

Wireless Light Sensor and 1-Phase Current Meter with 1x75A Clamp-On CT

R718NL17 Data Sheet

Wireless Sensor Network Based on LoRa Technology



Figure1 R718NL17 Appearance

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Introduction

The NETVOX Wireless Light Sensor and 1-Phase Current Meter with 1x75A Clamp-On CT is used to detect single-phase electrical input current and ambient light intensity detection.

The device is compatible with the LoRaWAN protocol, and integrates a chip module that conforms to the LoRaWAN wireless protocol to display the collected data in the gateway.

The device adopts the split-core current transformer, which can be conveniently connected to the measuring device.

Working Principle

This device is equipped with an external current transformer. The current transformer is a transformer that produces a proportional secondary low-side current to the primary high-side one to sense the current. This device guarantees users' safety, as it monitors the secondary low-side current and built-in a light sensor to detect ambient light intensity.

Main Characteristics

- Apply SX1276 wireless communication module
- 2 section of ER14505 battery (3.6V / section) in parallel
- Protection level: Main body IP53; Clamp-On CT IP30
- The base is attached with a magnet that can be attached to a ferromagnetic material object
- The clamp-on CT allows easier installation to the device you would like to detect the current from
- LoRaWAN™ Class A compatible
- Frequency Hopping Spread Spectrum (FHSS)
- Available third-party platform: Actility/ThingPark, TTN, MyDevices/Cayenne
- Low power consumption and longer battery life

Battery Life:

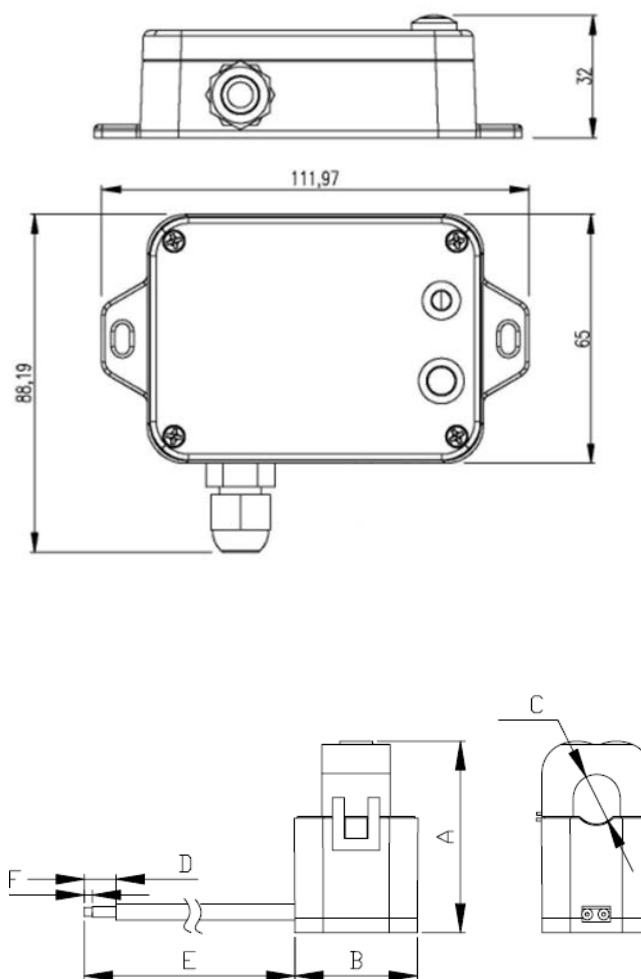
Please refer to web: http://www.netvox.com.tw/electric/electric_calc.html

At this website, users can find battery life time for various models at different configurations.

Applications

- Indoor current detecting devices for homes, hotels, office buildings, shopping malls, etc.
- The environment that needs to detect the light intensity
- Smart city
- Thermal system devices

Dimension



A	B	C	D	E	F
41max	27.5max	10±0.2	25±5	900±30	6±1

Electrical Characteristics

Power Supply	2 section of ER14505 lithium battery in parallel (3.6V 2200mAh/ section)
Battery Life	5 years (condition: ambient temperature 25 °C, report once every 30 mins, txpower = 20dBm, LoRa spreading factor SF = 10)
Stand-by Current	36uA
Wake-up Current	7mA
Battery Measurement Accuracy	± 0.1V
Current Measurement Error Value	<± 1%
Current Resolution	1mA
Current Measurement Accuracy Range	100mA to 75 A (varies according to the configuration of the current transformer)

R100H Module Characteristics

Wake up Current	(0.8mA-8mA)/ 3.3V
RF Receiving Current	11 mA/ 3.3V
RF Emission Current	120 mA/ 3.3V

*Specific electrical characteristics may vary depending on the power supply voltage

Frequency

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

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Communication Distance	10 km (the actual transmission distance depends on the environment.)
Data Transfer Rate	0.3 kbps~50 kbps (LoRaWAN) 1.2 kbps~300 kbps (FSK)
Modulation System Mode	LoRa / FSK (Note: you can choose one of them)
Available LoRaWAN Band	EU863-870, US902-928, AU915-928, KR920-923, AS923, CN470-510, IN865 (Note: optional, to be done in the factory configuration)

Split-core Current Transformer Parameters

Rated Primary Input Current	30 A , 50Hz ~ 60Hz
Rated Secondary Output Current	10mA
Saturation Current	≥75A
Transformation Ratio	3000: 1
Load Resistance	10 Ω
Accuracy	1%
Isolation Withstand Voltage	3000V
Housing Material	Flame retardant grade 94-V0 UL material
Environmental Protection	ROHS compliant
Operating Temperature	-40 °C ~ 85 °C

Light Sensor

Illuminance Range	0.01 LUX - 157K LUX
Illuminance Accuracy	± 20%: Under sunlight. ± 10%: Under stable and controlled light source conditions, such as white LED lamp, 6500K, room temperature.
Communication Method	I2C communication

Physical

Dimension	Main body: L:112 mm * W:88.19 mm * H:32 mm CT Sensor: H:42.5mm * L:27.5mm * W:25mm
Main Body Weight	141 g
CT Sensor Weight	49.6 g

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Wiring Length	900mm
Operating Temperature Range	-20°C~55°C
Storage Temperature Range	-40°C~85°C
Ambient Humidity Range	<90% RH (No condensation)
Fixed Way	Screw / magnet