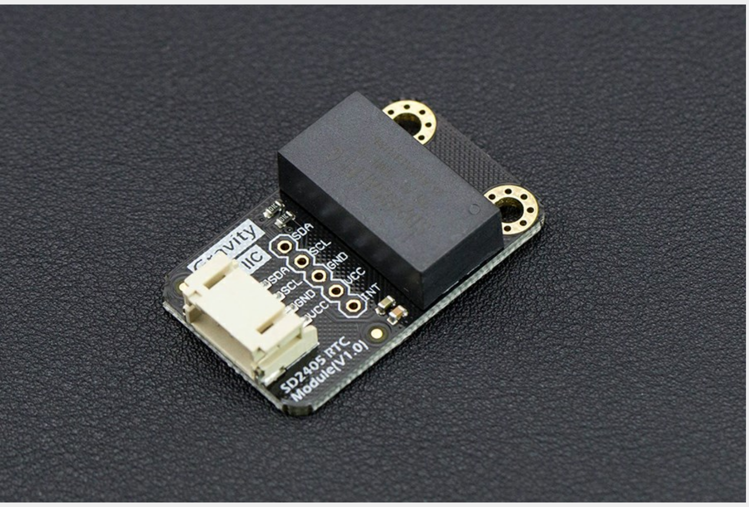

Gravity: I2C SD2405 RTC Module

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INTRODUCTION

We're glad to introduce a new member in Gravity family: Gravity I2C SD2405 RTC module. This is an extremely accurate I2C real-time clock (RTC) with crystal compensation, inner chargeable battery. The SD2405AL is available in industrial temperature ranges.

The SD2405AL is dual power supply system. When the primary power supply goes down to an assigned value or resumes from low power, the system can switch between the primary power supply and battery automatically. Even there is no external power, it can still work for 5~8 years, 1uA ultra-low power consumption (inner battery, Ta=25°C).

The SD2405AL can generates various periodic interrupt clock pulses lasting for long period (one year), and three alarm interrupts can be made by year, month, date, days of the week, hours, and minutes, seconds. It also provides a selectable 32.768KHz~1Hz clock output for an external MCU. The product incorporates a time trimming circuit that adjusts the clock with higher precision by adjusting any errors in crystal oscillator frequencies based on signals from the CPU. A 12-bytes general SRAM is implemented in the SD2405AL.

Gravity SD2405 RTC can work as data logger, timer alarm clock and other time application. It is an ideal choice for timing project.

Note: Two versions with or without Weld pins will be shipped randomly.

Gravity: I2C SD2405 RTC Module

In Stock

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SPECIFICATION

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- Operation voltage range:3.3V~5.5V.
- Low-power:typical 1uA (inner battery, Ta=25°C)
- Timing Range: To 2099 (with leap year compensation)
- Accuracy ±5ppm from -40°C to +85°C.
- Fast (400kHz) I2C Interface(4.5~5.5V).
- Real-Time Clock Counts Seconds, Minutes,Hours, Day, Date, Month, and Year with Leap Year Compensation Valid Up to 2100.
- Time-of-Year,Month,Day,Week,Hour,Minute,Second Alarms.
- Programmable Square-Wave Output:32768hz,4096hz...1hz..1/16hz.
- Countdown timer interrupt.
- High precision time trimming circuit.
- 12-hour/24-hour time display selectable
- Dimension: 35.50 * 22.00(mm)/1.4 * 0.87 inches
- Weight: 6g

DOCUMENTS

- Product WIKI
- More Documents

SHIPPING LIST

- Gravity: I2C SD2405 RTC Module x1
- Gravity I2C 4-Pin Sensor Cable x1
- XH2.54-5pin header x1

PROJECTS

Project 1. Build KnowFlow: automatic water monitor

KnowFlow is the name of this water quality monitoring device, based on Arduino Uno. It can automatically monitor 5 parameters of water: pH, Temperature, Dissolved Oxygen, Electronic Conductivity, ORP.

- Central Control Unit: Arduino Uno (DFRobot Bluno in this case) and Expansion Shield (DFRobot Expansion Shield V7.1 in this case)
- Water Sensors: pH (pH probe and pH circuit board); EC (EC probe and EC circuit board); ORP (ORP probe and ORP circuit board); Temperature (temperature probe and temperature circuit board); Dissolved Oxygen (DO probe, BNC and circuit board); real time clock circuit board
- Data Storage: Micro-SD module, Micro SD card
- Fit and fix: mounting plate, water proof box(200mm_150mm_75mm), water proof joint
- Other parts: Cables (Wires), bread board, bolts and nuts, screws, battery, double-sided adhesive, write on tape, small wrench, spiral cable wrap

Project 2: DIY Deer Clock

Project introduction: We are going to make a table clock showing time in a lovely way. This product has quite cute look and the LED screen make it cool.

The hardwares you need to do this project:

- Gravity: I2C SD2405 RTC Module
- Beetle - The Smallest Arduino
- FireBeetle Covers-24×8 LED Matrix (White)
- Micro USB cable

REVIEW

FAQ

23 Comments DFRobot Disqus' Privacy Policy 1 Login

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n the discussion…

jmd • 3 years ago • edited

Do you have an example using this module with node.js? Perhaps using a package like, https://www.npmjs.com/packa...

1 ^ • Reply • Share ›

DFRobot Support Mod → jmd • 3 years ago

We don't have the examples, why do you want to use it with node.js?

^ • Reply • Share ›

jmd → DFRobot Support • 3 years ago

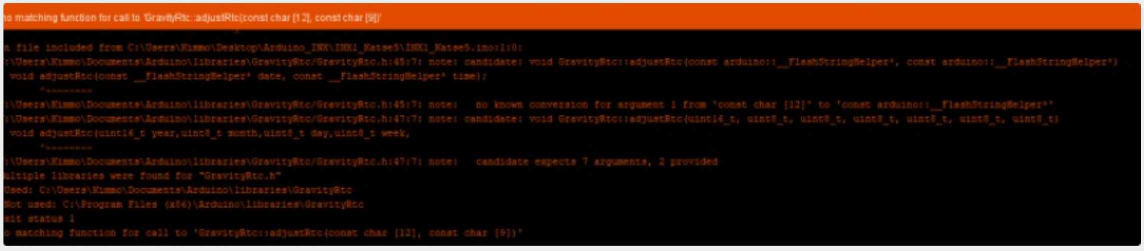
I am running node on a Beaglebone Black and would like to interface with this module.

40 ^ • Reply • Share ›

Kimmo Epler • 5 months ago

How can I use I2C SD2405 RTC Module with Arduino Uno WiFi Rev2 since it has ATMEGA4809 chip on it ?

right now I get an error like this:



```
o matching function for call to 'GravityRtc::adjustRtc(const char [12], const char [9])'

n file included from C:\Users\Kimmo\Desktop\Arduino_INX\INX1_Katse5\INX1_Katse5.ino:1:0:
:\Users\Kimmo\Documents\Arduino\libraries\GravityRtc/GravityRtc.h:45:7: note: candidate: void GravityRtc::adjustRtc(const arduino::__FlashStringHelper*, const arduino::__FlashStringHelper*)
 void adjustRtc(const __FlashStringHelper* date, const __FlashStringHelper* time);
      ^~~~~~~~~
:\Users\Kimmo\Documents\Arduino\libraries\GravityRtc/GravityRtc.h:45:7: note:   no known conversion for argument 1 from 'const char [12]' to 'const arduino::__FlashStringHelper*'
:\Users\Kimmo\Documents\Arduino\libraries\GravityRtc/GravityRtc.h:47:7: note: candidate: void GravityRtc::adjustRtc(uint16_t, uint8_t, uint8_t, uint8_t, uint8_t, uint8_t, uint8_t)
 void adjustRtc(uint16_t year,uint8_t month,uint8_t day,uint8_t week,
      ^~~~~~~~~
:\Users\Kimmo\Documents\Arduino\libraries\GravityRtc/GravityRtc.h:47:7: note:   candidate expects 7 arguments, 2 provided
ultiple libraries were found for "GravityRtc.h"
Used: C:\Users\Kimmo\Documents\Arduino\libraries\GravityRtc
Not used: C:\Program Files (x86)\Arduino\libraries\GravityRtc
xit status 1
o matching function for call to 'GravityRtc::adjustRtc(const char [12], const char [9])'
```

^ • Reply • Share ›

Jansel • 2 years ago

Is it compatible with the Arduino Uno R3?

^ • Reply • Share ›

DFRobot Support Mod → Jansel • 2 years ago

yes, our sample is it
https://www.dfrobot.com/wik...

^ • Reply • Share ›

Disk • 2 years ago

The SD2405 will run on 3.3 V but will the battery recharge? My SD2405 is not holding time after power down. I have it on a 3.3 V i2C.

^ • Reply • Share ›

Disk • 2 years ago

Is it possible to read epoch time from the SD2405ALII-C RTC?

^ • Reply • Share ›

Disk • 2 years ago

How long does it take for the SD2405AL inner battery to charge?

^ • Reply • Share ›

Mr. White • 2 years ago

Is it possible that the rtc module can countdown from 5 minutes. Once it reach 0 it sends a pulse. Thinking to use this to wake up my arduino. Arduino is in sleep and need a puls to wake up every 5 minutes to send data.

^ • Reply • Share ›

DFRobot Support Mod → Mr. White • 2 years ago

Yes, you can do that, but why do you want to countdown from 5 mins, why not just count for 5 mins each time to wake Arduino up.

^ • Reply • Share ›

Mr. White → DFRobot Support • 2 years ago

Great. Do you have a sample sketch or code for this? I cant use the ic2 pins then?

^ • Reply • Share ›

DFRobot Support Mod → Mr. White • 2 years ago

We don't have the example code, you need to code by yourself. why you can't use the I2C pins, can you test if the module is good to use?

the module is good to use.

Reply • Share ›

Mr. White ➦ DFRobot Support • 2 years ago

The module works just fine. I did just read in the manuel for the sensor that I need to connect to other pins to get the timer to function I think

Reply • Share ›

Heinz de Chelard ➦ Mr. White • 2 years ago

Hi Mr White. Did you work out some code to trigger an interrupt after 5 minutes? I'm not having much luck with this as the syntax from other examples I find on the web is not compatible with this module.
Thanks for any help you can give.

Reply • Share ›

alrussellvt • 2 years ago

we need a 3rd option, wheere 5 min start rolls over to another 5 min, continously.

Reply • Share ›

K.Negishi • 3 years ago • edited

Hi. When Arduino is restarted, the value read by rtc.read (); will return to the compile time value. Arduino is connected to PC only at compile time. How can I keep the time before restart? The version of ArduinoIDE is（1.8.5）. Sketch uses the GravityRtc library.

Reply • Share ›

DFRobot Support Mod ➦ K.Negishi • 3 years ago

This RTC module can remember the real time since it has a battery, which means when you restart Arduino, it still can give current time. Do you mean you want to store the time when you press the reset button? what if use an SD module to save the time data?

Reply • Share ›

K.Negishi ➦ DFRobot Support • 3 years ago

I do not want to save the time when I pushed the reset button, rather I do not want to initialize the time even if I reset it.
When I recorded data using the SD module, the recorded data was recorded the initialized time after the reset.
Since it is said that initialization of time is not the specification of the product, I will purchase the same product again and try it.
thank you for your answer.

Reply • Share ›

K.Negishi ➦ K.Negishi • 3 years ago

I purchased another I2C SD 2405 RTC and tried it to solve the problem.
However, replacing it with another I2C SD 2405 RTC did not improve the problem of returning to compile time when Arduino was restarted.
If I remove the I2C SD 2405 RTC while starting Arduino, and then reinstall it after a while, the RTC remembers the correct time.
Therefore, the battery for loss of power in RTC seems to function normally.
If I delete [rtc.adjustRtc (F (__ DATE__), F (__ TIME__));] from void setup () in Sketch, restarting Arduino does not return to the compile time and ticks the correct time.
From this, I think that Sketch is causing this problem, but is there any way to improve it?
I am sorry for poorly understood sentences because I am not good at English.

Reply • Share ›

Mr. White ➦ K.Negishi • 2 years ago

I think you need to remove the code once rtc.adjustRtc after you run the code once. Since every time the sketch runs it gets the time from your PC. The RTC module keeps the time after the first sketch unless you run it several times. The code is just for to calibrate/set the time for the clock module

Reply • Share ›

K.Negishi ➦ Mr. White • 2 years ago

Thank you very much. I have solved the problem.

Reply • Share ›

DFRobot Support Mod ➦ K.Negishi • 3 years ago

This line of code is to read the time shown in PC, it is used for calibration the time of the module, I am sorry, I can't under stand your question very much. No matter press the reset or not connect to Arduino, the battery would still give it power.

Reply · Share ›