

microCAM

Serial Camera Module

μCAM-TTL/232



4D SYSTEMS
TURNING TECHNOLOGY INTO ART

MESSAGE FROM THE CEO

To our valued customers,

Thank you for your interest in 4D Systems and the products we have to offer.

We are constantly looking for ways to improve our customer experience and it is hoped that a Product Brief such as this, can instil confidence in choosing 4D Systems as your supplier of superior embedded electronic products.

We invite you to showcase our latest release and thank you again for your continued support.

Atilla Aknar
Founder & CEO

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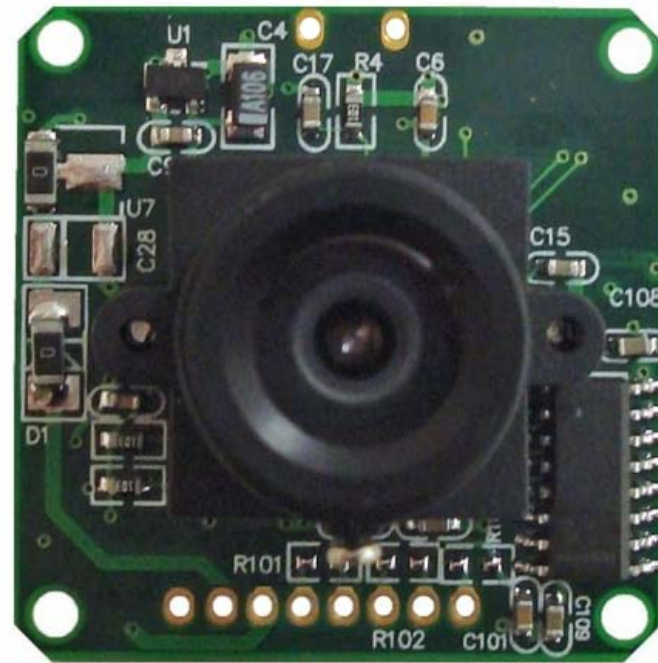
1. Overview of the μ CAM

The μ CAM (μ CAM-TTL or μ CAM-232) is a highly integrated serial camera module which can be attached to any host system that requires a video camera or a JPEG compressed still camera for embedded imaging applications.

The module uses an OmniVision CMOS VGA colour sensor along with a JPEG compression chip that provides a low cost and low powered camera system. The module has an on-board serial interface (TTL or RS232) that is suitable for a direct connection to any host micro-controller UART or a PC system COM port.

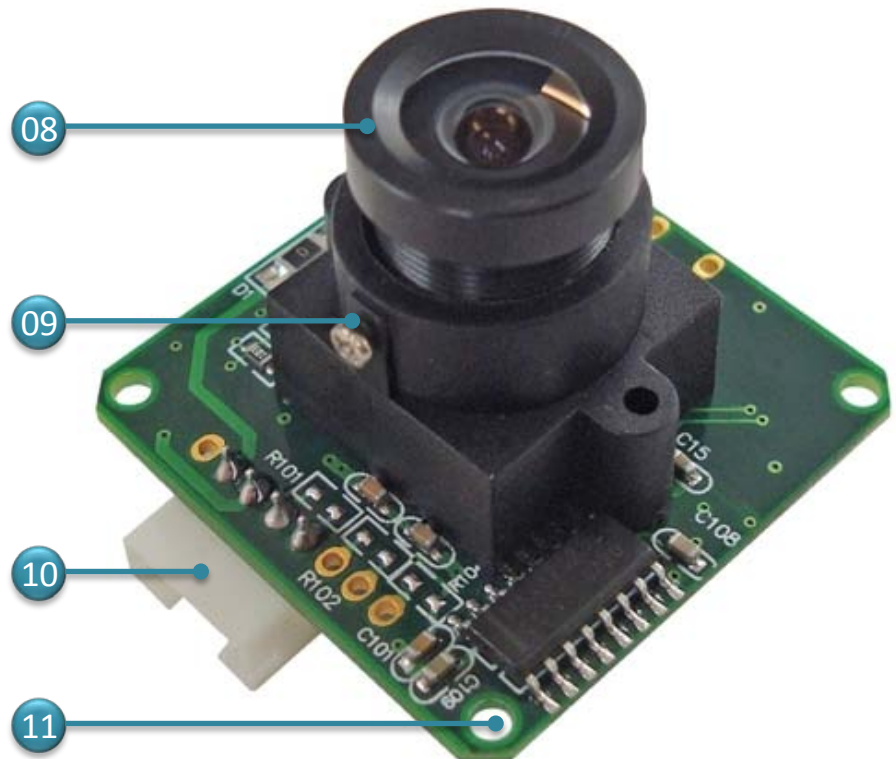
User commands are sent using a simple serial protocol that can instruct the camera to send low resolution (160x120 or 80x60) single frame raw images for a quick viewing or high resolution (640x480 or 320x240) JPEG images for storage or viewing.

The μ CAM comes in a compact form factor with a built in lens and a 4-wire connector that provides easy access to both power and serial data.



2. Module Features

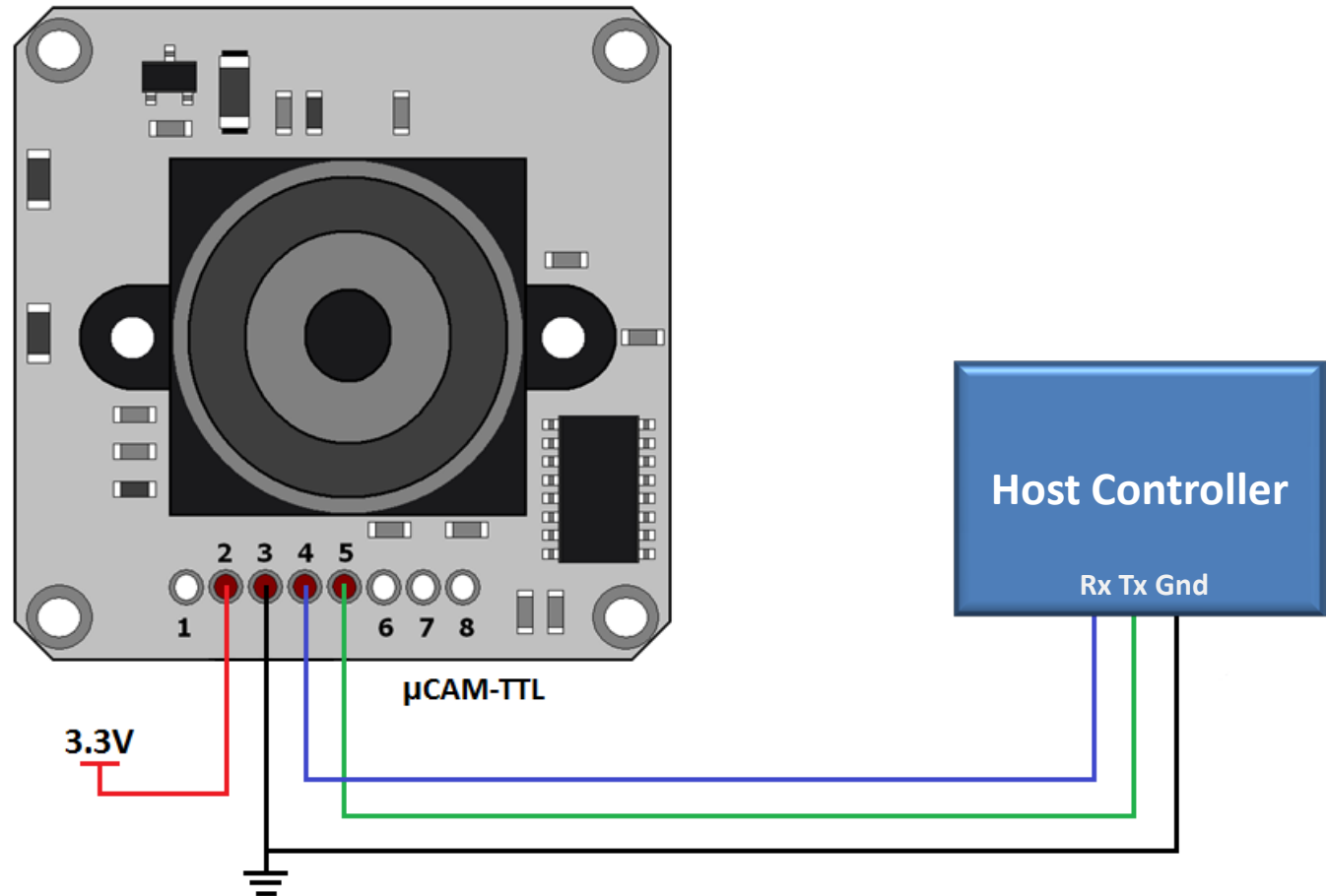
- 01 Powered by OmniVision OV7640/8 VGA colour sensor and JPEG CODEC for different resolutions.
- 02 DC Supply
 - **μCAM-232:** 5.0V
 - **μCAM-TTL:** 3.3V
- 03 Supports Raw Images from 80x60 to 640x480
- 04 Supports JPEG Images from 80x64 to 640x480
- 05 Serial UART Interface, Rx/Tx
- 06 Multiple Auto Baud Rates
- 07 Serial Baud Rates
 - **μCAM-232:** up to 115200bps
 - **μCAM-TTL:** up to 1.2Mbps
- 08 Supports **60°**, **90°** and **120°** Field of Vision lenses
- 09 Focus Adjustment
- 10 1 x 4 Pin Connector
- 11 4 x Mounting holes with 2.7mm Diameter
- 12 Light Weight at only ~ **11gm**



3. μ CAM Interface

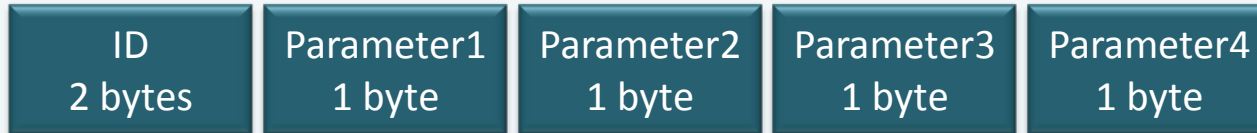
Getting started is as simple as connecting μ CAM with the Host Controller.

Note: Rx/Tx lines on the μ CAM-TTL support TTL signal levels whereas μ CAM-232 supports RS232 Signal levels.



4. μ CAM Command Set

μ CAM Protocol is pretty simple and straight forward,



Command	ID Number	Parameter1	Parameter2	Parameter3	Parameter4
INITIAL	AA01h	00h	Colour Type	RAW Resolution (Still Image only)	JPEG Resolution
GET PICTURE	AA04h	Picture Type	00h	00h	00h
SNAPSHOT	AA05h	Snapshot Type	Skip Frame (Low Byte)	Skip Frame (High Byte)	00h
SET PACKAGE SIZE	AA06h	08h	Package Size (Low Byte)	Package Size (High Byte)	00h
Set Baud Rate	AA07h	1 st Divider	2 nd Divider	00h	00h
RESET	AA08h	Reset Type	00h	00h	XXh*
DATA	AA0Ah	Data Type	Length Byte 0	Length Byte 1	Length Byte 2
SYNC	AA0Dh	00h	00h	00h	00h
ACK	AA0Eh	Command ID	ACK Counter	00h / Package ID Byte 0	00h / Package ID Byte 1
NAK	AA0Fh	00h	NAK Counter	Error Number	00h
LIGHT	AA13h	Frequency Type	00h	00h	00h

5. μ CAM Testing Platform

Workshop4 provides a test platform for the μ CAM to assist the application developer in testing and debugging the camera module. Testing μ CAM is as simple as connecting the camera module with the PC, opening 4D Workshop4 IDE and selecting the product from the list. The Test Platform also logs data sent and received through the serial port to help develop an understanding of the communication protocol.

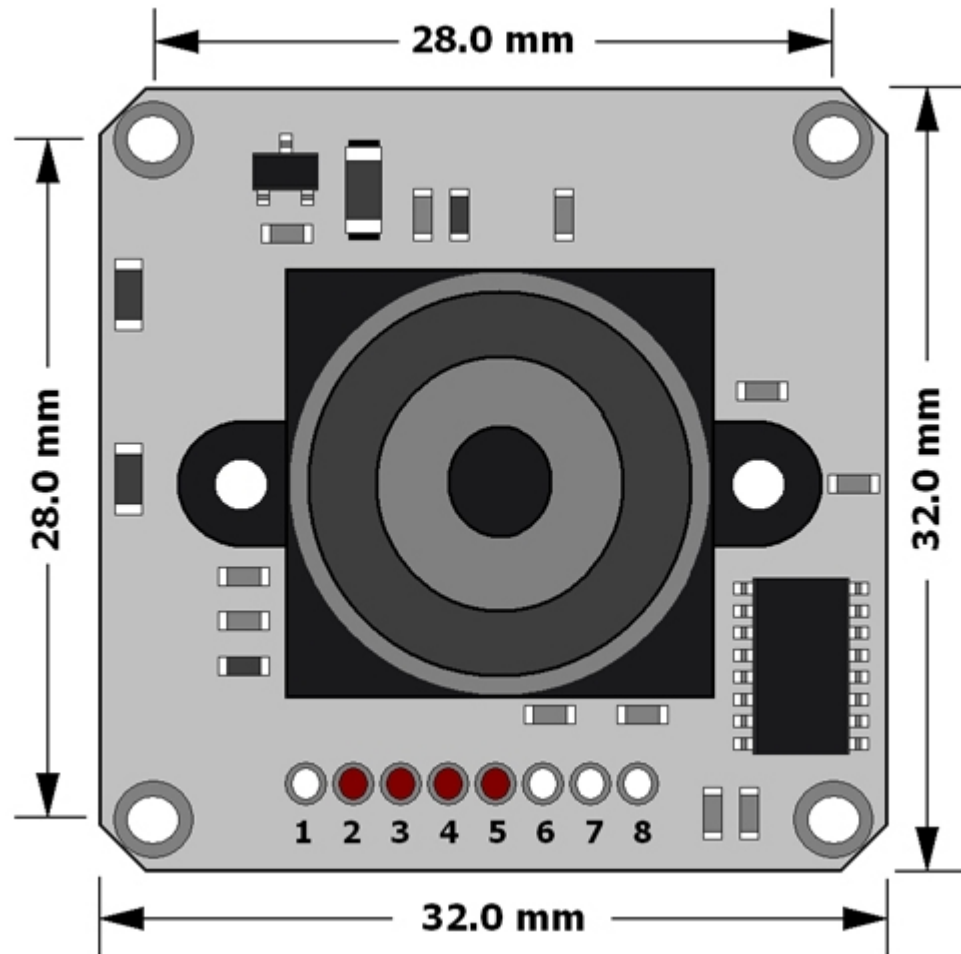


Serial UART Interface



6. Mechanical Dimensions

Weight
~11gm



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For additional information on the μ CAM, please refer to the μ CAM Datasheet or visit 4D Systems website at www.4dsystems.com.au

If you require specific help with a 4D Systems product, information can be sourced from the FAQ and relevant forum threads on the website, or by contacting a direct member of our Tech Support team at 4D Systems at support@4dsystems.com.au

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