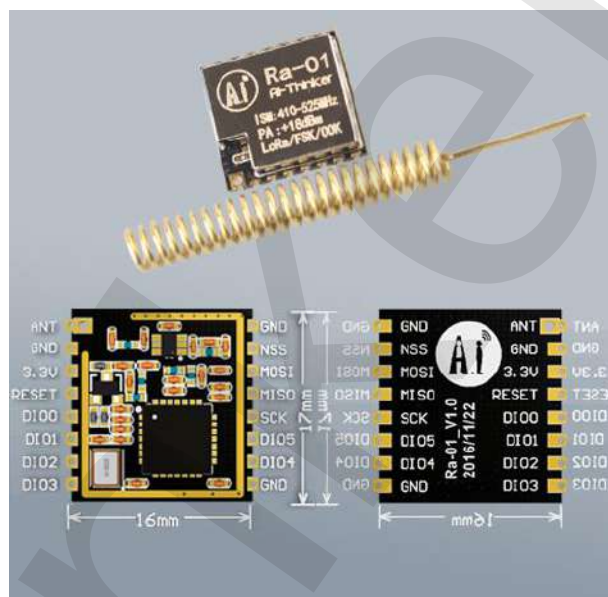
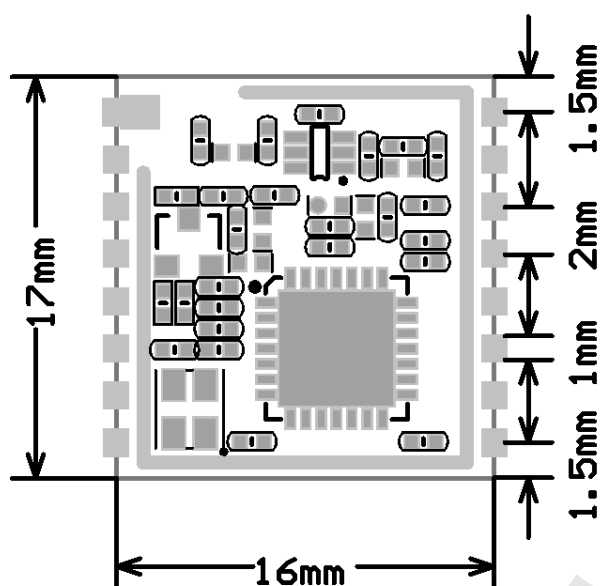


## Ra-01 LoRa Module



## Features

- LoRa™ spread spectrum modulation technology
- Receive sensitivity as low as -141 dBm
- Excellent resistance to blocking
- Supports preamble detection
- Supports half-duplex SPI communication
- Programmable bit rate up to 300Kbps
- Supports FSK, GFSK, MSK, GMSK, LoRa™ and OOK modulation modes
- Supports automatic RF signal detection, CAD mode and ultra high speed AFC
- Packets with CRC, up to 256 bytes
- Small package with double volume stamps

## Overview

Ra-01 can be used for ultra-long distance spread spectrum communication, and compatible FSK remote modulation and demodulation quickly, to solve the traditional wireless design can not take into account the distance, anti-interference and power consumption.

Ra-01 can be widely used in a variety of networking occasions, for automatic meter reading, home building automation, security systems, remote irrigation systems, is the ideal solution for things networking applications.

Ra-01 is available in SMD package and can be used for rapid production by standard SMT equipment. It provides customers with high reliability connection mode.

## Product Specifications

|                        |                                                                                            |
|------------------------|--------------------------------------------------------------------------------------------|
| Module Model           | Ra-01                                                                                      |
| Package                | SMD-16                                                                                     |
| Size                   | 17*16*(3.2 ± 0.1) mm                                                                       |
| Interface              | SPI                                                                                        |
| Programmable bit rate  | UP to 300Kbps                                                                              |
| Frequency Range        | 410-525 MHz                                                                                |
| Antenna                | Spring antenna with gain of 2.5 dBi                                                        |
| Max Transmit Power     | 18±1 dBm                                                                                   |
| Power (Typical Values) | 433MHz:<br>TX:93mA RX:12.15mA Standby:1.6mA<br>470MHZ:<br>TX:97mA RX:12.15mA Standby:1.5mA |
| Power Supply           | 2.5~3.7V, Typical 3.3V                                                                     |
| Operating Temperature  | -30 °C ~ 85 °C                                                                             |
| Storage Environment    | -40 °C ~ 90 °C , < 90%RH                                                                   |
| Weight                 | 0.45g                                                                                      |

## Receive Sensitivity

| Frequency | Spread factor | SNR | Sensitivity |
|-----------|---------------|-----|-------------|
| 433MHz    | 7             | -7  | -125        |
|           | 10            | -15 | -134        |
|           | 12            | -20 | -141        |
| 470MHz    | 7             | -7  | -126        |
|           | 10            | -15 | -135        |
|           | 12            | -20 | -141        |

Note: The above data are measured by the Semtech Shenzhen laboratory. The test conditions: power output 20dBm, bandwidth 125KHz.

## Contact US

Shenzhen Ai-Thinker Technology Co., Ltd

Address: 6/F, Block C2, Huafeng Industrial Park, Hangcheng Road, Bao'an Road, Baoan District, Shenzhen ,China

Website: [www.ai-thinker.com](http://www.ai-thinker.com)

Tel: 0755-29162996

E-mail: [support@aithinker.com](mailto:support@aithinker.com)