

LLE Series Liquid Level Sensors



Features

- Solid state technology
- Small size
- Digital output
- Pre-wired
- Electrically robust

Description

The enhanced series of liquid level sensors incorporates a photo-transistor trigger which provides a digital output that denotes the presence or absence of liquid.

The mode of operation is derived from the principle of total internal reflection. An LED and photo-transistor are housed within a plastic dome at the head of the device. When no liquid is present, light from the LED is internally reflected from the dome to the photo-transistor. When liquid covers the dome, the effective refractive index at the dome-liquid boundary changes, allowing some light from the LED to escape. Thus the amount of light received by the photo-transistor is reduced and the output switches, indicating the presence of liquid. This method of liquid level sensing is very fast, and almost instantaneous for water.

WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices, or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

Benefits

- Accurate repeatable switching point
- Can be mounted in applications where space is limited
- Microprocessor compatible
- Easy to install saving assembly time
- Reverse polarity, over voltage, short circuit and transient protection

Typical applications

- Home appliances
- Spa baths
- Vending machines
- Food and beverage
- Medical
- Compressors
- Machine tools
- Automotive



WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet (or catalogue) is for reference only. DO NOT USE this document as product installation information.
- Complete installation, operation and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

LLE Series

Liquid Level Sensors

Technical information

Specifications

Operation mode	User defined single point on/off switch (Output is high in air)
Repeatability (mm)	± 1
Hysteresis (mm)	2 (dependent on liquid)
Response time	Rising liquid level - 50 µs Falling liquid level - 1 s max (in ethanol) Response in other liquids dependent on viscosity

Mechanical

Mounting	Type 1 and 2 - mounted from outside; Type 3 and 5 - mounted from inside		
Termination	250 mm flying leads		
	Blue	0 V	
	Red	+5 V to +12 V supply	
	Green	Output	
Material [Note 1]	Polysulphone		
Dimensions	<u>Plastic</u>	<u>Metal</u>	
	LLE101/102/103000	LLE205/305000	
	Dome	3,5 mm radius (includes LLE105000)	
	Thread	M12x1	½ in BSPT
	Hex	19 mm	24 mm (See mounting drawings on page 3)

Environmental

Operating temperature (°C)	-25 to 80
Storage temperature (°C)	-30 to 85
Thermal testing	As per BS EN60068-2-33
Humidity	As per BS EN60068-2-30
Vibration	As per BS EN60068-2-6 Part S3: 1996
Mechanical shock	As per BS EN60068-2-27 Part 2 Ea: 1987
Pressure range (bar)	0 to 5 (plastic housing) [Note 2] 0 to 25 (metal housing)
Ambient IR light limit (@ 940 nm) [Note 3]	10 mW/cm² in operation

Electrical

Supply voltage (Vcc)	+5 Vdc to +12 Vdc ± 5 %	
Supply current (mA)	15 mA nominal @ +5 Vdc	
Output sink current [Note 4]	@ 25 °C	10 mA max
	@ 80 °C	3 mA max

Notes:

[Note 1]	Material compatibility information available on request.
[Note 2]	Threaded sensors only.
[Note 3]	For other ambient light environments the user should test the sensor under application conditions to verify compatibility.
[Note 4]	The output is intended as a TTL compatible output signal, for interfacing to logic systems. For interfacing with other types of circuitry an appropriate buffer circuit must be used.

Order guide

Description

Screw In, M12 Thread, Plastic

(Type 1)

(Type 2)

(Type 3)

Push In, Plastic

(Type 5)

Screw In, ½ in, Metal

Nickel plated brass

Stainless steel

Catalogue Listing

LLE101000

LLE102000

LLE103000

LLE105000

LLE205000

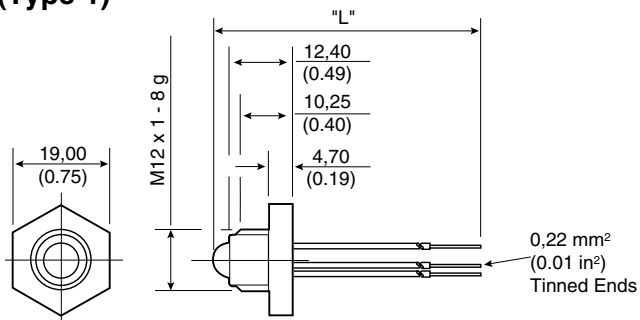
LLE305000

LLE Series

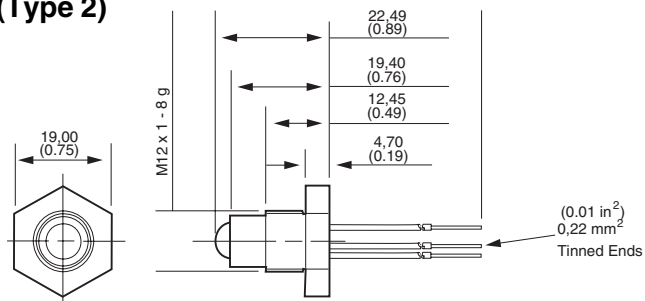
Liquid Level Sensors

Mounting drawing (in mm and inches)

LLE101000 (Type 1)



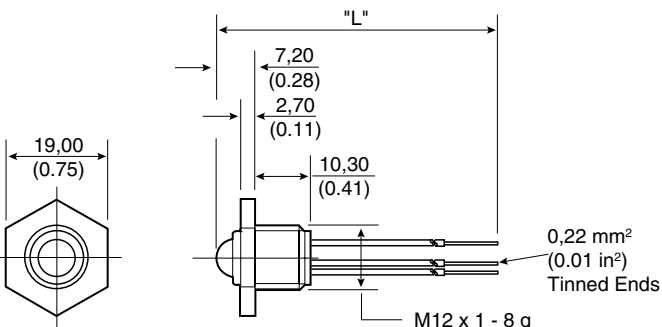
LLE102000 (Type 2)



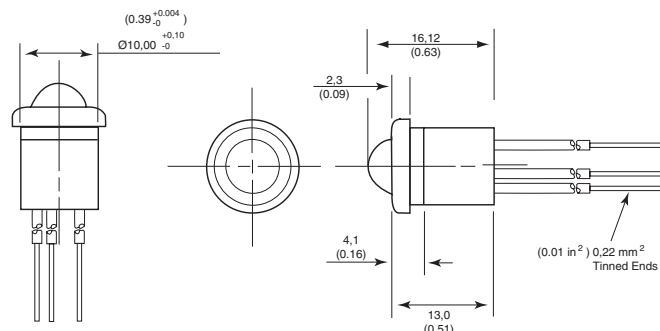
Notes

- 1 Recommended panel hole size $\varnothing 12,5 \pm 0.3 \text{ mm}$ ($0.49 \pm 0.01 \text{ in}$)
- 2 'O' ring seal supplied unassembled

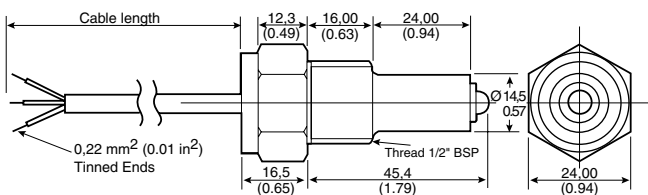
LLE103000 (Type 3)



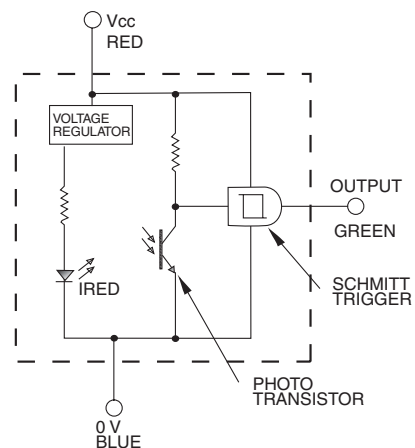
LLE105000 (Type 5)



LLE205000 LLE305000



Electrical diagram



Warranty/Remedy

Honeywell warrants goods of its manufacture as being free of defective material and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during that period of coverage, Honeywell will repair or replace without charge those items it finds defective. **The foregoing is Buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.**

While we provide application assistance, personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change at any time without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

Sales and Service

Honeywell serves its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing or name of the nearest Authorised Distributor, contact your local sales office or:

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