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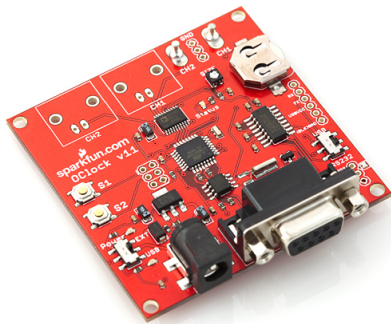
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Retired Product

This product has been **retired** from our catalog and is no longer for sale. This page is made available for those looking for datasheets and the simply curious.

SparkFun O-Clock - AVR Oscilloscope Clock

WIG-09306 ROHS✔

★ ★ ★ ★ ⯪ 7

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Description: The SparkFun O-Clock can convert your X-Y analog oscilloscope into an analog clock or terminal. In addition, it can be used alone as a function generator. It is very similar to the AVR Oscilloscope Clock Kit, but this board is all SMD and comes fully assembled.

The O-Clock is based around an ATmega328 which is interfaced with a DS1307 RTC module and an AD7302 DAC. A cell battery backup is provided so the clock won't lose its time. The oscilloscope can be connected to the O-Clock through BNC connectors (not included) or by probing the CH1/2 turrets.

Time and other options can be set using the on-board momentary push buttons, or through the RS-232 interface. A 0.1" pitch header provides access to the UART of the ATmega to allow for an optional USB interface using our FTDI Basic Breakout. GPS modules or other external PPS signals can be connected to serve as an external clock.

The updated firmware found in the *Documents* section below is loaded with features. There are 37 display combinations to choose from. You can even use the O-Clock in terminal, or function generator modes. In addition, a bootloader allows for easy firmware uploading.

The terminal application can support persistent vector graphics for creating and displaying games, like Asteroids, on other computers.

Power can be provided by USB or an 8-15VDC supply to the center-positive 5.5x2.1mm barrel connector.

Note: Power supply and BNC connectors are not included, see related related items.

If you have the older kit and are looking for more information, it can be found here.

Features in Firmware V4.1:

- New on-screen menu
- Control burn-in protection frequency from 1-9 minutes
- Vector graphics mode for games like Asteroids
- Supports 250,000 baud value
- GPS mode remembers serial port speed setting
- Help screen
- Alarm clock
- New clock face
- LED shows time in Morse code
- Function generator 1 cycle faster
- Use the IOCTL command to select unusual options
- Support for 2015-2021 with automatic Daylight Saving Time corrections

Features:

- Connects to your X-Y analog oscilloscope via probes or BNC connectors.
- Two momentary push buttons to navigate through on-screen menu
- RS-232 interface (optional USB interface through serial header)
- 0.1" pitch header for external clock signal (GPS 1PPS, Rubidium Oscillator, etc.)
- 37 display combinations
- Display calibration mode
- Intensity control
- STK500v1 compatible bootloader
- On-board Real-Time Clock IC with 32.768kHz crystal and battery backup: this clock won't lose time!
- Optionally add a User Name to the Clock Display
- Automatic Time and Date setting when connected to the NMEA output from a GPS device (TTL level serial connection)
- Terminal and function generator modes
- Demo and Fun modes
- Automatic Daylight Saving Time correction for 2008-2014 for the USA and the EU
- Clean Reset of the EEProm Configuration Data option

Documents:

- Schematic
- Eagle Files
- Firmware v4.1
- Dutchtronix O-Clock Homepage
- Source Code
- Operating Instructions
- FAQ

Recommended Products

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◀   ▶

 SPARKFUN RECOMMENDED
GPS Receiver - EM-506 (48 Channel)
◉ GPS-12751
$39.95
★ ★ ★ ★ ☆ 4

 SPARKFUN RECOMMENDED
Wall Adapter Power Supply - 9VDC 650mA
◉ TOL-00298
$5.95
★ ★ ★ ★ ★ 2

 SPARKFUN RECOMMENDED
Coin Cell Battery - 12mm (CR1225)
○ PRT-00337
$1.95

 SPARKFUN RECOMMENDED
Coin Cell Battery - 20mm (CR2025)
◉ PRT-11928
$1.95

COMMENTS 33	REVIEWS ★ ★ ★ ★ ⯪ 7

Customer Reviews

★ ★ ★ ★ ⯪ 4.4 out of 5

Based on 7 ratings:

5 star	6
4 star	0
3 star	0
2 star	0
1 star	1

★ ☆ ☆ ☆ ☆ **Flakey Junk**

about 6 months ago by Member #8464 [✔ verified purchaser]

I had hoped that Sparkfun had better quality control. Not so, cold solder joints plague this board with its intermittent operation draining my valuable time. No time to argue with Sparkfun on this, it has taken enough of my time. If Sparkfun would like to send me a working replacement, that would be nice but meanwhile please save yourself time and money and avoid this.

> Single T replied on March 11, 2015:
>

> Sorry about your issues. We have a number of tests and inspection steps in our production process to avoid bad units getting out. However, sometimes a troublesome board can sneak past our processes. We don't want to argue, if your board is having issues all you need to do is contact Sparkfun Technical Support and we'll be happy to get that back for inspection and replacement. Thanks

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★ ★ ★ ★ ★

about 6 months ago by Member #616245 ✔ verified purchaser

Works straight out of the box– fairly crisp display, even with a 1950s Eico 460 oscilloscope with limited bandwidth.

Surprising amount of customization and mode options– multiple clock faces and apps (e.g. text terminal) ensure that it's not just a one-trick pony.

Open source, so it's as much a learning opportunity as a gadget.

★ ★ ★ ★ ★ Why too easy!!

about 6 months ago by Member #439328 ✔ verified purchaser

Straight out of the box, power up and it just works. Waiting for source code so I can break this thing….

★ ★ ★ ★ ★ This is - first of all - working exactly as expected.

about a month ago by Member #564029 ✔ verified purchaser

So, that's great. I tested it on a scope in x-y mode and it's working. My final implementation is dependent on hacking into the x and y amps on some video test equipment that was being discarded from my workplace. The good news there is that I found complete documentation on that gear so I feel confident that will all work out once I get a chance to get at it.

★ ★ ★ ★ ★ Worked out of the box on 20Mhz B&K dual trace scope

about 4 months ago by Member #646420 ✔ verified purchaser

Everything worked great using the probe turrets, but you need to ensure each probe is grounded to the PCB's ground or you will not get a properly sync'd picture. I used the GND pins located between the turrets to clip the probes to, but wish they had easier locations. Also ensure your probes are properly compensated with your scope's test clip prior to hooking to the PCB for best picture/geometry.

★ ★ ★ ★ ★ Very neat little board.

about 6 months ago by Member #631289 ✔ verified purchaser

It's simple to connect but wish it was an older style kit form - love to build electronics. After I installed the 2 BNC jacks, it was placed in a small ziplock bag to keep it clean and it's unnoticeable.