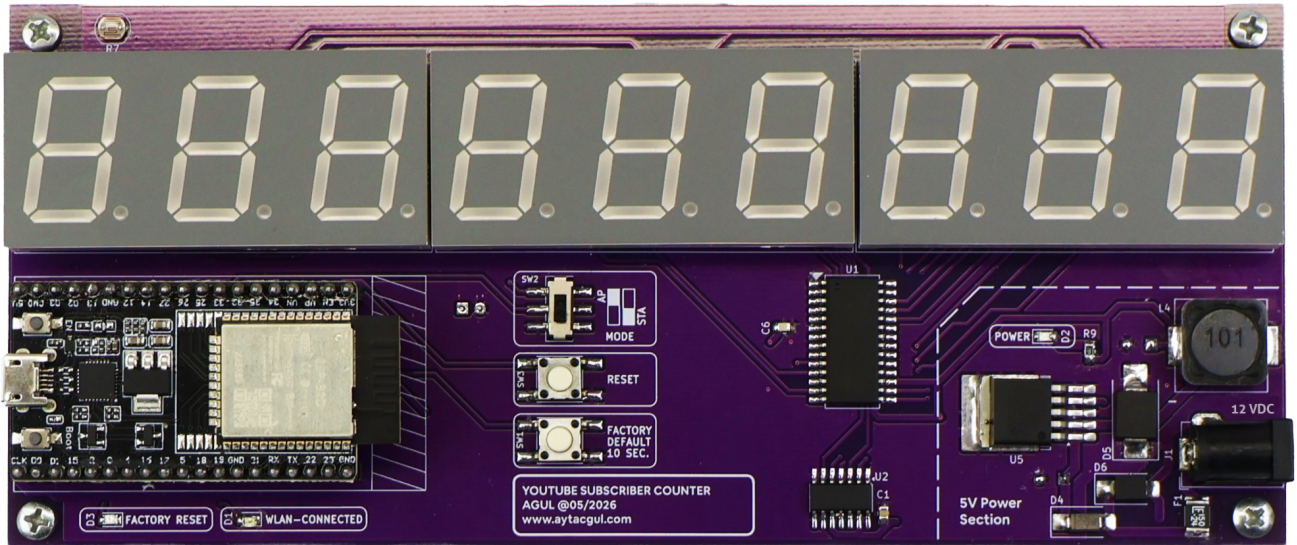


YOUTUBE SUBSCRIBER COUNTER

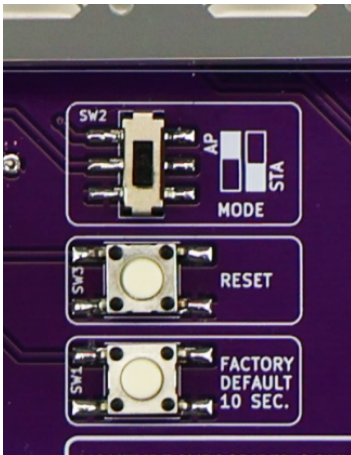
ESP32 + TM1640 | User Guide | Rev. 1.0 | August 2026



QUICK START

Move the **MODE** switch to **AP**, press **RESET**, connect to the **YTB-COUNTER** Wi-Fi network, open the setup page, enter your Wi-Fi and YouTube settings, save them, then move the **MODE** switch to **STA** and press **RESET**.

Controls and indicators



MODE, RESET and FACTORY DEFAULT controls

MODE switch: Selects AP (setup) mode or STA (normal/client) mode.

RESET: Restarts the controller after changing the operating mode.

FACTORY DEFAULT: Hold for approximately 10 seconds to erase the stored configuration.

WLAN-CONNECTED LED: Turns on when the ESP32 is connected to the configured Wi-Fi network.

Default setup network

SSID : YTB-COUNTER

Password : 123456789

Setup IP : 192.168.4.1

Hostname : ytb-counter.local (Client mode, if mDNS is available)

1. INITIAL SETUP - ACCESS POINT MODE

YOUTUBE SUBSCRIBIER COUNTER

SETUP MODE · AP IP: 192.168.4.1

WI-FI ACCESS POINT

TURKCA | -53 dBm | CH 8 | F4:2D:06:14:80:A8 ▾

Selected AP: F4:2D:06:14:80:A8 · Channel 8

WI-FI PASSWORD

XXXXXXXXXX

Show

YOUTUBE API KEY

AIzaSyDnZBLVwC0YF0U0YD0G-Bp0nYg0eAT1

CHANNEL ID

UC0WY7Aa-BW5L5J0APM00V73A

BRIGHTNESS

☒ Auto Brightness with Sensor

MANUAL BRIGHTNESS

0%

SAVE SETTINGS

YOUTUBE TEST

www.aytacgul.com

Setup page in AP mode

Start AP mode

1. Move the MODE switch to the **AP** position.
2. Press **RESET** once.
3. The display briefly shows **SEt AP**.
4. Connect a phone or computer to **YTB-COUNTER** using password **123456789**.
5. The setup page should open automatically. If it does not, open **http://192.168.4.1** manually.

Complete the settings

WI-FI ACCESS POINT: Select the exact access point that you want the ESP32 to use.

WI-FI PASSWORD: Enter the password for that network.

YOUTUBE API KEY: Enter the key created for YouTube Data API v3.

CHANNEL ID: Enter the channel ID beginning with **UC**. The firmware can also resolve an **@handle**.

BRIGHTNESS: Keep Auto Brightness enabled for LDR control, or disable it to use the manual slider.

IMPORTANT - SAME SSID / RANGE EXTENDER

If your router and range extender use the same SSID, the list can contain multiple entries with the same name. Use the **BSSID**, **channel** and **RSSI** values to identify the desired physical access point. The selected BSSID and channel are stored so the ESP32 reconnects to that specific access point.

Save and verify

1. Press **SAVE SETTINGS**. The display shows **rEAdY** for about 2 seconds.
2. Use **YOUTUBE TEST** to verify the stored API key and channel configuration.
3. Move the MODE switch to **STA (Client)** and press **RESET**.

2. NORMAL OPERATION - CLIENT MODE

Settings page while the device is connected to the local network

YOUTUBE SUBSCRIBER COUNTER

CLIENT MODE · IP: 192.168.1.86
CONNECTED AP: TURKCA · F432D081468AA · CH 8 · -60 dBm
Open with HTTP: ytb-counter.local

WI-FI ACCESS POINT

TURKCA | -61 dBm | CH 8 | F432D081468AA

Selected AP: F432D081468AA · Channel 8

WI-FI PASSWORD

SHOW

YOUTUBE API KEY

AIzaSyDaZELVwCOYFALB0YD4S-Bjz8Ygk4wATr

CHANNEL ID

UCuYVWwBf5L5dAPMAGvY3A

BRIGHTNESS

☒ Auto Brightness with Sensor

MANUAL BRIGHTNESS

0%

SAVE SETTINGS

YOUTUBE TEST

www.aytacgul.com

Startup sequence

1. Move the MODE switch to **STA**.
2. Press **RESET**.
3. The ESP32 connects to the saved Wi-Fi access point.
4. When the connection is established, the **WLAN-CONNECTED** LED turns on.
5. The display briefly shows the last octet of the DHCP address as **SEt IP xx**.
6. After approximately 3 seconds, the current YouTube subscriber count is displayed.

Example

If the display shows **SEt IP 86**, the local address is typically **192.168.1.86** on a 192.168.1.x network.

Open the settings page with the full DHCP address shown by your router or browser.

If mDNS works on your network, you can also try **http://ytb-counter.local**.

Accessing the settings page in Client mode

- **Direct IP address:** The most reliable method. Example: <http://192.168.1.86>
- **mDNS hostname:** <http://ytb-counter.local>
- The page shows the connected SSID, BSSID, channel and RSSI so you can confirm which router or extender is being used.

NORMAL DISPLAY OPERATION

The firmware refreshes the YouTube subscriber count periodically. If a temporary network or API error occurs, the last valid subscriber count is retained and shown again after the error message.

3. NETWORK, mDNS AND BRIGHTNESS

mDNS / ytb-counter.local

mDNS NOTE

The hostname **ytb-counter.local** uses multicast DNS (mDNS). Some routers, guest networks and range extenders do not forward multicast traffic correctly. If the IP address works but **ytb-counter.local** does not, the ESP32 web server is still operating correctly. Use the IP address or check the router/extender settings for multicast, Bonjour or mDNS support.

Router and range extender with the same SSID

- Each physical Wi-Fi access point has its own **BSSID** even if the SSID name is identical.
- The setup page lists SSID, RSSI, channel and BSSID so the correct router or extender can be selected.
- The selected BSSID and channel are stored in ESP32 Preferences and used during future reconnects.
- A strong RSSI only describes the radio link between the ESP32 and that access point; it does not guarantee that a range extender has a good uplink to the main router.

Brightness

- **Auto Brightness with Sensor:** The LDR automatically adjusts TM1640 brightness according to ambient light.
- **Manual Brightness:** Disable automatic brightness to enable the slider.
- At 0% manual setting, the display remains at the minimum visible brightness instead of switching completely off.

When your Wi-Fi settings change

If the office/home Wi-Fi SSID or password changes, move the device back to AP mode, open the setup page and update the Wi-Fi settings.

FACTORY RESET

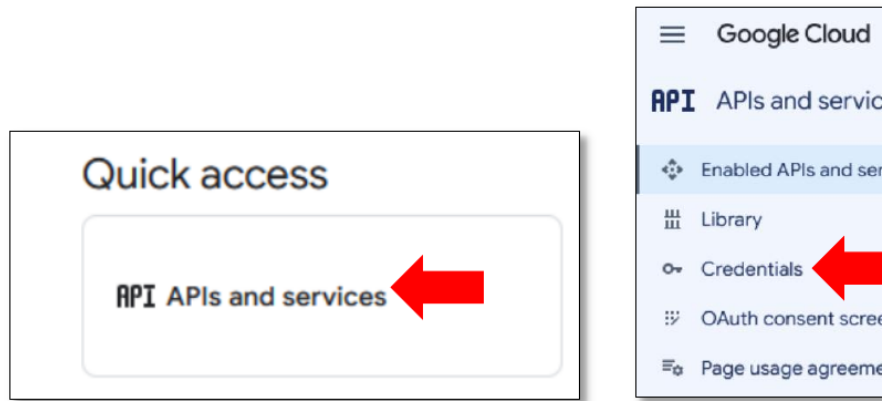
If the stored configuration becomes unusable, hold the **FACTORY DEFAULT** button for approximately 10 seconds. The factory-status indicator flashes three times, saved settings are erased, and the device restarts.

4. HOW TO CREATE A YOUTUBE API KEY

The counter reads subscriber statistics through the YouTube Data API. You need a Google Cloud project with **YouTube Data API v3** enabled and an API key.

Step 1 - Open Google Cloud Console

Visit <https://console.cloud.google.com> and sign in. Create a project or select an existing project.



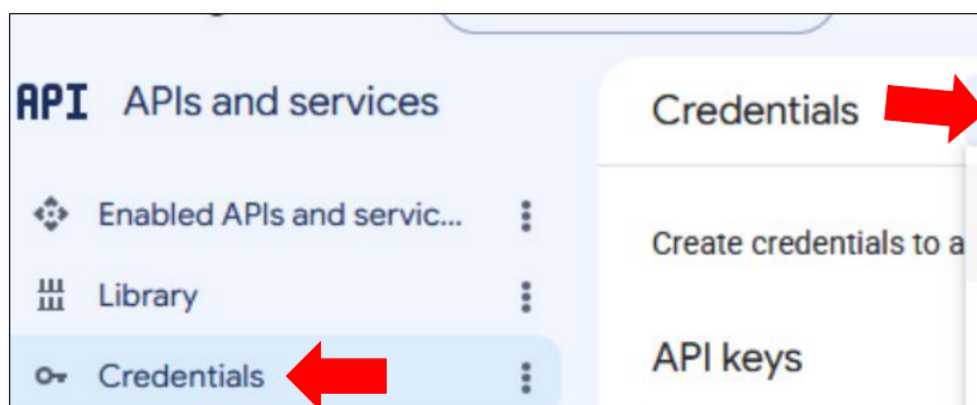
APIs & Services → Credentials → Create credentials → API key

Open APIs & Services. The exact Google Cloud layout may change over time.

Step 2 - Enable YouTube Data API v3

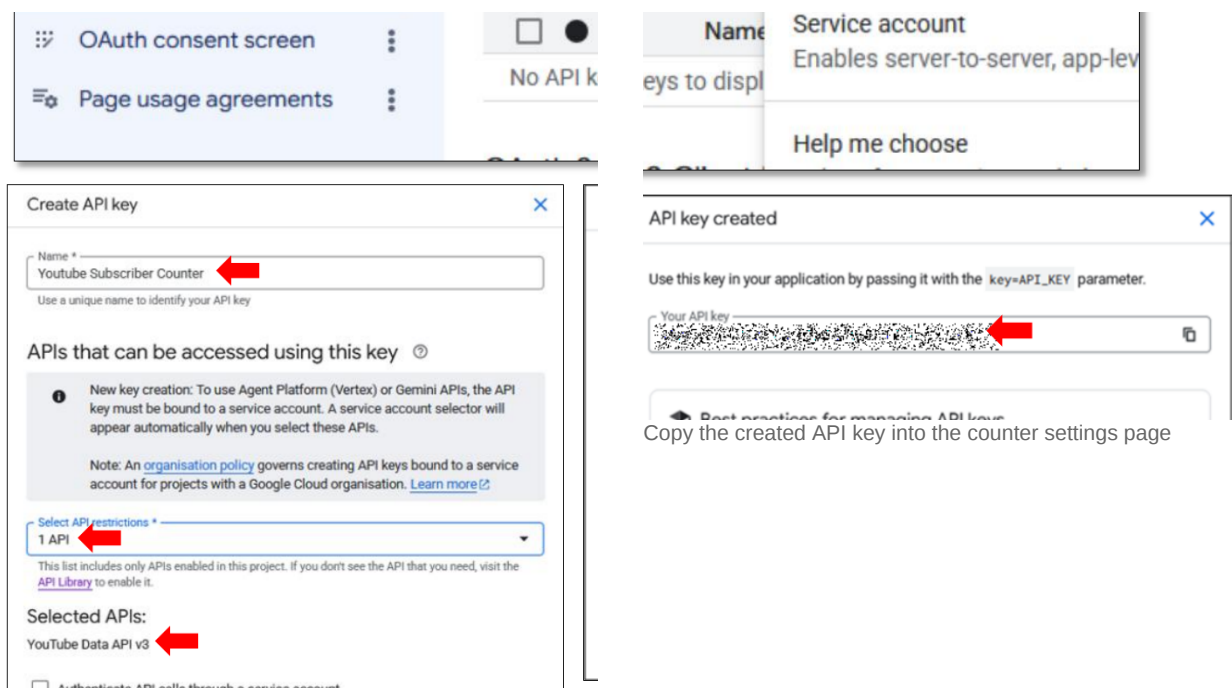
1. Open **APIs & Services**.
2. Open **Library**.
3. Search for **YouTube Data API v3**.
4. Open the API page and click **Enable**.

Step 3 - Create the API key



1. Open **APIs & Services > Credentials**.
2. Click **Create credentials**.
3. Choose **API key**.

5. API KEY RESTRICTION AND TROUBLESHOOTING



Optional but recommended: restrict the key to YouTube Data API v3

API key notes

- The API key is used to read YouTube data. It does not provide control of your YouTube channel.
- For better security and quota protection, restrict the key to YouTube Data API v3 when possible.
- Do not publish your personal API key in screenshots, source repositories or public project files.

Troubleshooting

Problem	What to check
Setup page does not open automatically	Open http://192.168.4.1 manually while connected to YTB-COUNTER.
ESP32 connects to the wrong router/extender	Return to AP mode and select the correct BSSID/channel entry, not only the SSID name.
IP works but ytb-counter.local does not	Use the IP address. Check multicast/mDNS/Bonjour support on the router or range extender.
YouTube Test fails	Check internet access, YouTube Data API v3, API key and Channel ID. Save settings before testing.
Wi-Fi password or SSID was changed	Return to AP mode and update the Wi-Fi settings.

Support / Project website

www.aytacgul.com
info@aytacgul.com