# DS1302 Real-Time Clock Module (#29125)

The DS1302 Real Time Clock Module provides a DS1302 real-time clock with a 32 kHz crystal and on-board battery backup, all in a small SIP module that can be easily plugged into a breadboard.

The DS1302 provides seconds, minutes, hours date, day of week and year with leap-year compensation up to the year 2100. You can use 24-hour mode or 12-hour mode with AM/PM indication and there are 31 bytes of RAM that are also battery-backed.

Give your project the ability to tell time, store time or make time-based decisions with 1 second resolution in a small, compact form-factor. Easily store settings or parameters using the 31 bytes of battery-backed RAM.

Features

- On-board CR1220 battery holder
- SPI interface supports 3-wire or 4-wire synchronous serial connection
- Wide operating voltage supports 3.3V and 5V microcontrollers
- Convenient SIP header makes breadboarding easy
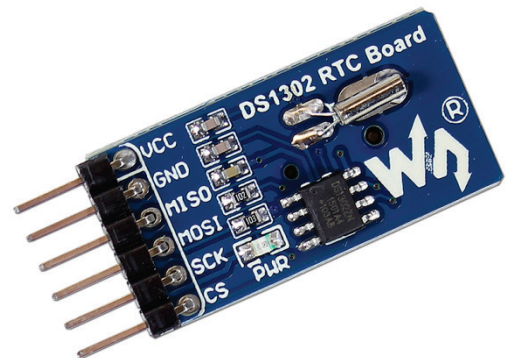
Specifications

- Power Requirements: 3.3-5 VDC
- Current Requirements: 3.2 mA @ 5 VDC
- Communication Interface: SPI @ Vdd (3 or 4 wire)
- Operating temperature: +32 to +158 °F (0 to +70 °C)
- Dimensions: 1.22 x 0.6 in (31.2 x 15.5 mm)

Application Ideas

- Electronic Clock
- Datalogger with Date/Time stamp
- Sprinkler Control Timer
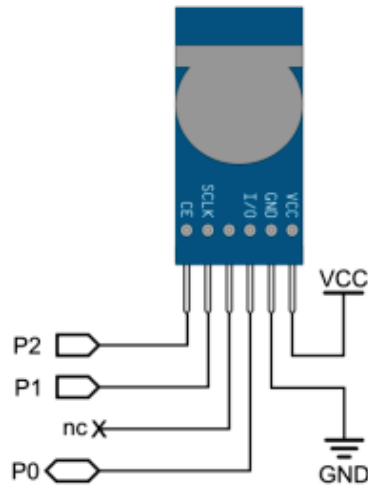
Quick-Start Circuit

Figure 1: Connecting to a BASIC Stamp 2

The above connection diagram is typical for a BASIC Stamp 2 or Propeller Microcontroller, however if you are trying to connect to a microcontroller that uses a 4-wire SPI interface then you should follow the connection diagram below.
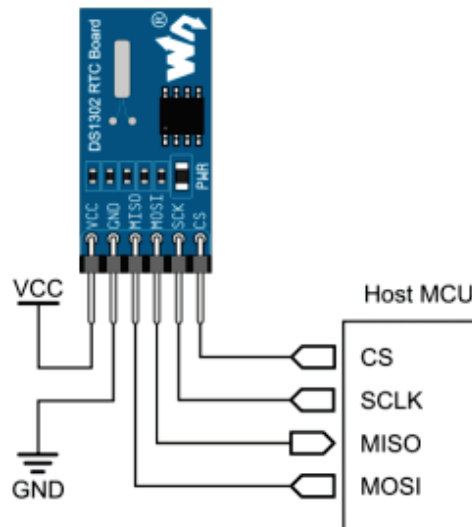

Figure 2: Connecting to a microcontroller with a 4-wire SPI interface

Resources and Downloads

Check for the latest version of this document, free software, and example programs from the DS1302 RTC Module product page. Go to www.parallax.com and search 29125.

Precautions

- Because this module contains a lithium coin-cell battery for backup it is important not to enable the DS1302 trickle-charging circuit. This could damage the battery and/or module.

Pin Definitions (3-Wire Interface)

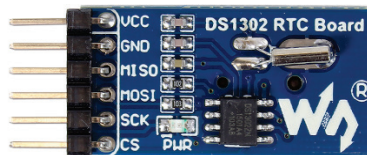| Pin	Name	Type	Function
1	VCC	P	Supply Voltage (3.3-5 VDC)
2	GND	G	Ground
3	I/O	I/O	Data Input / Output
4	N/C	—	No Connection
5	SCLK	I	Serial Clock
6	CE	I	Chip Enable

Pin Type: P = Power, G = Ground, I = Input, O = Output
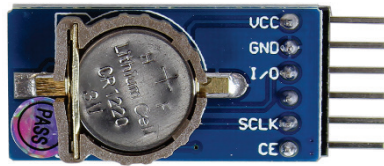
Pin Definitions (4-Wire Interface)

Pin	Name	Type	Function
1	VCC	P	Supply Voltage (3.3-5 VDC)
2	GND	G	Ground
3	MISO	O	Master In, Slave Out
4	MOSI	I	Master Out, Slave In
5	SCK	I	Serial Clock
6	CS	I	Chip Select

Pin Type: P = Power, G = Ground, I = Input, O = Output

Module Dimensions