

Liquid Level Sensor

Item	LLS040100	Description	Liquid level sensor	Version	1
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- Function

1. Non-contact Liquid level detecting



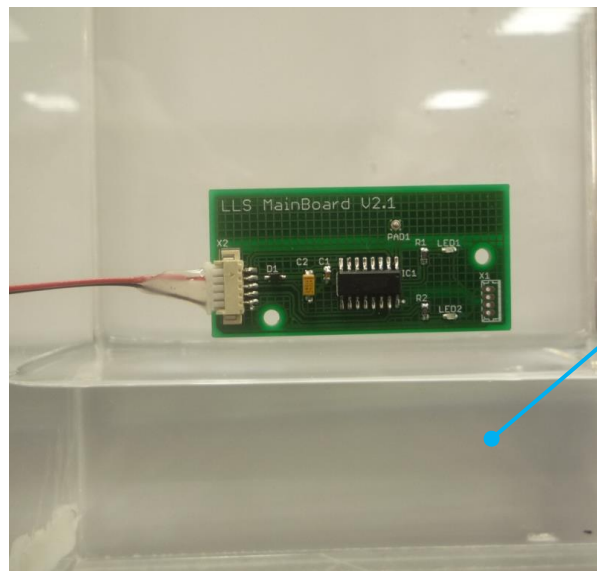
- Application

1. Liquid level detecting for coffee machine, water dispenser
2. Other applications that need non-contact liquid level detection

- Feature

The variation of liquid height in upper level or lower level of the non-metallic container can be detected by using this sensor without having contact with the liquid, especially for drinking water filter, coffee machine and etc. The traditional sensors need to be installed inside of the container to detect the liquid level, having the risk of contaminating the drinking water. It can provide consumer a more reliable selection.

In the actual use, when the liquid level is higher or lower than the sensing area height, there is corresponding TTL logic signal to each level change, respectively. Auto calibration function included.



Container
(Non-metallic)

Fig.1



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● PATENTS

1. Taiwan Patent No. M 505609
2. Taiwan Patent No. I 613420
3. China Patent No. ZL 201520368278.3
4. China Patent No. ZL 201520186018.5

● Electrical Characteristics, Pin Assignment, Connection, Calibration, and Operation

1. Appearance and Pin Assignment

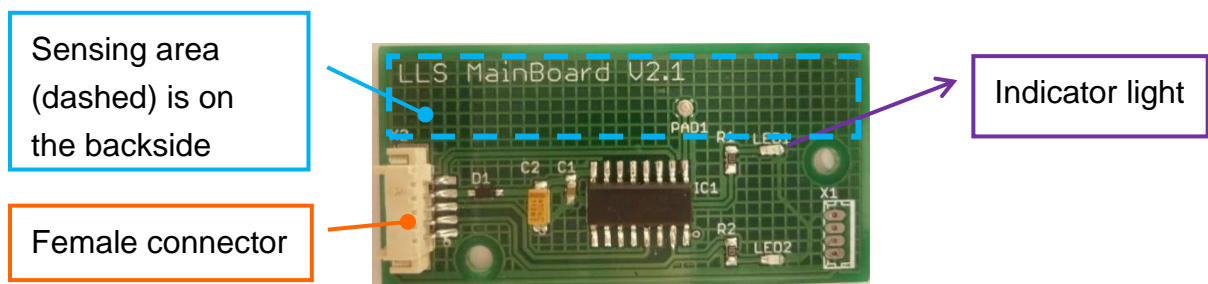


Fig.2

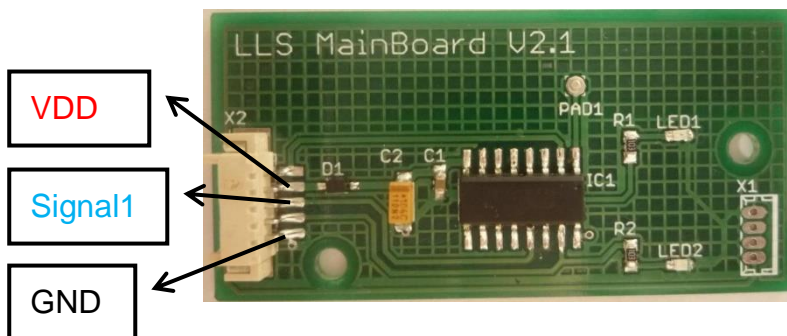


Fig.3

Pin Number	Pin Name	Usage
1	(Unused)	-
2	VDD	-
3	Signal1	Digital Output
4	(Unused)	-
5	GND	-



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2. Liquid level changing and signal output

During usage, defining different liquid level, the level sensor module will send the logic signal via Signal 1 pin. The signal and the corresponding change of the liquid level will be shown as below.

2.1 When the liquid level is lower than the sensing area fixed height, the indicator light will be off and the logic signal is low (L).

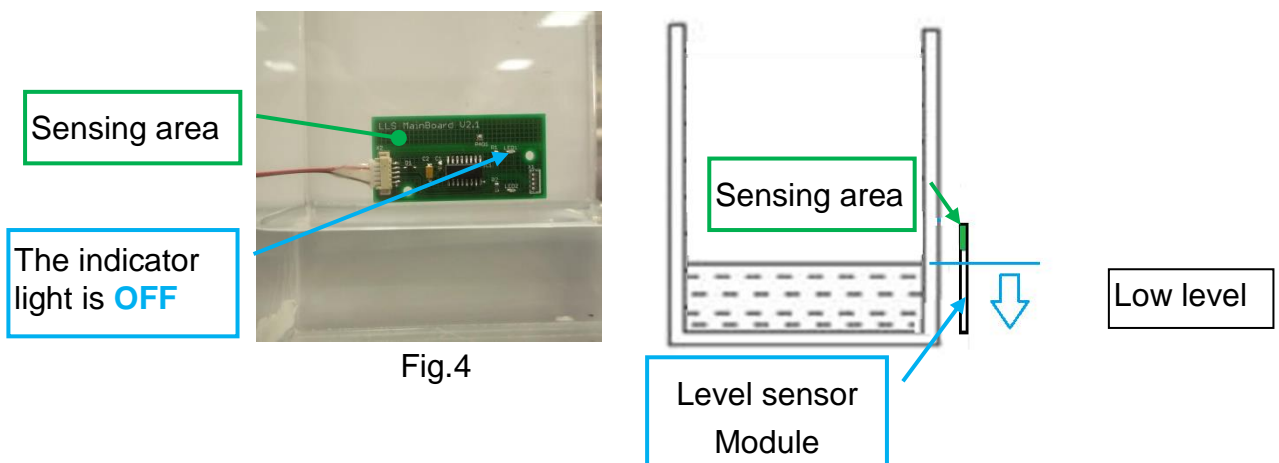


Fig.4

2.2 When the liquid level is higher than the fixed height, the indicator light will be on and the logic signal is high (H).

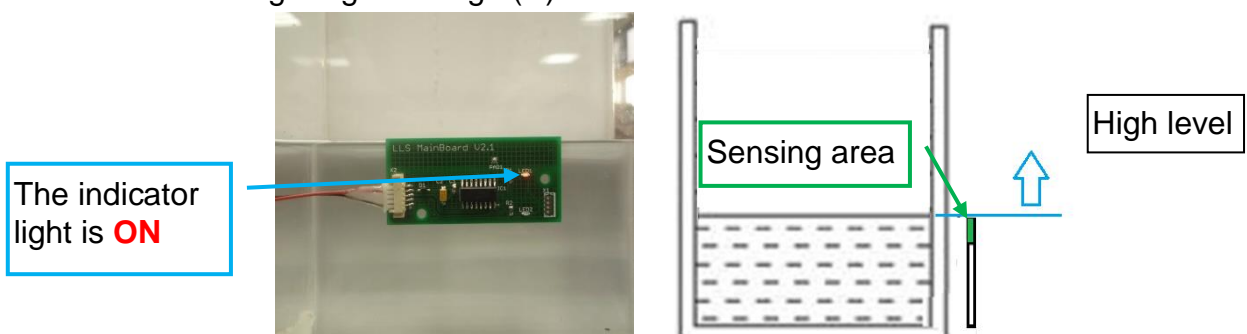


Fig.5

2.3 When the liquid level is between the low level and high level, the logic signal is uncertain.

Remark : The module is functioned with auto calibration. Please install it when



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there's no liquid in the application. Any changing of liquid level or circumstances will be calibrated automatically.

- Maximum Sensing Distance "D" at 25°C: About 7.0 mm (from water to sensing area includes the thickness of container)

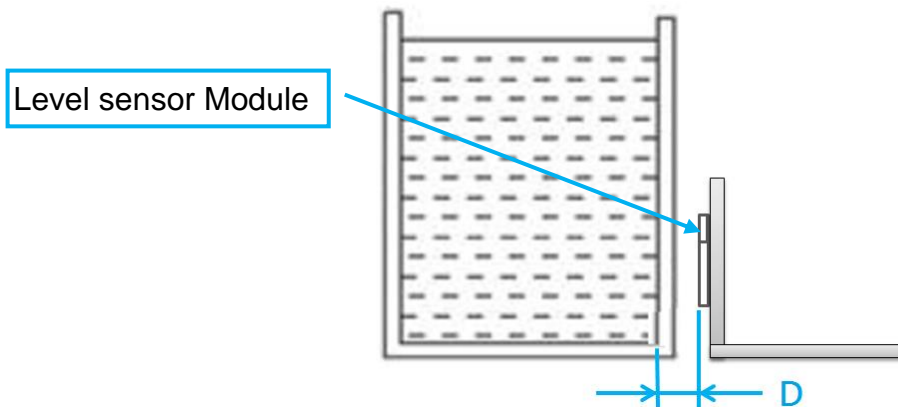


Fig.6

- Electrical Characteristic

Parameter	SYM.	Min.	Typ.	Max.	Unit
Operating Voltage	Vdd	4.5	5.0	5.5	Volt

The output logic voltage level of Signal 1 meet TTL voltage level standard.

- Absolute Maximum Rating (Ta=25°C)

Operating Temperature	Topr	-20~+80	°C
Storage Temperature	Tstg	-40~+85	°C

Note:

1. The module is used to detect the existence of liquid by sensing the capacitance, and the capacitance of liquid will be changed with temperature, especially water. Auto calibration will be started while sensing big changing of capacitance.
2. If the liquid will have been sensed the change in temperature, please be noted that the maximum sensing distance D will be also changed. Therefore, if fixed sensing distance, the sensed height of liquid level can vary due to the impact of liquid temperature. In practice, the change in the height of liquid level should be determined by actual measurement.

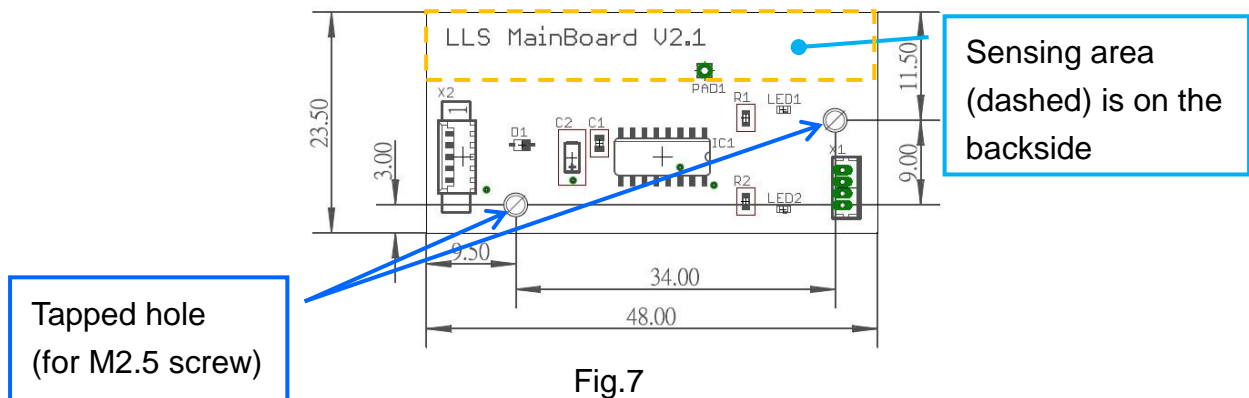


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● Dimensions (Unit: mm, Tolerance: ± 0.25 mm)

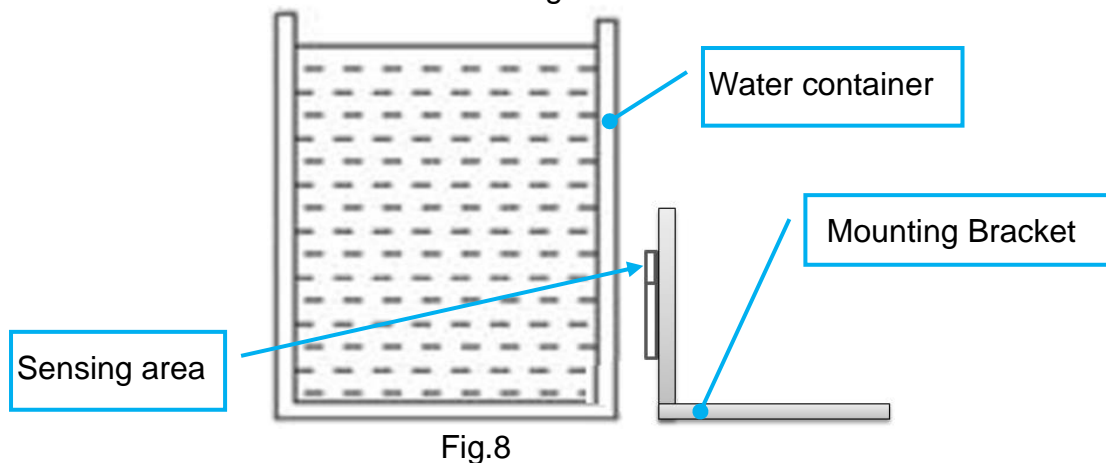
The maximum size of the appearance : 48.0(L) * 23.5(W) * 4.7 (H) mm



● Mounting direction

The sensing area should be installed facing the water container.

Note: This module does not include mounting bracket.



Attention: This level sensor module uses the embedded sensing capacitance to detect the change of liquid level; therefore, it must keep all metal articles or human body influencing the capacitance far away from the sensing area to avoid the disoperation. There should be a certain distance between metal article or human body and sensing area. The distance should be determined by actual measurement.



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● Packing

	Part Number	Package	Quantity	Total quantity	Dimension(mm)
1.	LLS040100	Bubble bag	1 pcs	1 pcs	55L*35W*8H
		Inner box	300 pcs	300 pcs	348L*191W*85H
		Carton	3 boxes	900 pcs	364L*278W*213H

※ Package shown as below for reference.(Temporary)



● Notes

For the continued product improvement as one of the company policies, specifications may change or update without notice. The latest information can be obtained through our sales offices. Normally, all products are supplied under our standard conditions.

● Cautions

1. The male connector (pitch : 1.25mm) and the wire are not included in the standard package. It's needed to purchase if required.
2. If the product is intended to be used for other endurance equipment requiring higher safety and reliability such as life support system, aerospace devices, disaster prevention and safety system, it's necessary to ensure the reliability or contact us before using.
3. Please do not exceed the rated load as there will be a risk of disabling the product function.
4. For customized design, it's recommend that the line length between the sensing area and the main IC should not exceed 35cm.

