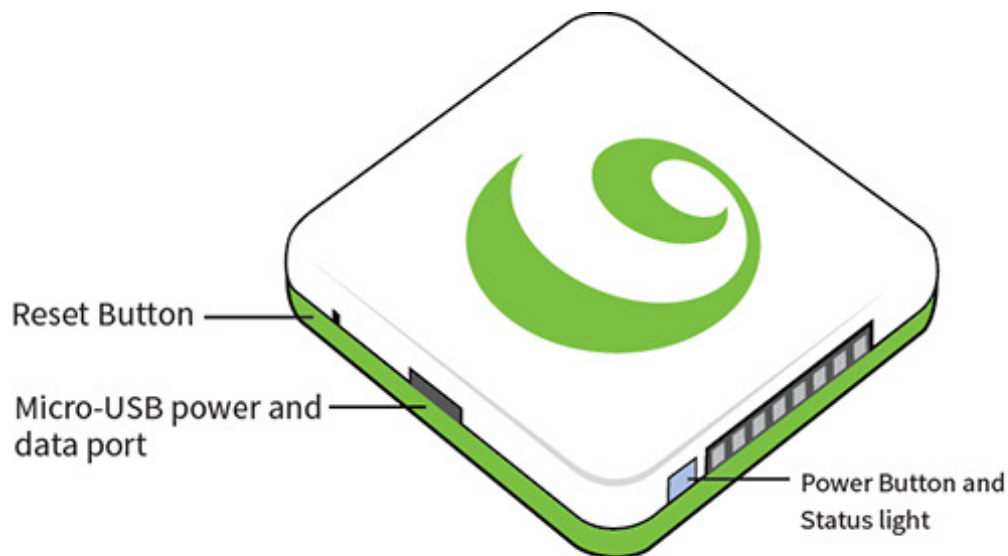# Kinoma Element User Guide

About Kinoma Element

The most important thing to know about Kinoma Element (shown in Figure 1) is that it is primarily a 3.3-volt system. If you are new to 3.3V systems or to hardware in general, this means that (unlike with an Arduino or some other boards), you can only send up to 3.3 volts into input pins on the device without doing damage to the pin.
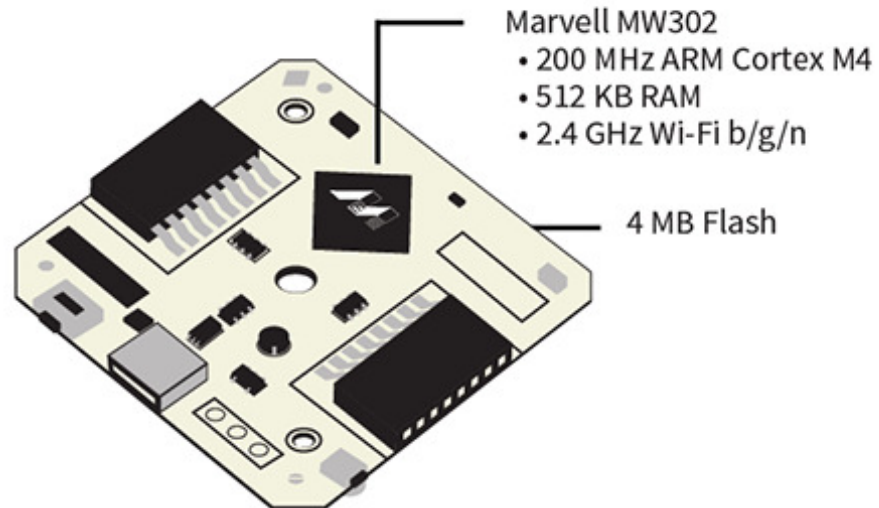
Figure 1. Kinoma Element

- Serial
- SPI
- Power

IC: 8548A-KS01
FCC ID: UAYKS01
CAN ICES-3(B)/NMB-3(B)
211-151203
5V@2.0A
Model: KS-01
Made in China.

Pins 9 - 16
Programmable pins for:
- Analog
- Power
- Ground

Marvell MW302
- 200 MHz ARM Cortex M4
- 512 KB RAM
- 2.4 GHz Wi-Fi b/g/n

4 MB Flash

Kinoma Element First Run

Take these steps to get going on your Kinoma Element for the first time.

Plug in Element with a moblie phone charger and micro USB cable. Use a high quality charger like the Apple iPhone charger. Element will boot automatically when powered.

Element status light blinks red when booting.

Element status light steady red when successfully booted and connected to a Wi-Fi network.

Configuring the Kinoma Element

xsEdit

Download [xsEdit](). xsEdit has a GUI interface for adding the Kinoma Element network, setting the device name and pin configurations. xsEdit also is a Javascript editor and can push scripts wirelessly to your Kinoma Element.

Command line

You can configure your Kinoma Element via command line also. To do so connect the Kinoma Element to a PC/Laptop with a Micro-USB cable. In a Terminal application use the following commands.

Get modem number

```
ls /dev/tty.*
```

The result will show the usbmodem number, add that to the following command

```
sudo cu -l /dev/tty.usbmodem1421
```

After successfully connecting to the Kinoma Element use the following command to join a local Wi-Fi network. Kinoma Element will save the network configuration if a successful connection is made. Kinoma Element saves up to 10 Wi-Fi network profiles.

```
connect YOUR-NETWORK-NAME wpa2 YOUR-NETWORK-PASSWORD 0 true
```

Use the command: ip to view the Kinoma Elements current IP address

```
ip
```

Use the command: hostname to view the Kinoma Elements current device name. You can set the device name also with the hostname=YOUR-HOSTNAME

command

```
hostname
hostname=YOUR-HOSTNAME
```

Use the command: mac to view the Kinoma Element MAC address

```
mac
```

Telent

You can Telnet into a Kinoma Element by using the host name and .local 2323

```
telnet YOUR-HOSTNAME.local 2323
```

Powering Up/Down

You can power down the Element by removing the micro-USB cable.

Specifications

- Marvell MW302

    - 200 MHz ARM Cortex M4
    - 512 KB RAM
    - 2.4 GHz Wi-Fi b/g/n

- 4 MB Flash

- 8 programmable Digital pins, supporting:

    - Digital
    - I^2C
    - PWM
    - Serial
    - SPI

- 8 programmable Analog pins, supporting:

    - Analog

- All pins programmable to power or ground

- XS6 JavaScript engine with ES6 support

Recommended operating temperature: -5°C to +50°C (23°F to 122°F)

Compliance Statements

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment should be installed and operated with a minimum distance of 20 centimeters between the

radiator and your body.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution! Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Canada Statement

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

Le dispositif rencontre l'exemption des limites courantes d'évaluation dans la section 2.5 de RSS 102 et la conformité à l'exposition de RSS-102 rf, utilisateurs peut obtenir l'information canadienne sur l'exposition et la conformité de rf.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Cet émetteur ne doit pas être Co-placé ou ne fonctionnant en même temps qu'aucune autre antenne ou émetteur. Cet équipement devrait

être installé et actionné avec une distance minimum de 20 centimètres entre le radiateur et votre corps.