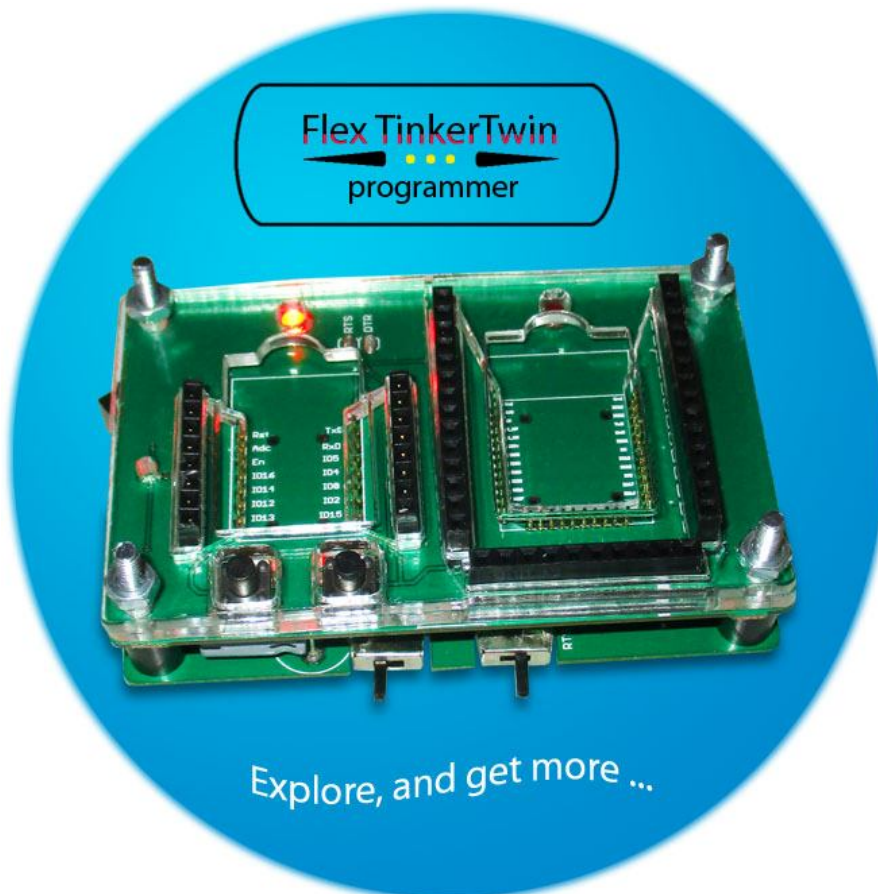


# SMDKing



**DEVICE** : Multi-tool for ESP7 / ESP8/ESP12 and ESP32

**FEATURES** : Tinkering and easy multi-programming ESP-modules

**APPLICATIONS** : Development for devices which include ESP-modules.

## INFO

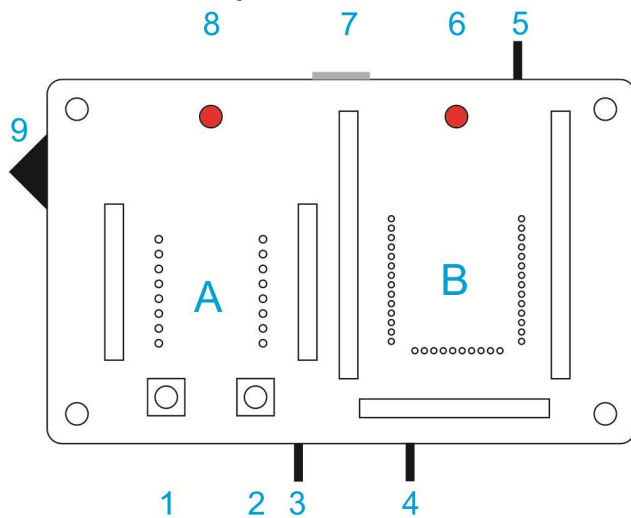
Flex TinkerTwin is a single programmer to facilitate experiments with several ESP-modules. It also supports multi programming those modules, for production purposes.

To power the programmer, an external powersource is required. This can be either an AC or DC source. However, this is not required, because the Flex TinkerTwin can also be USB-bus powered.

**NOTE :** Keep in mind not to have 2 modules inserted at the same time. It might draw excessive currents, which might damage internal components

The Flex TinkerTwin contains several LEDs as indicators and a total of 3 switches, to select between several options.

### Flex TinkerTwin (Top-view)



### Description

- 1) Button : Reset (ESP12) / Enable (ESP32)
- 2) Button : Flash (ESP12) / Boot (ESP32)
- 3) Switch : Select between ESP12 (A) / ESP32 (B)
- 4) Switch : Select default or RTS/CTS-mode
- 5) Switch : Select external powersource, or USB-power
- 6) LED : Indicates if ESP32 is activated / selected
- 7) USB : Mini USB-B port to connect to computer
- 8) LED : Indicates if ESP32 is activated / selected
- 9) Connector : Input for external powersource

- A) Socket (\*) : Location to insert ESP7, 8 and 12-modules
- B) Socket (\*) : Location to insert ESP32-modules

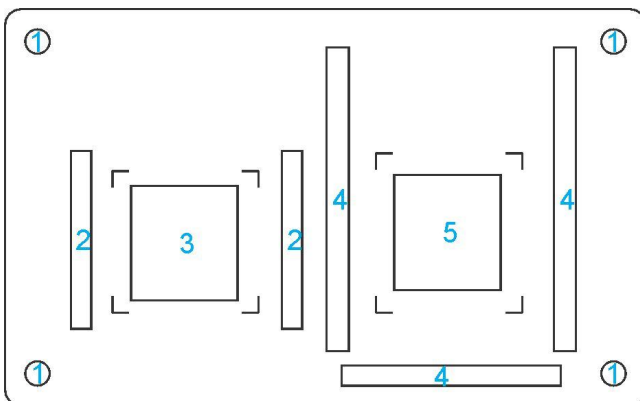
(\*) The socket contains pogo-pins and female pinheaders.

The ESP-module should be in contact with all available pogo-pins in the socket.

The female socket can be used to hook up external components and or devices for experiments.

For good results, it's best to use modules with male pinheaders. When using wires, keep them as short as possible. This is even more important when data is transmitted along those wires. Long wires are often a source for data-errors : the wires might operate as antennas, picking up all kind of unwanted interfering signals.

### Tinker LockPlate (Top-View)



### Description

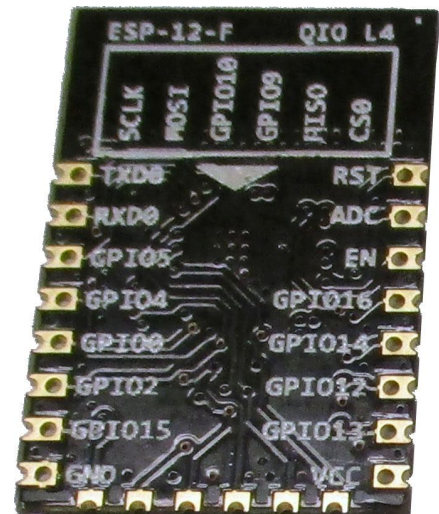
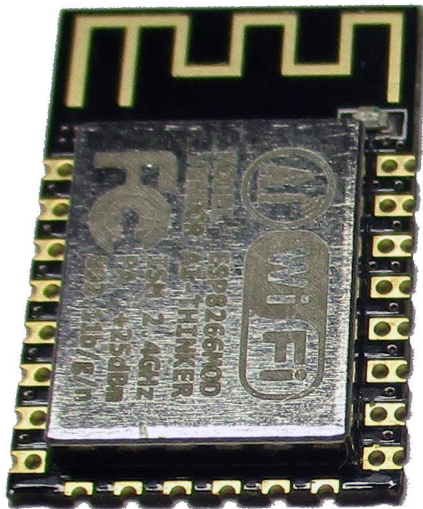
- 1) Mount-holes
- 2) Acces to female pinheaders (ESP7 / ESP8 / ESP12)
- 3) Pushblock for fixation
- 4) Access to female pinheaders (ESP32)
- 5) Pushblocks for fixation of ESP-module

The Flex TinkerTwin can program 4 types of ESP-modules : ESP7, ESP8, ESP12 and ESP32. There's a socket which you can slide in the respective module.

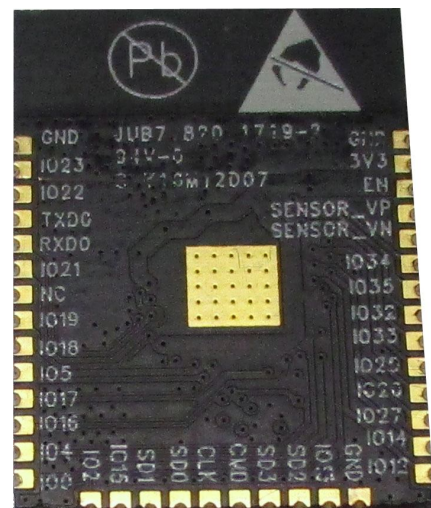
ESP7 and ESP8 are pin-compatible to and ESP12. It has the same width, but not the same height (length, whatever you like).

As reference, I've included ESP12 and ESP32 photos which you can use as a reference, in order to compare, check or verify your ESP modules.

ESP12, looks like :



ESP32 looks like :



## TINKERING

### - Tinker FlexPlate

When you tinker / experiment with an ESP-module it's best to fixate it in the *Flex TinkerTwin*. For this purpose you can use the Tinker LockPlate and nuts, which are included in the package.

First you insert the ESP-module, and let it rest on the pogo-pins. Next is to place the Tinker LockPlate on top of it. Use the included nuts to tighten the Tinker LockPlate, until all pins are connected.

When the Tinker LockPlate is set, you can insert an external device into the female sockets, or wire-connect it as you like.

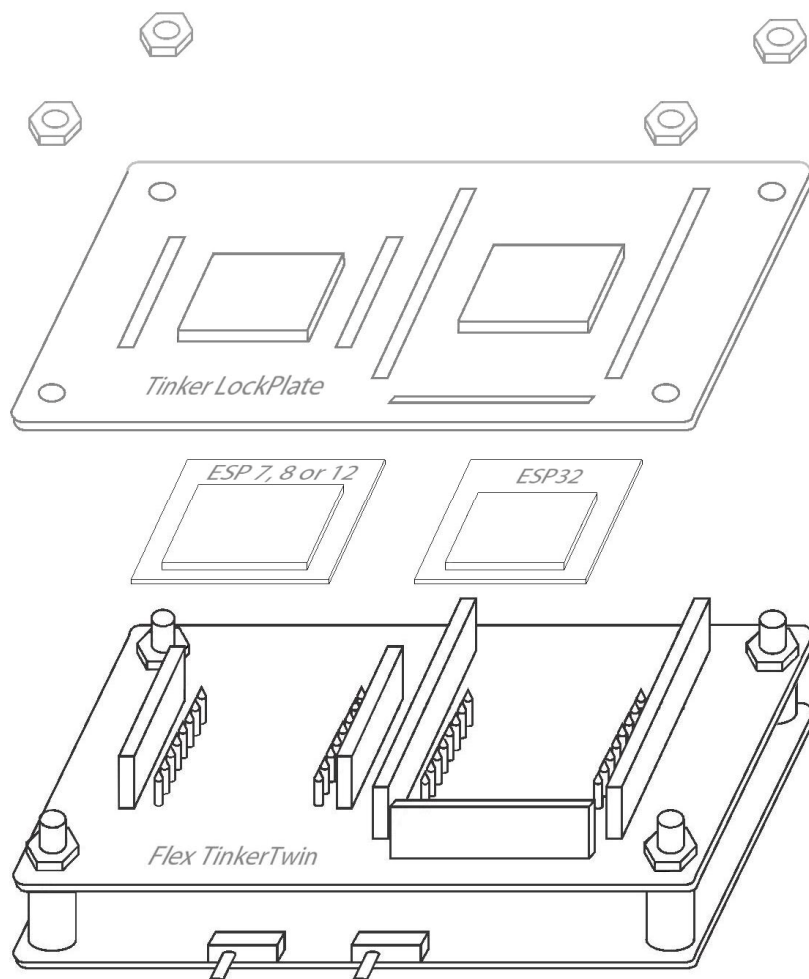
**NOTE :** When connecting a device which communicates with high data-rates, avoid long wiring connections. Long wires might perform as an antenna, picking up all kind of signals which might interfere with data-transmission, causing all type of odd errors.

### -USB connection

Create a physical connection between the *Flex TinkerTwin* and your computer (USB-port). If correct connected, you computer will detect a CP2102 UART to USB-bridge. If your computer does not contain such drivers, you can download them from SiLabs website. Drivers are available for several Operating Systems, like Windows, Mac OS, etc.

If correct drivers are installed, the Flex TinkerTwin will be recognised as a COM-port. Default parameters are 115200 Bps and 8-N-1.

**IMPORTANT NOTE :** When installing the Flex TinkerPlate, the buttons are not available. You should use the functions of these buttons by software.



#### - Select module

Use the mode-switch (3) to select the desired module :

Slide switch to the left : you selected socket "A". This is for ESP7 / ESP8 / ESP12-modules.  
This is also indicated by the red LED right above the "A" socket, which will turn on.

Slide the switch to "right" : socket "B" is selected. As an indication, you selected this mode, a red LED will turn on, right above the "B" socket.

#### -Select power-source

Next, you can select the desired power-source (5) : External power or USB.

Use an external power-source if you're not sure if it can source 500mA. An external power-source can be connected to the onboard connector (9).

If USB-power is selected, a LED next to the USB-connector will turn on. If external source is selected, the LED is off.

#### - Start tinkering

Default, an ESP-module is pre-programmed, and when activated, is waiting for commands to execute. When writing sourcecode, make sure the ESP-module is able execute them. This means, it requires the correct programming-language. For details, check the internet / fora. There are loads of dedicated websites you can visit for this purpose.

Since the buttons are not available by hand, you should use software which can handle the buttons 3, 4) for you.

If everything is done as required, start coding !

### MULTI PROGRAMMING

In some cases, you might need to program a batch of ESP-modules. For this purpose you don't need the Tinker LockPlate to enable quick access. Also, you get access to 2 buttons, which are needed for flashing the modules. The onboard buttons do have 2 functions :

	ESP 7, 8 or 12	ESP 32
<i>LEFT</i> button	<b>Reset</b>	<b>Enable</b>
<i>RIGHT</i> button	<b>Flash</b>	<b>Boot</b>

If you came to this point, I don't need to tell you which buttons should be pushed in what order, to upload a sourcecode for your ESP-module. You can also perform these functions over software. I don't know what software you use, so I can't give any details about that. Ask these type of questions at fora, dedicated to the module you use.

For multi-programming a batch of ESP-modules, you insert an ESP-module inside the Flex TinkerTwin (\*\*). Use mild pressure with your (index)finger, until pins are connected to the ESP-module.

Use your other hand to start flashing, using a mouse or keyboard.

(\*\*) I assume you already know how to connect it to your computer. See topic "Tinkering"



## CONTENTS

When receiving your order, it should contain :

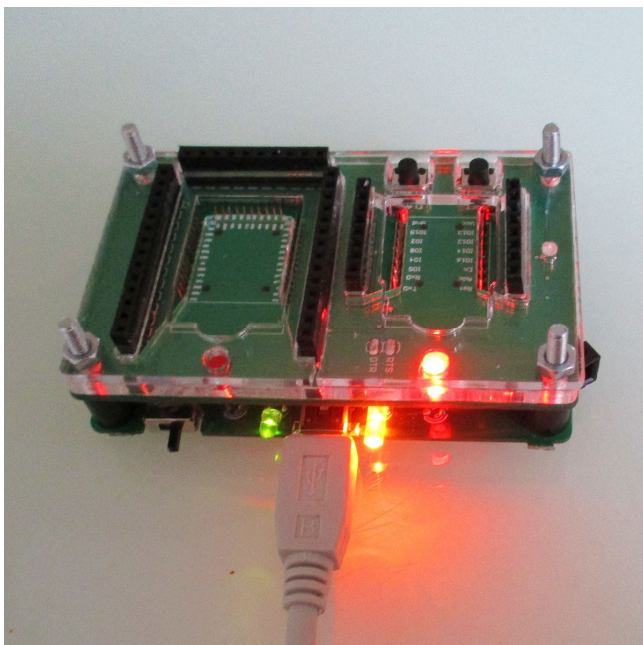
- Flex TinkerTwin programmer
- Tinker LockPlate
- 4 nuts (mounting Flex TinkerPlate)
- Jack and parts, if required (for external power-supply)

Things you still need :

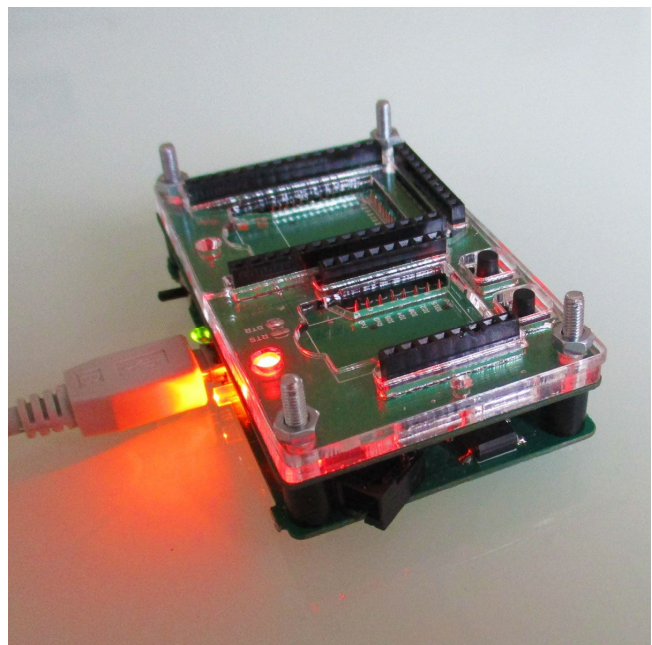
- External power-source. At least 5V and max. 12V AC or DC at 500mA (optional)
- USB-cable. At least 1 side should contain a **Mini USB-B** plug (required)
- Computer, uploading software / source-code to your ESP-module (required)

## IMAGES

Backview



SideView



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Manufacturer : SMDKing  
Datasheet : Flex TinkerTwin  
Version : 1.0  
Date of release : January 26th, 2018