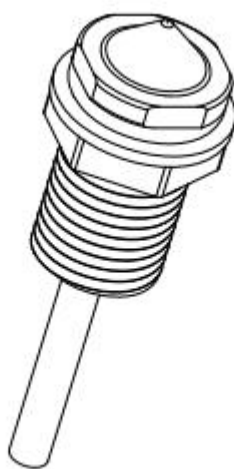


深圳市睿联传感科技有限公司

SHENZHEN REALUNION TECHNOLOGY CO., LTD.

SPECIFICATION

(产品规格书)



型号: LLC010N

光电式液位传感器
(Photoelectric Level Sensors)

版本 Version: A

日期 Date: 2025/04/14

联系方式: 13923795851 孙先生

● 修订记录 / Revision History

No.	日期/Date	备注/Remark	修订/Revision
1	20250414	发布版本/MP Version issue	A

● 应用邻域 / Application

- 饮水机/ Water cooler

饮水机的水箱中的水位降低降到传感器的检测点，传感器的输出或进行电平的变化。饮水机控制板接收到此信号后，做出相应的动作切换，例如：无水的时候进行断开加热或发出提示音处理等待。

The water level in the water tank of the water dispenser is reduced to the detection point of the sensor, and the output level of the sensor is changed. After receiving this signal, the water dispenser control board makes the corresponding action switch, such as: when there is no water, disconnect the heating or issue a prompt tone.
- 暖手宝/ Hand warmers

作为保护装置，在暖手宝中放置传感器，如果暖手宝中没有水，则停止加热，放置发生意外

As a protective device, a sensor is placed in the hand warmer. If there is no water in the hand warmer, the heating is stopped and the placement is unexpected
- 加湿器/ Humidifier

在加湿器的水箱装入传感器，当水箱检测不到有液体的存在，停止加湿处理，保护超声波震膜损坏，也能提高用户体验

When a sensor is installed in the water tank of the humidifier, when the water tank cannot detect the presence of liquid, the humidification treatment is stopped to protect the damage of the ultrasonic shock film, and the user experience can also be improved
- 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
- 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，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

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.

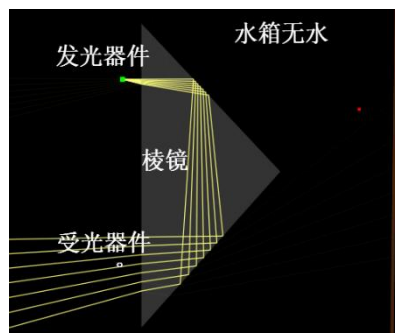
6. 液位控制设备 / Liquid level control equipment
7. 漏液保护设备 / Leakage protection equipment
8. 缺液保护设备 / Lack of liquid protection equipment
9. 带水箱的产品 / Products with water tank

● 原理及优势/ Principle and Advantages

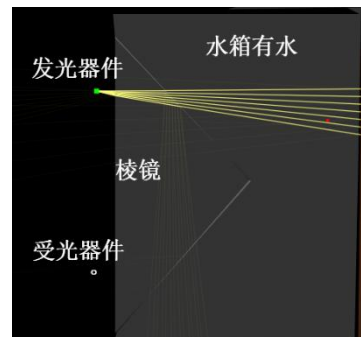
1. 光学式液体传感器的原理

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

无水状态光线模拟



有水状态



2. 优势

- ① 体积小，安装方式通用

Small size, universal installation method

- ② 3.3-24V工作电压宽

3.3-24V working voltage width

- ③ 晶体管开关输出，驱动能力

Transistor switch output, driving capability

④ 内置算法，用户无需处理复杂逻辑，只需一个IO口检测即可使用

Built-in algorithm, users do not need to deal with complex logic, only one IO port detection can be used

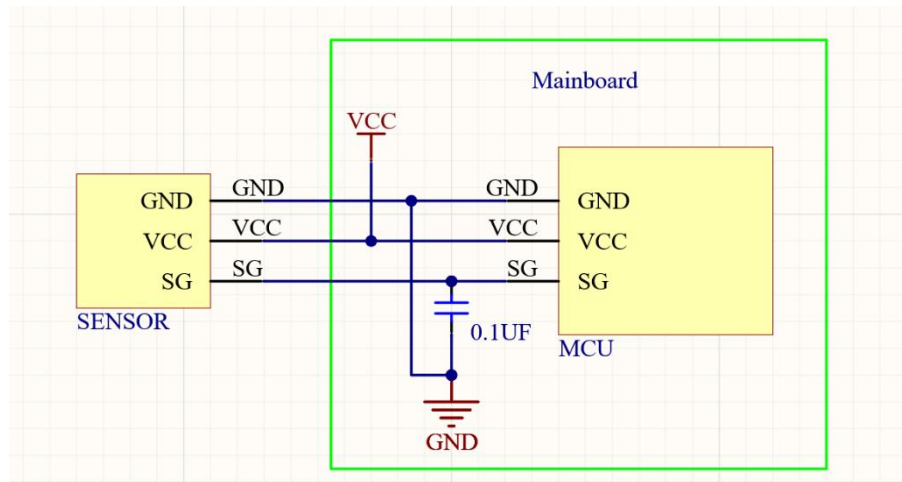
● 选型表 / Selection Table

<div> <div>电压 voltage</div> <div>输出反式/ out type</div> </div>	3.3-24v
NPN	LLC010N
PNP	LLC010P

● 特性/Specification（Ta=25℃）

参数//Parameter	符号/Symbol	值/ value	单位/units
工作电压/Working Voltage	Vdd	3.3-24	V
功率/Power consumption	Pd	30	mW
在液体中输出电压/in Water Voltage	Vol	1	-
在空气中输出电压/ in air Voltage	Voa	0	-
输出特性/Output Specification	Os	IO/NPN	-
工作温度/Operating Temperature	Ot	-20 ~ 80（表面无结霜）	℃
存储温度/Storage Temperature	St	-20 ~ +85	℃
工作寿命/ Operating life	OI	>50000	H
相应时间/Response Time	Rt	<500	Ms

- 推荐应用电路 / Recommended Application Circuit



- 产品特性/ Product features

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

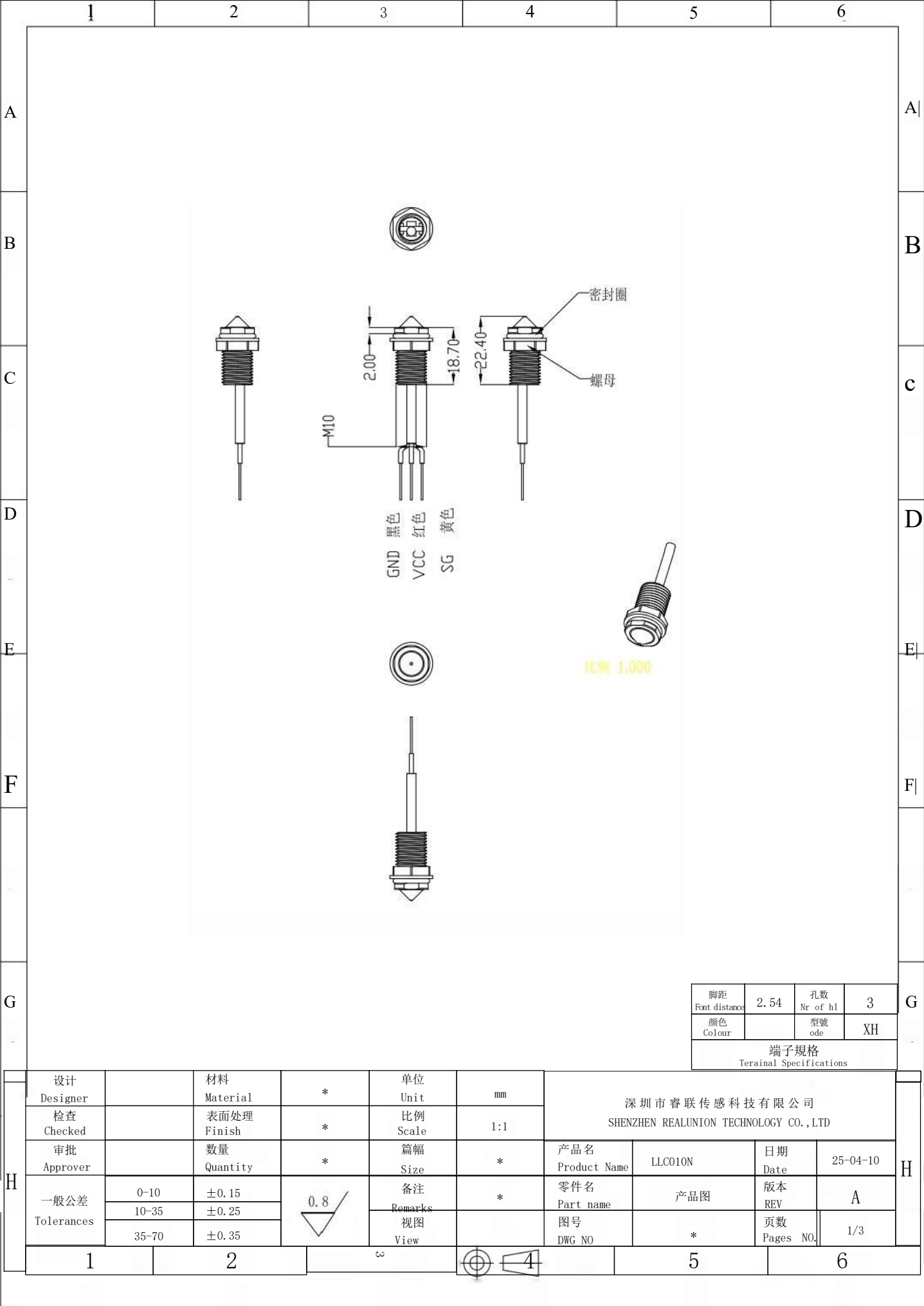
无需用户处理复杂数据，使用方便

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



脚距 Foot distance	2.54	孔数 Nr of hl	3
颜色 Colour		型號 ode	XH
端子規格 Terainal Specifications			

设计 Designer		材料 Material	*	单位 Unit	mm	深圳市睿联传感科技有限公司 SHENZHEN REALUNION TECHNOLOGY CO.,LTD			
检查 Checked		表面处理 Finish	*	比例 Scale	1:1				
审批 Approver		数量 Quantity	*	篇幅 Size	*	产品名 Product Name	LLC010N	日期 Date	25-04-10
一般公差 Tolerances	0-10	±0.15		备注 Remarks	*	零件名 Part name	产品图	版本 REV	A
	10-35	±0.25		视图 View		图号 DWG NO	*	页数 Pages NO.	1/3
	35-70	±0.35							
1	2	3	4	5	6				