

Camera Block

[View table of content.](#) [View table of content.](#)

How this block appears in a Simulink model?

[400](#)

What can be configured?

Block Parameters: Camera Block

esp32_camerablock (mask) (link)

This block can be used to capture still photos from the camera connected to ESP32 or live stream the camera feed over a TCP/IP network.

IMPORTANT: This block is to be used in conjunction with the [WIFI Setup] block to establish the preferred WIFI configuration. When setting up the WIFI block using STA mode, make sure to use a known IP address instead of using the auto assign feature.

IMPORTANT: When using this block in 'to Aimain Connect' stream mode please make sure to insert [Aimagin Connect] and [SD Card] blocks.

IMPORTANT: When using this block in 'to Matlab' stream mode the following URLs can be used to access the output:
 URL to capture still photos: http://[your ip address]:80/capture
 URL to live stream the camera feed: http://[your ip address]:81/stream

Stream Mode: to Matlab

Camera Configurations

Camera Module: AIMAGIN Camera

Camera Pins

PWDN	RESET	XCLK	SDA
32	-1	21	26
SCL	Y9	Y8	Y7
27	36	39	34
Y6	Y5	Y4	Y3
33	5	4	18
Y2	VSYNC	HREF	PCLK
19	25	23	22

Camera Settings

XCLK frequency(Hz): 20000000

LEDC TIMER: LEDC_TIMER_0

LEDC CHANNEL: LEDC_CHANNEL_0

Image Format: PIXFORMAT_JPEG

Frame Size: FRAMESIZE_QQVGA (160x120)

JPEG quality: 0-63 lower number means higher quality: 10

Number of frame buffers to be allocated. If more than one, then each frame will be acquired (double speed): 2

Sample time (sec): -1

Buttons: OK, Cancel, Help, Apply

Configuration Parameter	Selectable Option/Value	Description
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Stream mode	to Aimagin Connect--to Matlab--to Target	Select whether the camera feed should be streamed to Aimagin Connect, to Matlab Simulink or to Target ESP32.
Camera Module	AIMAGIN Camera--Custom Camera	Select the camera module.
Camera Pins		Enter the camera pin connections.
XCLK frequency (Hz)		Enter the clock frequency
LEDC TIMER		Enter the LEDC TIMER
LEDC CHANNEL		Enter the LEDC CHANNEL
Image Format	RGB565--YUV422--GRAYSCALE--JPEG--RGB888--RAW--RGB444--RGB555	Select the image format.
Frame Size	QQVGA--QCIF--HQVGA--QVGA--CIF--VGA--SVGA--XGA--SXGA--UXGA--QXGA	Select the frame size of the camera feed.
JPEG quality	0 to 63	Enter the required quality of the image.
Number of frame buffers to be allocated		Enter the number of buffer frames to be allocated.
Sample time (sec)	-1 (inherited) or specify	Specify the sample time

When to use this block?

This block can be used to stream the camera feed to,

- To Aimagin Connect.
- To Matlab Simulink.
- To the target ESP32.

How does this block work?

- Mode: to Aimagin Connect
A webapp should be created using Aimagin Connect website. Then the exported web-app should be transferred to the SD card connected to the ESP32.
- Mode: to Matlab Simulink
In order to stream to Matlab Simulink, 'esp32_camerablock_receiver' and 'esp32_host_setup' blocks should be used in the model file at the target computer.
- Mode: to Target ESP32
In this mode the camera feed can be processed within the ESP32 itself by enabling output ports in the esp32_camerablock.

Demo

[Camera demo](#)

Reference

This block is based on the [esp32-camera driver](#) by Espressif.

Previous : [vTaskDelay Block](#)

Next : [Mesh Setup](#)

Files

appearance.PNG	11.2 KB	20 Oct 2020	Vasitha Tilakumara (රාච්චි)
mask.PNG	112 KB	20 Oct 2020	Vasitha Tilakumara (රාච්චි)