

深圳市能点科技有限公司

SHENZHEN EPT TECHNOLOGY CO., LTD.

规格书

SPECIFICATION



FS-IR02

一体式单点光电式液位传感器

Single-point photoelectric level sensor

版本 Version: A

日期 Date: 2023/06/06

www.eptsz.com

www.eptsensor.com

1.修订记录/Revision History

[illegible]

本規格書為相應產品作業之標準，在客戶確認後，會作為生產、供貨的依據。如有特殊要求，可告知联系你的市场部人员，并出具承认书。

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2. 应用领域/Application

饮水机/ Water dispenser

热水器/Water heater

加湿器/Humidifier

医疗设备/Medical devices or equipment

需要侦测液体的电器，设备等/Electrical appliances and equipment's etc. requiring liquid-level control

3. 产品特征/Product features

无机械运动部件、可靠性高

No mechanical moving components and with high reliability

体积小、成本低

Small in size and low in cost

液位控制精度高

High liquid level control precision and can be installed from any direction

符合 RoHS 要求

The sensor itself satisfies RoHS requirements

防水等级 IP67

Waterproofing standard IP67

4. 电气参数特性/ Electrical Specification (Ta=25°C)

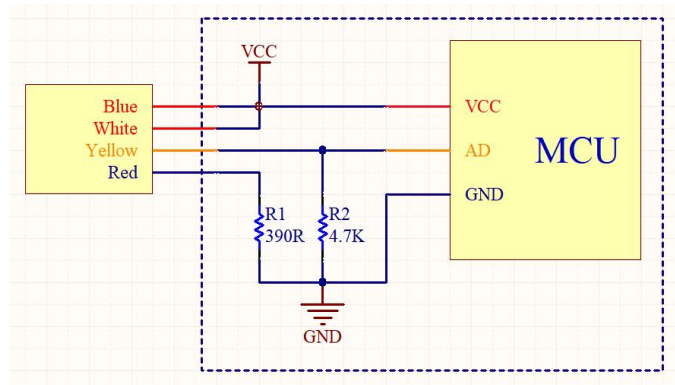
参数/Parameter		符号/Symbol	条件/Condition	最小值/Min	典型/Typ	最大值/Max	单位/Units
直流特性/direct-current characteristic	工作电压/Working Voltage	VDD		4.5	5	5.5	V
	电流/current	IDD	VDD = 5V 有水状态/in water	10	15	20	mA
			VDD = 5V 无水状态/in air	15	20	25	mA
	消耗功率 power consumption	PD	VDD = 5V 有水状态/in water	50	75	100	mW
			VDD = 5V 无水状态/in air	75	100	125	mW
输出特性/output characteristic	有水状态输出电压/output voltage in water	VO1	VDD = 5V Ta = 25℃	0	<0.3	0.80	V
	无水状态输出电压/output voltage in air	VO2	VDD = 5V Ta = 25℃	2.0	>4.6	5	V
	输出源电流/output current	IOL	VDD = 5V Ta = 25℃	15	20	25	uA
	输出灌电流/output current	IOH	VDD = 5V Ta = 25℃	—	10	—	mA
	响应时间/response time		VDD = 5V Ta = 25℃	—	100	—	uS
极限值/limit value	工作温度/Operating Temperature	Topr	VDD = 5V	-20	—	80	℃
	储存温度/Storage Temperature	Tstg	—	-25	—	85	℃
	工作寿命/Working Time	Wt	VDD = 5V Totg = 25℃	—	50000	—	h



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5. 推荐应用电路/Recommended Application Circuit



6. 应用及检测/Application & Detection

将液位传感器按下述方式之一安装，再将其按如上电路连接，信号端将输出与水位状况一致的电压信号，此信号作为液位传感器高度控制信号接入 MCU（单片机）A/D（模数转换）口，当液位超过临界液位而淹没传感器本体时，此时信号输出为低电压，当液位低于临界液位而显露传感器本体时，此时信号输出为高电压，具体参数如上表所示。

Install level sensor according to one of the mentined modes and connect it according to above circuit, the signal end will output voltage signal consistent with the water level, the signal will be accessed to MCU or A/D port. When the level is over the critical level and the sensor body is submerged, output signal is low votage When the level is below the critical level and the sensor body is exposed, output signal is high voltage. Please refer to specific parameters as above table

注意：

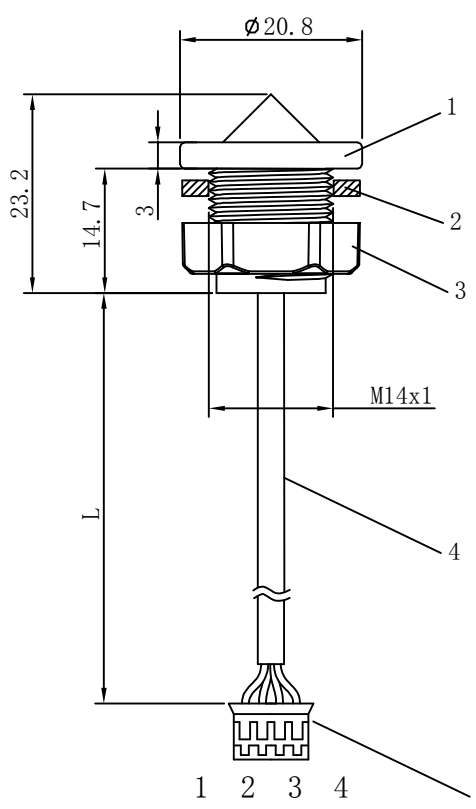
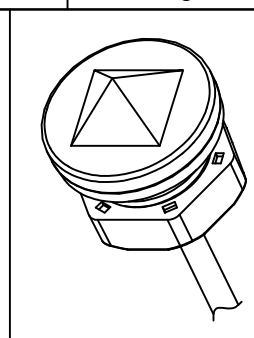
1. 当被探测液体为水，水位高度低于临界液位时，水汽、水蒸汽或水珠会在传感器本体表面集结，从而导致信号输出电压下降。
所以在实际应用时，考虑到水汽、水蒸汽或水珠的影响，将传感器阈值电压设置为 V_T ，即信号端输出电压如果大于 V_T ，则判断液位低于临界液位，信号端输出电压如果小于 V_T ，则判断液位高于临界液位。
 V_T 一般取值为 0.3—0.5V，具体数值根据水汽、水蒸汽或水珠的产生以及影响程度来确定。当被探测液体为其它时，也会受到水珠的影响，故也按此法考虑。
2. 考虑到液面的波动特性，如果波动性较大，且波动幅度>1MM，在程序中要加入防抖逻辑。
3. 长期使用过程中，传感器表面因液体杂质产生污垢，轻微的污垢不会影响到传感器的效能，如有严重的污垢产生，导致传感器整体覆盖，
则需要提前告知特殊性，以便我方技术部做优化处理。
4. 传感器在阳光直射下会受到干扰，请安装在避免阳光照射的位置内。
1. In practical application, taking into consideration of the influence of steam and dirt, the liquid level threshold voltage is set as V_T , that is, if the output voltage of signal end is higher than V_T , the liquid level is decided to be lower than the critical liquid level; and if the output voltage of signal end is lower than V_T , the liquid level is decided to be higher than the critical liquid level. V_T is set between 0.3 and 0.5 V, and the specific value is determined by the generation speed of dirt.
2. Considering the fluctuation characteristics, if the fluctuation is large and the fluctuation range is more than 1MM, the anti-shake logic should be added to the program.
3. In the long-term of using, the surface of the sensor is dirty due to liquid impurities, slight dirt will not affect the performance of the sensor. If dirt would cover all the surface of sensor, please inform us the particularity in advance, our technical department can optimize the treatment.
4. The sensor will be effected when exposed to direct sunlight. Please install it away from direct sunlight.

7. 尺寸和推荐安装/Outline Drawing and Recommended installation



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