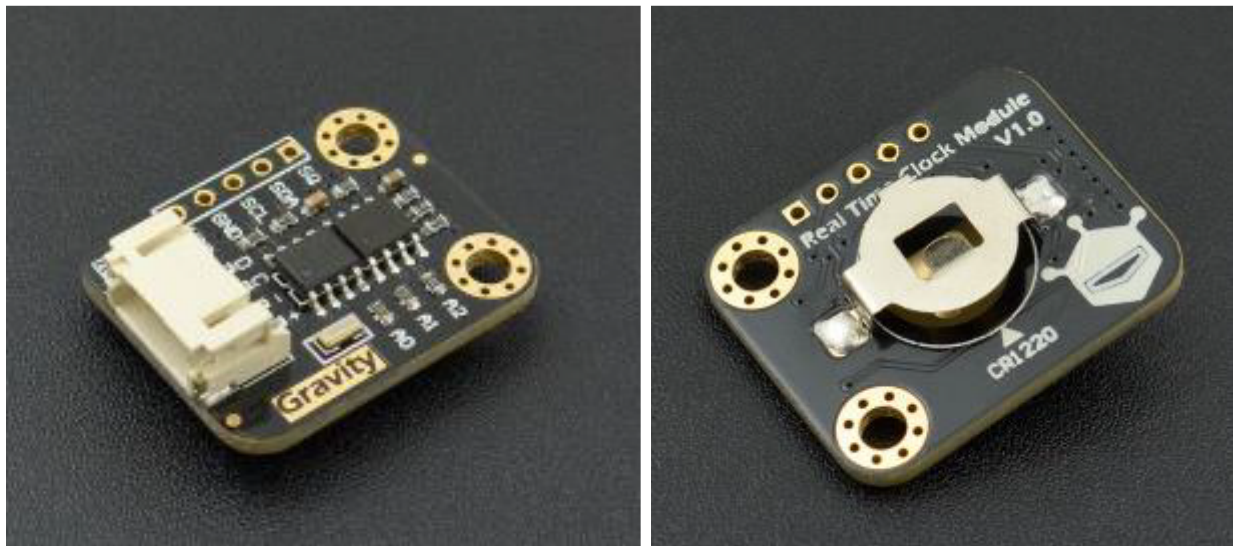


Gravity: I2C DS1307 RTC Module

SKU: DFR0151



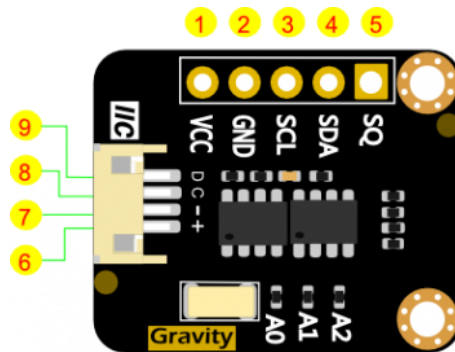
Introduction

After several months "Out of Stock", DS1307 RTC module has a big upgrade. It comes with a Gravity IIC interface, and the size is also reduced to fit miniaturization application. Gravity I2C DS1307 RTC module is a easy-to-use Real Time Clock module. It is cheap and affordable in most applications such as time clock, data logger, etc.. The new version DS1307 RTC module adopts high precision crystal oscillator which reduces time error dramatically. The test conducted shows the time error is only about 1 second in 24 hours (the average time error of Mechanical Watches is about 20s). The module is powered by single cell CR1220 (service life: 3~5 years). It is smaller and keeps EEPROM 4KB ROM to record information related to alarm clocks and events. Besides, you can set the IIC address by resistance adjustment. The Gravity DS1307 RTC module uses Gravity I2C interface and you can plug it on the DFRobot Gravity IO expansion shield directly. Cooperate with Arduino DS1307 library developed by DFRobot, it is easy to realize functions like setting time and time display. It can be widely used in DA (Data Acquisition).

Specification

- Operating voltage: 5V
- Interface: IIC/I2C (Gravity PH2.0-4P Interface & XH2.54 Pins)
- IC Output Data: Hour, Minutes, Seconds, Week, Day, Month, Year
- Leap-year Compensation
- Accurate calendar up to year 2100
- 1Hz Output Pin
- 56 Bytes of Non-volatile memory available to user
- 4KB ROM of EEPROM
- Size: 0.81inch x 1.06inch (22mm x 27mm)
- Weight: 6g

Board Overview



Gravity: I2C DS1307 RTC Module

Num	Label	Description
1	VCC	5V
2	GND	GND
3	SCL	I2C-Clock
4	SDA	I2C-Data
5	SQ	SQ
6	VCC	5V
7	GND	GND
8	SCL	I2C-Clock
9	SDA	I2C-SDA

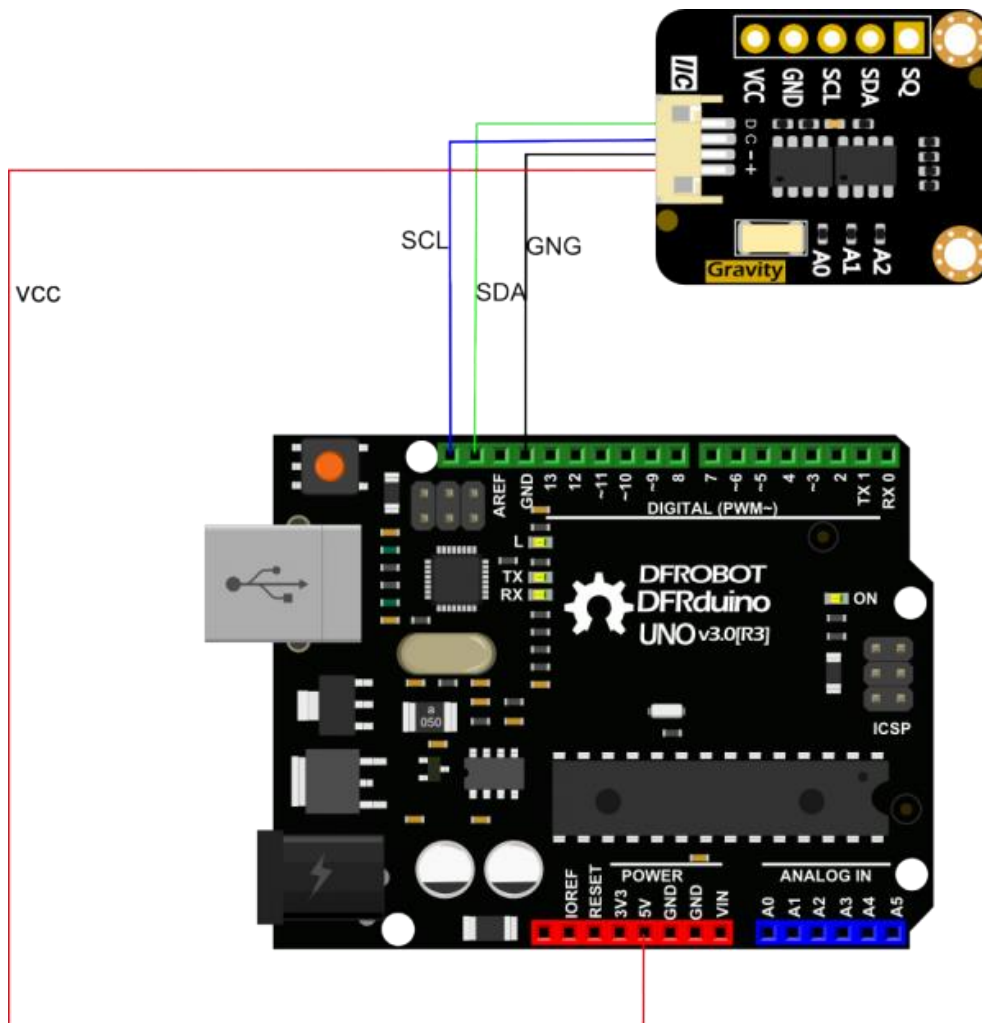
Tutorial

In this tutorial, you can set and read time.

Requirements

- **Hardware**
 - DFRduino UNO (or similar) x 1
 - Gravity: I2C DS1307 RTC Module
 - M-M/F-M/F-F Jumper wires
-
- **Software**
 - [Arduino IDE](#), [Click to Download Arduino IDE from Arduino®](#)

Connection Diagram



Gravity: I2C SD2405 RTC Module Arduino Connection Diagram

Sample Code

Please download DFRobot DS1307 RTC library. How to install Libraries in Arduino IDE

Note: #define updata_flag 0 //1 updata time,0 only show time

- When flag is 0, the sample code just shows time
- When flag is 1, the sample code only to set time
- Please set time first and modify the value from 1 to 0 to only show time

```
/*
*****
* Real Time Clock Module
* *****
* How to apply the DS1307 clock module.
* @author Dongzi (1185787528@qq.com)
* @version V1.0
* @date 2017-08-21
GNU Lesser General Public License.
See <http://www.gnu.org/licenses/> for details.
* All above must be included in any redistribution
* *****/
#include <Wire.h>
#include <DS1307.h>
#define updata_flag 0 //1 updata time,0 only show time
//Modify the following data
#define TIME_YR 17
#define TIME_MTH 8
#define TIME_DATE 21
#define TIME_DOW 1
#define TIME_HR 0
#define TIME_MIN 1
#define TIME_SEC 0
char* str[]={ "Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday", "
Sunday"}; //week
```

```

int rtc[7];
void showtime()      //
{
    RTC.get(rtc,true);
    {
        Serial.print( rtc[6]);   /*YEAR MONTH DATE*/
        Serial.print("-");
        Serial.print( rtc[5]);
        Serial.print("-");
        Serial.println( rtc[4]);

        Serial.print( rtc[2]); /*HOUR MIN SEC */
        Serial.print(":");
        Serial.print( rtc[1]);
        Serial.print(":");
        Serial.println( rtc[0]);

        Serial.println( str[rtc[3]-1]); /******WEEK*****/
        Serial.println("*****");
    }
}

void setup()
{
    Serial.begin(9600);
    Wire.begin();

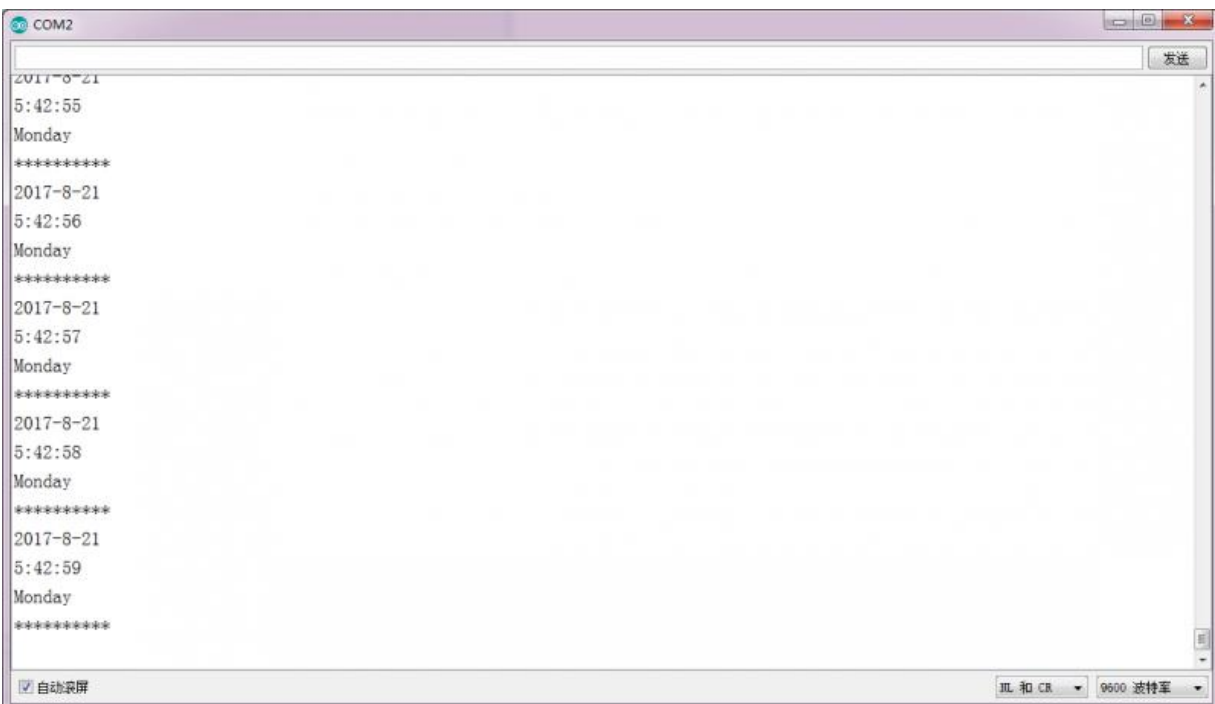
    if(update_flag)
    {
        Serial.println(" OldTime:  ");
        showtime();
        RTC.stop();

        RTC.set(DS1307_SEC,TIME_SEC); //---Update time---
        RTC.set(DS1307_MIN,TIME_MIN);
        RTC.set(DS1307_HR,TIME_HR);
        RTC.set(DS1307_DOW,TIME_DOW);
    }
}

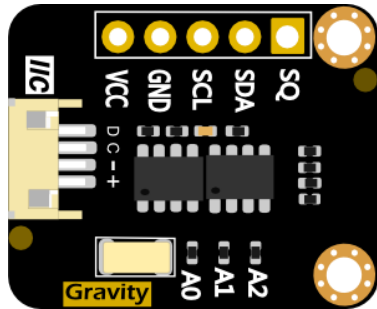
```

```
RTC.set(DS1307_DATE, TIME_DATE);
RTC.set(DS1307_MTH, TIME_MTH);
RTC.set(DS1307_YR, TIME_YR);
RTC.start();
Serial.println(" SetTime: ");
showtime();
}
}
void loop()
{ if(updata_flag==0)
  showtime();    //Output data from serial port
  delay(1000);
}
```

Expected Results



Appendix: EEPROM IIC Address Setting



A0	A1	A2	Add
ON	ON	ON	0x50
OFF	ON	ON	0x51
ON	OFF	ON	0x52
OFF	OFF	ON	0x53
ON	ON	OFF	0x54
OFF	ON	OFF	0x55
ON	OFF	OFF	0x56
OFF	OFF	OFF	0x57

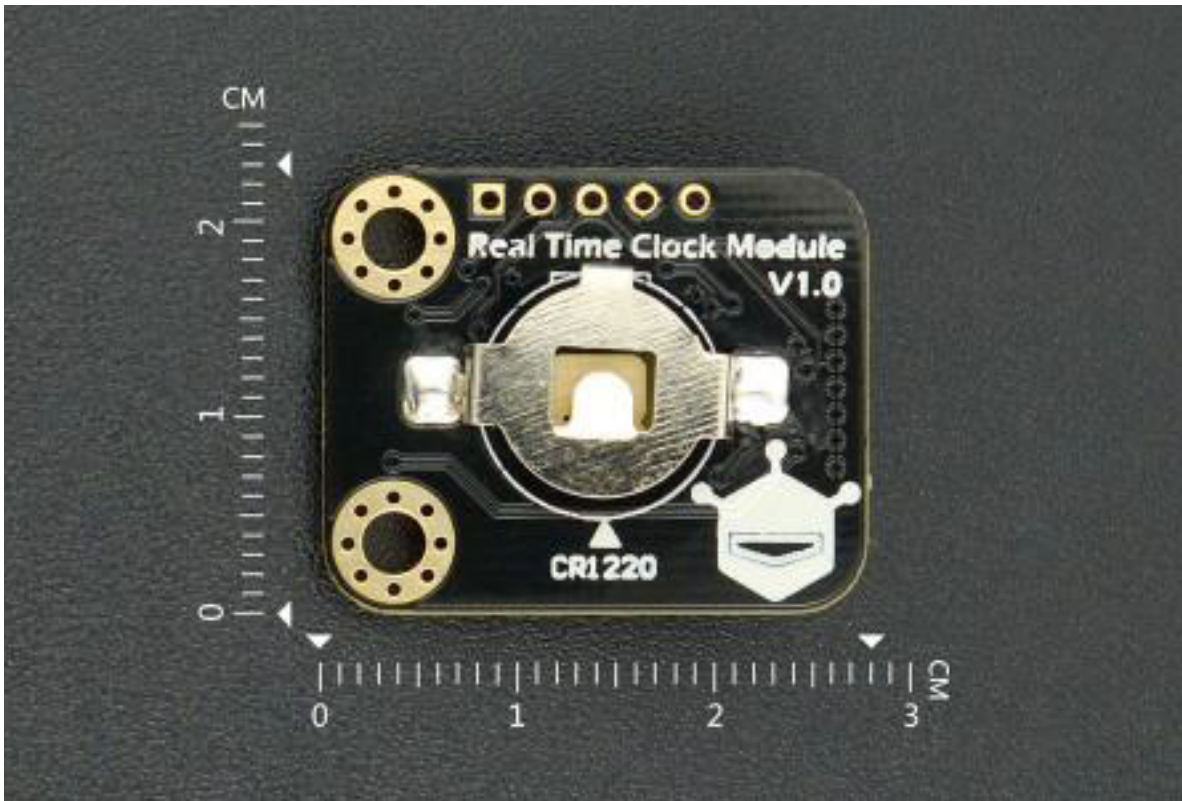
- Note: the default IIC address of EEPROM is 0x50, soldering 200R in the silk-screen A0~A2 then the truth value will be ON, otherwise is will be OFF.

FAQ

For any questions, advice or cool ideas to share, please visit the [DFRobot Forum](#).

More Documents

- DFRobot DS1307 RTC Library
- Schematic & Layout
- DFRobot DS1307 RTC Repostory
- Time Synchronization with Computer



https://www.dfrobot.com/wiki/index.php/Gravity:_I2C_DS1307_RTC_Module_SKU:_DFR0151/1-14-19