

ELM Series



Main Features

- Chipset: Semtech SX1272
- AES encryption 128 bits
- Frequency bands: 862~932MHz
- Programmable output power up to +20dBm
- Communication distance: 2 Km distance with 90% successful transmission rate
- Low current consumption <140mA @ +20dBm RF output power
- High sensitivity: down to -137dBm
- Host communication interface: UART (ELM-A) & USB (ELM-B)

Product Overview

Developed with Mini PCIe form factor and integrates a 32bit MCU, CypressS6E1C32, and LoRa transmitter Semtech SX1272, ELM series is a LoRa module with standard PCI Express mini card form factor. It fulfills the long distance IoT applications with LoRa wireless technology through AT commands from Windows or Linux platform such as Industrial PC, embedded MCU board with commonly used UART (ELM-A) or USB (ELM-B) interfaces.

ELM is mainly intended for the ISM (Industrial, Scientific, and Medical) frequency bands at 862-932MHz. The module integrated many RF functions and PA to make the maximum output power up to +20dBm and signal coverage can reach up to 5km. Users can control the external device or access external sensor data by UART port.

ELM can support very good wireless performance in 2 Km distance with 90% successful transmission rate. Multi-end points can form a broadcast network, with the same frequency and encryption the end points can communicate without pairing in advance. Thus, effectively reduce the effort in deployment and maintenance.

Specifications

Standard

- Wireless: LoRa
- Chipset: Semtech SX1272
- Host communication Interface: UART, USB

Software

- Support Windows, Linux driver
- Security: WEP, WPA, WPA2

Wireless Interface

- Modulation: LoRa
- Frequency: 862~932MHz
- Frequency Accuracy: ± 10 kHz
- Data Rate: 0.244~18.2Kbps(LoRa)
- Antenna Impedance: 50 Ohm

RF Output Power :

- 2 ~ 20 dBm

Receive Sensitivity :

- -137 dBm

Power Source

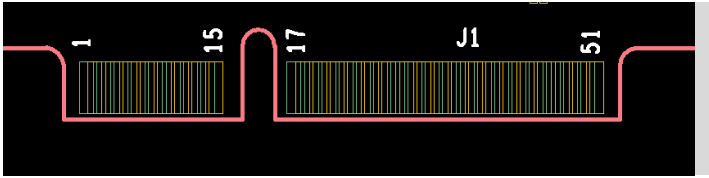
- Operating Voltage: DC 3.3 V
- Power consumption:
 - Transmission: 140 mA @ 3.3 V
- Operating temperature: -40~85°C
- Storage temperature: -40~85°C
- Dimension: 51.0 mm x 30.0 mm x 4.9 mm
- Weight: 5 g

Certification

- FCC
- NCC
- TELEC

ELM Series

Mini PCIe Pin Definition



PIN#	PIN NAME
2	3.3V
4	GND
9	GND
11	RXD
13	TXD
15	GND
18	GND
21	GND
22	NDC_RESET
23	NC
24	3.3V
25	NC
26	GND
28	PPS
30	NC
32	NC
34	GND
35	GND
36	USB_D-
37	GND
38	USB_D+
39	3.3V
41	3.3V
43	GND
49	NC
50	GND
51	NC
52	3.3V