

LoRa™ 868/915 MHz RF95 Transceiver Arduino Shield

Data Sheet

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Description

Features

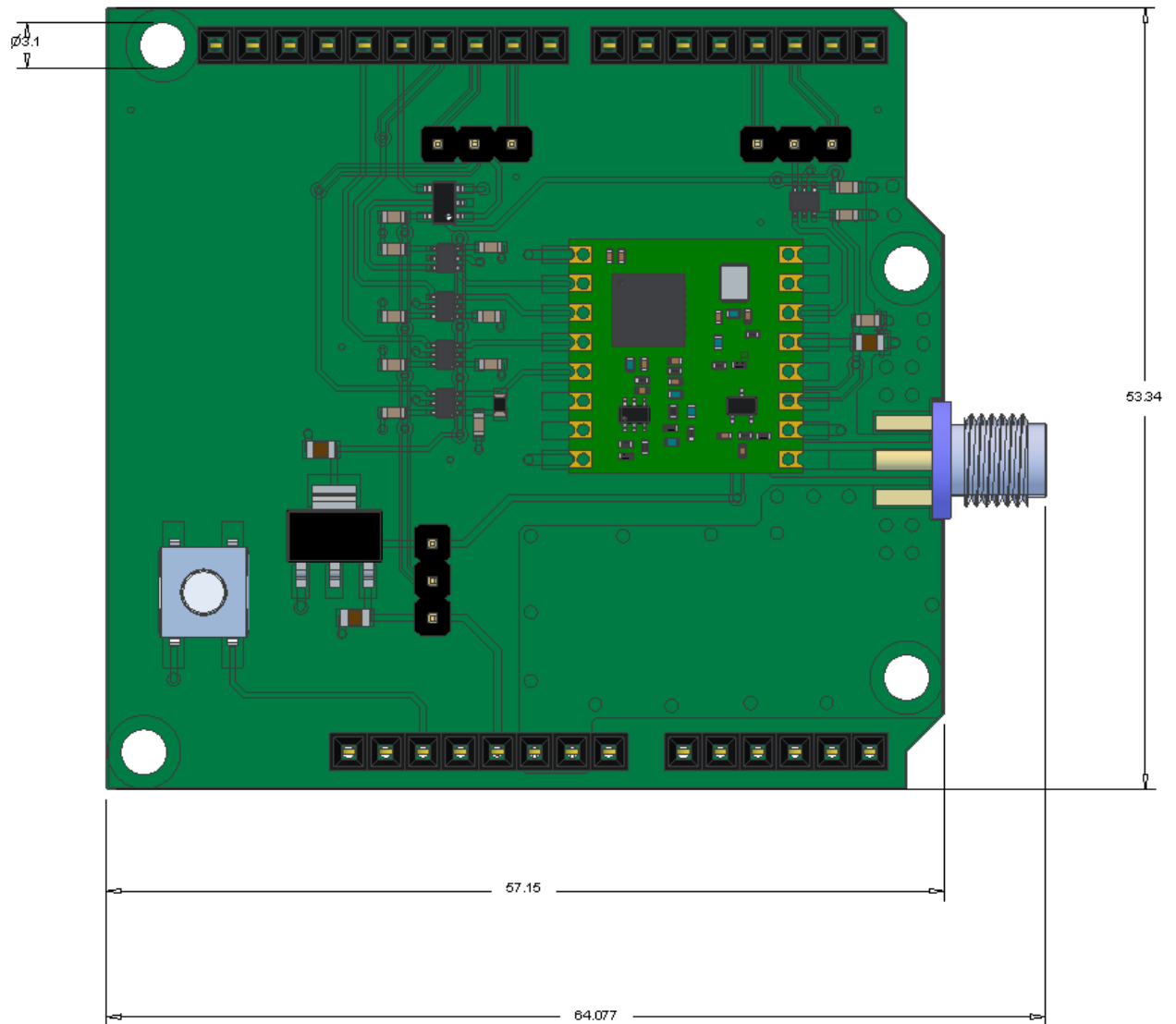
- Based on RF95 transceiver radio chip
- LoRa spread spectrum modulation
- FSK (Frequency Shift Keying) modulation
- Frequency Range 868/915MHz ISM bands
- Sensitivity -138 dBm in LoRa mode
- Radio Packet Engine and FIFOs
- +17 dBm (50mW) Max Output Power (Configurable)
- Digital RSSI
- Radio Range 15-20km (LoS)
- Low power consumption TX 100mA at 17dBm
- Arduino compatible R2 and R3
- Powers from the Arduino board
- Standard Arduino sized shield
- Arduino reset button
- Software Examples available for download
- SMA antenna connector
- IO 3.3V and 5V compatibility (jumper setting)

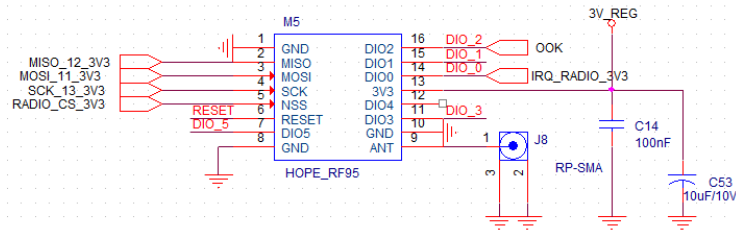
Technical Specification

Electrical Characteristics

Parameter	Condition	MAX	TYP	MIN	Unit
VCC operating voltage	supplied from the Arduino Header		5		V
Irx Current in RX mode	PLL		20		mA
Itx Current in TX mode	Transmitting 17dBm (max power)	110	100		mA
RF power	On 50 Ohm load	17			dBm
Output Impedance	RF – SMA connector		50		Ohm
IO voltage	Jumper setting	5		3.3	V

Physical Dimensions





Title		
Adaptive RF95		
Size	Document Number	Rev
A	Adaptive LoRa Shield	A
Date: Tuesday, January 26, 2016 Sheet 1 of 1		

Connections

The RF95 radio module is connected to the main board using the SPI bus and one interrupt signal. The mapping of the SPI bus is the following:

Arduino Signal Name	RF95 Signal Name	Notes
SCK (D13)	SCK	
MISO (D12)	MISO	
MOSI (D11)	MOSI	
D9	NSS	Jumper J9 closed on 2-3
SS (D10)	NSS	Jumper J9 closed on 1-2 (default*)
D2 (INT0)	DIO0	Jumper J10 closed on 2-3 (default*)
D3 (INT1)	DIO0	Jumper J10 closed on 1-2

* Default configuration when product is shipped

Power supply

The Inputs Outputs voltage level compatibility is ensured for both 3.3V boards and with 5V (legacy Arduino) – however the board needs the 5V voltage rail for power.

The board has a voltage regulator for powering the 3.3V circuitry on the so it the 5V need to be present at all times. The IO voltage compatibility can be configured by positioning jumper J12

IO Voltage compatibility	J12 position
5V IO	Closed on 2-3 (default*)
3.3V IO	Closed on 1-1

* Default configuration when product is shipped



This product requires a maximum of 120mA when transmitting at full power please make sure your board or external power supply can deliver this current.

Application Information

Software library

A software library is available for download free of charge from our website please follow the link

[SX1276 Arduino Libs & Examples](#)

Code Examples

A number of examples are delivered free of charge with the library (these are self contained in a subdirectory in the library zip file)

Software examples are provided on the Adaptive Design ltd. website, please check the website regularly for updates or bug fixes. Examples are free of charge and the sole purpose is to be used as reference and for future developments. We do not support the software examples and no warranty is provided, however we are doing are best to keep them up to date and to fix bugs. The examples are not provided to be used in commercial products.

Compatibility

This product was tested with the following boards
Arduino Family (R3 Header Style)

Arduino UNO 5V
Galileo (Intel) 5V/3.3V
Genuino101 (Intel) 3.3V/5V

Others

Nucleo STM32F411 (LoraWan protocol)

Document History

Date	Version	Description	Engineer
07/03/16	1.0	Initial Draft	Aurelian Lazarut