DFR0819

Board-Overview

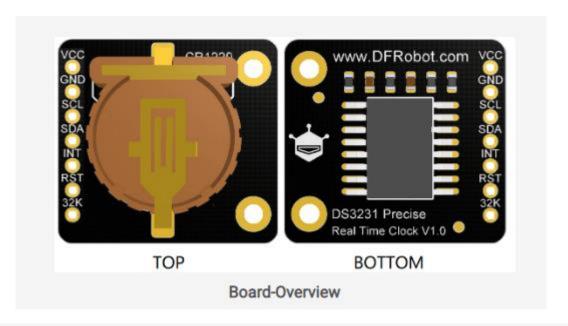## INTRODUCTION

This real-time clock module (RTC) uses the DS3231 chip that integrates a crystal resonator and a temperature compensator, which improves the long-term accuracy of the module. In the range of -40°C to +85°C, the accuracy of DS3231 remains at ±3.5ppm (±0.3024 seconds/day).

The device incorporates a battery input, and maintains high precision timing when main power to the device is interrupted. The RTC provides information of seconds, minutes, hours, week, day, month and year, and it can automatically adjust the date at the end of the month, including corrections for leap year. The clock operates in either the 24-hour or 12-hour format with AM/PM indicator. Two programmable time-of-day alarms and a programmable square-wave output are provided. In addition, the RST pin can be used as a push-button input for microprocessor reset.

NOTE: Due to the latest air cargo regulations, the transport audit of special items such as batteries, magnets and liquids will become very strict, so this RTC module does not come with batteries anymore, please buy them locally. The button cell battery model that goes with the module is CR1220.

FEATURES

 Internal integrated crystal resonator, small deviation
 Internal integrated temperature compensator, small temperature drift
 Complete clock calendar function
 Two programmable Time-of-Day alarms

APPLICATIONS

 Event reminder
 MCU external wakeup source
 Clock and alarm output

SPECIFICATION

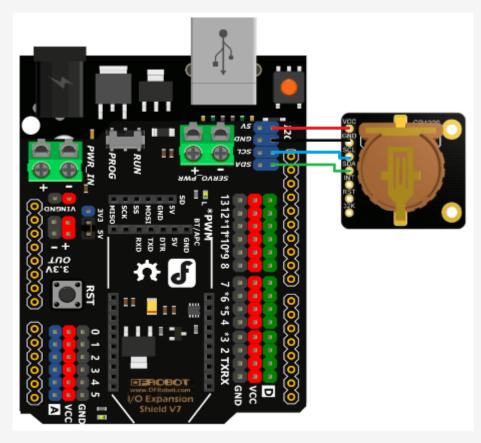⬚ Power Supply Voltage: 3.3V-5.5V
⬚ I2C Address: 0x68
⬚ Timing Range: 1970 ~ 2100
⬚ Working Temperature: -40℃ ~ +85℃
⬚ Timing Accuracy: ±3.5ppm (±0.3024 seconds/day)
⬚ Product Size: 22.5*21mm / 0.89*0.83 inch

Connection-Diagram

DS323X Selection Guide

Product Name	Fermion: DS3231M MEMS Precise RTC Module	Fermion: DS3231 Precision RTC Module	Fermion: DS3232 Precision RTC Module
SKU	DFR0641	DFR0819	DFR0821
Storage	None	None	236Byte
Integrated Resonator	MEMS	XTAL	XTAL
Timing Current	2000nA	840nA	1500nA
Timing Precision	±5ppm (±0.432s/d)	±3.5ppm (±0.3024s/d)	±3.5ppm (±0.3024s/d)
Operating Voltage	3.3V-5.5V	3.3V-5.5V	3.3V-5.5V
Operating Temperature	-45℃ ~ 85℃	-40℃ ~ 85℃	-40℃ ~ 85℃
Introduction	Integrated MEMS resonatr, reducing the risk of mechanical failure, suitable for use in strong and frequent vibration.	A RTC module with integrated crystal resonator, featuring a higher precision and a lower power consumption, suitable for use in the occasion in demand of high precision and low power.	A RTC module with integrated crystal resonator, equipped with 236Byte SRAM storage inside, enabling it to store data at an extremely low power consumption, suitable for low-power IoT applications requiring real-time clock.