IoT Security Kit

User Guide

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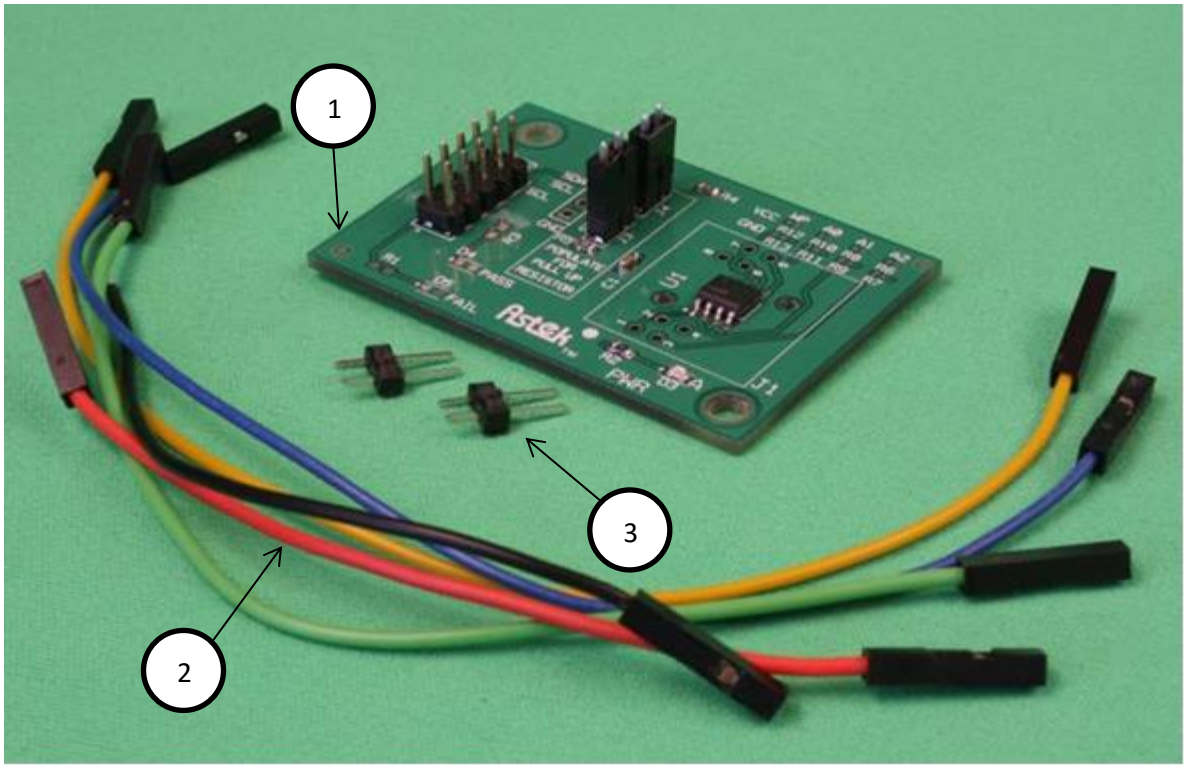
1 Unpackage

Unbox the Astek IoT Security Development Kit. You should find the following items in your kit.



1. AC0-IOTKIT-01 Printed Circuit Board
2. 5 wires (one is a spare)
3. 2 two-pin headers
4. Quick Start Guide (not shown)

2 Connecting to processor unit

The Astek eGuard Development Kit is connected to the processor module using J2. Four (4) signals must be connected to the processor module. These signals are labeled near J2 of the eGuard

- Serial Clock
- Serial Data
- Power
- Ground

Pin	Signal	Name	Name	Signal	Pin
1	**GND**	**Ground**	**3.3V Power**	**PWR**	**2**
3	N/C	No Connect	No Connect	N/C	4
5	N/C	No Connect	No Connect	N/C	6
7	N/C	No Connect	No Connect	N/C	8
9	**SDA**	**Serial Data**	**Serial Clock**	**SCL**	**10**

Pinout of J2

Female to female cables are included with the Development Kit for connecting the Astek eGuard Device to processor units with male headers on them. Additional headers are included with the kit to connect to processor modules containing female headers. Connect the signals to the processor unit as listed below.

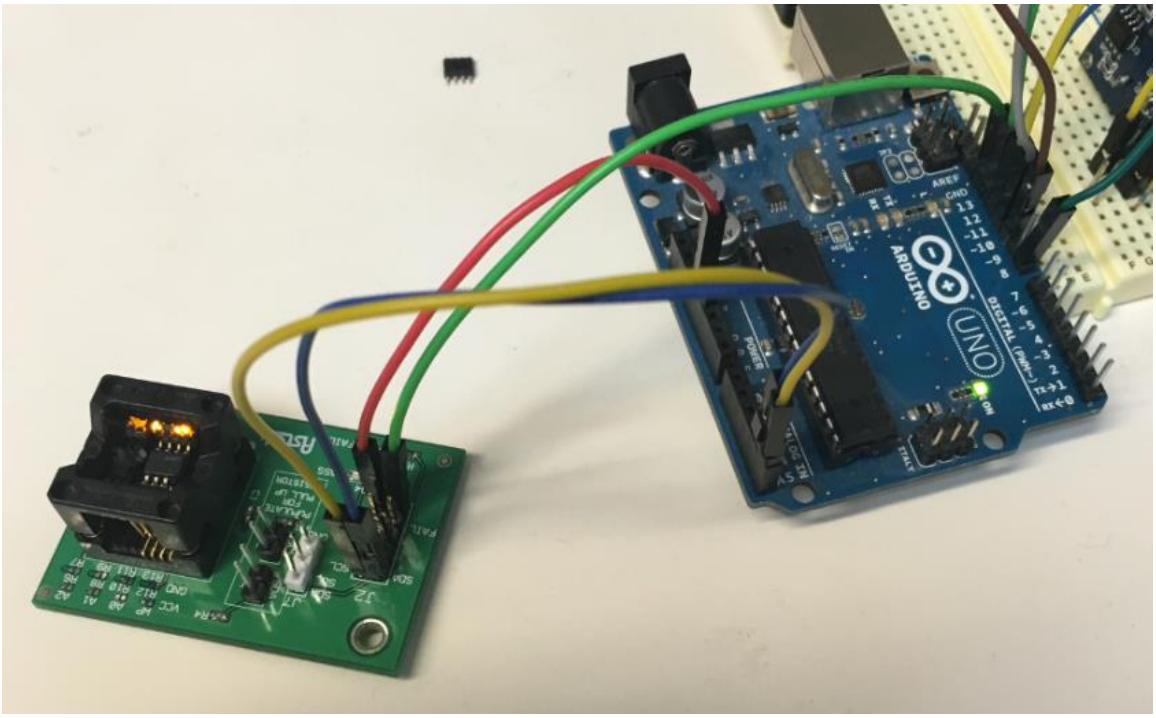
```
GND -> Ground of processor.

PWR -> 3.3V power on processor.

SDA -> Serial Data of processor. Usually called SDA

SDA -> Serial Clock of processor. Usually called SCL
```

Arduino Processor

The following picture shows the Astek eGuard Security device connected to an Arduino UNO processor.

On Arduino UNO, the following pins are used to connect to the eGuard Security device.

eGuard Signal	UNO Signal
SDA	A4
SCL	A5
3.3V	3.3V
GND	GND



<NOTE: Get a better picture with correct wires>

For other devices, please check with your processor documentation to verify the correct signals are connected.

3 Arduino IDE Library Use

This section is specific for use of the eGuard Security devices with Arduino processors using the Arduino Sketch IDE tool.

For Arduino processors using the Ardunio Sketch IDE environment, download the library using the link:

http://github.com/AstekCorp/eGuardArduino

Download the software a known location (e.g. c:\users\<username>\Downloads)

Library Example

Adafruit has a great tutorial for using libraries on Arduino IDE environment. It is highly recommended to use this process for the eGuardArduino library.

https://learn.adafruit.com/adafruit-all-about-arduino-libraries-install-use/arduino-libraries

A shortened summary of the steps is shown below:

- Download eGuardArduino.zip from Github.
- Copy contents of eGuardArduino.zip to Arduino Library directory.
- Open Arduino Application.
- Select File -> Examples -> eGuard. This will open the eGuardExample.ino file.
- Select Sketch -> Verify/Compile or click CTRL-R.
- Select Sketch -> Upload or click CTRL-U.
- After programming the Arduino, the Green LED should light on if the Astek eGuard is attached to the processor.
- If the Astek eGuard is removed from the processor, the green LED should go off and the red LED should light on.
- Re-attach the Astek eGuard and the green LED should light on again and the red LED should go off.

- Functions available in the Astek eGuard library are listed in Section 4.

4 Other Library Use

This section is for users of non-Arduino processors or users who want to use a 3rd party IDE development environment.

For all other processors or when using 3rd party IDE tools with Arduino, download the library from the link:

http://github.com/AstekCorp/eGuard

Download the software a known location (e.g. c:\users\<username>\Downloads)

Use of Library

Use of the library is dependent on the IDE being used. In general, you want to add all of the code located in the src/ directory to your project.

Run Sample code

In your application, add the following code:

```
// Enable cryptographic functions.

crypt_init();


// Perform check for eGuard Security device.

ret = crypt_authentication_sw(&cfg_508a_host);

if (0 == ret) {

    // SUCCESS!!!

} else {

    // FAILURE! :-)

}
```


5 Library Functions and Variables

Authenticate an Astek eGuard device is attached to your system.

```
crypto_init();
```

must be called prior to any other crypto function.

```
crypto_authenticate_sw (&<struct>)
```

Where <**struct**> is one of the following variables.

- cfg_508a_host (used by A0-KIT-01)
- cfg_508a_device (used with custom devices and kits)