

# LLN Series

## Industrial sensors



### Features

- Solid-state reliability
- No moving parts
- TTL - compatible - 200 mA sinking output; fast response
- Reverse polarity and overvoltage protection
- Stainless-steel housing for long life and ease of cleaning
- Quick-connect, industry standard cable assembly for easy installation
- Wide operating temperature range (-40 °C to +125 °C)
- Polysulphone sensor dome suitable for hygiene applications
- High pressure housing, rated up to 25 bars
- High degree of sealing-IP67
- CE certified

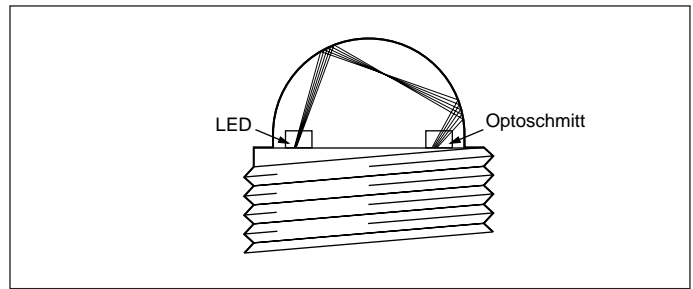
### Description

LLN Series industrial liquid level sensors are designed for industrial environments exposed to extremes of temperature, pressure, vibration and shock. Standard devices feature rugged stainless steel housings and polysulphone domes.

The mode of operation is based on the same principal as the LL series.

An internal regulator enables a supply voltage in the range of 10-40 Vdc to be used while the output is capable of sinking up to 200 mA.

### Principle - in air



### Typical applications

- Industrial compressors
- Machine tools
- Material handling
- Processing and packaging equipment
- Heavy duty automotive

### Technical information

Specifications	
Operation mode	User defined single on/off switch
Repeatability (mm)	±1
Hysteresis (mm)	1 (Dependent on liquid)
Response time	Rising liquid level - 50 us Falling liquid level -1s max. (in ethanol) Response in other liquids dependent on viscosity
Mechanical	
Mounting	Exterior mounting by 3/8" B.S.P. thread
Connector	3-pin integral Lumberg/Brad Harrison type connector Pin 1 supply (V <sub>cc</sub> ) Pin 3 0 V Pin 4 output A range of cable/connector assemblies is available
Material	Polysulphone dome; stainless steel housing (other materials available on request)
Dimensions	Dome 3,5 mm radius Thread 3/8" B.S.P. Hex 24 mm
Environmental	
Operating temperature (°C)	-40 to 125 (Sensing end only)
Storage temperature (°C)	-50 to +90
Humidity	No effect on operation, dependent upon catalogue listing
Vibration / shock	Qualification tested 100 to 5000 Hz at 30g to B.S.2011 part 2.1
Pressure range (bar)	0 - 25
Ambient light limit (mW/cm <sup>2</sup> )	0.5 in operation
Electrical	
Supply Voltage (V <sub>CC</sub> )	10 to 40 Vdc Reverse voltage protection to 40 Vdc Short circuit protection to 40 Vdc
Supply current	60 mA max
Output sink current (I <sub>o</sub> )	200 mA max

## Ordering information

LLN 1 2 3 4 5 6 - 7 8 9

<b>1</b>	<b>Housing material</b>
8	Stainless-steel housed polysulphone dome, 3/8" B.S.P. thread

<b>2</b>	<b>Electrical</b>
6	Internal PCB for operation at 10 V to 40 Vdc input

<b>3</b>	<b>Internal sensor type</b>
5	Type 5

<b>4</b>	<b>Temperature range</b>
1	-40 °C to + 125 °C

<b>5</b>	<b>Termination</b>
7	3 pin male connector Lumberg RKT 4, RKT 4/3 or Brad Harrison M.C. dc4 wire

<b>6</b>	<b>"O"-ring material</b>
2	Fluorocarbon (viton)

<b>7</b>	<b>Internal LED current + output function (see note)</b>
1	NPN output, high in air, normal operation
2	NPN output, low in air, normal operation
4	NPN output, high in air, bubbling applications
5	NPN output, low in air, bubbling applications
6	NPN output, high in air, condensation applications
7	NPN output, low in air, condensation applications

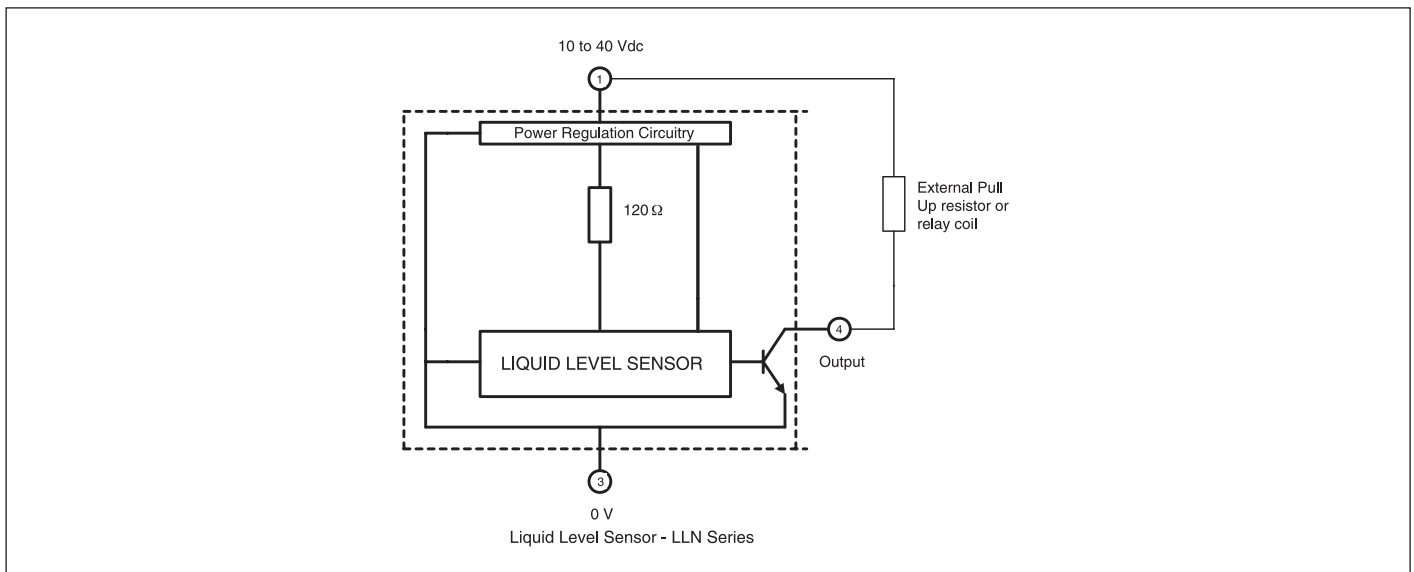
<b>8, 9</b>	<b>Customer special</b>
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<b>Accessories</b>	
HLC 131-020	2 m cable, 3 pin female connector assembly, straight head
HLC 231-020	2 m cable, 3 pin female connector assembly, angled head

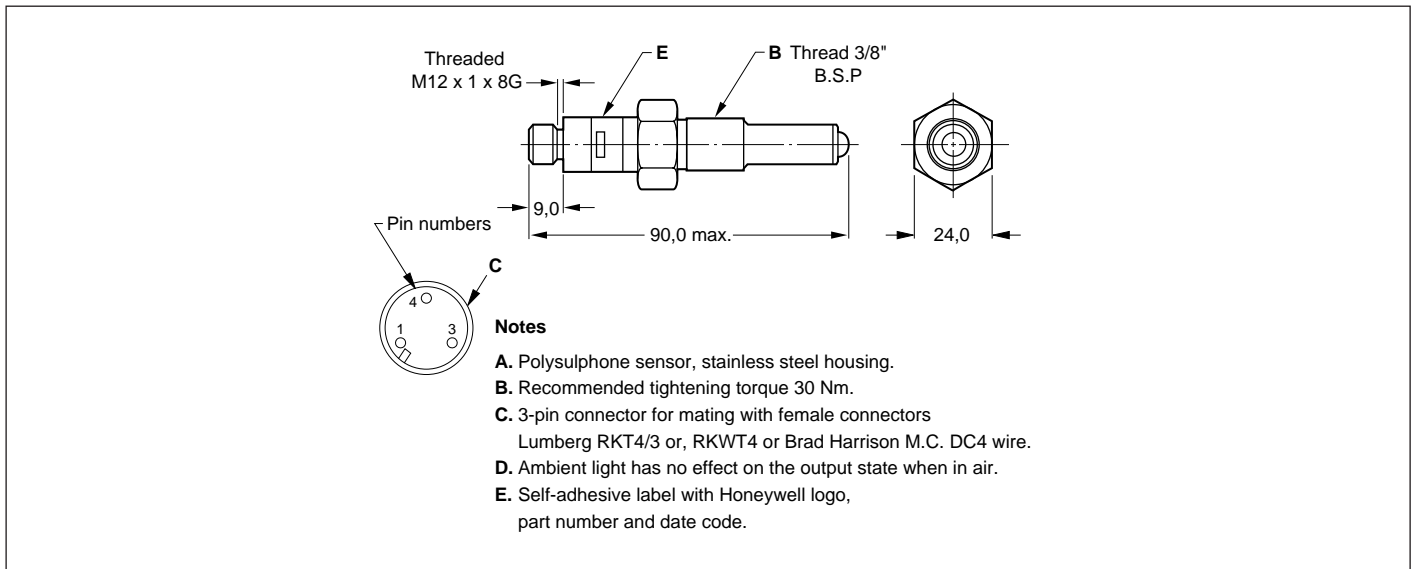
**Note:**

In normal operation -1 or -2 sensors should be selected. In situations where extreme bubbling may occur, then the sensors -4 or -5 should be selected (i.e. LLN865172-4 and LLN865172-5). Where extreme condensation may be present, then the sensors -6 or -7 should be selected. (For assistance on these points contact local sales office).

## Electrical connections



## Mounting dimensions (in mm and inches)



## Connector drawings

