

深圳市睿联传感科技有限公司

SHENZHEN REALUNION TECHNOLOGY CO., LTD.

SPECIFICATION

(产品规格书)



型号: [LLM19SO24P](#)

工业不锈钢光学液位传感器
(Industrial stainless steel optical level sensor)

版本 Version: V1.1

日期 Date: 2025/02/20

● 修订记录 / Revision History

No.	日期/Date	备注/Remark	修订/Revision
1	20240823	发布版本/MP Version issue	A
1	20250220	图纸细节	B

● 应用邻域 / Application

1. 水塔水位监测 / Water tower water level monitoring
2. 液位控制设备 / Liquid level control equipment
3. 漏液保护设备 /Leakage protection equipment
4. 缺液保护设备 / Lack of liquid protection equipment
5. 带水箱的产品 / Products with water tank
6. 热水器/ Water heater
热水器中没有液体，则做停止加热处理
If there is no liquid in the water heater, do stop heating treatment
7. 水族设备 / Aquarium equipment
可配合远程设备或者其他设备，实时监测鱼缸里面的液位是否正常，例如在低水位监测点安装传感器，若水位到达此点则提示，或在高液位监测点，水位超过则提示，以确保鱼缸水位不会过低过高。
It can work with remote devices or other devices to monitor whether the water level in the aquarium is normal in real time. For example, a sensor is installed at the low water level monitoring point to prompt if the water level reaches this point, or at the high water level monitoring point to prompt if the water level exceeds this point, so as to ensure that the water level of the aquarium is not too low or too high.
8. 适用于环境严苛的设备，高温/高压环境下监测水位
It is suitable for equipment with harsh environment, and monitors water level in high-temperature/high-pressure environment

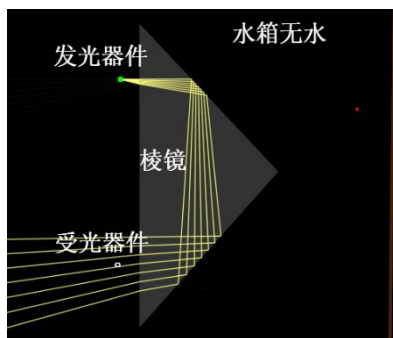
● 原理与优势/ Principle and Advantages

1. 光学式液体传感器的原理/ The principle of optical liquid sensors

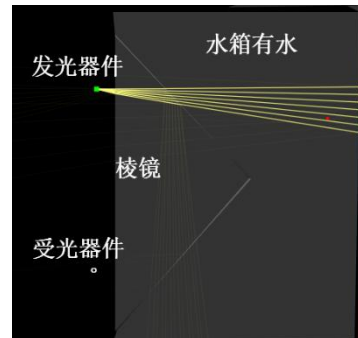
传感器利用光电效应和光的棱镜的折射效应进行检测容器内是否有液体的存在，当容器内有液体时，传感器的红外发光源发出的光照射到棱镜上，由于棱镜的折射率和液体相似，不会或有少量的红外光被反射回来。当容器内没有液体，传感器的红外发光源发出的光照射到棱镜上，会进行反射光电二极管接收到红外光后，阻值发生改变，从而使电路中的电压随发生改变

The sensor uses the photoelectric effect and the refraction effect of the prism of light to detect whether there is liquid in the container, when there is liquid in the container, the light emitted by the infrared light source of the sensor irradiates the prism, because the refractive index of the prism is similar to that of the liquid, there will be no or a small amount of infrared light reflected back. When there is no liquid in the container, the light emitted by the sensor's infrared light source hits the prism, and the photodiode receives the infrared light, and the resistance value changes, so that the voltage in the circuit changes

无水状态光线模拟



有水状态



2. 优势 / Advantages

采用不锈钢外形，可承受超高的水压

With a stainless steel profile, it can withstand ultra-high water pressure

M19的螺纹可随意更换

The threads of the M19 can be changed at will

PNP/NPN输出驱动强劲

The PNP/NPN output drives strongly

光学方式检测精确可靠

Optical detection is accurate and reliable

使用寿命长

Long service life

the output type according to their own controller,

For example, serial port output, etc.

Customers need to select/customize according to their own circuit structure. If you do not know the circuit structure, please contact our staff

命名规则（Naming conventions）：

● 选型表 / Selection Table

输出类型/out type 螺纹编号/ type num	NPN NC	NPN NO	PNP NC	PNP NO
M19	LLM19SC24N	LLM19SO24N	LLM19SC24P	LLM19SO24P
-	-			

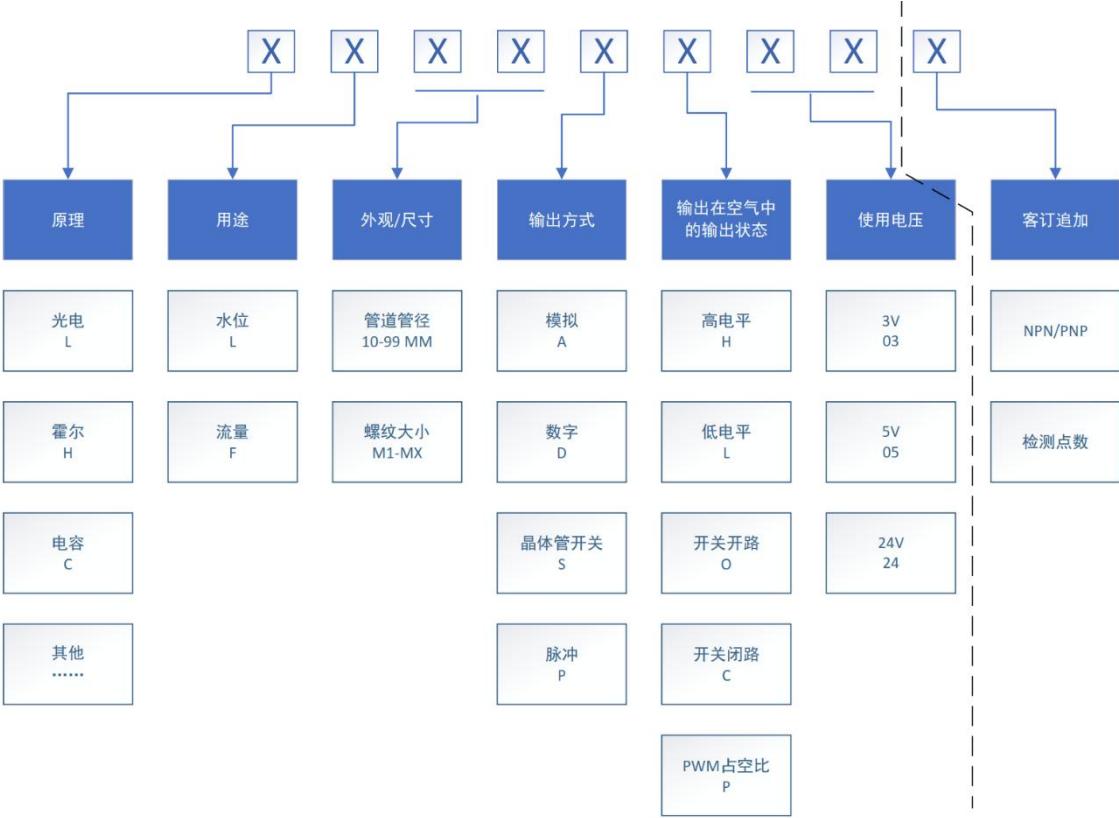
输出方式有，NPN 常开/ NPN 常闭 / PNP常开 / PNP 常闭 四种

客户需要根据自己的电路结构进行选型，在不知电路结构的情况下请联系我司工作人员

There are four output modes: NPN normally open/NPN normally closed/PNP normally open/PNP normally closed

Customers need to choose according to their own circuit structure, please contact our staff if you do not know the circuit structure

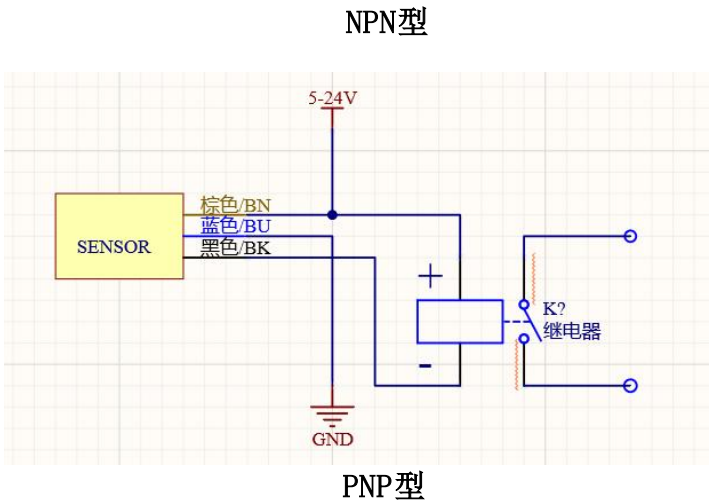
命名规则（Naming conventions）：

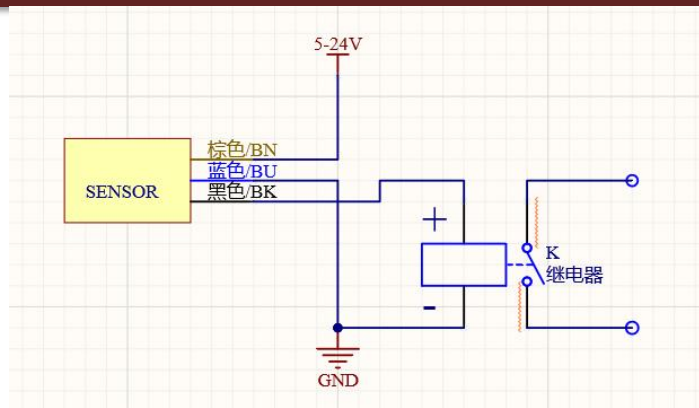


● 特性/Specification（Ta=25℃）

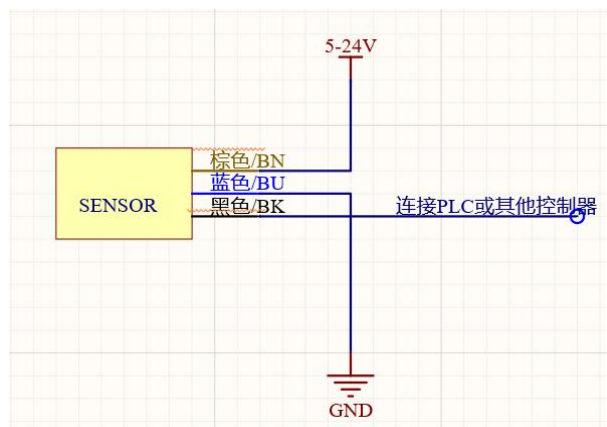
参数//Parameter	符号/Symbol	值/ value		单位/units
工作电压/Working Voltage	Vdd	5-24		V
功率/Power consumption	Pd	<375		mW
在液体中输出状态/ Outputs status in liquid	OUT	ON(NO) / OFF(NC)		-
在空气中输出状态/ Outputs status in the air	OUT	OFF(NO) / ON(NC)		-
传感器自检输出/ Self Check	-	ON(normal)	OFF(error)	
输出特性/Output Specification	Os	晶体管开关/ Transistor switches		-
工作温度/Operating Temperature	Ot	-20 ~ 120（表面无结霜）		℃
存储温度/Storage Temperature	St	-20 ~ 125		℃
工作寿命/ Operating life	OI	>50000		H
响应时间/Response Time	Rt	<500		Ms
承受压力/ Withstand pressure	F	30		Bar

● 推荐应用电路 / Recommended Application Circuit
与继电器接线





与控制器器接线



- 产品特性/ Product features

此传感器可在严苛的工业环境中使用，其耐温最高可达120℃

The sensor can be used in harsh industrial environments and is resistant to temperatures up to 120°C

此传感器是带自检功能的传感器，传感器在正常工作情况下自检输出信号线输出ON，传感器在内部损坏或者使用过程中出现电路老化等的时候，自检信号线输出OFF

This sensor is a sensor with self-test function, the self-test output signal line output ON under the normal operation of the sensor, and the output of the self-test signal line OFF when the sensor is damaged internally or the circuit is aging during use

无机械运动结构，不存在卡死等诸多问题，检测可靠性高

There is no mechanical movement structure, there are no problems such as jamming, and the detection reliability is high

可选择多种材质应对您所需检测的液体

Choose from a variety of materials to suit the liquid you need

检测精度高，重复性好，相应快速

The detection accuracy is high, the repeatability is good, and the corresponding is fast

无需用户处理复杂数据，使用方便

It is easy to use without the need for users to deal with complex data

相比传统的单点传感器，内置安全准确的数据采集处理算法

Compared with traditional single-point sensors, it has built-in safe and accurate data acquisition and processing algorithms

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

