Wireless 3-Phase Current Meter R718N37(E) Datasheet

Wireless Sensor Network Based on LoRa Technology

R718N37

R718N37E (detachable cables)

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1. Introduction

The NETVOX wireless three-phase current detector is used to detect three-phase electrical input current. 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 is powered by batteries and obtains the load AC current value through the current transformer. The device adopts the clamp-on current transformers, which can be conveniently connected to the measuring device.

2. Working Principle

This device is connected to current transformers. The current transformer is an instrument that converts the primary side large current into a secondary side small current according to the principle of electromagnetic induction. The primary side large current is isolated from the secondary side small current, and the secondary side of the device is monitored. Low current, battery-powered, to ensure safe use of the device.

3. Features

• Clamp-on current transformers (with non-detachable and detachable cables)

• SX1276 wireless communication module

• 2 ER14505 battery AA SIZE (3.6V/section) in parallel

• Main body IP53; sensor IP30

• Magnetic base

• LoRaWAN™ Class A compatible

• Frequency Hopping Spread Spectrum (FHSS)

• Third-Party online wireless sensor monitoring and notification system to configure sensors, view data and set alerts via SMS text and email (optional)

• Available third-party platforms: Actility/ThingPark, TTN, MyDevices/Cayenne

• Improved power management for longer battery life

   Note: Please refer to web: http://www.netvox.com.tw/electric/electric_calc.html. At this website, users can find battery lifetime for various models at different configurations.
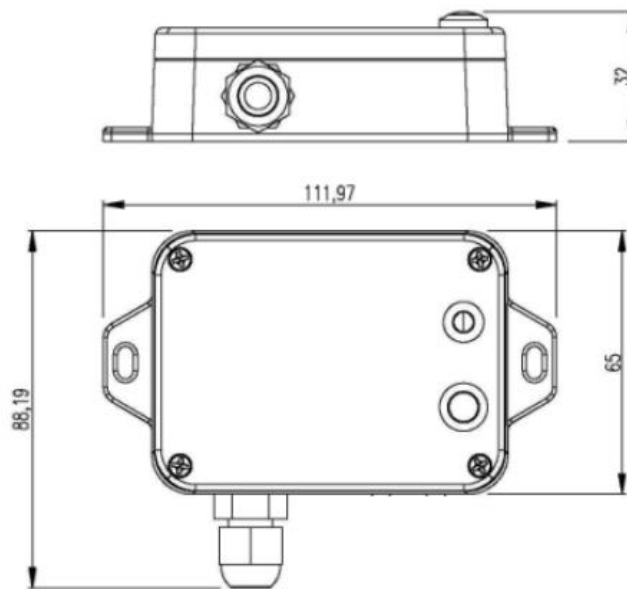
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1. Actual range may vary depending on the environment.

2. Battery life is determined by sensor reporting frequency and other variables.
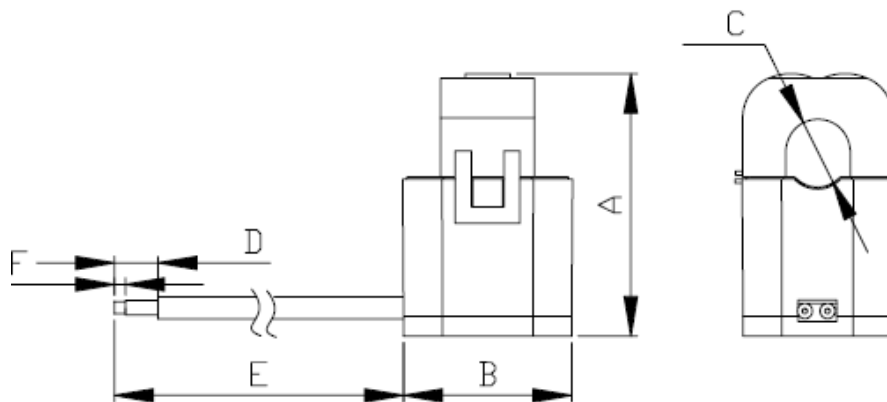
4. Applications

• Indoor current detecting devices for homes, hotels, office buildings, shopping malls, etc.

• Smart city

• Thermal system equipment

5. Dimensions

Main body: 112mm (L) x 88.19mm (W) x 32mm (H)

CT: 27.5mm (L) x 25mm (W) x 42.5mm (H)

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

6. Electrical Specifications

Power Supply	2 ER14505 lithium batteries (3.6V 2400mAh/section) in parallel
Battery Life	5 years (condition: ambient temperature 25 ℃, report once every 15mins, txpower = 20dBm, LoRa spreading factor SF = 10)
Standby Current	25uA
Wakeup Current	7mA
RF Receiving Current	11mA @ 3.3V
RF Emission Current	127mA @ 3.3V
Battery Measurement Accuracy	±0.1V
Current Measurement Accuracy	<±1% (within 300mA to 75A)
Current Resolution	1mA
Current Measurement Range	100mA to 75A (varies according to the configuration of the current transformer)

Note: Electrical specifications may vary due to the power supply voltage.

7. Clamp-on Current Transformer Parameter

Rated Primary Current	30A, 50Hz to 60Hz
Rated Secondary Current	10mA
Saturation Current	≥75A
Ratio	3000: 1
Load Resistance	10Ω
Accuracy	1%
Electrical Strength	3000V
Case Material	Flame Retardant Grade 94-V0 UL Material
Environmentally Friendly	ROHS compliant
Operating Temperature	-40℃ to 85℃

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8. Frequency

Frequency Range	863MHz-928MHz 470MHz-510MHz
Power Output	19dBm±1dBm(max)
TX Power	US915　　20dbm AS923　　16dbm AU915　　20dbm CN470　　19.15dbm EU868　　16dbm KR920　　14dbm IN865　　20dbm
Receiving Sensitivity	-136dBm (LoRa, Spreading Factor = 12, Bit Rate = 293bps) -121dBm (FSK, Frequency deviation = 5kHz, Bit Rate = 1.2kbps)
Antenna Type	Built-in antenna
Communication Distance	10km (Transmission distance depends on the environment.)
Data Transfer Rate	LoRa : 0.3kbps ~ 50kbps FSK: 1.2 ~ 300kbps
Modulation	LoRa / FSK (Note: Please choose one modulation method.)
Available 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)

9. Physical Properties

Dimensions	Main body: 112mm (L) x 88.19mm (W) x 32mm (H) Sensor: 27.5mm (L) x 25mm (W) x 42.5mm (H)
Main body Weight	About 141g
Sensor Weight	About 49.6*3g
Sensor External Wiring Length	Undetachable cable: about 900mm Detachable cable: about 1200mm

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Ambient Temperature Range	-20℃ to 55℃
Storage Temperature Range	-40℃ to 85℃
Ambient Humidity Range	<90% RH (No condensation)
Mounting	Screw / Magnet