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## Overview

This xCHIP features an SC18IS602B SPI/I<sup>2</sup>C converter IC for handling radio operations, the on-board RFM95W LoRa™ module provides ultra-long range spread spectrum communication and high interference immunity whilst minimizing current consumption.

### Product Highlights

- 868 MHz Range (Software Selectable Center Frequency)
- LoRa™ Modem
- 168 dB maximum link budget.
- +20 dBm - 100 mW constant RF output vs. V supply.
- +14 dBm high efficiency PA.
- Programmable bit rate up to 300 kbps.
- High sensitivity: down to -148 dBm

## Applications

- Remote Sensing
- Home Automation
- Satellite Telemetry

## Specifications

### RFM95W

- 168 dB maximum link budget.
- +20 dBm - 100 mW constant RF output vs. V supply.
- +14 dBm high efficiency PA.
- Programmable bit rate up to 300 kbps.
- High sensitivity: down to -148 dBm.
- Bullet-proof front end: IIP3 = -12.5 dBm.
- Excellent blocking immunity.
- Low RX current of 10.3 mA, 200 nA register retention.
- Fully integrated synthesizer with a resolution of 61 Hz.
- FSK, GFSK, MSK, GMSK, LoRa™ and OOK modulation.
- Built-in bit synchronizer for clock recovery.
- Preamble detection.
- 127 dB Dynamic Range RSSI.
- Automatic RF Sense and CAD with ultra-fast AFC.
- Packet engine up to 256 bytes with CRC.

### SC18IS602B

- I<sup>2</sup>C-bus slave interface operating up to 400 kHz
- SPI master operating up to 1.8 Mb/s
- 200-byte data buffer
- Low power mode
- Internal oscillator option

## External Links

### Datasheets

- RFM95W From HopeRF ([http://www.hoperf.com/upload/rf/RFM95\\_96\\_97\\_98W.pdf](http://www.hoperf.com/upload/rf/RFM95_96_97_98W.pdf))
- SC18IS602B From NXP Semiconductors (<https://www.nxp.com/docs/en/data-sheet/SC18IS602B.pdf>)

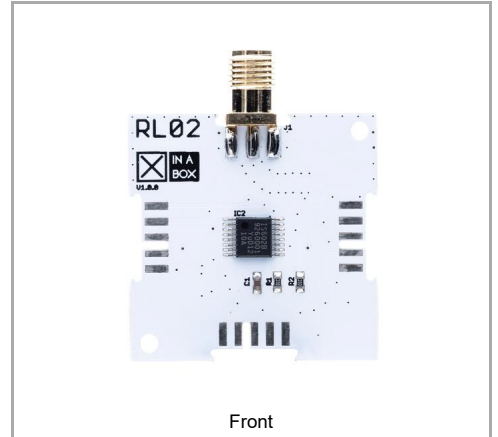
### Shop

- Buy RL02 (<https://xinabox.cc/products/RL02>)

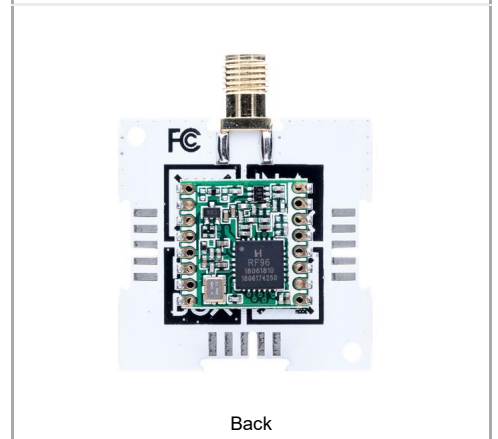
### GitHub

- RL02 on GitHub (<https://github.com/xinabox/xRL02>)

RL02 - LoRa Radio (868 MHz)  
(RFM96W/RFM95, SC18IS602B)



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<b>☒CHIP</b>	
<b>Main Category</b>	Radio
<b>Sub Category</b>	LoRa
<b>Introduced</b>	1 January 2017
<b>Current version</b>	1.0.0
<b>Current version date</b>	1 January 2017
<b>Dimensions</b>	
<b>Size</b>	2x2U (32x32mm)
<b>Weight</b>	5.3 g
<b>Height</b>	7.9/1/1.8 mm
<b>Non-☒BUS Connections</b>	
<b>North</b>	SMA Female Connector (7.5 mm)
<b>Main Chip Set</b>	
<b>Main Chip</b>	SC18IS602B
<b>I<sup>2</sup>C Speed</b>	100/400 kHz