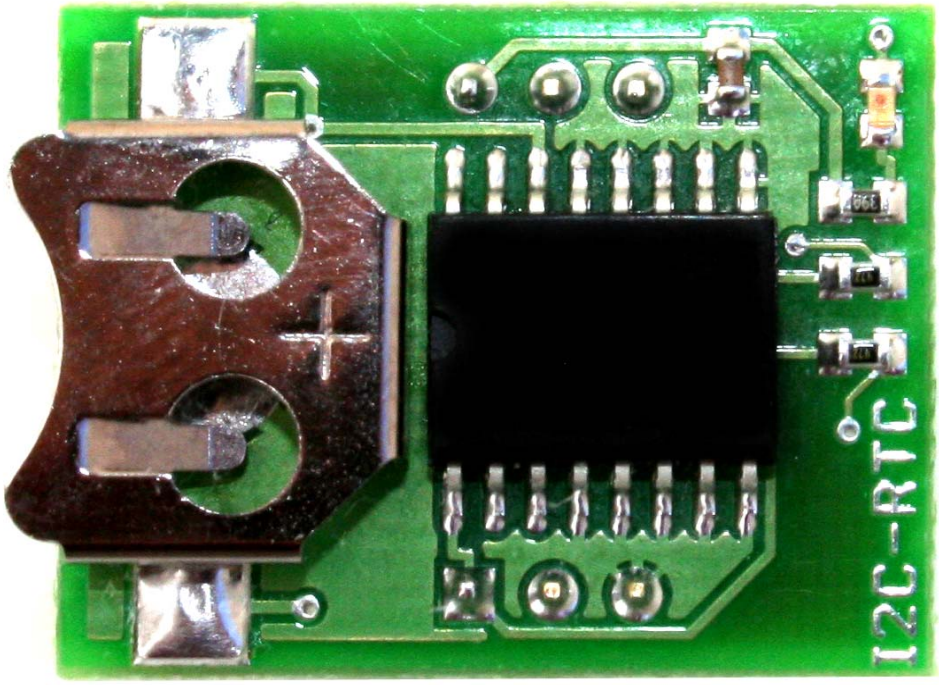
I2C-RTC™ I²C Real-time Clock
User Manual

GRAVITECH.US



uResearch

GRAVITECH GROUP

I2C-RTC™ I²C Real-time Clock
User Manual

Description

The I2C-RTC board is a 6-pin CMOS Real-time Clock device using I²C bus. There are no external components required. Only two signal lines SDA and SCL plus supply voltage and ground are required to be connected. This makes it perfect for embedded systems that require real-time clock.

This board features innovations that set it apart from other real-time clock module. Innovations feature like on-board pull-up resistors, battery holder and power LED. The module can be quickly connected directly on to the breadboard. The board is small and compact in size 0.80 x 1.05 inches.

The I2C-RTC is designed base on DS1340-33 IC. It is a real-time clock (RTC)/calendar including the software clock calibration. The device additionally provides a lower timekeeping voltage, and an oscillator STOP flag. The device is capable of block access for the register map. Two additional registers, which are accessed individually, are required for the trickle charger and flag. The clock/calendar provides seconds, minutes, hours, day, date, month, and year information. A built-in power-sense circuit detects power failures and automatically switches to the backup supply. Reads and writes are inhibited while the clock continues to run.

Features

- Software clock calibration
- RTC counts seconds, minutes, hours, day, date, month and year
- Automatic power-fail detect and switch circuitry
- Low timekeeping voltage down to 1.3V
- Oscillator stop flag
- Stand alone module, no external components required
- On-board I²C pull-up resistors, battery holder and power LED
- Decoupling supply voltage
- Design easy for breadboard
- High quality double sided PCB
- All SMT components
- Small and compact in size 0.80 x 1.05 inches
- Dual row 0.6” width, 0.1” pitch header pins
- Support Fast (400kHz) I²C interface
- Flexible operating power supply voltage range of 2.97V to 5.5V
- Suitable for 3.3V or 5.0V microcontroller

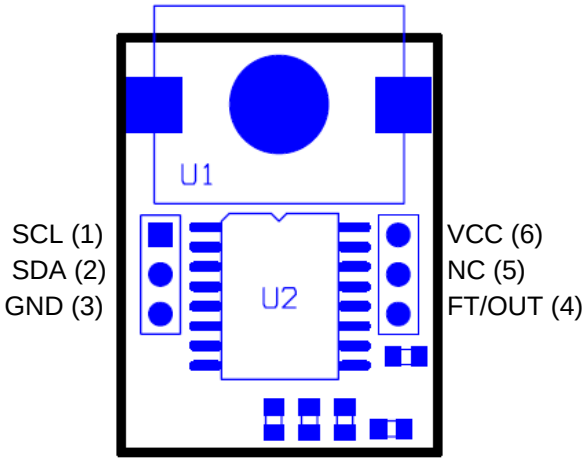
Applications

- Portable Instruments
- Electronic Projects
- Telecommunications
- Security Systems
- And much more…

* I²C is a trademark of Philips Semiconductors Corporation.

I2C-RTC™ I²C Real-time Clock
User Manual

Pin Configuration



Pin No.	Name	Type	Description
1	SCL	Input	Serial clock line
2	SDA	I/O	Serial data line
3	GND	PWR	Supply ground
4	FT/OUT	Output	Frequency Test/Output
5	NC	NC	No connect
6	VCC	PWR	Supply voltage

Interfaces

Power:

The I2C-RTC board needs an external 2.97VDC – 5.5VDC supply.

- **VCC:** is an input power 2.97VDC – 5.5VDC to I2C-RTC board.
- **GND:** is a common ground for every pin. This pin MUST be connected to ground of the external power supply.

I²C pins:

The I2C-RTC operates as a slave on the I²C bus. Only two signal lines SDA and SCL are required for I²C bus. Please refer to I²C specification for more information.

FT/OUT pin:

This pin is used to output either a 512Hz signal or the value of the OUT bit. When the FT bit is logic 1, the FT/OUT pin toggles at a 512Hz rate. When the FT bit is logic 0, the FT/OUT pin reflects the

value of the OUT bit. This open-drain pin requires an external pull-up resistor, and operates with either VCC or VBACKUP applied.

Battery holder:

This is a backup power source. 3V coin battery is required to hold the data when there is no power applies to VCC. The compatible coin cell batteries are BR1216, CR1216, BR1220, CL1220, CR1220 and BR1225. The battery voltage must be in between 1.3V to 3.7V for proper operation.

Insert the battery into holder with positive side up.

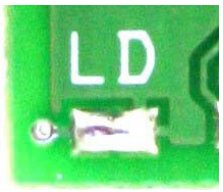
I²C address:

Write = 0xD0
Read = 0xD1

Module Configuration

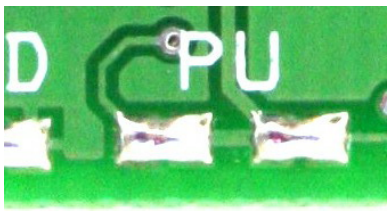
Power-on LED:

The green LED on the module is illuminating when the power applied. The power-on LED is enabled from the manufacture. It can be disabling for light sensitive or low current requirement application by remove the solder bridge on “LD” at the bottom of the module.

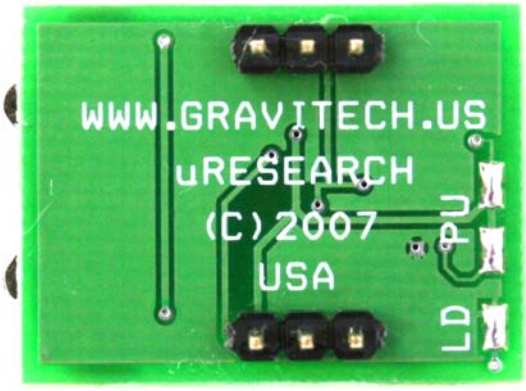


I²C pull-up resistors:

I²C bus specification required to have pull-up resistors on SDA and SCL pin. I2C-RTC come with these two pull-up resistors enabled from the manufacture. It can be disabling when connect to I²C bus that already have pull-up resistors by remove the solder bridge on the “PU” at the bottom of the module.



Below are the default settings from the manufacture.



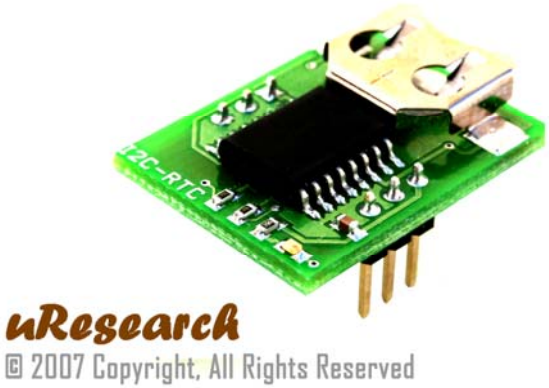
I2C-RTC™ I²C Real-time Clock
User Manual

Accessories

All of the accessories are available for purchase via our website. If you don't see the item you need, please contract our sales department at sales@gravitech.us

- CR1220

  Nominal Voltage: 3V
  Nominal Capacity: 550 mAh
  Low self-discharge rate
  Wide temperature usage range: -20°C ~ +60°C
  Nominal Weight: 0.6g
  Storage temperature range: -25°C to 65°C



I2C-RTC™ I²C Real-time Clock
User Manual

Notes

Contact Us

We maintain a website where you can get information on our products, obtain literature and download support files. Visit us online at:

WWW.GRAVITECH.US

Use our online Forum or e-mail your technical support questions to support@gravitech.us. We try to respond to your questions the same day.

For sales questions or to place and order, direct your e-mails to sales@gravitech.us. Refer to our website for product pricing, shipping rates, payment instructions, and for other info we need to complete your order.

Disclaimer: MicroResearch reserves the right to modify its products or literature, or to discontinue any product at any time without prior notice. The customer is responsible for determining the suitability of any device for any application developed using MicroResearch components.

OCEAN CHIPS
Океан Электроники
Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».

AVIC JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).

FORSTAR®

Телефон: 8 (812) 309-75-97 (многоканальный)
Факс: 8 (812) 320-03-32
Электронная почта: ocean@oceanchips.ru
Web: http://oceanchips.ru/
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А