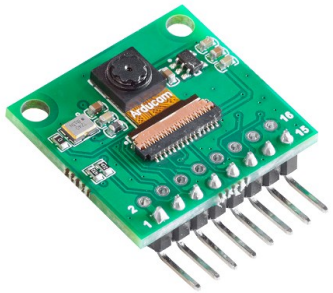
ArduCam

SPI Camera Module for Raspberry Pi Pico



QVGA HM01B0

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SPECS

Sensor	HM01B0
Max. Resolution	320 x 320
Pixel Size	3.6 µm x 3.6 µm
Full Image Area	1152 µm x 1152 µm
Optical Format	Diagonal 1.63 mm (1/11")
Color Filter Array	Monochrome and Bayer
Shutter Type	Electronic Rolling Shutter
Frame Rate	51 fps @ 320 x 320, 60 fps @ 320 x 240 (QVGA)
CRA (maximum)	30°
Supply Voltage	Analog 2.8 V, Digital 1.5V (Internal LDO: 1.5V – 2.8V), I/O 1.5 – 2.8V
Input Reference Clock	3 – 50 MHz
Serial Interface (I2C)	2-wire, 400 KHz max.
Video Data Interface	1b, 4b, with frame / line SYNC
Output Clock Rate MAX	50 MHz for 1bit, 12.5 MHz for 4bit
Est. Power Consumption (include IO with 5pF load)	QVGA 60FPS (Typical) <4 mW, QVGA 30FPS (Typical) <2 mW, QQVGA 30FPS (Typical) 670 µW

INTRODUCTION

About Arducam

Arducam has been a professional designer and manufacturer of SPI, MIPI, DVP and USB cameras since 2012. We also offer customized turnkey design and manufacturing solution services for customers who want their products to be unique.

About This QVGA Camera

Arducam HM01B0 is a camera module featuring ultra low power consumption, up to QVGA resolution, 1-bit video data interface and line sync. This, along with other specs makes it a perfect camera for building machine vision projects and Always on Service applications with energy-efficient MCUs. It's designed specifically for Raspberry Pi Pico and other third party RP2040 dev boards. It's also a built-in camera of Arducam Pico4ML.

About Customer Service

If you need our help or want to customize other models of Pico cameras, feel free to contact us at support@arducam.com.

Website: https://www.arducam.com/docs/pico/arducam-hm01b0-qvga-spi-camera-module-for-raspberry-pi-pico/

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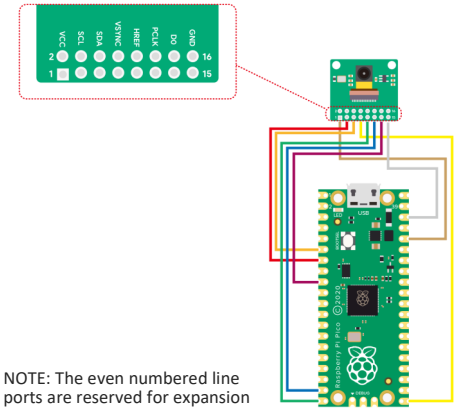
Pinout & Wiring

HM01B0	VCC	SCL	SDA	VSYNC	HREF	PCLK	DO	GND
PICO	3V3	GP5	GP4	GP16	GP15	GP14	GP6	GND



NOTE: The even numbered line ports are reserved for expansion

Software (Develop HM01B0 on Arduino IDE)

To facilitate copying, please refer to doc page: https://www.arducam.com/docs/pico/arducam-hm01b0-qvga-spi-camera-module-for-raspberry-pi-pico/
We will keep online up-to-date continuously.

1. Arduino Software installation

Please refer to the Arduino official guide:
https://www.arduino.cc/en/Guide

2. Installing via Arduino Boards Manager

2.1. Open the Arduino IDE and go to File->Preferences.

2.2. Input the following URL in the "Additional Boards Manager URLs" field in the dialog that pops up:

https://www.arducam.com/downloads/Pico/package_pico4ML_index.json

2.3. Click OK to close the dialog.

2.4. Go to Tools -> Boards -> Board Manager in the IDE.

2.5. Type "pico" in the search box and select "Add".

2.6. Select your development board "ArducamPico4ML". Make sure the development board is connected, and then select the port number "COM12 (ArducamPico4ML)"

NOTE: The port number will be different due to Arduino recognition.

2.7. Go to File -> Examples -> Camera -> HM01B0_USB

2.8. Click Download and wait for completion.

3. Processing Software Setup

3.1. Get Processing Script, git clone https://github.com/ArduCAM/RPI-Pico-Cam/blob/master/rp2040_hm01b0/display/preview.pde

3.2. Change the port number to the port recognized by Arduino in the script "COM12", and click the run button in the Processing software to preview imaging.

For more detailed tutorials of Processing software , you can refer to the following link:
https://processing.org/tutorials/