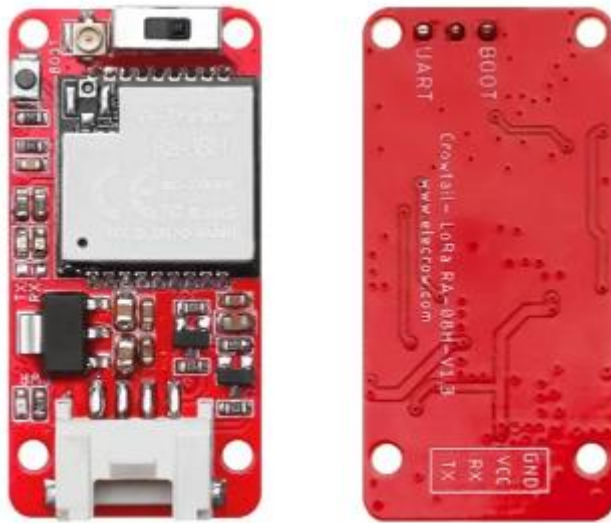# Crowtail- Lora RA-08H/LoRaWAN Module

Introduction

Crowtail - LoRa RA-08H uses the Ra-08H (ASR6601) module, which has ultra long distance spread spectrum communication. Its chip ASR6601 is a general-purpose LPWAN wireless communication SoC integrated with RF transceiver, modem and a 32-bit RISC MCU. The Ra-08H module supports LoRa modulation and traditional (G) FSK modulation under the LPWAN use case; The transmitter also supports BPSK modulation and (G) MSK modulation.

The Ra-08H module provides ultra long range and ultra-low power consumption communication for LPWAN applications and can be widely used in intelligent instruments, supply chain and logistics, home building automation, security systems, remote irrigation systems and other scenarios.

Parameters

|	
Model	Ra-08H
Package	SMD-18
Size	16.0*16.0*3.2($\pm$0.2)mm
Antenna	half-hole pad / through-hole pad / IPEX
Frequency	803-930MHz
Operating temperature	-40 ℃ ~ 85 ℃
Storage temperature	-40 ℃ ~ 125 ℃, < 90%RH
Power supply	Voltage 2.7V ~ 3.6V, Current >500mA
Interface	UART/GPIO/ADC/DAC/I2C/I2S/SPI/PWM

IO	IO2,IO4,IO5,IO8,IO9,IO11,IO14,IO15
UART rate	Support 110 ~ 4608000 bps, Default 115200 bps
Crystal frequency	32MHz
SPI Flash	128KB
Transfer Protocol	LoRaWAN, LinkWAN

Ra-08H Pin definition diagram
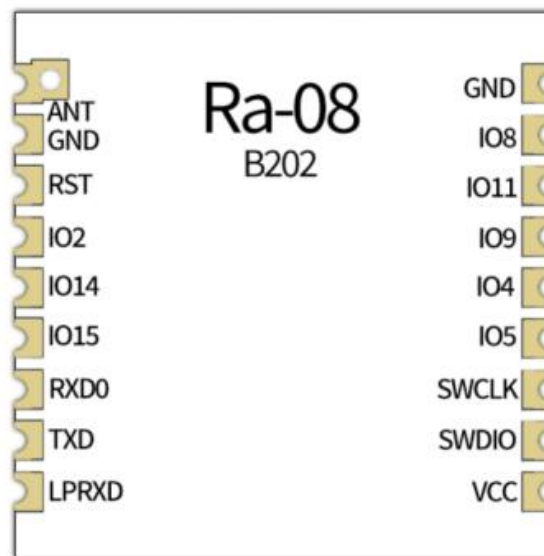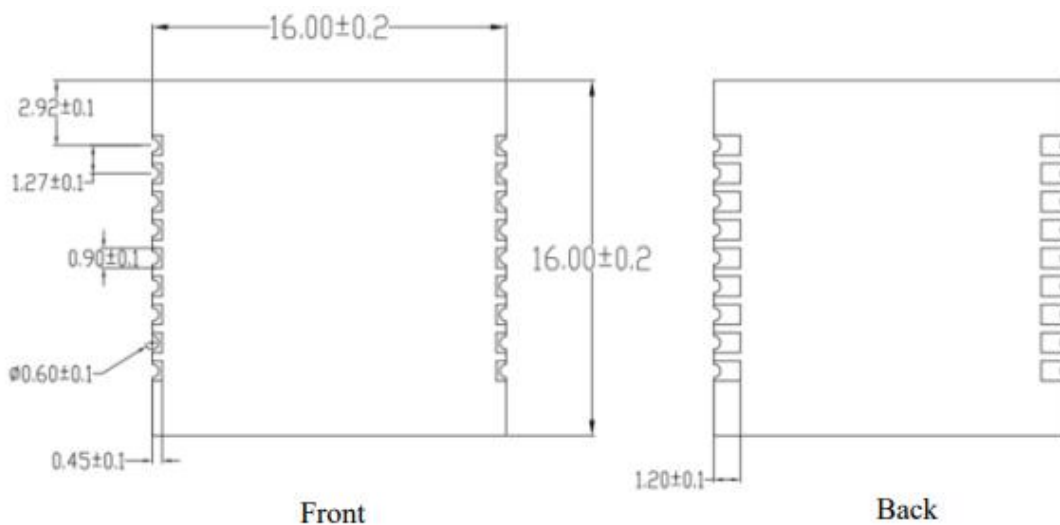
Ra-08H Dimensions

Specifications

- Voltage:3.3~5v
- Theoretical maximum transmission power+22dBm
- Supported frequency band: 803~930MHZ
- High sensitivity: -138dBm@125KzSF12
- Support spread spectrum factor: SF5/SF6/SF7/SF8/SF9/SF10/SF11/SF12
- Embedded memory: 128KB FLASH, 16KB SRAM
- Support LoRa/(G) FSK/BPSK/(G) MSK modulation
- Maximum transmission distance 1KM (ideal value for open space)
- With download and communication switching functions, users can customize programming
- Configure the first generation IPEX seat
- Dimension (mm): 40 (L) * 20 (W) * 7.5 (H)
- Net weight: 7g

Safety Instructions

- **Power Off:** Ensure that the power to the Raspberry Pi and related devices is turned off before connecting or disconnecting the expansion board. This will prevent accidental short circuits or electric shocks.
- **Proper Insertion/Removal:** When connecting or disconnecting the expansion board, make sure the connector and slot are aligned, and insert or remove them gently and steadily, avoiding excessive force or bending pins.
- **Keep Dry:** Ensure that the working environment for the expansion board and Raspberry Pi is dry, away from water sources or humid environments, to prevent circuit short circuits or damage.
- **Temperature Control:** Ensure that the Raspberry Pi and expansion board operate within the appropriate working temperature range. Excessive temperatures can cause damage to electronic components or overheating issues, so ensure proper heat dissipation and ventilation.