Ks0039 keyestudio DS3231 Clock Module

Contents

Introduction

DS3231 is equipped with integrated TCXO and crystal, which make it a cost-effective I2C real time clock with high precision.
The device carries a battery input, so if you disconnect the main power supply, it can still maintain accurate timing.
The integrated oscillator ensures the long-term accuracy of the device and reduces the number of components.
DS3231 provides both commercial and industrial temperature range and supports 16 pins small-outline package (300mil).

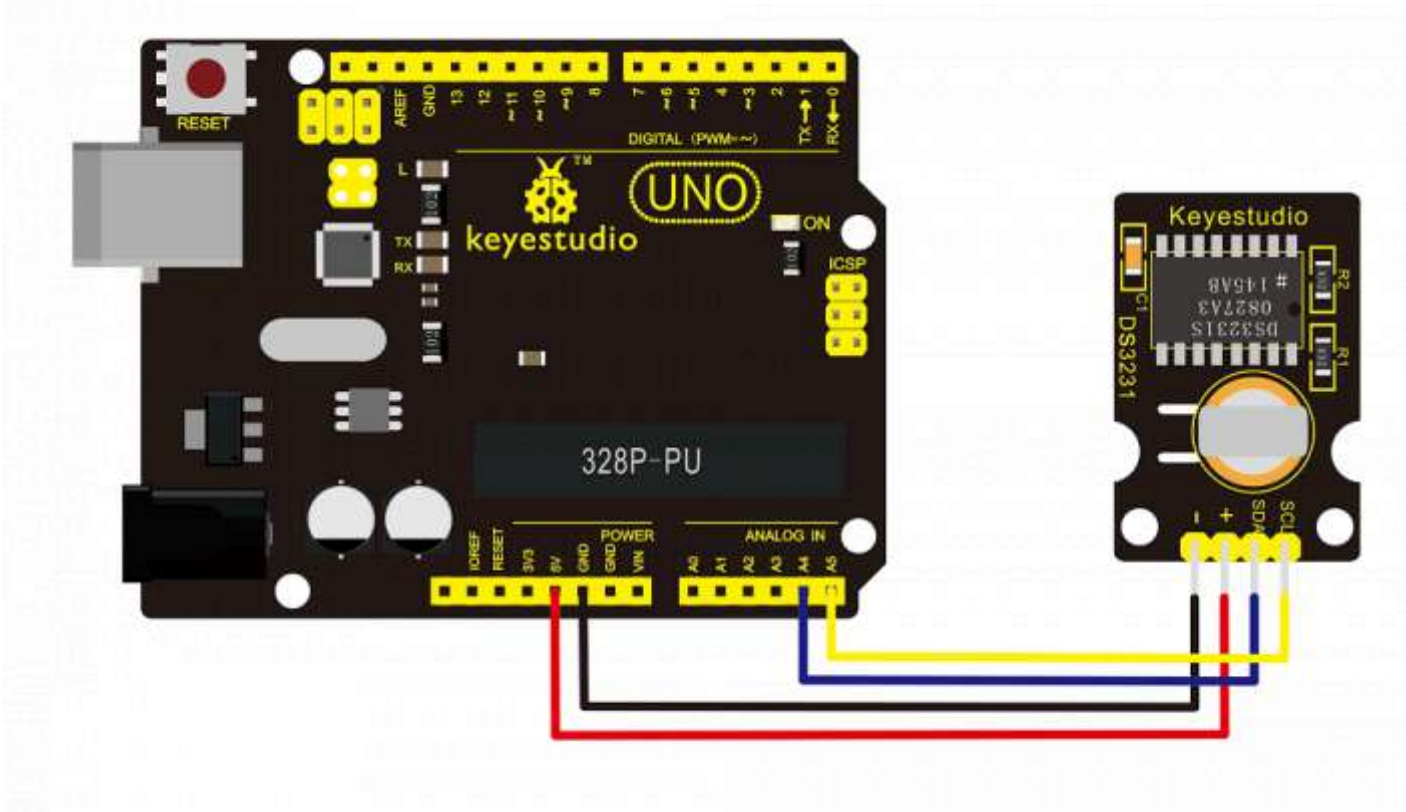
The module itself can adapt to the system of 3.3V and 5V without level switch, which is quite convenient!

Specification

- 1)Temperature range: -40 to +85; Timing accuracy : ± 5ppm (±0.432 seconds / day)
- 2)Provide battery backup for continuous timing
- 3)Low power consumption
- 4)Device package and function compatible with DS3231
- 5)Complete clock calendar function contains seconds and minutes, hour, week, date, month, and year timing and provides leap year compensation until 2100.
- 6)Two calendar clock
- 7)Output: 1Hz and 32.768kHz
- 8)Reset output and Input Debounce of Pushbutton
- 9)High speed (400kHz), I2C serial bus
- 10)Supply voltage: +3.3V to +5.5V
- 11)Digital temperature sensor with a precision of±3℃
- 12)Working temperature: -40 ~ C to +85 ~ C
- 13)16 pins Small Outline Package (300mil)

Connection Diagram

This module adopts the IIC test method, so we only need to connect SDA to Arduino A4; SCL to A5; positive pin to VCC; negative pin to GND.



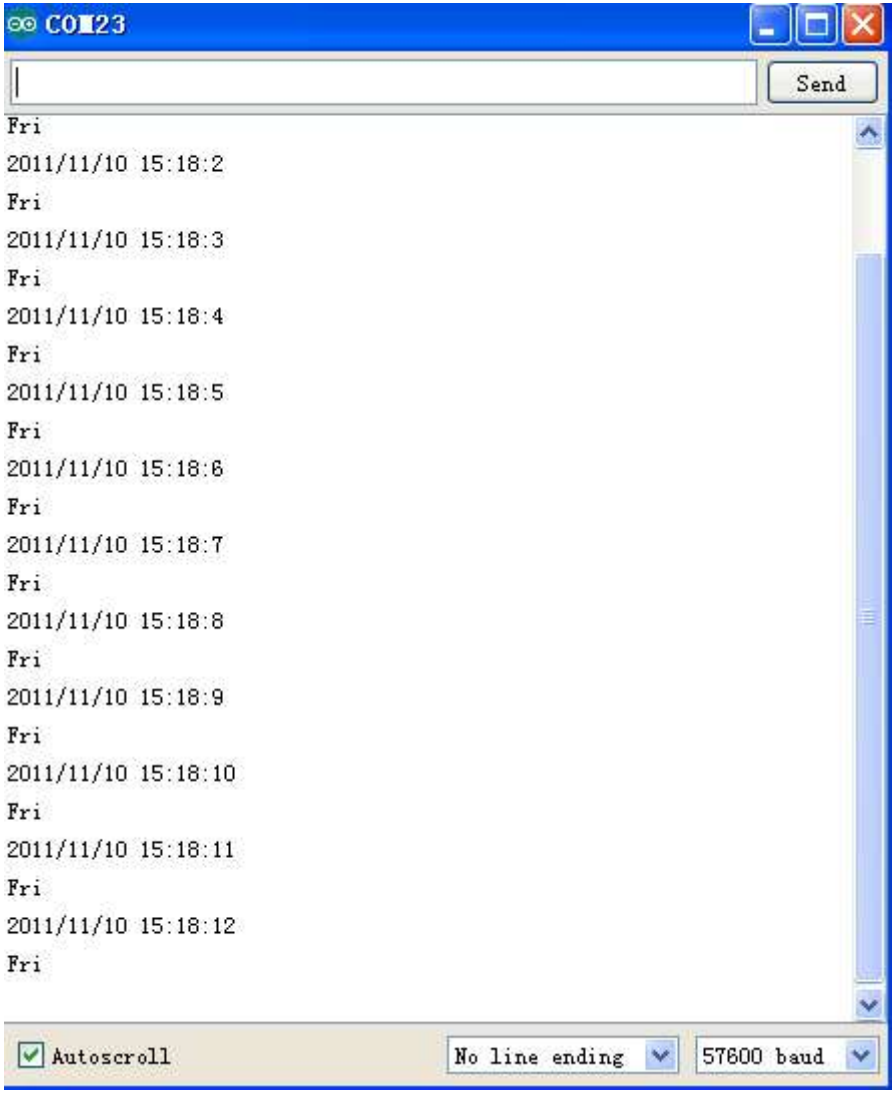
Sample Code

Before compiling the code, you'd better put DS3231 library (https://github.com/rodan/ds3231) under file into Arduino catalogue.

```
#include <Wire.h>
#include "DS3231.h"
DS3231 RTC; //Create the DS3231 object
char weekDay[][4] = {"Sun", "Mon", "Tue", "Wed", "Thu", "Fri", "Sat" };
//year, month, date, hour, min, sec and week-day(starts from 0 and goes to 6)
//writing any non-existent time-data may interfere with normal operation of the RTC.
//Take care of week-day also.
DateTime dt(2011, 11, 10, 15, 18, 0, 5);//open the serial port and you can check time here or make a change to the time as needed.
void setup ()
{   Serial.begin(57600);//set baud rate to 57600
    Wire.begin();
    RTC.begin();
    RTC.adjust(dt); //Adjust date-time as defined 'dt' above
}
void loop ()
{
 DateTime now = RTC.now(); //get the current date-time
    Serial.print(now.year(), DEC);
    Serial.print('/');
    Serial.print(now.month(), DEC);
    Serial.print('/');
    Serial.print(now.date(), DEC);

    Serial.print(' ');
    Serial.print(now.hour(), DEC);
    Serial.print(':');
    Serial.print(now.minute(), DEC);
    Serial.print(':');
    Serial.print(now.second(), DEC);
    Serial.println();
    Serial.print(weekDay[now.dayOfWeek()]);
    Serial.println();
    delay(1000);
}
```

Before compiling the code, you'd better put DS3231 library (https://github.com/rodan/ds3231) under file into Arduino catalogue.
When the above steps are done, you can upload the code to arduino and open the serial monitor and get the following results:



Resources

- **Video**

http://video.keyestudio.com/ks0039/

- **PDF and Code**

https://fs.keyestudio.com/KS0039

Buy from

- **Official Website** (https://www.keyestudio.com/free-shipping-keyestudio-ds3231-high-precision-i2c-real-time-clock-module-for-arduino-p0167.html)
- **Shop on aliexpress** (https://www.aliexpress.com/store/product/Free-shipping-The-most-high-precision-clock-module-DS3231/1452162_2044814687.html?spm=2114.12010612.8148356.3.752b1414Yd7Mcl)