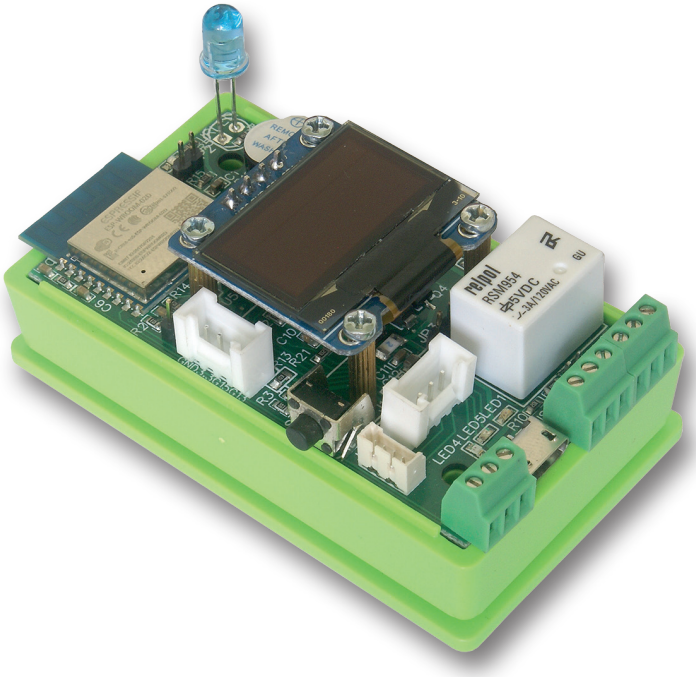
tinyESP – WiFi Controller



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:

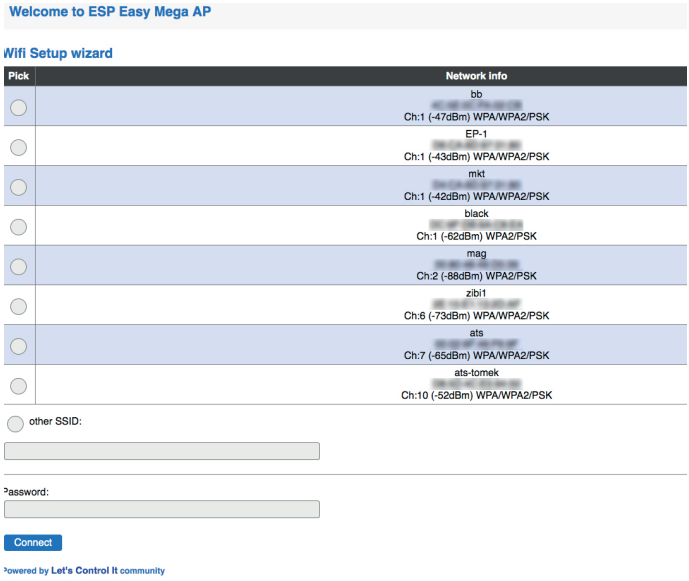
https://espeasy.readthedocs.io/en/latest/

tinyESP use firmware:
ESP_Easy_mega_*actual release*_normal_IRext_no_rx_ESP8266_4M2M.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 "**ESP_Easy_0**", connect to it.
Use password: **configesp**

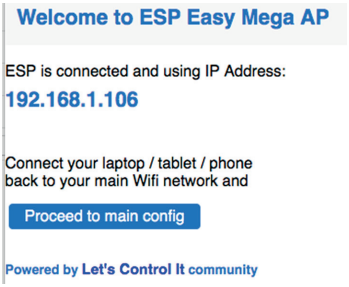
2. Open address 192.168.4.1 in your browser and choose your access point and put it's password.



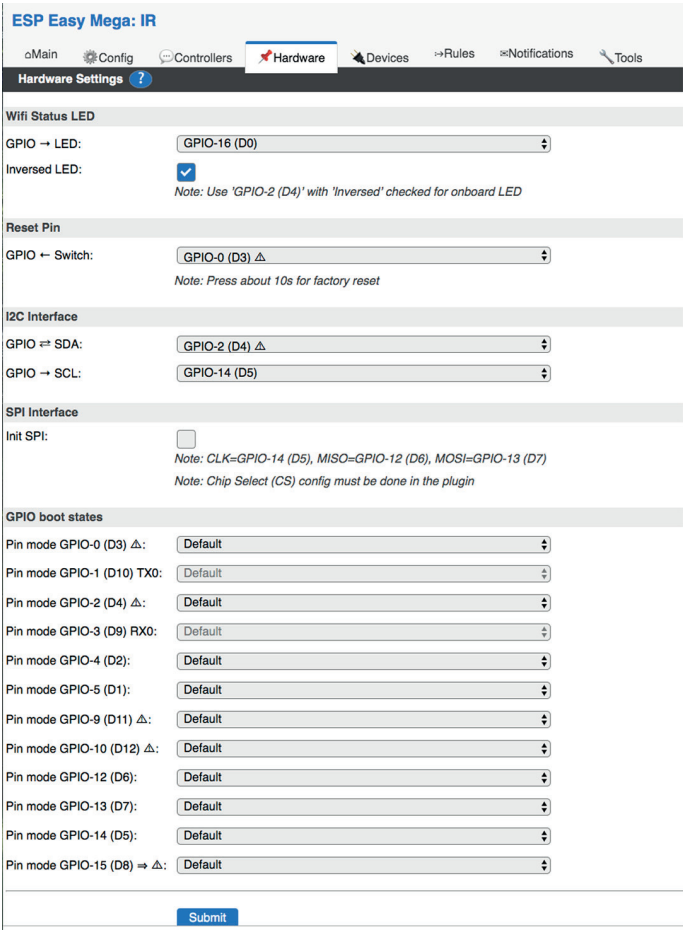
3. Click Connect, you will be redirected to new address of tinyESP in your network.

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

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

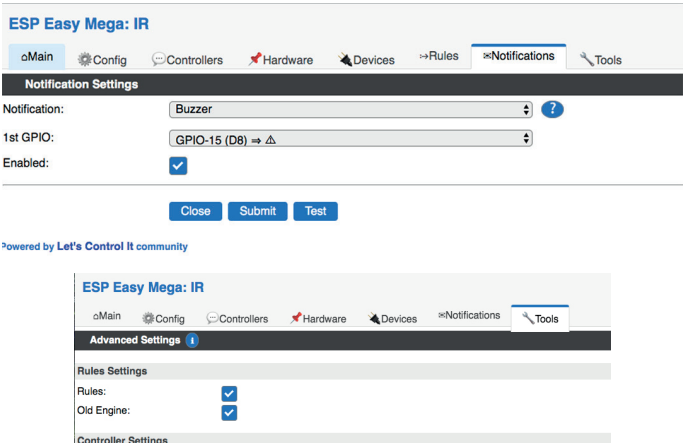


If you like to use ***Sleep Mode***, you have to choose -***None***-
For reset function set GPIO-0,
For I2C interface choose following settings:
SDA GPIO-2
SCL GPIO-14
and confirm by ***Submit***



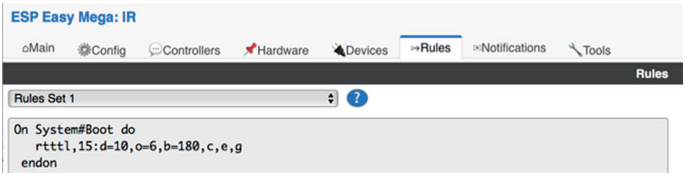
5. Add Buzzer

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***.



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
```



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://espeasy.readthedocs.io/en/latest/Plugin/P000_Buzzer_RTTTL.html

6. Using Relay

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

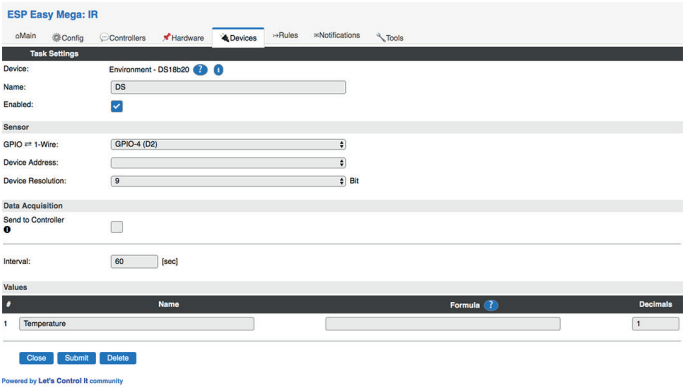
http://<tinyESP IP address>/control?cmd=GPIO,5,1
to switch on

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

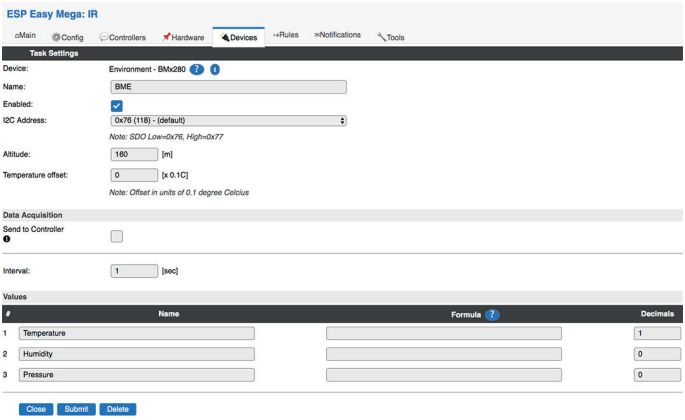
7. Add Sensors

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

7.1 DS18B20 (1wire) - add on GPIO-4

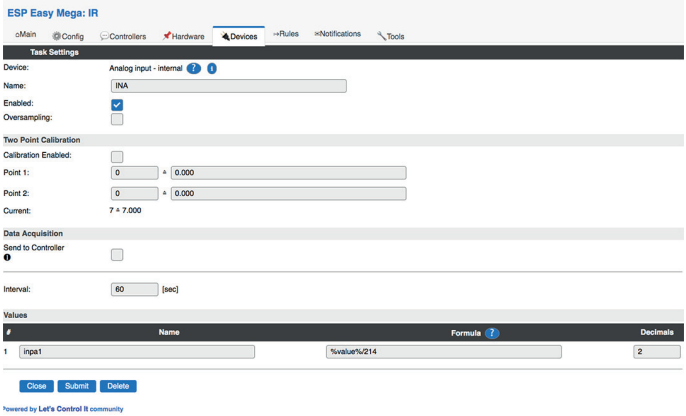


7.2 BMx280 - on default I2C address



7. 3 Analog input - use below formula to have right voltage values:
%value%/214

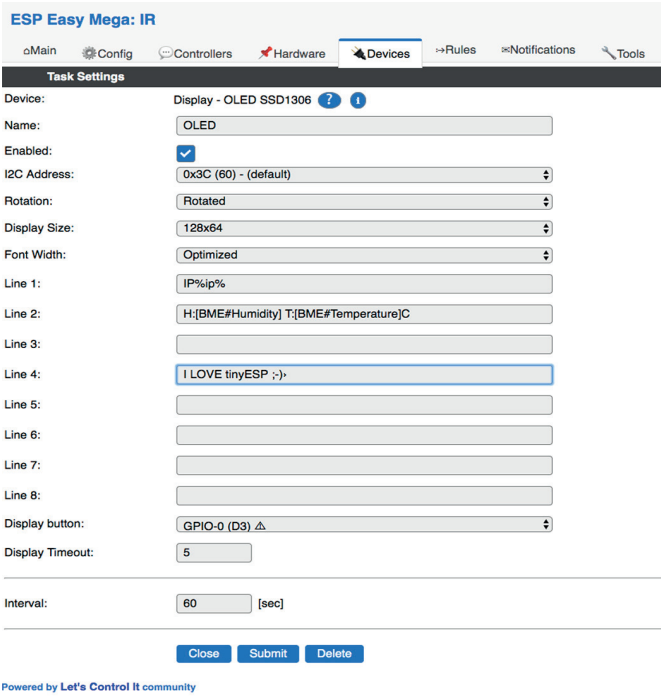
NOTICE- if you use battery and have battery jumper JP3, not use analog input on P1 connector.



7.4 Display - OLED SSD1306: choose default I2C address Rotated, Display Size128x64.

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. „% systime%".

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



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

8. Add IR LED

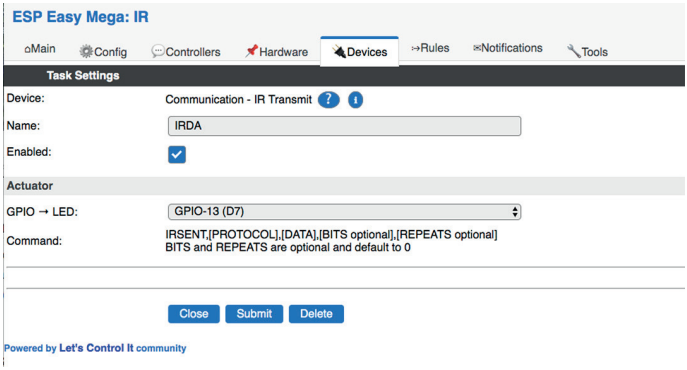
To transmit infrared commands to home appliances.
Choose ***Devices/Edit - IR Transmit*** and setup on GPIO-13.
Commands with code can initialized in ***Rules***, from Server or by http:
http://<tinyESP IP address/control?cmd=IRSEND,<Encoding>,<Value>,<Bitlenght>

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)

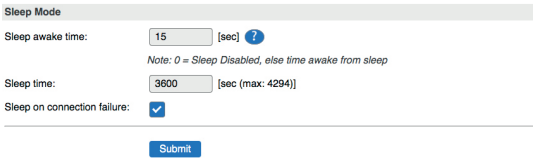


9. Battery usage

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

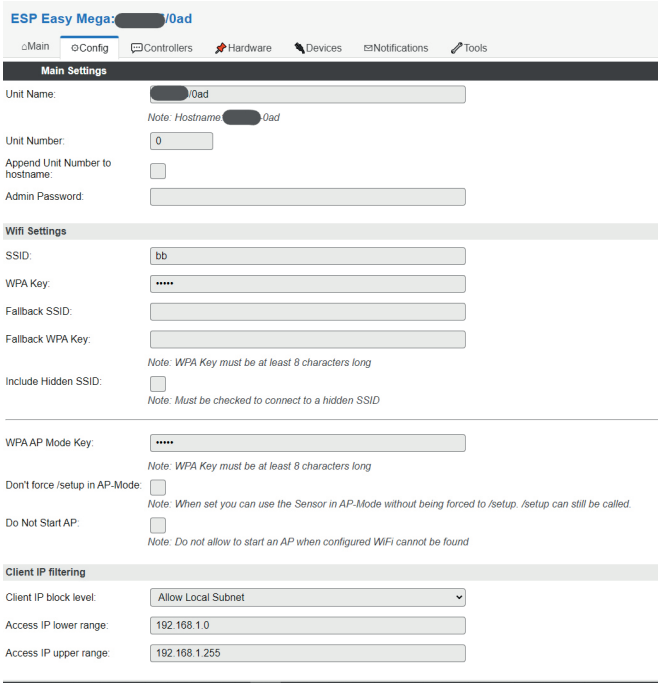
It change power between USB and battery, charge battery and boost voltage from battery to 5V.

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.



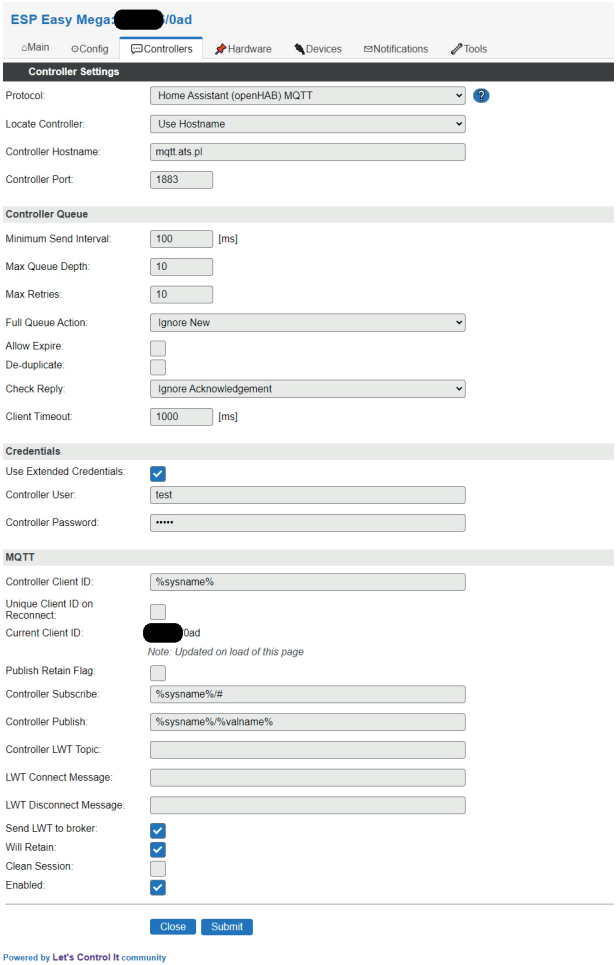
10. Controllers tab - allow to send data to server or control from server.
The example shows the configuration with the ***mqtt.ats.pl*** server.

10.1 After initial setup (WiFi, access settings, etc.). In ESP Easy, go to the ***Config*** tab and in the ***Unit Name*** field, enter the device prefix generated on mqtt.ats.pl (visible next to the device on the ***Devices*** page). This value will be used as host name, MQTT client ID, and part of MQTT topics.



In the ***Controllers*** tab, click **Add** next to the first item, select ***Home Assistant (openHAB) MQTT*** and fill in the form:

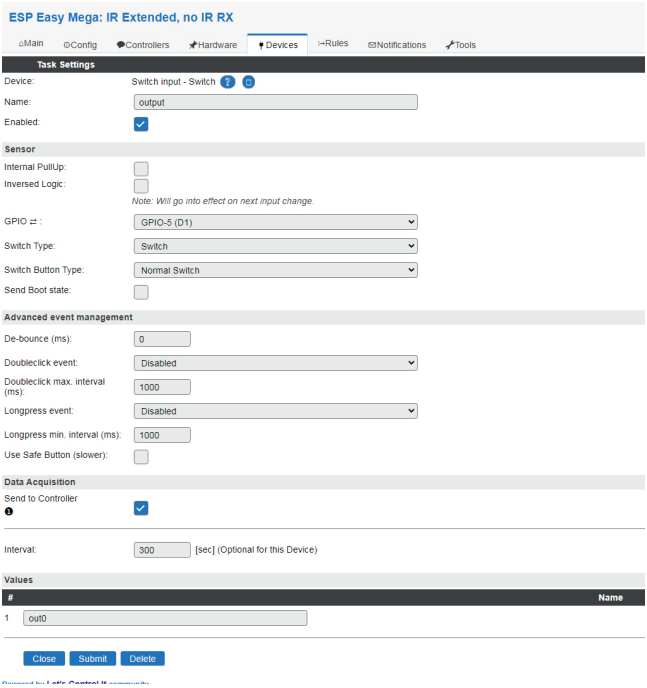
Locate Controller: *Use Hostname*
Controller Hostname: *mqtt.ats.pl*
Controller Port: *1883*
Client Timeout: *1000*
Use Extended Credentials: select
Controller User: MQTT client username *(available on account info page)*
Controller Password: MQTT client password *(available on account info page)*
Controller Client ID: enter *%sysname%*
Controller Subscribe: enter *%sysname%/#*
Controller Publish: enter *%sysname%/%valname%*
Enabled: select
Optionally, you can also select ***Send LWT to broker*** and ***Will Retain***.



10.3 Then configure the connected sensors/modules in the ***Devices*** tab.

a) **Relay *out0*** - add ***Switch input - Switch*** changing only:

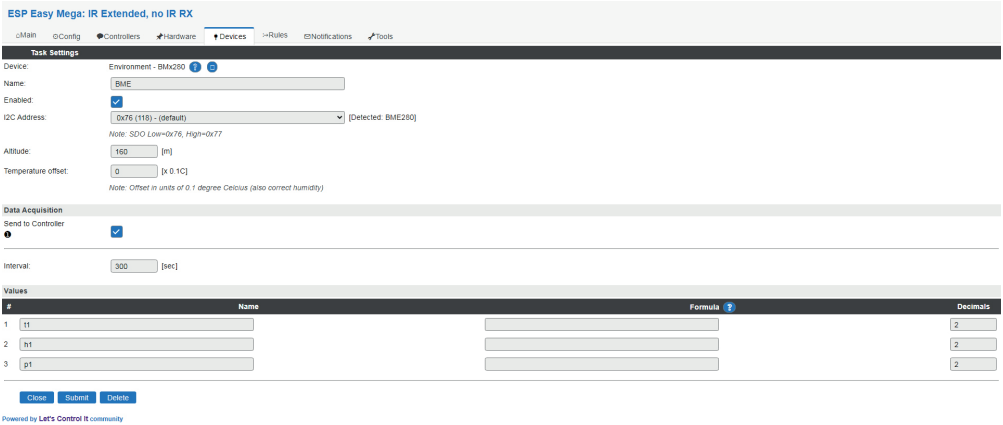
Name: *output*
Enabled: select
GPIO: *GPIO-5 (D1)*
Send To Controller: select next to the first item (MQTT controller set in step 10.2)
Interval: *300*
Values: 1 - *out0*



b) **BME280 sensor** (temperature, humidity and pressure) - add ***Environment - BMx280***:

Name: *bme*
Enabled: select
I2C Address: likely *0x76 (118) - (default)*
Send To Controller: select next to the first item
Interval: *300*
Values: 1 - *t1*, 2 - *h1*, 3 - *p1*

Optionally, you can set ***Altitude*** and ***Temperature offset*** as desired.



c) With other sensors, remember that the value entered in the ***Values*** section **has to correspond to the topics of the available series** on the mqtt.ats.pl website **Series settings**, e.g. *ds1*, *custom1*, etc.

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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