3: LeakFilm Mini Controller Terminal Connections

6. Electrical connections and power on

6.2 Power on (Commissioning)

> ***Caution:*** ***The following procedure should be followed carefully and only performed by suitably trained personnel.***

1. Check that all electrical connections are terminated correctly as per the wiring diagram.
2. Switch on the power supply to the controller.
3. Using a Digital Multi Meter (DMM), check the supply voltage at the terminals GND and 20~36V. The measured voltage should be in the range of 20-36VDC.
4. Switch off and on again.
5. Check that the Power, Leak and Fault LEDs light on sequentially.
6. Check that the buzzer beeps 2 times (Default, depends on the sensitivity)

After going through all of the above procedures correctly, LeakFilm Mini can be tested by dropping a small amount of water onto the sensor to check for correct operation.

7. Characteristics and specifications

LeakFilm Mini

Item	Specification
Applicable sensor	LeakFilm Conductive
Power supply	20 to 36 VDC
Power consumption	Max 1 Watt
LED indication	Green - Power On Yellow - Fault Red - Leak
Sound level	Over 80dB @ 10cm
Output	Relay (NO), 30 VDC 5A or 250VAC 5A
Storage Temperature	-10 to 65 °C
Operating Temperature	-10 to 55 °C
Operating humidity	5 to 85 %RH
Sensing length	Min : 0.5 m, Max : 50 m
IP rating	IP20
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

8. Ordering Information

LeakFilm Mini

Part number	Product Name	Description
LeakFilm Controller		
HLFC1MNN	LeakFilm Mini	1 Channel Mini Conductive Controller with Broken Sensor Detection
LeakFilm Sensor		
HLFSSCNN-100	LeakFilm Conductive	100 meter Conductive Sensor
HLFSSCNN-050		50 meter Conductive Sensor
HLFSSCNN-001		Custom Length Conductive Sensor
LeakFilm Connector		
HLFNCSND-005	Start Connector	Start Connector with 5 meter Lead Wire
HLFNCJND-000	Jump Connector	Cable Jump Connector with 15cm Lead Wire
HLFNCJND-001		Cable Jump Connector with 1m Lead Wire
HLFNCLND-000	Elbow Connector	Elbow Connector
HLFNCENN-000	End Connector 2 Lines	End Connector 2 Lines

9. Warranty Statement

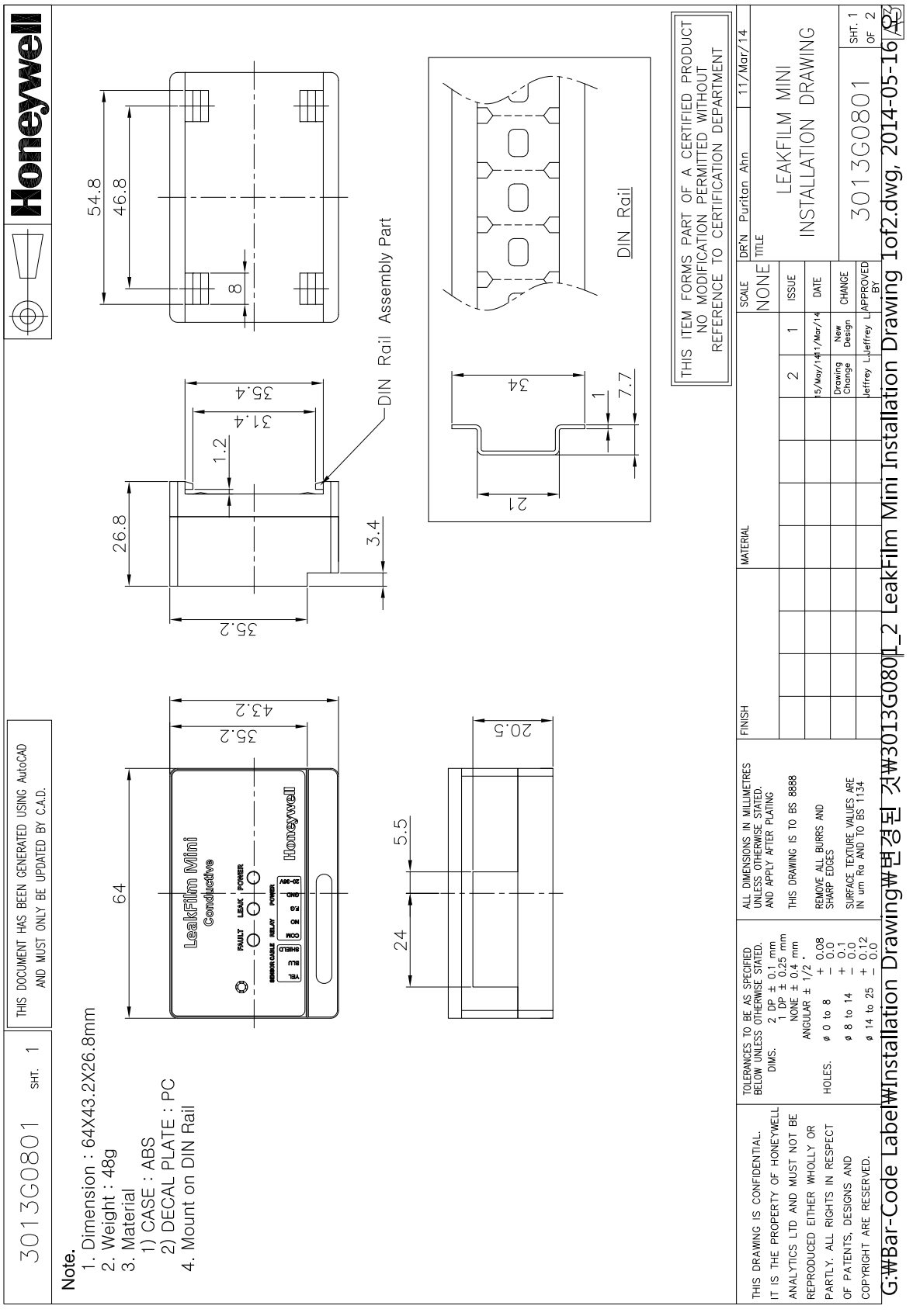
All products are designed and manufactured to the latest internationally recognised standards by Honeywell Analytics under a Quality Management system that is certified to ISO 9001. As such Honeywell Analytics warrants its products against defective parts and workmanship and will repair or (at its option) replace any instruments which are or may become defective under proper use within 18 months from date of commissioning by an approved Honeywell Analytics representative or 24 months from date of shipment from Honeywell Analytics, whichever is the sooner. This warranty does not cover disposable batteries or damage caused by accident, abuse, abnormal operating conditions or poisoning of sensor.

Defective goods must be returned to Honeywell Analytics premises accompanied by a detailed description of any issue. Where return of goods is not practicable Honeywell Analytics reserves the right to charge for any site attendance where any fault is not found with the equipment. Honeywell Analytics shall not be liable for any loss or damage whatsoever or howsoever occasioned which may be a direct or indirect result of the use or operation of the Contract Goods by the Buyer or any Party.

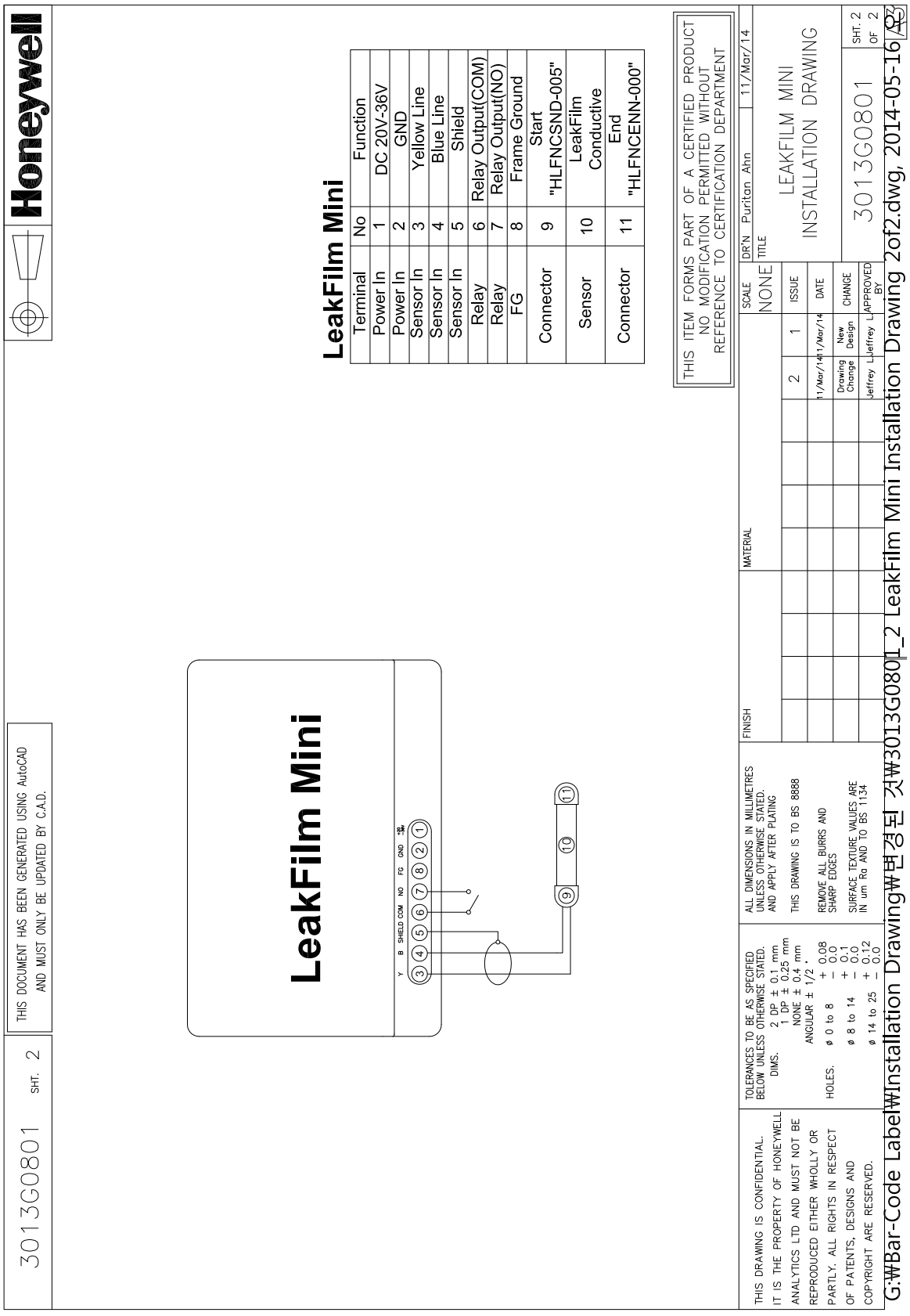
This warranty covers instrument and parts sold to the Buyer only by authorised distributors, dealers and representatives as appointed by Honeywell Analytics. The warranties set out in this clause are not pro rata, i.e. the initial warranty period is not extended by virtue of any works carried out there under.

In no event will Honeywell Analytics be liable for any incidental damages, consequential damages, special damages, punitive damages, statutory damages, indirect damages, loss of profits, loss of revenues, or loss of use, even if informed of the possibility of such damages. Honeywell Analytic's liability for any claims arising out of or related to this product will in no case exceed the order value. To the extent permitted by applicable law, these limitations and exclusions will apply regardless of whether liability arises from breach of contract, warranty, tort (including but not limited to negligence), by operation of law, or otherwise.

10. Installation Drawing



10. Installation Drawing



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