

# ESP 01 Introduction

L'ESP-01 est l'une des plus petites unités disponibles. Par rapport aux autres unités ESP, il est alimenté directement et doit donc être alimenté en 3,3 V et non en 5 V. Deux GPIO généraux sont disponibles et si vous avez besoin de plus, vous pouvez utiliser les deux ports série (1,3 / RX,TX).

## Matériel



- Version de puce ESP : ESP8266
- Taille du flash : 1M
- Convertisseur USB-TTL intégré : Non
- GPIO éclaté/disponible pour une utilisation gratuite : 0, 2
- Informations sur l'alimentation : 3,3 VDC
- Antenne : antenne PCB intégrée

## ESP-01 avec un microcontrôleur fonctionnant en 5V



### Câblage/clignotement

Un programmeur est nécessaire pour flasher cet appareil.

- 'Programmeur' 'ESP'
- TX ↔ RX
- RX ↔ TX
  
- 'Pouvoir'
- 3.3V ↔ VDD
- Terre ↔ Terre

Afin d'obtenir l'unité en mode flash, le GPIO-0 doit être BAS et le CH-EN doit être réglé sur haut. Le CH-EN peut être connecté au VDD, sur les photos un cavalier est soudé entre ceux-ci mais vous pouvez 'utiliser une résistance pour vous assurer qu'aucune surintensité ne blesse l'unité'. Commencez à clignoter et effectuez une réinitialisation une fois afin de lancer le spectacle.

Les unités avec une puce mémoire étiquetée ' PUYA ' doivent être flashées avec les fichiers bin PUYA spécialement construits. Ceci est nécessaire car la puce PUYA doit être traitée d'une autre manière que les puces mem normales.

### ESP-01 v3

Certains utilisateurs ont signalé que la réinitialisation ne fonctionnait pas sur les versions ultérieures de l'ESP-01. Il y a une résistance supplémentaire de 6k dans la ligne de réinitialisation (la nécessité de cette résistance est inconnue) entre EXT\_RSTB et la broche RST du connecteur 8 broches. Après avoir retiré et remis un cavalier à sa place, la fonction RESET fonctionne à nouveau correctement. Donc, essentiellement, vous pontez simplement la résistance, ce qui en fait une ligne droite.

## Flashage ESP01

[esp01-ota-littlefs](#)

### Raccordement pour flashage d'un ESP01



### ESP01 et DTH11



Une video pour expliquer

[ESP01 et DHT11 temperature](#)

**Ou trouver ce module tout cablé**



[pour l'achat du module](#)

## Code pour esp01 et capteur temperature DHT11 via serveur Web (simplifié)

[esp01Tempe001.ino](#)

```
/*  
  Objet : Serveur web temperature et humidité avec un esp8266-01
```

```
Nom : phmo_temp_hum_esp_dht_1.ino
Infos sketch :
- Créé le 12 jan 2016 sur la base des exemples des bibliothèques
Arduino par PHMO
*/

// ajout des bibs ESP8266 WiFi et sonde dht
#include <ESP8266WiFi.h>
#include "DHT.h"

// la sonde est de type dht22
// #define DHTTYPE DHT22

// la sonde est de type dht11
#define DHTTYPE DHT11

// la sonde dht est connectée sur le port GPIO2 de l'esp8266-01
const int DHTPIN=2;

// remplacer par le nom et mot de passe de votre réseau wifi
const char* ssid = "votre nom wifi";
const char* password = "votre mot de passe wifi";

// définition d'un serveur web écoutant sur le port 80
WiFiServer server(80);

// instantiation objet dht
DHT dht(DHTPIN, DHTTYPE); // Instantiation objet dht

// variables de travail
static char celsiusTemp[7];
static char humidityTemp[7];

// traitements init
void setup() {
  // init liaison série
  Serial.begin(115200);
  delay(10);
  // init capteur dht
  dht.begin();

  // connexion au wifi
  Serial.println();
  Serial.print("lancement connexion au réseau wifi : ");
  Serial.println(ssid);

  WiFi.begin(ssid, password);

  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
}
```

```
}
Serial.println("");
Serial.println("connexion au WiFi OK");

// demarrage serveur web
server.begin();
Serial.println("le serveur web est lancé, attente fourniture ip
locale de l esp ...");
delay(10000);

// affichage adresse ip locale
Serial.println(WiFi.localIP());
}

// boucle de traitement
void loop() {
    // attente client web
    WiFiClient client = server.available();
    if (client) {
        Serial.println("detection dune nouvelle demande client web
.....");
        // boolean to locate when the http request ends
        boolean blank_line = true;
        while (client.connected()) {
            if (client.available()) {
                char c = client.read();
                if (c == '\n' && blank_line) {
                    float h = dht.readHumidity();           // lecture
humidite
                    float t = dht.readTemperature();       // lecture
temperature
                    if (isnan(h) || isnan(t)) {             // verif si
lecture dht22 ok
                        Serial.println("impossible de lire les donnees du
dht22 !!!!!!!");
                        strcpy(celsiusTemp, "probleme");
                        strcpy(humidityTemp, "probleme");
                    }
                    else {
                        // lecture de la sonde ok, envoi des elements sur
le port serie
                        float hic = dht.computeHeatIndex(t, h, false);
                        dtostrf(hic, 6, 2, celsiusTemp);
                        dtostrf(h, 6, 2, humidityTemp);
                        // envoi des message sur la console serie
                        Serial.print("Humidite : ");
                        Serial.print(humidityTemp);
                        Serial.print(" %\t Temperature : ");
                        Serial.print(celsiusTemp);
                        Serial.print(" *C ");
```

```

    }
    // envoi des données au client web
    client.println("HTTP/1.1 200 OK");
    client.println("Content-Type: text/html");
    client.println("Connection: close");
    client.println();
    // your actual web page that displays temperature
and humidity

    client.println("<!DOCTYPE HTML>");
    client.println("<html>");
    client.println("<head></head><body><h1>ESP8266 -
Temperature and Humidite</h1><h3>Temperature en Celsius : ");
    client.println(celsiusTemp);
    client.println("<h3><h3>Humidite : ");
    client.println(humidityTemp);
    client.println("%</h3><h3>");
    client.println("</body></html>");
    break;
}
if (c == '\n') {
    // premiere ligne a blanc
    blank_line = true;
}
else if (c != '\r') {
    // lignes suivantes avec du contenu
    blank_line = false;
}
}
}
// fermeture connexion client
delay(1);
client.stop();
Serial.println("client web deconnecte .....");
}
}

```

## Exemple 2

[Esp01-DTH11-002.ino](#)

```

/*
 * DHT Temperature and humidity monitoring using ESP8266 and the
askSensors
 * Description: This examples connects the ESP to wifi, and sends
Temperature and humidity to askSensors IoT platfom over HTTPS GET
Request.
 * Author: https://asksensors.com, 2018 - 2019
 * github: https://github.com/asksensors

```

```
* Instructables:
https://www.instructables.com/id/DHT11-Temperature-and-Humidity-Monitoring-Using-th/
*/

// includes
#include <ESP8266WiFi.h>
#include <WiFiClientSecure.h>
#include <Adafruit_Sensor.h>
#include <DHT.h>
#include <DHT_U.h>

// user config: TODO
const char* wifi_ssid = "....."; // SSID
const char* wifi_password = "....."; // WIFI
const char* apiKeyIn = "....."; // API KEY IN
const unsigned int writeInterval = 25000; // write interval (in ms)

// ASKSENSORS config.
const char* https_host = "api.asksensors.com"; // ASKSENSORS
host name
const int https_port = 443; // https port
const char* https_fingerprint = "B5 C3 1B 2C 0D 5D 9B E5 D6 7C B6 EF
50 3A AD 3F 9F 1E 44 75"; // ASKSENSORS HTTPS SHA1 certificate
// DHT config.
#define DHTPIN 2 // Pin which is connected to the
DHT sensor.
// Uncomment the type of sensor in use:
#define DHTTYPE DHT11 // DHT 11
// #define DHTTYPE DHT22 // DHT 22 (AM2302)
// #define DHTTYPE DHT21 // DHT 21 (AM2301)
DHT_Unified dht(DHTPIN, DHTTYPE);
uint32_t delayMS;
int status = WL_IDLE_STATUS;
float myTemperature = 0, myHumidity = 0;
// create ASKSENSORS client
WiFiClientSecure client;
//
void setup() {
  Serial.begin(115200);
  Serial.println();
  Serial.print("***** connecting to WIFI : ");
  Serial.println(wifi_ssid);
  WiFi.begin(wifi_ssid, wifi_password);
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
  Serial.println("");
  Serial.println("-> WiFi connected");
}
```

```

Serial.println("-> IP address: ");
Serial.println(WiFi.localIP());
// Initialize device.
dht.begin();
Serial.println("DHTxx Unified Sensor Example");
// Print temperature sensor details.
sensor_t sensor;
dht.temperature().getSensor(&sensor);
Serial.println("-----");
Serial.println("Temperature");
Serial.print ("Sensor:      "); Serial.println(sensor.name);
Serial.print ("Driver Ver:   "); Serial.println(sensor.version);
Serial.print ("Unique ID:    "); Serial.println(sensor.sensor_id);
Serial.print ("Max Value:    "); Serial.print(sensor.max_value);
Serial.println(" *C");
Serial.print ("Min Value:    "); Serial.print(sensor.min_value);
Serial.println(" *C");
Serial.print ("Resolution:  "); Serial.print(sensor.resolution);
Serial.println(" *C");
Serial.println("-----");
// Print humidity sensor details.
dht.humidity().getSensor(&sensor);
Serial.println("-----");
Serial.println("Humidity");
Serial.print ("Sensor:      "); Serial.println(sensor.name);
Serial.print ("Driver Ver:   "); Serial.println(sensor.version);
Serial.print ("Unique ID:    "); Serial.println(sensor.sensor_id);
Serial.print ("Max Value:    "); Serial.print(sensor.max_value);
Serial.println("%");
Serial.print ("Min Value:    "); Serial.print(sensor.min_value);
Serial.println("%");
Serial.print ("Resolution:  "); Serial.print(sensor.resolution);
Serial.println("%");
Serial.println("-----");
// Set delay between sensor readings based on sensor details.
delayMS = sensor.min_delay / 1000;
// Set Client to insecure
client.setInsecure();
}

void loop() {
// Read data from DHT
// Delay between measurements.
delay(delayMS);
// Get temperature event and print its value.
sensors_event_t event;
dht.temperature().getEvent(&event);
if (isnan(event.temperature)) {
Serial.println("Error reading temperature!");
}
else {

```

```
// Update temperature and humidity
myTemperature = (float)event.temperature;
Serial.print("Temperature: ");
Serial.print(myTemperature);
Serial.println(" C");
}
// Get humidity event and print its value.
dht.humidity().getEvent(&event);
if (isnan(event.relative_humidity)) {
  Serial.println("Error reading humidity!");
}
else {
  myHumidity = (float)event.relative_humidity;
  Serial.print("Humidity: ");
  Serial.print(myHumidity);
  Serial.println("%");
}

// Use WiFiClientSecure class to create TLS connection
Serial.print("***** connecting to HOST : ");
Serial.println(https_host);
if (!client.connect(https_host, https_port)) {
  Serial.println("-> connection failed");
  //return;
}
/* ignore certificate verification
if (client.verify(https_fingerprint, https_host)) {
  Serial.println("-> certificate matches");
} else {
  Serial.println("-> certificate doesn't match");
}
*/
// Create a URL for the request
String url = "/write/";
url += apiKeyIn;
url += "?module1=";
url += myTemperature;
url += "&module2=";
url += myHumidity;

Serial.print("***** requesting URL: ");
Serial.println(url);

client.print(String("GET ") + url + " HTTP/1.1\r\n" +
  "Host: " + https_host + "\r\n" +
  "Connection: close\r\n\r\n");

Serial.println("> Request sent to ASKSENSORS");
while (client.connected()) {
  String line = client.readStringUntil('\n');
```

```
    if (line == "\r") {
        String line = client.readStringUntil('\n');
        Serial.println("***** ASKSENSORS replay:");
        Serial.println(line);
        Serial.println("***** closing connection");

        break;
    }
}

delay(writeInterval );    // delay in msec
}
```

### Exemple 3

[Esp01-DTH11-003.ino](#)

```
#include <ESP8266WiFi.h>
#include "DHT.h"
#define DHTPIN 2
#define DHTTYPE DHT11
DHT dht(DHTPIN, DHTTYPE);

const char* ssid      = "tpil";
const char* password  = "12345678";
const char* host      = "bts2m.free.fr"; // Adresse du serveur
const int  httpPort   = 80;

int value = 0;
float t,h,pile;
unsigned long t0;

void setup() {
    dht.begin();
    Serial.begin(115200);
    Serial.println(ssid);
    delay(2000);
    Serial.println();
    Serial.print("Connexion a ");
    Serial.println(ssid);
    WiFi.mode(WIFI_STA);
    WiFi.begin(ssid, password);
    while (WiFi.status() != WL_CONNECTED) delay (500);
    Serial.println(WiFi.localIP());
    Serial.println("");
    Serial.println("WiFi connected");
    Serial.println("IP address: ");
    Serial.println(WiFi.localIP());
}
```

```
    delay(500);
}

void loop() {
    t0=millis();
    value++;

    WiFiClient client;
    if (!client.connect(host, httpPort))return;

    Serial.println(host);
    // Mise en forme et envoi de la requête GET au serveur

    t = dht.readTemperature();
    h = dht.readHumidity();
    if (isnan(t)) t=0;
    if (isnan(h)) h=0;
    pile=5+5*sin(2*3.1416/20*value);
    String url = "/Wifi/sql.php?table=1&M1="+String(t,1)+"&M2="+String(h,1)
        +"&M3="+String(pile);

    // This will send the request to the server
    client.print(String("GET ") + url + " HTTP/1.1\r\n" +
        "Host: " + host + "\r\n" +
        "Connection: close\r\n\r\n");

    while (client.available() == 0) {
        if (millis() - t0 > 5000) {
            client.stop();
            return;
        }
    }
    while (client.available()) {
        String line = client.readStringUntil('\r');
        Serial.print(line);}
    // delay(30000);
    while (millis()-t0<30000) delay(10);    // 30s entre 2 mesures
}
```

## Exemple 4

[Esp01-DTH11-004.ino](#)

```
#include <ESP8266WiFi.h>
#include "DHT.h"
#define DHTPIN 2
#define DHTTYPE DHT11
DHT dht(DHTPIN, DHTTYPE);
```

```

const char* ssid      = "tpil";
const char* password  = "12345678";
const char* host      = "bts2m.free.fr"; // Adresse du serveur
const int  httpPort   = 80;

int value = 0;
float t,h,pile;
unsigned long t0;

void setup() {
  dht.begin();
  Serial.begin(115200);
  Serial.println(ssid);
  delay(2000);
  Serial.println();
  Serial.print("Connexion a ");
  Serial.println(ssid);
  WiFi.mode(WIFI_STA);
  WiFi.begin(ssid, password);
  while (WiFi.status() != WL_CONNECTED) delay (500);
  Serial.println(WiFi.localIP());
  Serial.println("");
  Serial.println("WiFi connected");
  Serial.println("IP address: ");
  Serial.println(WiFi.localIP());
  delay(500);
}

void loop() {
  t0=millis();
  value++;

  WiFiClient client;
  if (!client.connect(host, httpPort))return;

  Serial.println(host);
  // Mise en forme et envoi de la requête GET au serveur

  t = dht.readTemperature();
  h = dht.readHumidity();
  if (isnan(t)) t=0;
  if (isnan(h)) h=0;
  pile=5+5*sin(2*3.1416/20*value);
  String url = "/Wifi/sql.php?table=1&M1="+String(t,1)+"&M2="+String(h,1)
    +"&M3="+String(pile);

  // This will send the request to the server
  client.print(String("GET ") + url + " HTTP/1.1\r\n" +
    "Host: " + host + "\r\n" +
    "Connection: close\r\n\r\n");

```

```
while (client.available() == 0) {
  if (millis() - t0 > 5000) {
    client.stop();
    return;
  }
}
while (client.available()) {
  String line = client.readStringUntil('\r');
  Serial.print(line);}
// delay(30000);
while (millis()-t0<30000) delay(10);    // 30s entre 2 mesures
}
```

## Exemple 5

### [Esp01-Dth11-005.ino](#)

```
/* DHTServer - ESP8266 Webserver with a DHT sensor as an input

   Based on ESP8266Webserver, DHTexample, and BlinkWithoutDelay (thank
   you)

   Version 1.0 5/3/2014 Version 1.0 Mike Barela for Adafruit
   Industries
*/
#include <ESP8266WiFi.h>
#include <WiFiClient.h>
#include <ESP8266WebServer.h>
#include <DHT.h>
#define DHTTYPE DHT11
#define DHTPIN 2
// Replace with your network details
const char* ssid = "YourRouterID";
const char* password = "YourRouterPassword";
*/
ESP8266WebServer server(80);

// Initialize DHT sensor
// NOTE: For working with a faster than ATmega328p 16 MHz Arduino chip,
// like an ESP8266,
// you need to increase the threshold for cycle counts considered a 1
// or 0.
// You can do this by passing a 3rd parameter for this threshold. It's
// a bit
// of fiddling to find the right value, but in general the faster the
// CPU the
// higher the value. The default for a 16mhz AVR is a value of 6. For
```

```
an
// Arduino Due that runs at 84mhz a value of 30 works.
// This is for the ESP8266 processor on ESP-01
DHT dht(DHTPIN, DHTTYPE, 11); // 11 works fine for ESP8266

float humidity, temp_f; // Values read from sensor
String webString=""; // String to display
// Generally, you should use "unsigned long" for variables that hold
time
unsigned long previousMillis = 0; // will store last temp was
read
const long interval = 2000; // interval at which to read
sensor

void handle_root() {
  server.send(200, "text/plain", "Hello from the weather esp8266, read
from /temp or /humidity");
  delay(100);
}

void setup(void)
{
  // You can open the Arduino IDE Serial Monitor window to see what the
code is doing
  Serial.begin(115200); // Serial connection from ESP-01 via 3.3v
console cable
  dht.begin(); // initialize temperature sensor

  // Connect to WiFi network
  WiFi.begin(ssid, password);
  Serial.print("\n\r\n\rWorking to connect");

  // Wait for connection
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
  Serial.println("");
  Serial.println("DHT Weather Reading Server");
  Serial.print("Connected to ");
  Serial.println(ssid);
  Serial.print("IP address: ");
  Serial.println(WiFi.localIP());

  server.on("/", handle_root);

  server.on("/temp", [](){ // if you add this subdirectory to your
webservice call, you get text below :)
    gettemperature(); // read sensor
    webString="Temperature: "+String((int)temp_f)+" F"; // Arduino
has a hard time with float to string
```

```
server.send(200, "text/plain", webString);           // send to
someones browser when asked
});

server.on("/humidity", [](){ // if you add this subdirectory to your
webservice call, you get text below :)
    gettemperature();           // read sensor
    webString="Humidity: "+String((int)humidity)+"%";
    server.send(200, "text/plain", webString);       // send to
someones browser when asked
});

server.begin();
Serial.println("HTTP server started");
}

void loop(void)
{
    server.handleClient();
}

void gettemperature() {
    // Wait at least 2 seconds between measurements.
    // if the difference between the current time and last time you read
    // the sensor is bigger than the interval you set, read the sensor
    // Works better than delay for things happening elsewhere also
    unsigned long currentMillis = millis();

    if(currentMillis - previousMillis >= interval) {
        // save the last time you read the sensor
        previousMillis = currentMillis;

        // Reading temperature for humidity takes about 250 milliseconds!
        // Sensor readings may also be up to 2 seconds 'old' (it's a very
        slow sensor)
        humidity = dht.readHumidity();           // Read humidity (percent)
        temp_f = dht.readTemperature(true);     // Read temperature as
        Fahrenheit
        // Check if any reads failed and exit early (to try again).
        if (isnan(humidity) || isnan(temp_f)) {
            Serial.println("Failed to read from DHT sensor!");
            return;
        }
    }
}
}
```

## ESP01 Temperature et MQTT

Le module ESP8266 ESP01 envoie les données de température à Adafruit MQTT

### liens web

[ESP01 8266](#)

[Presentation du module ESP01](#)

[Datasheet ESP01](#)

[Mise en route ESP01](#)

### ESP01 et un relais



[Esp01 et un relais](#)

[Fiche technique Relais ESP01](#)

### Programme ESP01-Relais

[Esp01-Relais-001.ino](#)

```
/*-----  
HTTP 1.1 Webserver for ESP8266  
for ESP8266 adapted Arduino IDE  
http://www.esp8266.com/viewtopic.php?p=65572
```

```
-----*/

#include <ESP8266WiFi.h>

const char* ssid      = "FREE";
const char* password  = "WUFU";
int ledState = false;
unsigned long ulReqcount;
unsigned long ulReconncount;

byte relON[] = {0xA0, 0x01, 0x01, 0xA2}; //Hex command to send to
serial for open relay
byte relOFF[] = {0xA0, 0x01, 0x00, 0xA1}; //Hex command to send to
serial for close relay

// Create an instance of the server on Port 80
WiFiServer server(80);

void setup()
{
  // setup globals
  ulReqcount=0;
  ulReconncount=0;

  // start serial
  Serial.begin(9600);
  delay(1);

  // inital connect
  WiFi.mode(WIFI_STA);
  WiFiStart();
}

void WiFiStart()
{
  ulReconncount++;

  // Connect to WiFi network
  Serial.println();
  Serial.println();
  Serial.print("Connecting to ");
  Serial.println(ssid);

  WiFi.begin(ssid, password);

  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
}
```

```
Serial.println("");
Serial.println("WiFi connected");

// Start the server
server.begin();
Serial.println("Server started");

// Print the IP address
Serial.println(WiFi.localIP());
}

void loop()
{
  // check if WLAN is connected
  if (WiFi.status() != WL_CONNECTED)
  {
    WiFiStart();
  }

  // Check if a client has connected
  WiFiClient client = server.available();
  if (!client)
  {
    return;
  }

  // Wait until the client sends some data
  Serial.println("new client");
  unsigned long ultimeout = millis()+250;
  while(!client.available() && (millis()<ultimeout) )
  {
    delay(1);
  }
  if(millis()>ultimeout)
  {
    Serial.println("client connection time-out!");
    return;
  }

  // Read the first line of the request
  String sRequest = client.readStringUntil('\r');
  //Serial.println(sRequest);
  client.flush();

  // stop client, if request is empty
  if(sRequest=="")
  {
    Serial.println("empty request! - stopping client");
    client.stop();
    return;
  }
}
```

```
// get path; end of path is either space or ?
// Syntax is e.g. GET /?pin=MOTOR1STOP HTTP/1.1
String sPath="", sParam="", sCmd="";
String sGetstart="GET ";
int iStart, iEndSpace, iEndQuest;
iStart = sRequest.indexOf(sGetstart);
if (iStart >= 0)
{
    iStart += sGetstart.length();
    iEndSpace = sRequest.indexOf(" ", iStart);
    iEndQuest = sRequest.indexOf("?", iStart);

    // are there parameters?
    if(iEndSpace > 0)
    {
        if(iEndQuest > 0)
        {
            // there are parameters
            sPath = sRequest.substring(iStart, iEndQuest);
            sParam = sRequest.substring(iEndQuest, iEndSpace);
        }
        else
        {
            // NO parameters
            sPath = sRequest.substring(iStart, iEndSpace);
        }
    }
}
```

```
////////////////////////////////////
////////
```

```
    // output parameters to serial, you may connect e.g. an Arduino and
    // react on it
```

```
////////////////////////////////////
////////
```

```
if(sParam.length() > 0)
{
    int iEqu = sParam.indexOf("=");
    if(iEqu >= 0)
    {
        sCmd = sParam.substring(iEqu+1, sParam.length());
        Serial.println(sCmd);
    }
}
```

```
////////////////////////////////////
// format the html response
////////////////////////////////////
```

```

String sResponse, sHeader;

////////////////////////////////////
// 404 for non-matching path
////////////////////////////////////
if(sPath!="/")
{
    sResponse="<html><head><title>404 Not
Found</title></head><body><h1>Not Found</h1><p>The requested URL was
not found on this server.</p></body></html>";

    sHeader = "HTTP/1.1 404 Not found\r\n";
    sHeader += "Content-Length: ";
    sHeader += sResponse.length();
    sHeader += "\r\n";
    sHeader += "Content-Type: text/html\r\n";
    sHeader += "Connection: close\r\n";
    sHeader += "\r\n";
}
////////////////////////////////////
// format the html page
////////////////////////////////////
else
{
    ulReqcount++;
    sResponse = "<html><head><title>Demo pour ESP8266 version
ESP-01</title></head><body>";
    sResponse += "<font color=\"#000000\"><body bgcolor=\"#d0d0f0\">";
    sResponse += "<meta name=\"viewport\" content=\"width=device-width,
initial-scale=1.0, user-scalable=yes\">";
    sResponse += "<h1>Demo pour ESP8266 version ESP-01</h1>";
    sResponse += "Allumez en cliquant sur le bouton.<BR>";
    sResponse += "<FONT SIZE=+1>";
    sResponse += "<p>Fonction 1 <a
href=\"?pin=FUNCTION10N\"><button>Allumer</button></a>&nbsp;<a
href=\"?pin=FUNCTION10FF\"><button>Eteindre</button></a></p>";

    //////////////////////////////////
    // react on parameters
    //////////////////////////////////
    if (sCmd.length()>0)
    {
        // write received command to html page
        sResponse += "Kommando:" + sCmd + "<BR>";

        // switch GPIO
        if(sCmd.indexOf("FUNCTION10N")>=0)
        {
            Serial.write(relON, sizeof(relON)); // turns the relay ON
            ledState = false;
        }
    }
}

```

```
    }
    else if(sCmd.indexOf("FUNCTION1OFF")>=0)
    {
        Serial.write(rel0FF, sizeof(rel0FF)); // turns the relay OFF
        ledState = true;
    }
}

sResponse += "<FONT SIZE=-2>";
sResponse += "<BR>Aufrufz&auml;hler=";
sResponse += ulReqcount;
sResponse += " - Verbindungsz&auml;hler=";
sResponse += ulReconncount;
sResponse += "<BR>";
sResponse += "</body></html>";

sHeader = "HTTP/1.1 200 OK\r\n";
sHeader += "Content-Length: ";
sHeader += sResponse.length();
sHeader += "\r\n";
sHeader += "Content-Type: text/html\r\n";
sHeader += "Connection: close\r\n";
sHeader += "\r\n";
}

// Send the response to the client
client.print(sHeader);
client.print(sResponse);

// and stop the client
client.stop();
Serial.println("Client disconnected");
}
/*
test a faire
#define RX_PIN 3 // GPIO3
#define TX_PIN 1 // GPIO1

void setup() {
// dont Serial.begin(74880)!!!!!!!!!!!!!!!!!!!!!!
pinMode(RX_PIN, INPUT);
pinMode(TX_PIN, INPUT);
}
*/
```

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