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Overview

This xCHIP forms part of the core radio modules and features an ATmega328P CPU running at 16MHz for handling system and radio operations. The on-board RFM96W LoRa™ module provides ultra-long range spread spectrum communication and high interference immunity whilst minimizing current consumption.

Product Highlights

- 433 MHz Range (Software Selectable Center Frequency)
- ATmega328P CPU
- LoRa™ Modem
- Fully Static Operation
- Built-in temperature sensor and low battery indicator.

Applications

- Remote Sensing
- Home Automation
- Satellite Telemetry

Specifications

- 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.

Featured Samples

No samples available at this time

Featured Projects

No projects available at this time

Getting Started

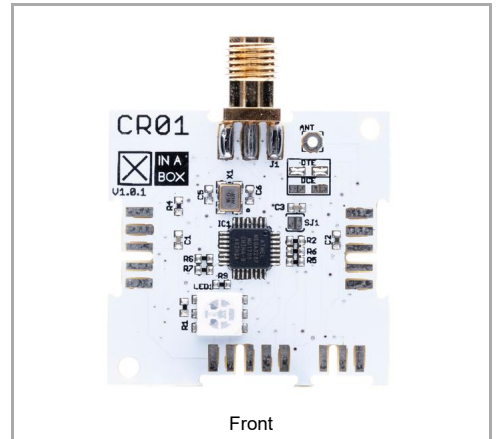
- Arduino ([https://wiki.xinabox.cc/Getting_Started_with_the_CR01_\(Arduino\)](https://wiki.xinabox.cc/Getting_Started_with_the_CR01_(Arduino)))

External Links

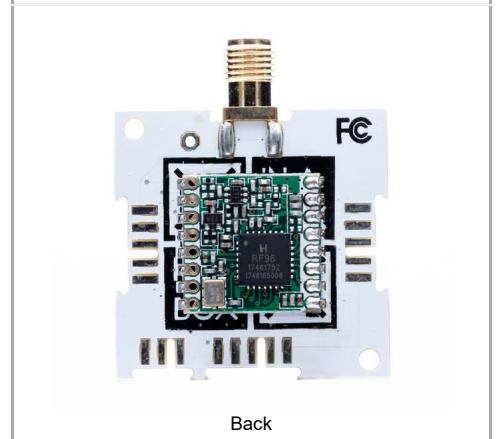
Datasheets

- RFM96W From Hope RF (http://www.hoperf.com/upload/rf/RFM95_96_97_98W.pdf)
- ATmega328P From Atmel Corporation (http://www.atmel.com/images/atmel-8271-8-bit-avr-microcontroller-atmega48a-48pa-88a-88pa-168a-168pa-328-328p_datasheet_summary.pdf)

CR01 - LoRa with ATmega328P Core (433.92 MHz) (RFM96W/RFM96)



Front



Back

<input checked="" type="checkbox"/> CHIP	
Main Category	Core
Sub Category	Radio
Introduced	1 January 2017
Current version	1.0.0
Current version date	1 January 2017
Dimensions	
Size	2x2U (32x32 mm)
Weight	5.2 g
Height	7.9/1/1.8 mm
Non-<input checked="" type="checkbox"/>BUS Connections	
North	SMA Female Connector (7.5 mm)
South	<input checked="" type="checkbox"/> BUS & <input checked="" type="checkbox"/> PDI
Main Chip Set	
Main Chip	ATmega328P
Architecture	AVR
Core Size	8-Bit
Max. Frequency	16 MHz
Program Memory Size	32 kB
EEPROM Memory Size	1 kB
RAM Memory Size	2 kB
I²C Speed	100/400 kHz
Programmer Setting	
Programmer	IP01
Serial Configuration	

Shop

- Buy CR01 (<https://xinabox.cc/products/CR01>)

GitHub

- CR01 on GitHub (<https://github.com/xinabox/xCR01>)

Default Setting	DTE
Change Setting	DCE
UART Configuration	
RXD	PD0
TXD	PD1
I²C Configuration	
SDA	PC4
SCL	PC5
SPI Configuration	
MISO	PB4
MOSI	PB3
SCK	PB5
CS	PB2
LED Configuration	
Red pin	PC0
Green pin	PC1
Blue Pin	PC2