

Low Power Radio Modem

SLR-434M 434 MHz

The SLR-434M is a narrowband embedded radio modem for the 434 MHz ISM band. Compact and designed for ease of use, it incorporates LoRa® technology to achieve extremely long range at low power, albeit at low bit rate. Its superior sensitivity allows the possibility of communication into areas once considered difficult for RF to penetrate.

The SLR-434M uses a dedicated command system with a simple to use proprietary protocol. In addition to serial data transmission, the module also includes 8 x IO ports for switching signals allowing transmission of signals from sensors or for driving relays.

Features

- Narrowband
- EN300 220
- Extremely long range operation achieved by LoRa mode.
- Higher resistance to urban noise, enabling long range operation
- Switchable between FSK mode and LoRa mode
- UART interface
- Transmission of up to 8 switching signals
- Low power consumption makes battery power operation possible
- Compact size

Applications

- Data transmission, building air conditioning control
- Debris flow monitoring at mudslide control dams
- River water level / dam gate management
- Greenhouse temperature / humidity monitoring and control
- Sensor data transmission from underground or manhole
- Monitoring of tunnels and bridges



General

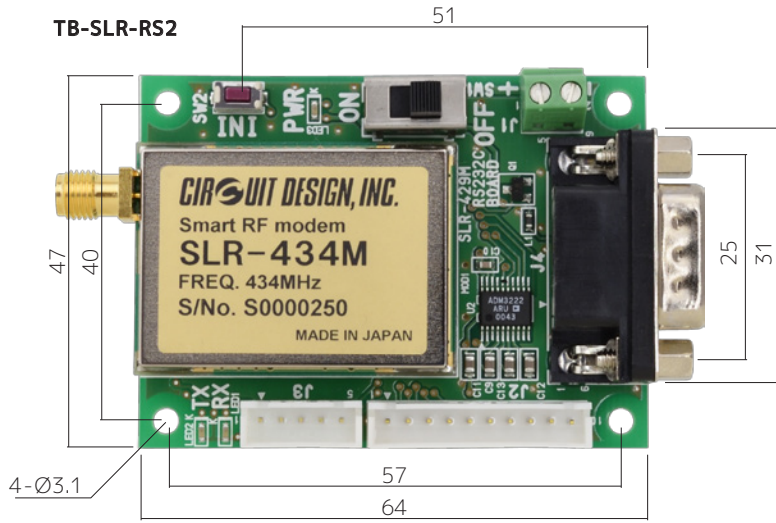
Parameter	Specification	Remark
Applicable Standard	EN300 220	
Emission type	F1D	
RF Output Power	< 10 mW	SMA / 50Ω
Communication method	Simplex or half duplex	
RF Bit Rate	4800 bps (FSK) or 15 to 245 bps (LoRa)	Actual speed with LoRa depends on chip rate
Frequency Range	433.075 to 434.7750 MHz	
Number of Channels	137	Channel Step: 12.5 kHz
Receiver Sensitivity	< -115 dBm (FSK), -133 dBm (LoRa 128 chip)	PER 1% with the user data of 45 bytes or less
Operating voltage	3.5 ~ 5.0 V	Recommended
Consumption current	TX: 29 mA (Typ), RX: 17 mA (Typ)	@5V
External Dimensions	40 x 29 x 6.2 mm	Not including antenna connector
Modulation	Binary FSK or LoRa	
No. of sw inputs	8	

Serial interface

Parameter	Specification
Communication method	Serial communication (RS232)
Synchronization	Asynchronous / UART
Data Speed	19200 bps
Flow Control	Hardware: RTS/CTS pin Software: Xon/Xoff not used
Parameter	Data length: 8 bit, Parity: None / Stop Bit: 1

*LoRa® is a trade mark of Semtech corporation.

Evaluation Tools RS232 Board and sub boards



Various antennas are available.

SB-SLR-DIO-A



SB-SLR-DIO-B

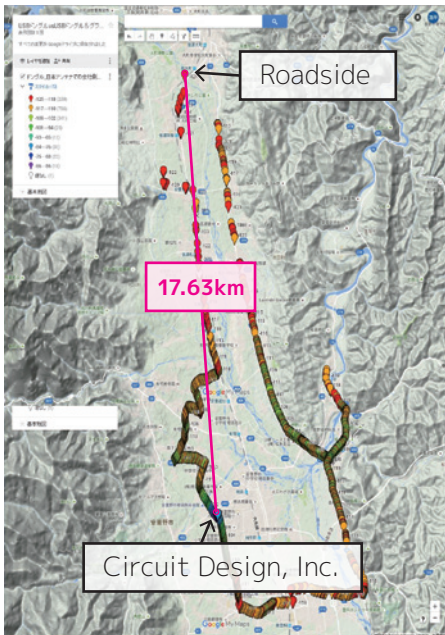


Field test result

In suburban area **18.0 km**
 From manhole **1.5 km**

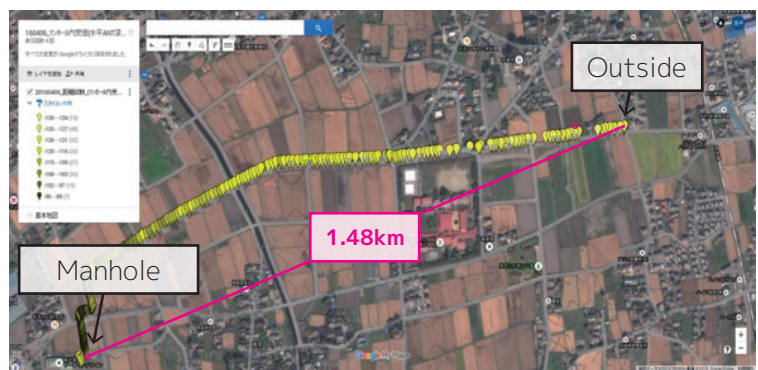
Suburban area :

Circuit Design (5 m height) to road side at 1.5 m height



From manhole :

At 1 m depth in manhole to ground level at 2 m height



Test Conditions

- USB dongle to USB dongle
- 10 mW RF power
- 429 MHz band