CONNECTED LUMINAIRES PLATFORM

FOR A BRIGHTER WORLD

VAT: 0314236327

Wireless Liquid Level Sensor

Wireless Sensor Network Based on LoRa Technology

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Introduction

R718PA11 is a wireless communication device for detecting the liquid depth. R718PA11 can detect the depth of the liquid in the container. The body and the sensor are connected through the RS485 interface, and the detected data is transmitted to other devices through the wireless network for display. It adopts the wireless communication method that conforms to the LoRa^{TM} protocol standard.

Note: Different types of liquids have different requirements for the sensor, so it needs to select the sensor according to the type of the liquid.

Operating Principle

The module R100H (R100L) communicates with the liquid level sensor RS485.

The basic principle of the liquid level sensor is that the formula for the pressure on the liquid surface of the sensor is: $P = \rho gh + Po$

P: The pressure on the liquid level of the level gauge (for ease of understanding, collectively referred to as pressure below).

ρ: The density of the measured liquid.

g: acceleration of gravity.

Po: Atmospheric pressure on the liquid surface.

h: The depth of the sensor into the liquid.

When the sensor is put into a certain depth in the measured liquid, the pressure of the measured medium is introduced into the positive pressure cavity of the sensor, and the atmospheric pressure Po on the liquid surface is connected to the negative pressure cavity of the sensor through a cable air pipe to offset the front of the sensor. The pressure measured by the sensor is ρgh. Obviously, the liquid level depth can be obtained by measuring the pressure P.
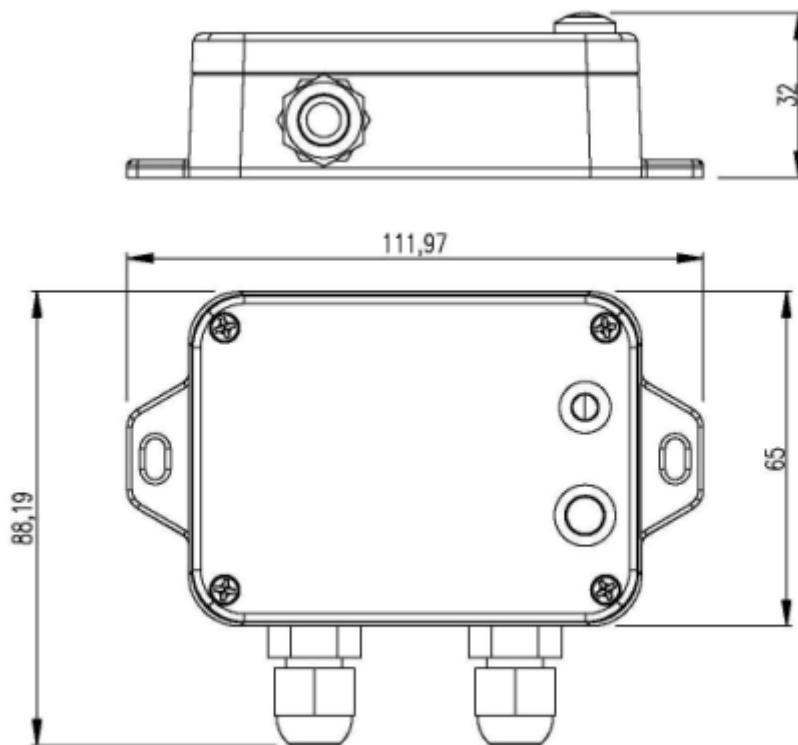
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Main Characteristic

- Compliant with LoRa^{TM} wireless protocol standard

- Liquid level detection, suitable for water level measurement of water tanks, pools and rivers

- Adopt SX1276 wireless communication module

- Compatible with LoRaWAN^{TM} Class A

- Frequency hopping spread spectrum technology

- Configuring parameters and reading data via the third-party software platforms, and set alarms via SMS text and email (optional)

- Applicable to the third-party platforms: Actility/ ThingPark/ TTN/ MyDevices/ Cayenn

Application Field

- Liquid level detection
- Others

Dimension

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Electric

Power Supply	DC 12V adapter power supply
Operating Current	<80mA (external sensor)

*Specific electric characteristics will vary depending on the power supply voltage.

Liquid Level Sensor Parameter

Power Supply	12VDC
Measuring Line Length / Range	Default line length/range:12m/10m ; Other line length/range: 20m/18m Others line length/range can be customized. The highest range is 50m. (The line length is recommended being at least 60m or more. The user can choose the length according to the actual demand.)
Liquid Level Sensor Accuracy	0.25%FS (typical value)

Frequency

Frequency Range	863MHz-928MHz 470MHz-510MHz
TX Power	US915 20dbm； AS923 16dbm； AU915 20dbm； CN470 19.15dbm； EU868 16dbm； KR920 14dbm； IN865 20dbm；
Receive Sensitivity	-136dBm (LoRa，Spreading Factor=12，Bit Rate=293bps) -121dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Built-in antenna

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Communication Distance	10km(visible linear obstacle-free transmission distance, actual transmission distance depending on the environment)
Data Transfer Rate	0.3kbps ~ 50kbps (LoRa) 1.2kbps ~ 300kbps (FSK)
Modulation Method	LoRa/FSK (Note: choose one of them)
Supportable LoRaWAN Band	EU863-870,US902-928,AU915-928,KR920-923,AS923-1,AS923-2,AS923-3,IN865-867,CN470-510 (Note: optional, to be done in the factory configuration)

Physical

Dimension	L:112mm*W:88.19mm*H:32mm
Ambient Temperature Range	-20℃ ~ 55℃
Host Body Weight	About 160g
Ambient Humidity Range	<90%RH (No condensation)
Storage Temperature Range	-40℃ ～ 85℃