

# Wi-SUN Product Manual

Model: ELWSG100

# ELWSG100

## Wi-SUN Sub Gateway

### Product Overview

ELWSG100 are ruggedized, modular platforms on which utilities and other industrial customers can build a highly secure, reliable, and scalable communication infrastructure. The product has been certified to meet harsh environmental standards.

### Product Feature

Utilities all over the world are transitioning their utilities from traditional metering to smart and AI. With the intelligent application of electricity, water, gas, and street lights, the utilities are undergoing revolutionary changes.

The situation imposes a unique set of challenges for utilities to build a bidirectional communications network which complies the requirements of battery-operated terminals and high-speed transmission terminal devices for intelligence application.



Figure 1. ELWSG100 Sub Gateway

## Utilities Integrated Network Application

ELWSG100 portfolio offers platforms for outdoor deployments without cabinet. These platforms come with flexible mounting kits that allow utilities to deploy the routers on a broad array of existing assets such as distribution poles. In addition, the ELWSG100 offers a wide range of external antenna choices to meet coverage, throughput, and range requirements.

## Security(Optional)

ELWSG100 security adheres to Smart Grid security principles and widely adopted cryptography and security standards:

- 802.1x/EAP-TLS Authentication
- X.509 certificate-based identity Authentication used for FAN devices implementing AES-GCM-128 and SHA-256 based frame Security to encrypt and verify the transmission data
- Support ECDSA algorithm (based on ECC-256) for digital signature
- Support ECDH algorithm to dynamic authentication key
- Link-layer encryption in the FAN mesh (AES-128)
- Support DTLS for CoAP message transmission

## Network Reliability and High Availability

ELWSG100 contain both device-level and network-level reliability to meet harsh physical environments. ELWSG100 is designed to meet stringent compliance standards such as IEC 61000-4, IEC 61709 and IEC 62262(IK10).

ELWSG100 support remote firmware update (OTA) from NMS.

ELWSG100 sub gateway offer embedded battery as backup power to ensure the device can work normally for more than 8 hours in the event of power outages.

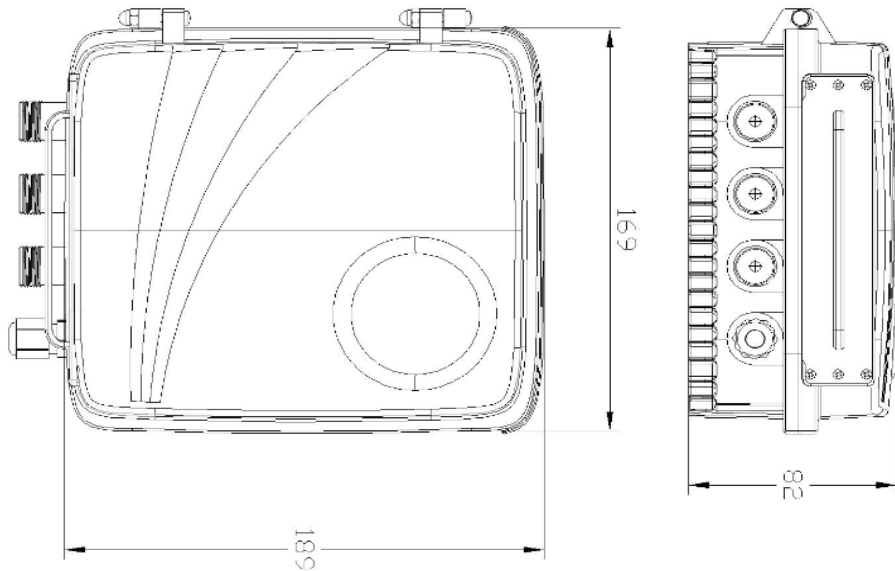
## Product Specifications

ELWSG100	
<b>Physical Specifications</b>	
Cabinet material	Aluminum with silver paint

Power Supply	AC power supply: 90~264VAC
Frequency	50/60Hz
Humidity Range	Up to 95%
Protection Degree	IP67
Pole Mount	Yes
Dimension	189mm x 169mm x 82 mm
Weight	3.3KG with embedded battery
Operation Temperature	-25°C to 70°C
Battery Backup Options	Integrated modular battery Operation Temperature Range: -10°C to 50°C
Power Consumption	6.5Watts
<b>Wi-SUN Module Specifications</b>	
Wi-SUN chipset	ELAP.R139 Wi-SUN FAN 1.0 Certificated
IEEE 802.15.4g Wi-SUN	Yes
ISM frequency band	902~928 MHz
Spread spectrum	FHSS (Frequency Hopping Spread Spectrum)
Transmit Power	FSK: 29.5±0.5dBm
Sensitivity	-110dBm@50kbps -97dBm@150kbps
Antenna Gain	2.0±0.5dBi
<b>Regulatory Compliance</b>	
Electrostatic Discharge	Contact discharge: 6 kV Air discharge:15 kV
Fast transient burst	4.4 kV
Surge immunity	4 kV (common mode) 2 kV (differential mode)

Impulse voltage	1.2/50 $\mu$ s, main connections 5kV
AC voltage	4 kV during 1 min
RTC	Support time sync from NTP

## Product Dimensions



## Caution in use

- Do not put this product completely enclosed in the metal box; if it must be installed in the metal shell, the antenna of the module must be led out of the metal shell.
- If it is used in the outdoor high position, and the surrounding is quite open, then it is needed to install lightning rod, in order to prevent lightning strike.
- N-type antenna connector, please make sure it is waterproof.