Wi-SUN Product Manual

Model: EL62

EL62

Wi-SUN Network Interface Controller

Product Overview

EL62 Wi-SUN module is used for meter of Hexing, with the function of Wi-SUN for AMI meter. EL62 has been designed for extremely robust communication based on reliable and highly secured connections between devices. It is applied frontal of meter slot.

EL62 is a wireless module of Wi-SUN network system. In AMI system, EL62 is used to the Wi-SUN meter NIC network which uplink link to the AP. Based on the Wi-SUN standard, the communication system realizes high-reliability, anti-interference, and self-healing communication on the adaptive network, and expands the network system. It is mainly used for meter to provide electricity information collection and prepaid wireless communication function.
The EL62 product can meet different meter structure designs by change the module cover.

Product Features

RF Communications:

- Sub-GHz RF communication based on IEEE802.15.4g standards
- Channel hopping supported
- Support on-site wireless operation and maintenance

- The point-to-point communication distance can reach 1km in an environment without signal obstruction

Network Features:

- Self-Adaptive MESH Network, Topology information of MESH network can be managed on NMS
- Self-adapting mesh network and support IPv6
- Support UDP / CoAP protocol
- Supports up to 24 levels of routing, recommended for actual use up to 10 levels
- Support flexible networking organization, Auto-registration to join the network
- Support DLSM/COSEM protocol in IP-based application layer.

System Features:

- Power failure and recovery alarm
- Support unicast/multicast to improve the efficiency of firmware upgrade remotely
- Wi-SUN FAN 1.0 Profile compliant
- Support time synchronization from NTP server

Security(Optional)

EL62 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
- Support DTLS for CoAP message transmission
- Link-layer encryption in the FAN mesh (AES-128)
- NIC and meter communication support DLMS/COSEM HLS

Product Specifications

Physical Specifications	
Dimensions （Height x Width x Depth）	119.4mm×67mm×48mm
Storage Temperature	-40℃ to 85℃
Operating Temperature	-25℃ to 70℃
Main chip P/N	VC7300BU-A3
SoC RAM	128KB It can cache meter events and load profile to avoid the data loss when Wi-SUN network is unavailable

SPI Flash	2MB
Super-Capacitor	Support 1 minute operation after power failure for last gasp
Communication Interfaces	
Antenna	Built-in embedded antenna
UART	2 channels RS-485 one is for local communication with the meter the other one is for maintenance commissioning
Power supply	12V DC
Wi-SUN RF Parameters	
Wi-SUN chipset	EL62.R139 Wi-SUN FAN 1.0 Certificated FCC Part 15.247
ISM frequency band	902~928 MHz
Spread spectrum	FHSS (Frequency Hopping Spread Spectrum)
Transmit Power	FSK: 29.5±0.5dBm (maximum 1000mW)
Sensitivity	-110dBm@50kbps -97dBm@100kbps
Antenna Gain	2.0+/-0.5 dBi Embedded Antenna
Support Standards	
IP Version 6 Addressing Architecture	RFC4291
IEEE Standard for Local and metropolitan area networks	IEEE 802.15.4g
Neighbor Discovery Optimization for IPv6 over Low-Power Wireless Personal Area Networks	RFC6775
RPL: IPv6 Routing Protocol for Low-Power and Lossy Networks	RFC6550
The Minimum Rank with Hysteresis Objective Function	RFC6719
Generic Packet Tunneling in IPv6 Specification	RFC2473
Internet Protocol, Version 6	RFC2460
Dynamic Host Configuration Protocol for IPv6 (DHCPv6)	RFC3315
Transmission of IPv6 Packets over IEEE 802.15.4 Networks	RFC4944
An IPv6 Routing Header for Source Routes with RPL	RFC6554
ICMPv6 (Internet Control Message protocol for the IPv6)	RFC2463

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.
- This type of product does not have waterproof function. Please do not install this product directly in the outdoor and humid place.
- Make antistatic protection.