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

Table of Contents

1. Overview of the µCAM

The **µCAM** (**µCAM-TTL or µCAM-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 **µCAM** 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

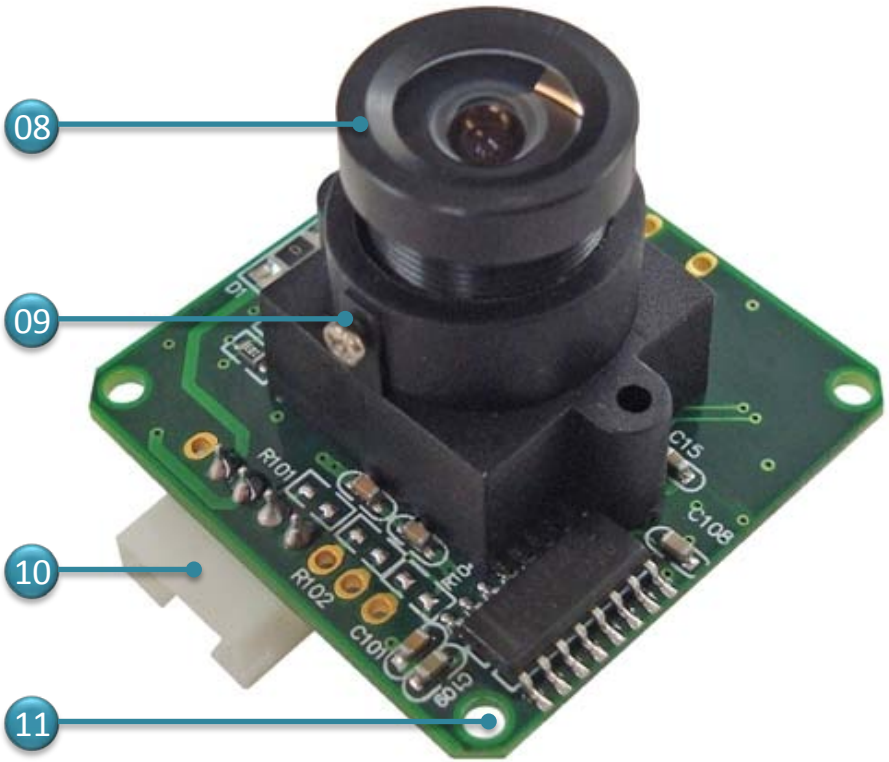
08 Supports **60º, 90º** and **120º** Field of Vision lenses

09 Focus Adjustment

10 1 x 4 Pin Connector

11 4 x Mounting holes with 2.7mm Diameter

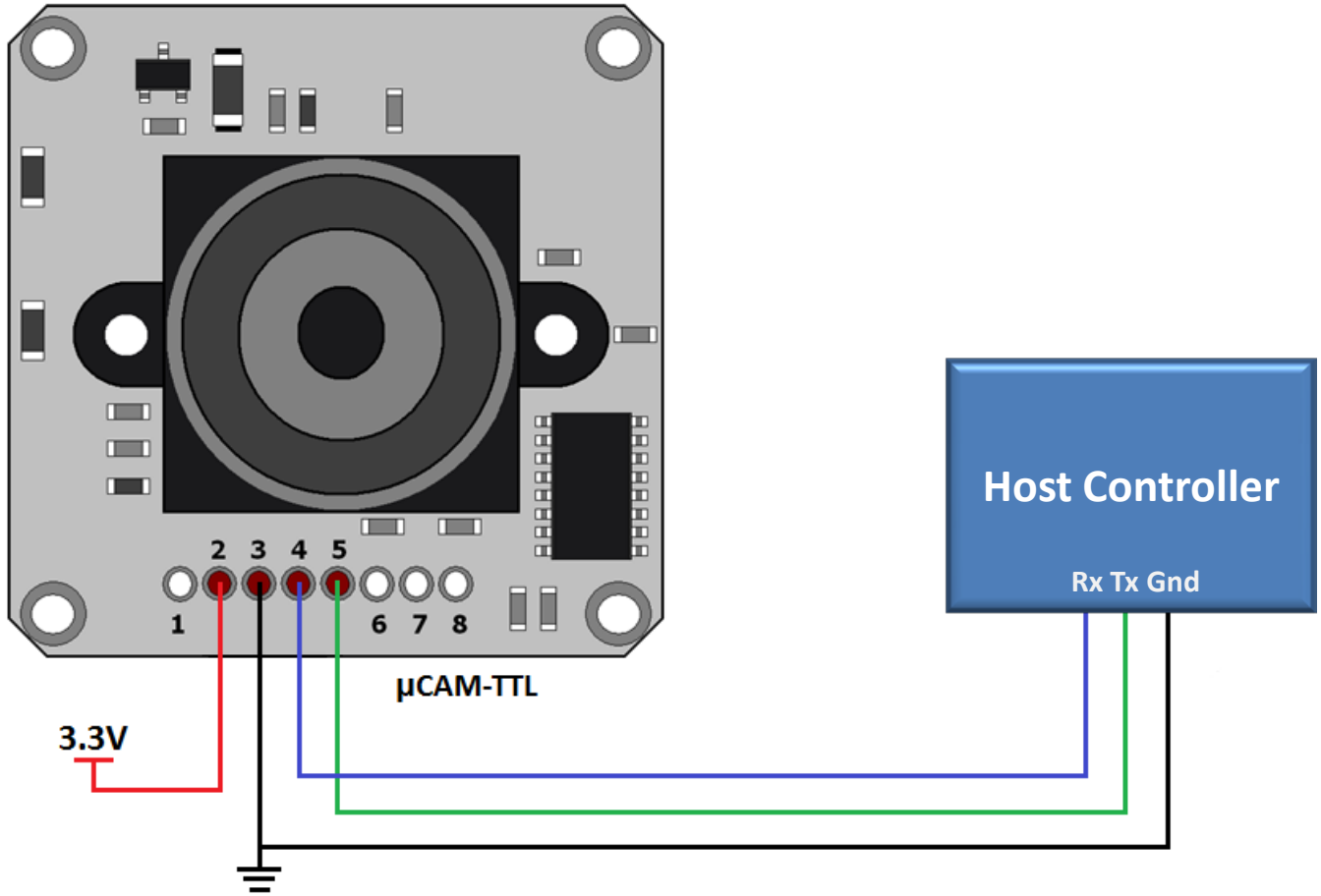
12 Light Weight at only ~ **11gm**



3. µCAM Interface

Getting started is as simple as connecting µCAM with the Host Controller.

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



4. µCAM Command Set

µCAM Protocol is pretty simple and straight forward,

ID 2 bytes	Parameter1 1 byte	Parameter2 1 byte	Parameter3 1 byte	Parameter4 1 byte

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	1st Divider	2nd 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

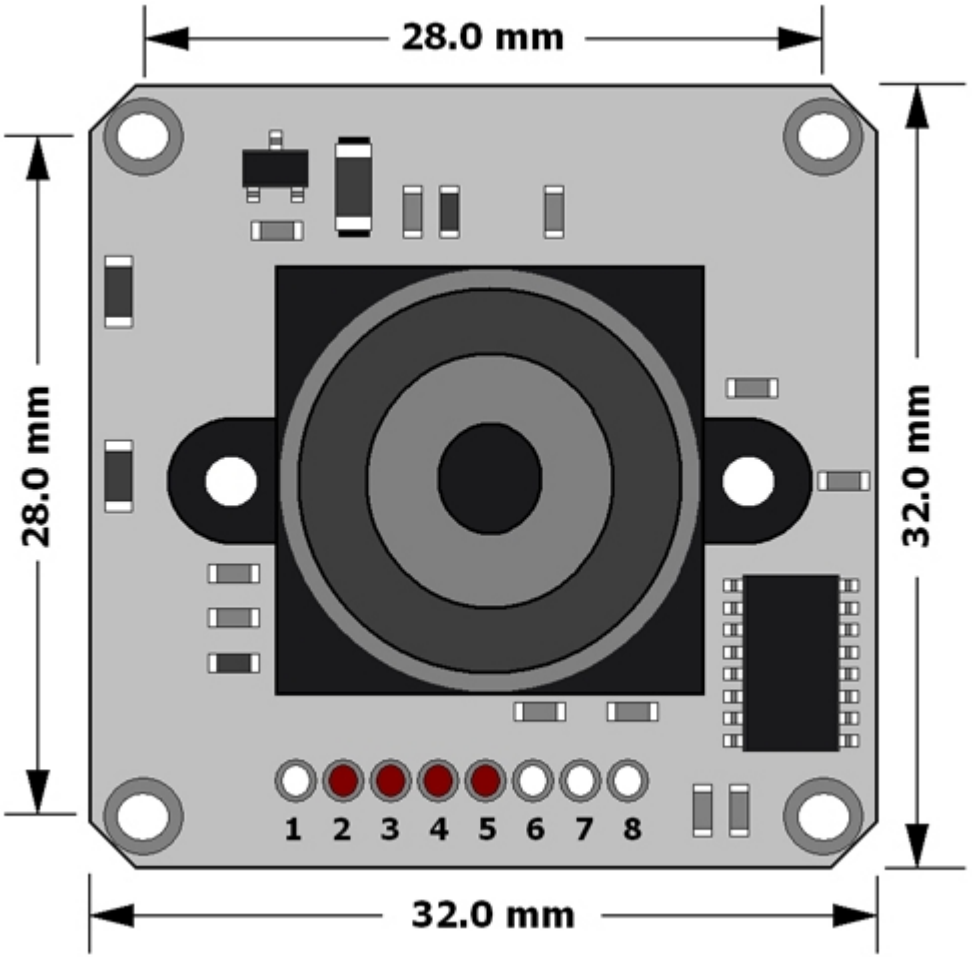
5. µCAM Testing Platform

Workshop4 provides a test platform for the µCAM to assist the application developer in testing and debugging the camera module. Testing µCAM 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.

6. Mechanical Dimensions

Weight

~11gm



Proprietary Information

Disclaimer of Warranties & Limitation of Liability

For additional information on the µCAM, please refer to the µCAM 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

For enquiries regarding sales, distributors, or business relations, please contact Sales at sales@4dsystems.com.au