

# 深圳市睿联传感科技有限公司

SHENZHEN REALUNION SENSOR TECH CO., LTD.

## SPECIFICATION

(产品规格书)



**RLT3025**

激光液位传感器

(Laser level sensor)

版本 Version: V1.0

日期 Date: 2025/12/23

## ● 修订记录 / Revision History

| No. | 日期/Date  | 备注/Remark        | 修订/Revision |
|-----|----------|------------------|-------------|
| 1   | 20251223 | PP Version issue | V1.0        |
|     |          |                  |             |
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## ● 激光液位传感器原理 / Working Principle of Laser Level Sensor

激光液位传感器利用TOF（Time of Flight，飞行时间）激光传感器是一种基于时间测量原理的测距设备，其工作原理主要涉及激光脉冲的发射、反射信号的接收以及飞行时间的计算液位高度

Laser level sensors utilize time-of-flight (TOF) laser sensors, which are distance measurement devices based on the principle of time measurement. Their working principle primarily involves the emission of laser pulses, the reception of reflected signals, and the calculation of the time of flight to determine the liquid level height.

## ● 应用场景 / Application Scenarios

### 1. 扫地机器人/ Robot vacuum

检测扫地机器人的清水箱，污水箱，实时监控液位做出决策。

Monitor the clean water tank and dirty water tank of the robotic vacuum and make decisions based on real-time liquid level monitoring.

### 2. 水族/ Aquarium

进行鱼缸水位实时监控

Control the juice output

### 3. 植保无人机/ Plant protection drone

实时检测无人机农药水位等液体情况

### 4. Real-time monitoring of liquid levels, such as pesticide, in drones

### 5. 智能家居类/ Smart Home

检测各种液体，对液位进行实时监控，并做出相应控制

Detect various liquids, monitor the liquid level in real time, and make corresponding adjustments.

### 6. 工业自动化/ Industrial Automation

用于液体料位的实时监控，检测液位高度。

Used for real-time monitoring of liquid levels to detect liquid height.

### 7. 宠物喂食机/ Pet Feeding Machine

可以定量进行宠物补水的控制

Can quantitatively control pet hydration

## ● 产品优点 / Advantage

1. 多区域测距: Multi-zone Ranging  
2X2个区域实时检测, 可过滤瞬间干扰。  
2x2 area real-time detection, capable of filtering instant interference.
2. 抗干扰能力强, 环境光干扰小: Strong anti-interference capability, minimal interference from ambient light:
3. 不可见光, 内置滤波。可以在室外等环境运行  
Invisible light, built-in filtering. Can operate in outdoor environments.
4. 检测距离长 Long detection range  
检测液位距离可达2m  
The liquid level can be detected up to 2 meters.
5. 精度高 High precision  
近距离  $\pm 5\text{mm}$   
远距离  $\pm 1\%$ 的测量值
6. Short distance  $\pm 5\text{mm}$   
Long distance  $\pm 1\%$  of the measured value

## ● 输出 / OUTPUT

传感器采样TTL-UART方式进行输出

波特率115200

8位 无停止位, 1个校验

如需更多连接方式请与产家联系。

输出样式: (字符串)

1. 上电传感器 初始化5-7s 串口显示 [2H[2JSensor initialization...

2. 传感器正常显示

Num = 0 , distance = 990 mm

Num = 1 , distance = 916 mm

Num = 2 , distance = 2114 mm

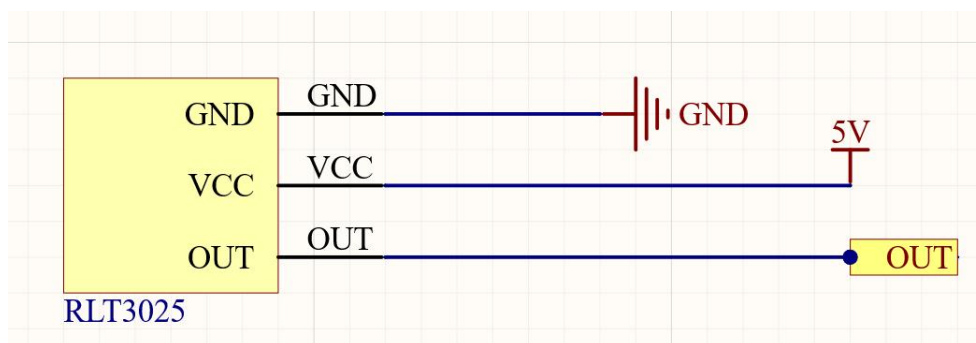
Num = 3 , distance = 2009 mm

区域 (0-3)          距离 (mm)

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

| 参数//Parameter              | 符号/Symbol | 典型值/Min   | 单位/units |
|----------------------------|-----------|-----------|----------|
| 工作电压/Supply Voltage        | Vs        | 3.3       | V        |
| 待机电流/Standby Current       | Is        | 8         | mA       |
| 工作温度/Operating Temperature | Topr      | 0 ~ +65   | °C       |
| 存储温度/Storage Temperature   | Tstg      | -10 ~ +70 | °C       |
| 工作寿命/Working Life          | Life      | 50000     | H        |
| 耐压力/Pressure resistant     |           | 0.1       | MPa      |

● 推荐应用电路 / Recommended Application Circuit



● 注意事项 / Precautions

1. 正确接线，否则会烧坏传感器  
Correct wiring, will it burn out the sensor
2. 输出信号不可接负载  
Output signal, do not connect to load
3. 不可对着强光使用  
Do not use in direct strong light

● 尺寸和推荐安装 / Outline Drawing and Recommended Installatio

