Aideepen

ESP32-CAM
Operation Instruction

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Sincerely,
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Email: sales@aideepen.com
US Store: http://www.amazon.com/aideepen
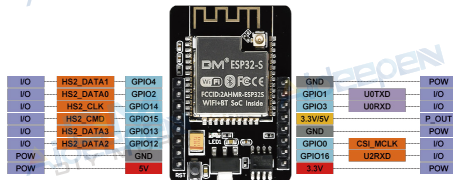JP Store: https://www.amazon.co.jp/s?k=aideepen

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ESP32-CAM

Product introduction

The ESP32-CAM enhanced version is a camera module with an external 8dBm high-gain dual-band antenna based on the original ESP32-CAM. The wireless communication distance is greatly improved, and the quality of the model is improved. The module can work independently as the smallest system, with a size of only 27*40.5*4.5mm, and a deep sleep current as low as 6mA. ESP32-CAM can be widely used in various IoT applications, 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. ESP32-CAM adopts DIP package and can be used directly by plugging in the bottom plate, realizing the rapid production of products, providing customers with high-reliability connection methods, and being convenient to apply to various IoT hardware terminal occasions. Ultra-small 802.11b/g/n Wi-Fi + BT/BLE SoC module

Product Features

Using low-power dual-core 32-bit CPU, can be used as an application processor
Main frequency up to 240MHz, computing power up to 600 DMIPS
Built-in 520 KB SRAM, external 4M PSRAM
Support UART/SPI/I2C/PWM/ADC/DAC and other interfaces
Support OV2640 and OV7670 cameras, built-in flash
Support picture 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 network configuration
Support secondary development

Pin name

Performance parameter

Module model	ESP32-CAM
Encapsulation	DIP-16
Size	27*40.5*4.5 (±0.2)mm
SPI Flash	Default 3Mbit
RAM	Internal 520KB + external 4M PSRAM
Bluetooth	Bluetooth 4.2 BR/EDR and BLE standards
Wi-fi	802.11 b/g/n/e/i
Support interface	UART, SP, 2c, PWM
Support TF Card	Maximum support 4G
10 ports	9
Series Rate	Default 115200bps
Image output format	JPEG (supported only by 0V2640), BMP, GRAYSCALE
Spectrum range	2412~2484MHZ
Antenna form	External sword-shaped dual-band antenna interface, gain 8dBi
Transmitting power	802.11b:17±2 dBm(@11Mbps) 802. 11g: 14±2 dbm(@54mbps) 802.11n:13±2 dBm(@MCS7)
Receiving sensitivity	CCK, 1 Mbps: -90dBm CCK, 11 Mbps: -85dBm 6 Nbps(1/2 BPSK): -88dBm 54 Mbps(3/4 64-QAM): -70dBm MCS7(65 Mbps, 72. 2 Mbps): -67dBm
Power waste	Turn off the flash: 180mA(@5V Turn on the flash and adjust the brightness to the maximum: 310mA@5V Deep-sleep: The lowest power consumption can reach 6mA@5V Modernsleep: The lowest power consumption can reach 20mA@5V Light-sleep: The lowest power consumption can reach 6.7mA@5V
Security	WPA/WPA2/WPA2-Enterpr i se/WPS
Power supply scope	5V
working temperature	-20℃~85℃
Storage environment	-40℃~90℃，<90%RH

RF311 specifications

1.Scope
This specification covers the construction and the electrical properties of wire.
2.Construction

Unit:mm

Item		Unit	Details
Conductor	Material	-	Silver codted copper wire
	Composition	(No,/mm)	7/0.08
	OD	mm	0.24
	Orientation	-	s
Insulation	Material	-	FEP
	Insulation color	-	Natural
	Nom.Thickness	mm	0.22
	OD	mm	0.69
Braid Shield	Material	-	Tinned copper wire
	Composition	(No./mm)	16/4/0.05
	Coverage	(%)	>=90
Jacket	Material	-	FEP
	Nom.Thickness	mm	0.12
	OD	mm	1.13±0.10

3.Electrical properties (at 20°C)

Item	Unit	Details
Conductor Resistance	Ω/km	571(Max.)
Insulation Resistance	MΩ·km	100(Min.)
Dielectric Strength(AC)	V / 1 Min	500
Impedance	Ω	50±3
Temperature	°C	200
Rated voltage	V	30

4.The wire section is shown below:
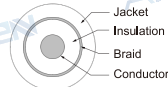
Electrical technical parameters

Electrical Specifications		Mechanical Specifications	
Frequency Range	2400~2500/5100~5800MHz	Antenna Color	Black
VSWR	≤2.0	Input connector	SMA MALE
Gain	8 DBI	Cable length	158mm
Input Impedance	50 Ω	Working Temperature	-40℃~+85℃
Maximum Input Power	50W	Working Humidity	20~80%

Secondary development support platform

Arduino : https://www.cnblogs.com/kekeoutlook/p/11042505.html
SDK : https://docs.espressif.com/projects/esp-idf/zh_CN/latest/esp32/get-started/index.html

Initial use instructions

1. The module comes with factory test firmware.
2. The first step for users to get it is to do a photo test, don't rush to burn other firmware.
3. The photo test steps are as follows:
  A. To power on the module, a power supply above 5V1A is required, otherwise text waves may appear.
  B. Turn on the WiFi function of the mobile phone or laptop to find the hotspot, and there will be a hotspot for ESP32-CAM.
  C. No password is required to connect to this hotspot.
  D. Open the mobile phone or laptop browser and enter 192.168.4.1/jpg. At this time, the module flash will light up, and the webpage will display the pictures taken, which proves that the hardware is OK. Then you can develop the functions you want again.

Application scenarios

Home smart device image transmission
Wireless monitoring
Smart agriculture
QR wireless recognition
DIY wireless image transmission

Diagram
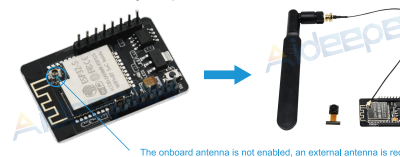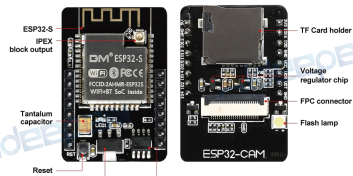
The onboard antenna is not enabled, an external antenna is required