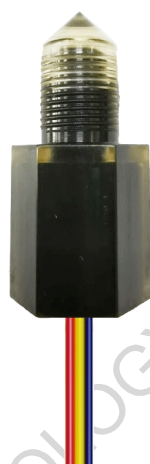


深圳市能点科技有限公司

SHENZHEN EPT TECHNOLOGY CO., LTD.

规格书

SPECIFICATION



FS-IR1902D-PNP NC

单点光电式液位传感器

Single-point Photoelectric liquid level sensor



版本 Version: B-L

日期 Date: 2021/03/17

www.eptsz.com

www.eptsensor.com

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本规格书为相应产品作业之标准，在客户确认后，会作为生产、供货的依据。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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1. 修订记录/Revision History

No.	日期/Date	备注/Remark	修订/Revision
1	20200901	初始规格书版本发行/ MP Version issue	A
2	20210317	添加部分细节要求/ Added some details	B



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2. 应用领域/Application

医疗设备/Medical devices or equipment

机电设备/ Electrical equipment

需要侦测液体的电器，设备等/ Electrical equipment and devices which need to detect liquid

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

防腐蚀性强

Strong corrosion resistance

液位控制精度高

High precision of liquid level control

防水等级 IP67

Waterproofing standard IP67

响应反馈时间快，安装方式灵活，易清洗避免细菌积淀滋生

Fast Response time, installation method is flexible, easy to clean to avoid bacterial accumulation

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	工作电压/Working Voltage	VDD		>5	24	<25	V
	电流/Current	IDD	VDD=24V 有水状态（无负载）/in Water	>9		<15	mA
			VDD=24V 无水状态（无负载）/in Air	>9		<15	mA
输出特性/output characteristic	有水状态输出电压/ Output Voltage in Water	VO1	VDD=24V Ta=25°C	—		<0.3	V
	无水状态输出电压/ Output Voltage in Air	VO2	VDD=24V Ta=25°C	>4.7		>22	V
	输出源电流/Output Current	IOH	VDD=24V Ta=25°C	—	<500	—	mA
	响应时间/Response Time		VDD=24V Ta=25°C	—	<1	—	S
极限值/limit value	工作温度/Operating Temperature	Topr	VDD=24V	-20	—	80	°C
	储存温度/Storage Temperature	Tstg	—	-25	—	85	°C
	工作寿命/Working Time	Wt	VDD=24V Totg=25°C	—	50000	—	h
	压力范围/Pressure Range		—	—	—	3	MPa



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输出类型 Output type

NPN 常闭 NPN NC

NPN 常开 NPN NO

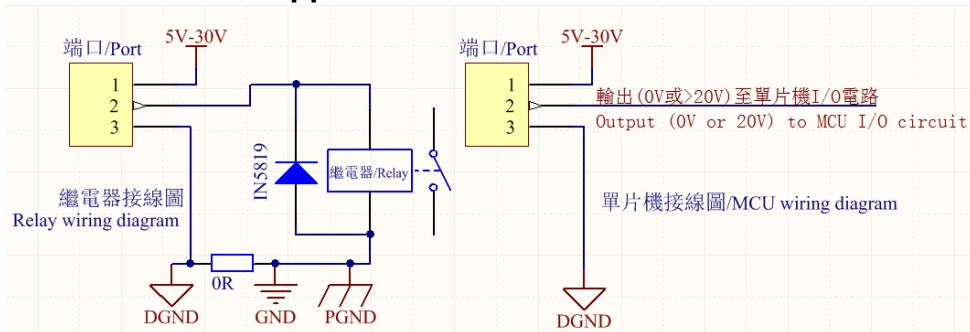
PNP 常闭 PNP NC

PNP 常开 PNP NO

输出类型请在购买时与厂家联系

Please confirm the output type with the manufacturer when purchase.

5. 推荐应用电路/Recommended Application Circuit



重要说明/Notice:

- 1.传感器的输出信号与外部电感类负载连接，必须如图并联肖特基二极管IN5819，否则，电感元器件的反向电动势可能会损毁内部芯片。
 - 2.负载电流不能超过500mA,否则内部驱动三极管将过流损坏。
 - 3.功率地电流太大，单点接地也无法消除功率地电流对传感器的干扰时，传感器需采用独立供电，信号输出采用光电耦合驱动。
1. When the output signal of the sensor connected to an external inductive load, it must Parallel IN5819 Schottky diodes. or the internal chip of sensor may be burnt out.
 2. The load current cannot over 400mA, otherwise the internal driving transistor will be damaged by overcurrent.
 3. When the power of GND is too much, connecting it to GND can't remove the interference on sensor, then the sensor needs to be powered independently, and the output signal need to be driven by optical coupler.

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 the level sensor according to one of the following modes (8. Recommended Installation) and connect it according to the circuit above (5. Recommended Application Circuit), The signal end will output a voltage signal consistent with the water level. This voltage signal is used as the height control signal of the liquid level sensor to be accessed to the A/D (analog-to-digital conversion) port of the MCU (microcontroller). When the liquid level is over the critical level and the sensor body is submerged, output voltage signal is low voltage; When the liquid level is below the critical level and the sensor body is exposed, output voltage signal is high voltage. Specific parameters please refer to above table (4. Electrical Specification).



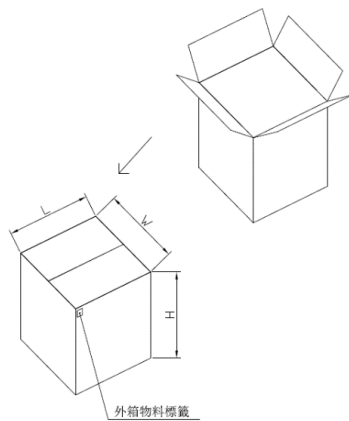
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注意/Notice:

1. 长期使用过程中，棱镜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，导致棱镜整体覆盖，需要提前告知特殊性，以便我方技术部做优化处理。
 2. 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. During long-term use, the surface of the sensor will be dirty due to liquid impurities. Slight dirt will not affect the performance of the sensor. If there is serious dirt covers all the surface of sensor, please inform us the particularity in advance for our technical department to do optimize treatment.
2. The sensor will be affected when exposed to direct sunlight. Please install it away from direct sunlight.

7. 包装/ Package



说明:

1. 外箱尺寸: 34X27.5X33.5 CM
1箱产品数量: 800 PCS
2. 包装盒尺寸: 33.5X13.5X8 CM
1盒产品数量: 100 PCS

Description:

1. Outer box size: 34X27.5X33.5 CM
one box product quantity: 800 PCS
2. Packing box size: 33.5X13.5X8 CM
one box of products: 100 PCS

8. 尺寸和推荐安装/Outline Drawing and Recommended Installation



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1 2 3 4 5 6

A

B

C

D

E

F

G

H

A

B

C

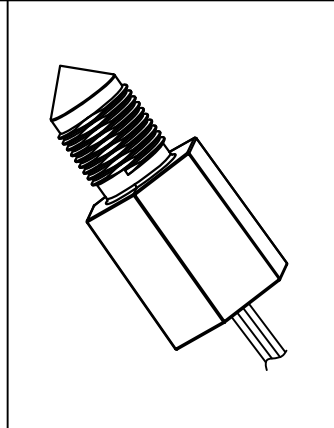
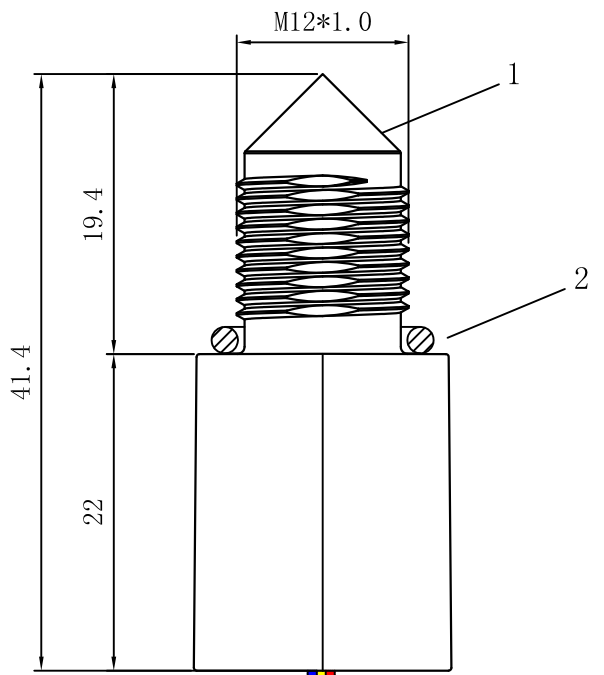
D

E

F

G

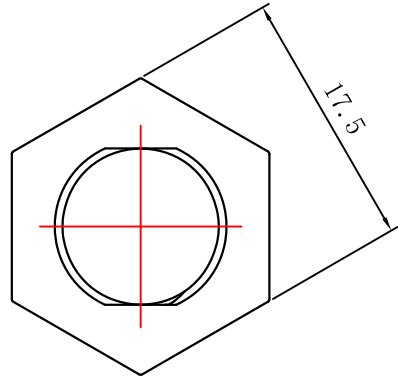
H



1
GND Blue

2
SG Yellow

3
VCC Red



耐溫 Temperature resistance	200°	耐壓 Withstand voltage	300V
鍍錫 Tin plating	1.5±0.5	長度 Length	*
UL線規 UL wire gauge	1332	UL編號 UL number	E347603
顏色 Colour	藍黃紅	線號 Line number	鐵氟龍 26AWG
線材規格 Wire specification			

腳距 Foot distance	2.54	孔數 Number of holes	3
顏色 Colour	White	型號 Model	XH
端子規格 Terminal Specifications			

4	端子 Terminal	1	
3	線材 Wire	1	
2	硅膠墊 Silica gel pad	1	
1	感測器主體 Sensor body	1	
編號 NO.	名稱 Name	數量 QTY	備註 P.S.

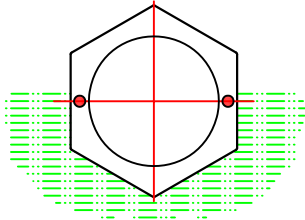
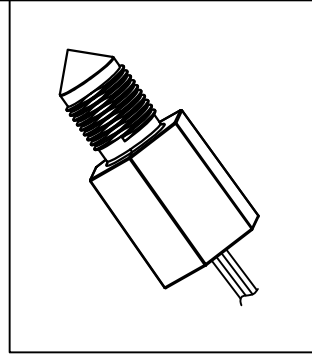
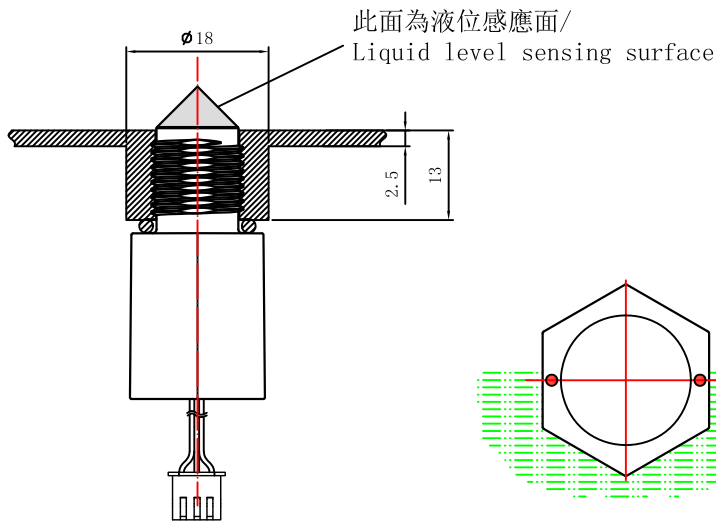
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審批 Approver	Wei	數量 Quantity	*	篇幅 Size	A4
一般公差 Tolerances	0-10	±0.10	0.8	備註 Remarks	*
	10-35	±0.20		視圖 View	
	35-70	±0.30			



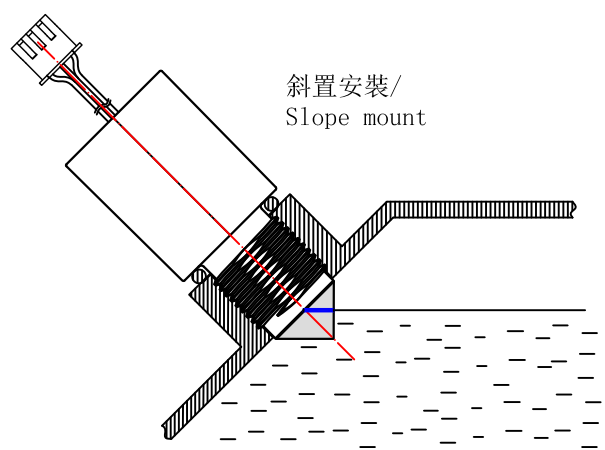
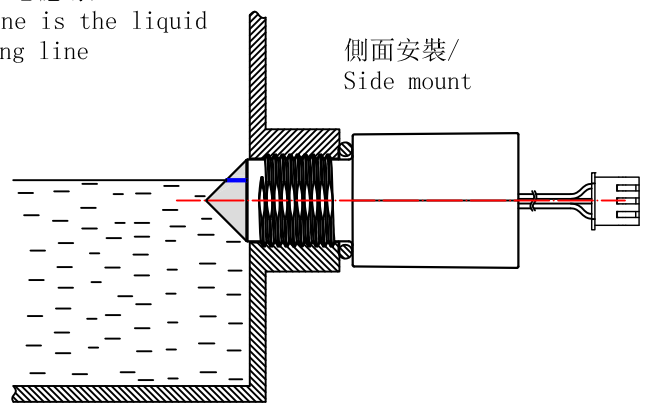
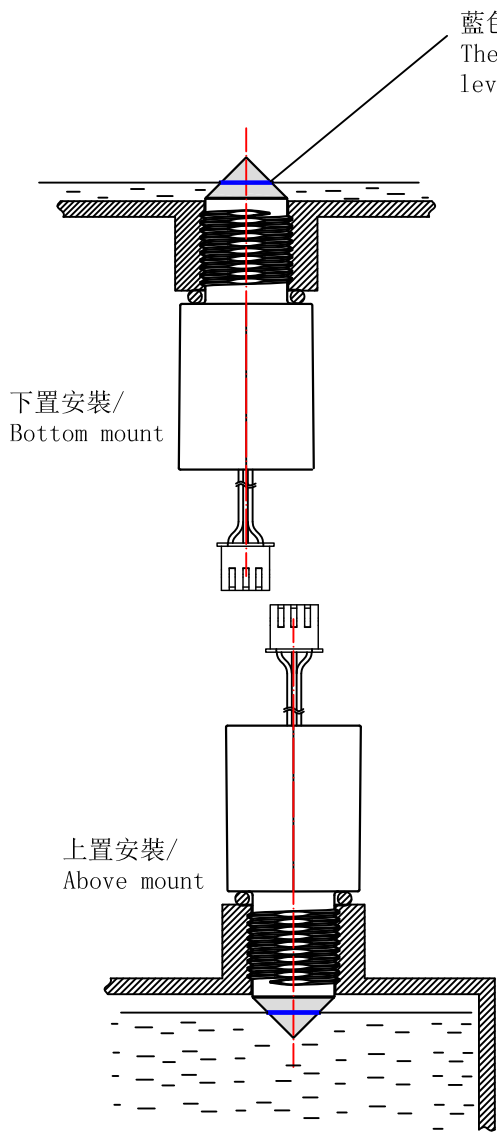
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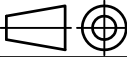
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圖號 DWG NO.	*	頁數 Pages NO.	1/2

1 2 3 4 5 6



產品安裝標記點：
 紅色標記點為高精度液位需求用戶，
 需備註添加紅色標記點；
 如左圖顯示，當液位水平面淹沒兩紅
 色標記點即感應有液體；



設計 Designer	Chen	材料 Material	*	單位 Unit	mm	 能點科技有限公司 EPT technology co., LTD			
檢查 Checked	Chen	表面處理 Finish	*	比例 Scale	*				
審批 Approver	Wei	數量 Quantity	*	篇幅 Size	A4	產品名 Product Name	FS-IR1902D	日期 Date	21-03-17
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	35-70	±0.30							