General Description

The Whisker.IO Engine™ is a long-range, ultra-low power intelligent RF module designed for battery powered IoT applications. Using the new LoRa™ technology from Semtech, the module is capable of communicating over very long distances: up to a mile with proper antenna elevation. The module can operate for up to 5 years from a pair of common AA batteries. All data communications are encrypted using 128-bit AES.

The module is available in surface and through-hole packages and is FCC certified.

Applications

- Automated meter reading
- Oil and gas well monitoring
- Freezer and cooler monitoring
- Agriculture – soil moisture, etc
- Building maintenance and management
- General battery powered wireless IoT applications
- Long range wireless serial bridge

Features

- 1.16" x 0.93"x 0.19" – SMD
- 1.16" x 0.93" x 0.5" – Thru-hole
- 1.8 – 3.5V operation
- Current: Tx=120mA,RX= 12mA
- Link Budget: 135dB (1 mil LOS)
- 5 year battery life (2xAA, 5 minute sample rate)
- 2 analog in/digital in/digital out
- I2C I/O expansion
  - MMA8652 accelerometer
  - SX1508 port I/O expander
  - ADS1015 A/D converter
  - And more
- Transparent serial mode
- 128 bit AES encryption
- FCC modular certification

Pin-out

Pins not populated for u.FL and RPSMA versions

* These pins are not available on versions with a wire antenna or antenna connector. They are only used when the antenna is to be connected on the host PCB
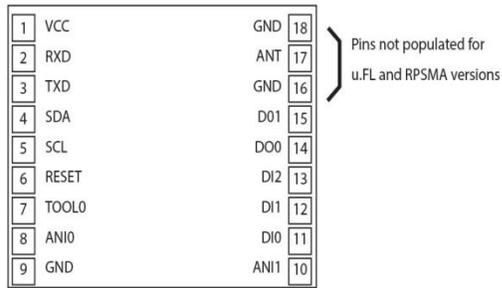
Pin	Description	Pin	Description
1	VCC: 2.4-3.6V DC	10	AIN1: Analog input 1
2	RXD: UART data receive	11	DI0: Digital input 0 (Wakeup input in battery mode)
3	TXD: UART data transmit	12	DI1: Digital input 1
4	SDA: I2C IO Expansion	13	DI2: Digital input 2
5	SCL: I2C IO Expansion (Serial mode)	14	DO0: Digital output 0
6	RESET: Programming line	15	DO1: Digital output 1
7	TOOL0: Programming line	16	GND*
8	AIN0: Analog input 0	17	ANT*
9	GND	18	GND*

Electrical Specification

Parameter	Minimum	Typical	Maximum	Units
Supply voltage	1.8	3.0	3.6	VDC
Supply current – Transmit mode – 100mW		125		mA
Supply current – Receive mode		13		mA
Average supply current – battery mode[1]		60		uA
Average supply current – line power mode		13		mA
Link budget	132		139	dB
Demodulation SNR	-10	-12.5	-20	dBm
Analog input voltage range	0		2.5	Volts
UART data rate	2400		115200	Baud
Unique MAC address length		32		Bits

[1] **battery powered mode, 5 minute sample rate**

Order Information

Part Number	Description
OEM-900- SC	Surface mount 900MHz module with uFL connector
OEM-900- SE	Surface mount 900MHz module without uFL connector
OEM-900-TC	Thru-hole 900MHz module with uFL connector
OEM-900- TE	Thru-hole 900MHz module without uFL connector

Order on-line at: www.d6labs.com or call 1(888) 551-0112