

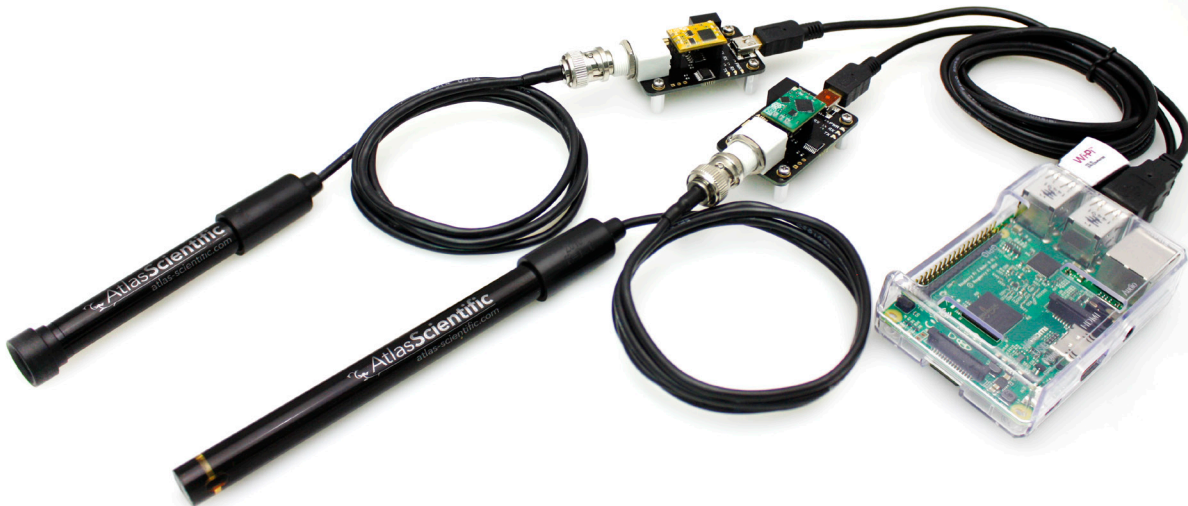
Eniac

Data logger / Web server



Features

- Raspberry Pi OS image file configured to work immediately, no setup required
- No programming or electrical engineering skills required
- No wiring required, just connect each sensor to a USB port
- Data logger stores up to 100,000 readings
- Export readings to Excel
- Web server automatically enabled
- Connect up to 25 sensors on a single Raspberry Pi
- Connect as many of the same sensor types as needed
- See and graph readings in real time
- Sensor calibration and configuration can be done at any time
- Connect a single EZO-RTD temperature sensor to get automatic temperature compensation for all other connected sensors
- Set date / time / device location / reading frequency on the fly
- Access the data worldwide on any device when connected to a router



Contents

| | |
|---------------------------------------|----------|
| Mount disk image | 3 |
| 1st time setup | 4 |
| Device connection | 5 |
| Location | 6 |
| General information | 6 |
| Atlas Scientific sensors | 7 |
| Graph | 8 |
| Sample rate | 8 |
| Data logger | 9 |
| Factory reset | 9 |

Mount disk image

The Eniac data logger / web server, has been written on the Raspbian Jessie platform. The file you are downloading is the entire Raspbian Jessie OS with the Eniac software already embedded into it.

We have decided to bundle them both together to save time for the user. Installing the OS and then the Eniac software is a very tedious process that takes approximately two hours to complete. *(You're welcome)*

**The Eniac Software will work on a Raspberry Pi 2 and Raspberry Pi 3.
The compressed file is 1.38GB and extracts to 5GB.**

After you download and extract the compressed file from our website, you will need to mount the *.img file onto an SD card. To do so, you will need to use:

Windows - [Win32 Disk imager](#)
Mac - [ApplePi-Baker](#)*

**Atlas Scientific has not tested this software, this is what is recommended by the Raspberry Pi community.*



We recommend using class 10 SD / UHS-I or higher speed SD card, with a minimum of 8GB.

For more information on how to mount the *.img file to the SD card

Windows - [click here](#)
Mac - [click here](#)

1st time setup

- 1 Boot up the Raspberry Pi without any Atlas Scientific devices connected.
- 1a In order to have the Raspberry Pi act as web server, you will need to setup your internet connection. Click on the network connection icon, located at the top right corner of your monitor, and configure accordingly.
- 2 Click on the web browser, and you will see that there is a short cut named "Atlas Scientific"

The screenshot displays the Eniac software interface on a Raspberry Pi. The main dashboard is titled 'Fox Base Alpha' and shows the date and time as '06/23/2016 21:40'. Below this, there is a table of 'Atlas Scientific Sensors' with the following data:

| No. | Graph | Sensor | Current Value | Temp °C | Time of last reading | Setup |
|-----|-------|------------------|---------------|---------|----------------------|-------|
| 1 | | Temperature | 28.52 °C | N/A | 21:43:36 | setup |
| 2 | | pH(1) | 3.97 | 28.513 | 21:43:37 | setup |
| 3 | | Dissolved Oxygen | 6.69 Mg/L | 28.513 | 21:43:38 | setup |
| 4 | | ORP(2) | 355.20 mV | 28.513 | 21:43:39 | setup |

To the right of the table is a line graph showing data over time, with a 'Sample Rate 00:05' and 'Readings Every' slider set to 00:05. Below the graph are controls for 'RTD', 'pH(1)', 'D.O.', and 'ORP(2)'. At the bottom, there are two panels: 'General Info' showing system details like OS (debian 8.0), uptime (00:146), hostname (raspberrypi), kernel (4.1.19-v7+), CPU(s) (4 x ARMv7 Processor rev 4 (v7)), and location (Fox Base Alpha); and 'Data Logger' showing 'Number of readings stored: 145' and buttons for 'Clear Memory', 'Export Excel File', and 'Factory Reset'.

- 3 Connect your Atlas Scientific devices to the Raspberry Pi.

To log into the Raspberry Pi through the terminal:

Username **pi**
Password **raspberry**

(You should change your login password)

To log into the Eniac software through a different computers web browser

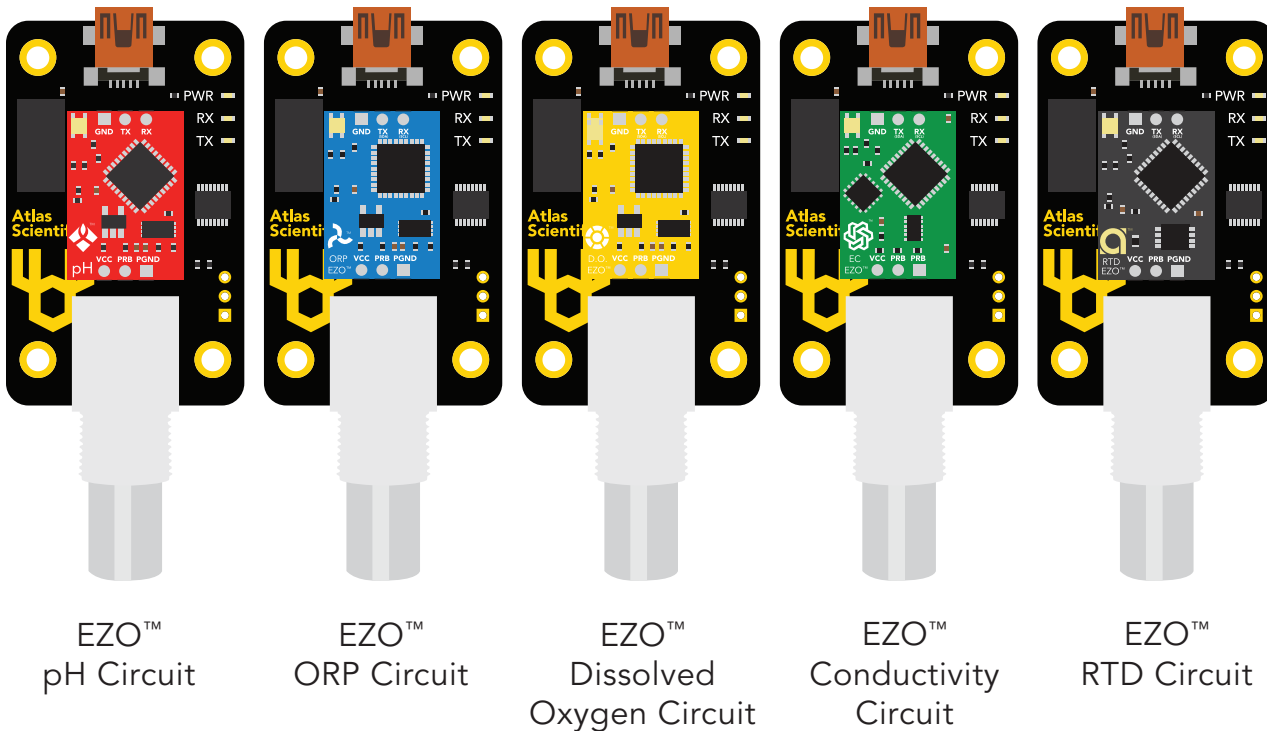
Username **root**
Password **admin**

Device connection

The Eniac data logger / web server, has been designed to be easy to use. Once you have the program setup on your Raspberry Pi, connecting your Atlas devices is a snap.

We recommend using the Atlas Scientific **USB Isolator Carrier Board**, a USB hub, and our EZOTM class circuits.

The following EZOTM class circuits are compatible with the Eniac software.



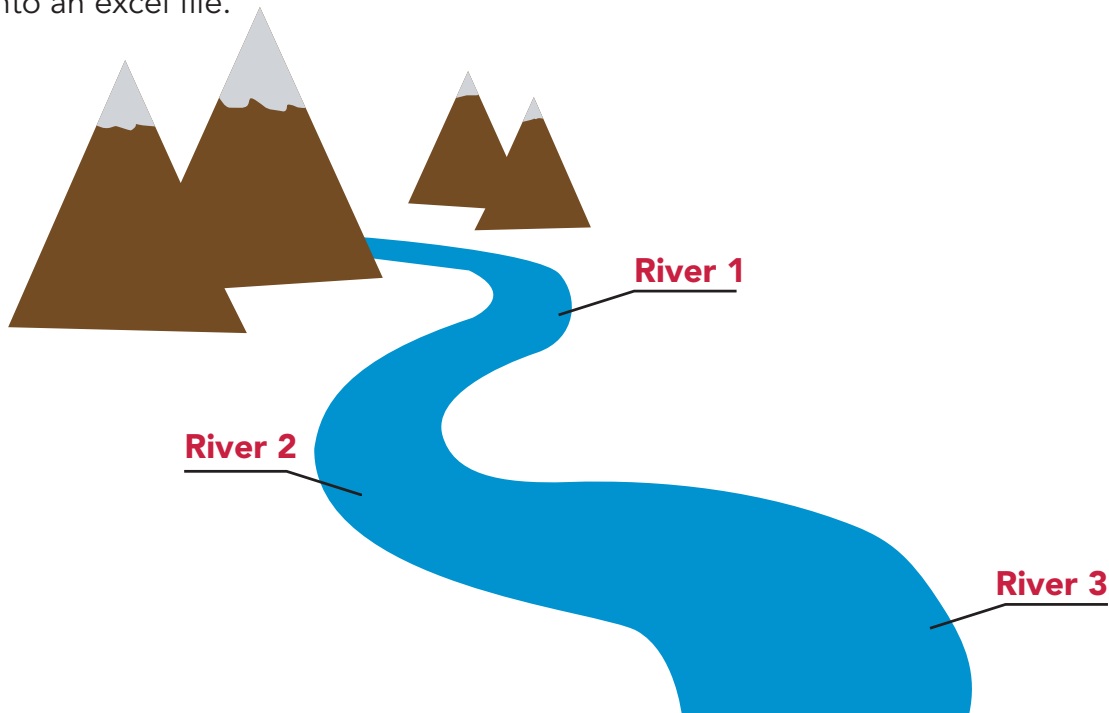
To connect more than 2 Atlas Scientific EZOTM class circuits to a Raspberry Pi, we recommend using a USB Hub to expand your USB ports.



Location

You can set the location to anything you want. Let's say you are monitoring a river at three different locations. You can have it set to **River 1**, **River 2**, **River 3**, etc...

The location name you enter in will also be the title of the data, that you can export directly into an excel file.








General information

General Info

| | | | |
|----------|--------------------------------|----------------|---------------|
| OS | debian | Eniac Software | v1.0 |
| Uptime | 0:48:29 Hours | IP: | 192.168.1.197 |
| Hostname | raspberrypi | | |
| Kernal | 4.1.7-v7+ | | |
| CPU(s) | 4x ARMv7 Processor rev 5 (V7I) | | |
| Location | Brooklyn, NY | | |

The general information area will give you a basic run down of your system, but more importantly, it displays the uptime of your data logger, along with the location you have entered and the local IP address of the Pi on your network.

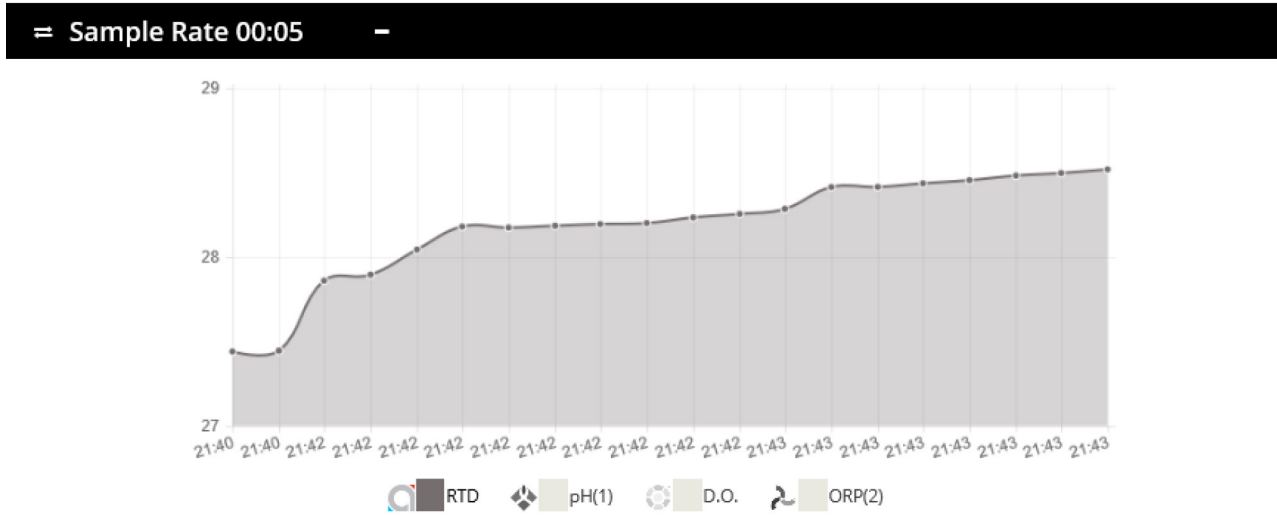
Atlas scientific sensors

| Atlas Scientific Sensors | | | | | | |
|--------------------------|--------------------------|--|---------------|---------|----------------------|--------------|
| No. | Graph | Sensor | Current Value | Temp °C | Time of last reading | Setup |
| 1 | <input type="checkbox"/> |  Temperature | 25.524 | N/A | | setup |
| 2 | <input type="checkbox"/> |  Conductivity | 832.9 | 25.525 | | setup |
| 3 | <input type="checkbox"/> |  pH | 4.561 | 25.525 | | setup |
| 4 | <input type="checkbox"/> |  Dissolved Oxygen | 9.24 | 25.525 | | setup |
| 5 | <input type="checkbox"/> |  ORP | 205.9 | 25.525 | | setup |

The Atlas Scientific sensors area lists which EZO™ class circuit(s) has been connected to your Raspberry Pi, as well as each circuits; current value, temperature and last reading. You can also make adjustments to each EZO™ class circuit using the setup button to the right.

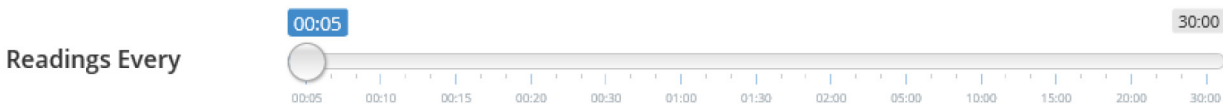
- No.** Lists the EZO™ class circuit(s) in the order they are connected.
- Graph** By ticking the box under “Graph” the data from each EZO™ class circuit will be displayed in real time under the Graph area.
- Sensor** Identifies each EZO™ class circuit that has been connected.
- Current Value** Displays the last reading that each EZO™ class circuit has logged.
- Temp °C** Displays the temperature for each EZO™ class circuit. You can adjust each EZO™ class circuits temperature in their respective setup screen. *If you connect an EZO™ RTD circuit you will then get automatic temperature compensation for other connected sensors.*
- Time of last reading** Displays the date and time of each EZO™ class circuits last reading.

Graph



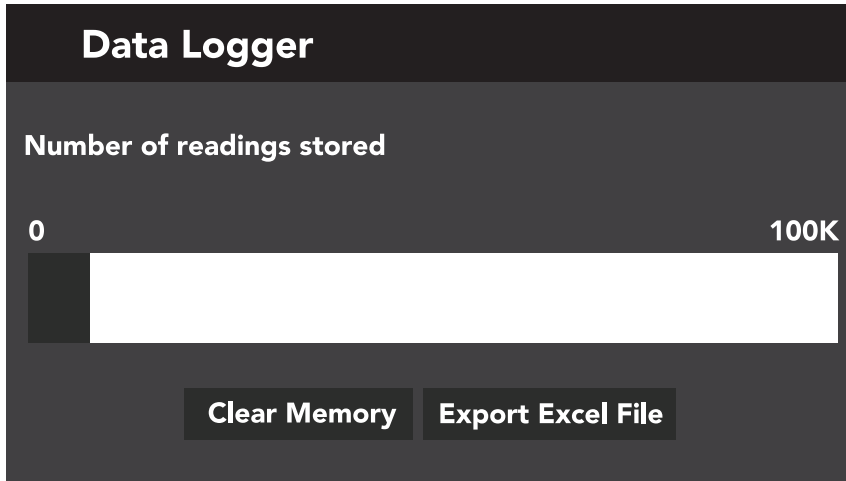
The graph area displays the logged data of each connected EZO™ class circuit in real time. The sample rate time is listed just above the graph. The above example shows that the EZO™ RTD class circuit is taking a reading every 5 seconds.

Sample rate



Use the slider to adjust the time between each reading.

Data logger



The data logger area displays how many readings have been stored. The Eniac software can store upto 100,000 readings, which can be exported to an Excel file if you desire.

Factory reset

If you ever need to start over from scratch without having to remount the disk image, use this button to do so.

Factory reset

THIS WILL NOT CHANGE YOUR PASSWORD.

***E**niac*

Data logger / Web server

