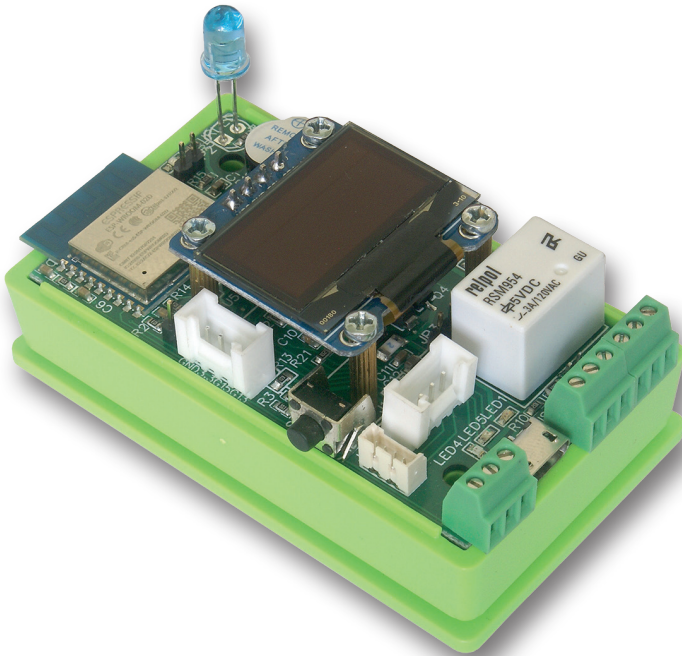


tinyESP – WiFi Controller



Manual

tinyESP is simple WiFi controller based on popular ESP8266 (4MB) module and excellent open source software ESP_Easy. Below is only short sheet with most settings important for tinyESP version.

More information about ESP_Easy system and it's possibilities you can find here:

<https://www.letscontrolit.com/wiki/index.php?title=ESPEasy>

tinyESP use firmware:

ESP_Easy_mega-actual_release_normal_IR_ESP8266_4M.bin

Can be upgraded by any other firmware for 4MB version of ESP8266.

10 easy steps to use your tinyESP:

1. Switch power on, search wifi network on you computer or smart phone.

When you find network "IR_0", connect to it.

Use password: **configesp**

2. Open address **192.168.4.1** in your browser and choose your access point and put it's password.

Welcome to ESP Easy Mega AP

Wifi Setup wizard

Pick	Network info
<input type="radio"/>	bb Ch:1 (-47dBm) WPA/WPA2/PSK EP-1
<input type="radio"/>	Ch:1 (-43dBm) WPA/WPA2/PSK mkt
<input type="radio"/>	Ch:1 (-42dBm) WPA/WPA2/PSK black
<input type="radio"/>	Ch:1 (-62dBm) WPA2/PSK mag
<input type="radio"/>	Ch:2 (-88dBm) WPA2/PSK zibi1
<input type="radio"/>	Ch:6 (-73dBm) WPA/WPA2/PSK ats
<input type="radio"/>	Ch:7 (-65dBm) WPA/WPA2/PSK ats-tomek
<input type="radio"/>	Ch:10 (-52dBm) WPA/WPA2/PSK

other SSID:

password:

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3. Click Connect, you will be redirected to new address of tinyESP in your network.

If your computer not change WiFi network automatically, change to yours.

4. Open tab **Hardware** and set GPIO -> LED to GPIO16.

Welcome to ESP Easy Mega AP

ESP is connected and using IP Address:
192.168.1.106

Connect your laptop / tablet / phone back to your main Wifi network and

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If you like to use **Sleep Mode**, you have to choose **-None-**

For reset function set GPIO-0,

For I2C interface choose following settings:

SDA GPIO-2

SCL GPIO-14

and confirm by **Submit**

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Hardware Settings

Wifi Status LED

GPIO → LED:

Inversed LED:

Note: Use 'GPIO-2 (D4)' with 'Inversed' checked for onboard LED

Reset Pin

GPIO ← Switch:

Note: Press about 10s for factory reset

I2C Interface

GPIO ⇄ SDA:

GPIO → SCL:

SPI Interface

Init SPI:

Note: CLK=GPIO-14 (D5), MISO=GPIO-12 (D6), MOSI=GPIO-13 (D7)

Note: Chip Select (CS) config must be done in the plugin

GPIO boot states

Pin mode GPIO-0 (D3) ⚠️:

Pin mode GPIO-1 (D10) TX0:

Pin mode GPIO-2 (D4) ⚠️:

Pin mode GPIO-3 (D9) RX0:

Pin mode GPIO-4 (D2):

Pin mode GPIO-5 (D1):

Pin mode GPIO-9 (D11) ⚠️:

Pin mode GPIO-10 (D12) ⚠️:

Pin mode GPIO-12 (D6):

Pin mode GPIO-13 (D7):

Pin mode GPIO-14 (D5):

Pin mode GPIO-15 (D8) ⇒ ⚠️:

Submit

5. Add Buzzer

Open tab **Notification/Edit** and add buzzer on GPIO-15. Please check if you have jumper on **JP1**. If you like signal on boot, open **Tools/Advanced** menu and check first check box **Rules** and press **Submit**.

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Notification Settings

Notification: Buzzer ?

1st GPIO: GPIO-15 (D8) ⇨ Δ

Enabled:

Close Submit Test

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Advanced Settings

Rules Settings

Rules:

Old Engine:

Controller Settings

Refresh browser and in new tab **Rules** paste below rule (an example) and **Submit**:

On System#Boot do

```
rtttl,15:d=10,o=6,b=180,c,e,g
```

endon

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Rules

Rules Set 1 ?

```
On System#Boot do
  rtttl,15:d=10,o=6,b=180,c,e,g
endon
```

If like use buzzer as notification from other devices (like Lan Controller), you can use http command:

<http://<tinyESP IP address>/control?cmd=tone,15,1300,200>

for playing single tone.

More information you find on this site:

[https://www.letscontrolit.com/wiki/index.php/Buzzer_\(RTTTL\)](https://www.letscontrolit.com/wiki/index.php/Buzzer_(RTTTL))

6. Using Relay

For using relay you need to send http command from browser or other device (like Lan Controller)

<http://<tinyESP IP address>/control?cmd=GPIO,<5>,1>

to switch on

<http://<tinyESP IP address>/control?cmd=GPIO,<5>,0>

to switch off

7. Add Sensors

Open tab **Devices/Edit** and choose from list sensors you like to use.

1wire -DS18B20 - add on GPIO-4

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Task Settings

Device: Environment - DS18B20

Name: DS

Enabled:

Sensor

GPIO pin 1-Wire: GPIO-4 (D2)

Device Address:

Device Resolution: 9 Bit

Data Acquisition

Send to Controller

Interval: 60 [sec]

Values

#	Name	Formula	Decimals
1	Temperature		1

[Close](#)
[Submit](#)
[Delete](#)

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BME - on default I2C address

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Task Settings

Device: Environment - BME280

Name: BME

Enabled:

I2C Address: 0x76 (118) - (default)

Note: SDO Low=0x76, High=0x77

Altitude: 180 [m]

Temperature offset: 0 [x 0.1C]

Note: Offset in units of 0.1 degree Celsius

Data Acquisition

Send to Controller

Interval: 1 [sec]

Values

#	Name	Formula	Decimals
1	Temperature		1
2	Humidity		0
3	Pressure		0

[Close](#)
[Submit](#)
[Delete](#)

analog input - use below formula to have right voltage values:

$$\%value\%/214$$

NOTICE - if you use battery and have battery jumper JP3, not use analog input on P1 connector.

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Task Settings

Device: Analog Input - Internal ⓘ

Name:

Enabled:

Oversampling:

Two Point Calibration

Calibration Enabled:

Point 1: *

Point 2: *

Current: 7 * 7.000

Data Acquisition

Send to Controller:

Interval: [sec]

#	Name	Formula ?	Decimals
1	Inpa1	%value%/214	2

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Display - OLED SSD1306: choose default I2C address Rotated, Display Size 128x64.

In 8 lines and using 16 characters you can display plain text, sensor values - in square brackets first enter the name of the sensor and the value name separated by the „#“ sign. You can also display system values between the characters „%“ e.g. „% sys-time%“.

If you change Display Button to GPIO-0 and set Display Timeout - will display for chosen time after pressing switch button.

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Task Settings

Device: Display - OLED SSD1306 ⓘ

Name:

Enabled:

I2C Address: ⌵

Rotation: ⌵

Display Size: ⌵

Font Width: ⌵

Line 1:

Line 2:

Line 3:

Line 4:

Line 5:

Line 6:

Line 7:

Line 8:

Display button: ⌵

Display Timeout:

Interval: [sec]

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You can use Extension port and Serial Port for using with other sensors according to ESP_Easy settings.

8. Add IR LED

To transmit infrared commands to home appliances.

Choose **Devices/Edit - IR Transmit** and setup on GPIO-13.

Commands with code can initialized in **Rules**, from Server or by http:

`http://<tinyESP IP address>/control?cmd=IRSEND,<Encoding>,<Value>,<Bitlength>`

Example:

Samsung TV on:

`http://192.168.2.165/control?cmd=IRSEND,SAMSUNG,e0e09966,32`

Samsung TV off:

`http://192.168.2.165/control?cmd=IRSEND,SAMSUNG,e0e019e6,32`

(Right code for your device you have to find on specialized websites)

ESP Easy Mega: IR

oMain Config Controllers Hardware **Devices** Rules Notifications Tools

Task Settings

Device: Communication - IR Transmit ? i

Name: IRDA

Enabled:

Actuator

GPIO -> LED: GPIO-13 (D7)

Command: IRSEND,[PROTOCOL],[DATA],[BITS optional],[REPEATS optional]
BITS and REPEATS are optional and default to 0

Close Submit Delete

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9. Battery usage

tinyESP has special chip for use uninterrupted power with Li-Po batteries.

It change power between USB and battery, charge battery and boost voltage from battery to 5V.

It allow use tinyESP as mobile device for environmental off-road measurement and with Sleep Mode for battery powered only monitoring. To switch on **Sleep Mode** you have to switch off WiFi LED (GPIO16), next in **Config** menu choose sleep time and awake time. Data will be send to server during awake.

Sleep Mode

Sleep awake time: 15 [sec] ?

Note: 0 = Sleep Disabled, else time awake from sleep

Sleep time: 3600 [sec (max: 4294)]

Sleep on connection failure:

Submit

10. Controllers tab - allow to send data to server or control from server.

Example show how to add **mqtt.ats.pl** server.

All the names of parameter should be identical like in Lan Controller.

For example for BME280: **T** (temperature), **H** (humidity) **P** (pressure).

In sensor tab should be selected **Send to Controller** check box.

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Controller Settings

Protocol: ?

Locate Controller:

Controller Hostname:

Controller Port:

Minimum Send Interval: [ms]

Max Queue Depth:

Max Retries:

Full Queue Action:

Check Reply:

Client Timeout: [ms]

Controller User:

Controller Password:

Controller Subscribe:

Controller Publish:

Controller lwt topic:

LWT Connect Message:

LWT Disconnect Message:

Enabled:

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ENJOY tinyESP!

Contents of the instructions is regularly checked and if necessary corrected. If the observations errors or inaccuracies, please contact us. It can not be ruled out that, despite best efforts, however, some discrepancies arose. To get the latest version, please contact us or distributors.

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