ESP32-CAM

Produktkode: 2055
Tilgjengelighet: 1
Custom Field 5 (Location): N 15

Pris: kr. 150,00

Short Description
ESP32-CAM WiFi Bluetooth Development Board OV2640 Camera Module For Arduino GW

Beskrivelse

Description:
The ESP32-CAM has a very competitive small-size camera module that can operate independently as a minimum system, measuring only 27*40.5*4.5mm, with deep sleep current and a minimum of 6mA.
ESP-32CAM can be widely used in various IoT applications. It is suitable for home smart devices, industrial wireless control, wireless monitoring, QR wireless identification, wireless positioning system signals and other IoT applications. It is an ideal solution for IoT applications.
ESP-32CAM is packaged in DIP and can be directly plugged into the backplane for quick production. It provides customers with a highly reliable connection method and is convenient for use in various IoT hardware terminals.

Features:
BU1508+BU1509
Low-power dual-core 32-bit CPU for application processors
Main frequency up to 240MHz, computing power up to 600 DMIPS
Built-in 520 KB SRAM, external 4M PSRAM
Supports interfaces such as UART/SPI/I2C/PWM/ADC/DAC

Support OV2640 and OV7670 cameras, built-in flash
Support image WiFi upload
Support TF card
Support multiple sleep modes
Embedded Lwip and FreeRTOS
Support STA/AP/STA+AP working mode
Support Smart Config/AirKiss one-click distribution network
Support secondary development

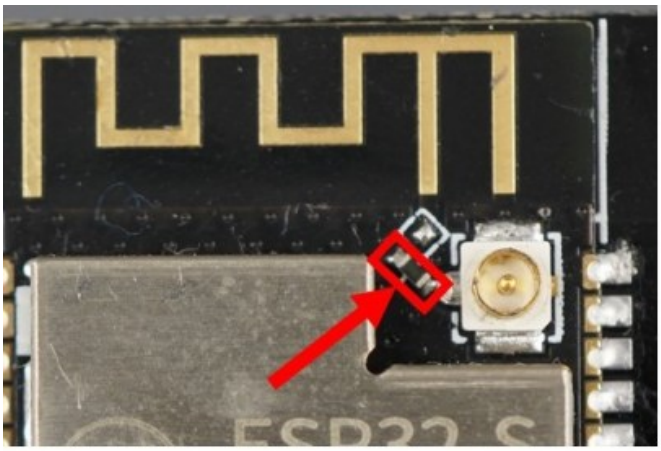
Note: This product contains the OV2640 Camera Module. If you need to use the OV7670 camera, please purchase it separately.

Package Included:
1 x ESP32-CAM Module
1 x Camera Module OV2640

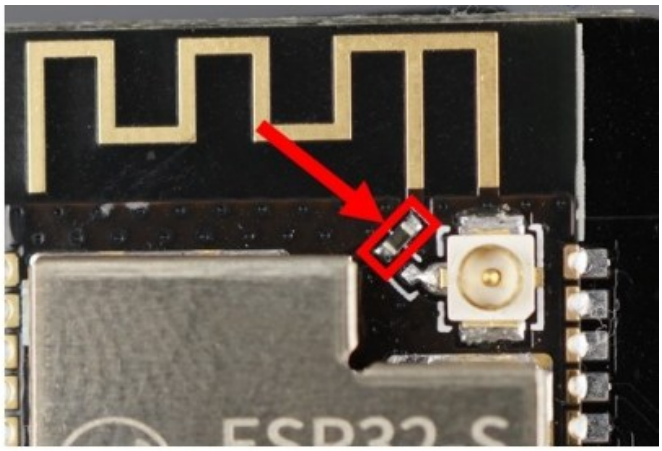
Ekstern antenne
The ESP32-CAM has the option to use either the built-in PCB antenna or an external antenna as the one shown in the following figure.

Next to the IPEX connector there are three little white squares laid out like a “<” with the middle position being common. There is a resistor selecting the desired antenna. Here’s the two configurations:

- To use the IPEX connector with an **external antenna**, the resistor must be on the bottom position, like this “\”. See illustration below;
- To use the PCB antenna (**on-board antenna**), the resistor must be on the top position, like this “/”.



External Antenna



On-board Antenna

Take a look at your board to see if it is set to use the on-board antenna or the IPEX connector. Using the on-board antenna works well if you are close to your router. We recommend using the IPEX connector with an external antenna for better results.

Projects with video streaming crash frequently when you don’t use an external antenna due to poor connectivity. So, make sure you get one to have your projects working reliably.

To enable or disable the on-board antenna, you just need to unsolder that resistor and solder it in the desired configuration. You can also drop some solder to connect those points (you don’t necessarily need to add the resistor as long as the pads are connected).

Note: You can’t use the two antennas at the same time, so you can only have one connection for the antenna.

Kilde: https://makeradvisor.com/tools/esp32-cam-external-antenna/

Teste signalstyrke

Testing the ESP32-CAM Wi-Fi Signal Strength

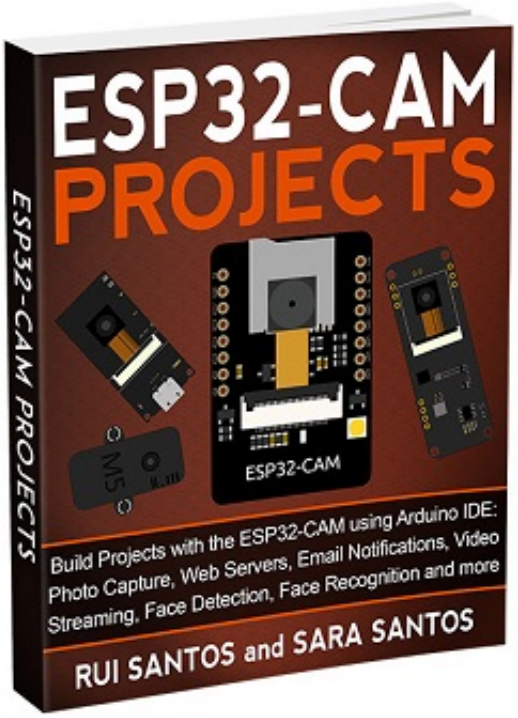
You can upload the following code to your ESP32-CAM boards to check the signal strength of the connection to the router (RSSI – Received Signal Strength Indication).

```
#include "WiFi.h"const char* ssid     = "REPLACE_WITH_YOUR_SSID";const char* password = "REPLACE_WITH_YOUR_PASSWORD";void setup(){  Serial.begin(115200);  WiFi.begin(ssid, password);  while (WiFi.status() != WL_CONNECTED) {    delay(500);  Serial.print(".");  }  Serial.println("");  Serial.println("WiFi connected.");  delay(100);}void loop(){  Serial.print("RSSI: ");  Serial.println(WiFi.RSSI());  delay(2000);}
```

When testing the signal strength, the closer the value to 0, the stronger the signal is.

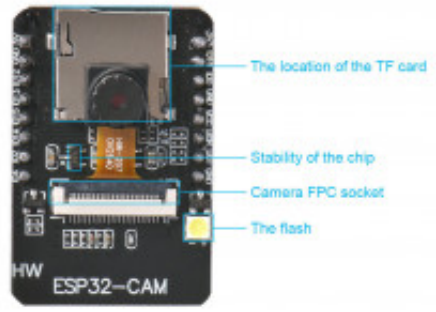
In our case, with a distance of approximately 5 meters (16.4 feet) to the router with obstacles in between (walls), we got the following results:

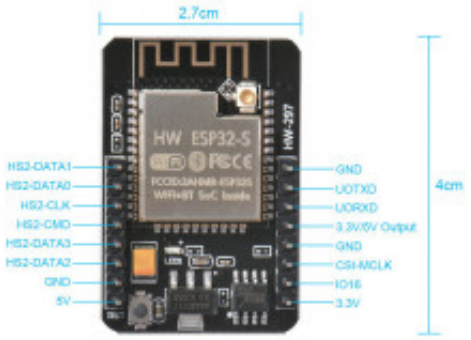
- ESP32-CAM *without antenna*: RSSI of approximately -60
- ESP32-CAM *with antenna*: RSSI of approximately -36



Product Gallery

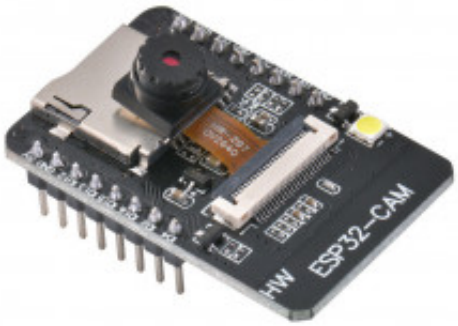
CAM	ESP32	SD	ESP32
D0	PIN5	CLK	PIN14
D1	PIN18	CMD	PIN15
D2	PIN19	DATA0	PIN2
D3	PIN21	DATA1/flash	PIN4
D4	PIN36	DATA2	PIN12
D5	PIN39	DATA3	PIN13
D6	PIN34		
D7	PIN35		
XCLK	PIN0		
PCLK	PIN22		
VSYNC	PIN25		
HREF	PIN23		
SDA	PIN26		
SCL	PIN27		
POWER PIN	PIN32		

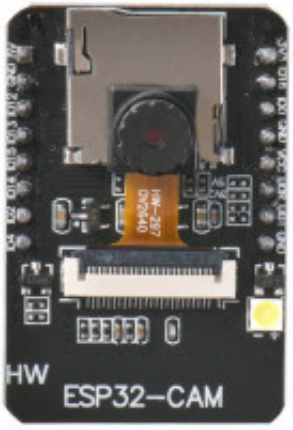

The location of the TF card
Stability of the chip
Camera FPC socket
The flash
HW
ESP32-CAM


2.7cm
4cm
HS2-DATA1
HS2-DATA0
HS2-CLK
HS2-CMD
HS2-DATA3
HS2-DATA2
GND
5V
GND
U0TXD
U0RXD
3.3V/5V Output
GND
CSI-MCLK
IO16
3.3V


ESP32-S module
IPEX antenna base
Tantalum capacitor
Reset button
PSRAM
Voltage chip


HW
ESP32-CAM


HW
ESP32-CAM



working environment		min value	typical value	max value	unit
operating ambient temperature	/	-40	20	85	℃
supply voltage	VDD	4.7	5	5.3	V

	min value	typical value	max value	unit
input frequency	2412	-	2484	MHz
input impedance value	-	50	-	ohm
input reflection value	-	-	-10	dB
PA output power	16.5	19.5	21.5	dBm

	condition	min value	typical value	max value	unit
RF transmit power	-	-	17.5	±1.5	dBm
RF power control range	-	-	25	-	dB
adjacent channel transmit power	F = FO + 10MHz	-	-14.5	-	dBm
	F = FO + 11 MHz	-	-12.7	-	dBm
	F = FO + 2 MHz	-	-44.3	-	dBm
	F = FO - 2 MHz	-	-38.7	-	dBm
	F = FO + 3 MHz	-	-40.2	-	dBm
	F = FO - 3 MHz	-	-44.7	-	dBm
	F = FO + > 3 MHz	-	-53	-	dBm
	F = FO - > 3 MHz	-	-53	-	dBm