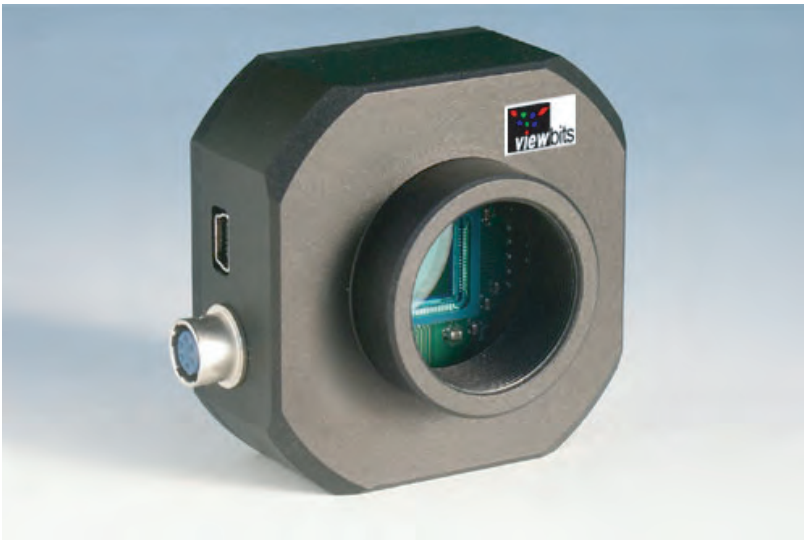# CMOS ULTIMA III™

A CMOS, 1.3 megapixel (1280x1024), 1/2 inch, Color, USB 2, Triggerable, Rugged, Lightweight, Industrial Vision Camera With a C Mount and Tripod Adapter.  It is designed for Inspection, Instrumentation, and Microscopy Applications. Comes with Direct Show (soon), Twain, and DLL support.



## Features

- 1280x1024 active imaging pixels

- High speeds using Pentium 4 CPU:
  - 74 fps at 800x600 (48 MHz)
  - 110 fps at 640x480 (48 MHz)
  - 179 fps at 400x400 (48 MHz)

- Low Noise

- External trigger output mode

- Rolling Shutter

- Small Size -- 2.25" x 2.25"

- Video and Snapshot operation

- USB 2.0 Interface

- Cost Effective

- Real time video acquisition

- No external power supply required

- Minimum cables

- Plug-n-play

- Less than 5 minutes to install

- CMOS sensor based on new Micron technology -- Micron Part Number MT9M001C12ST

- Integrated UV filter

## Applications

- Microscopy

- High resolution graphics capture

- Medical imaging

- Non-contact measurements

- Motion capture

- Photo ID systems

- Other industrial and scientific applications

## Overview

CMOS technology has advanced very rapidly in the last three years. Today it is preferred over CCD in most cases, except where low light conditions impact the lower sensitivity of CMOS sensors.  With their compact design and low power use, CMOS cameras take over segments of the imaging market where portability is an issue.  CMOS is particularly competitive wherever lighting is good and a compact low power use camera is desirable.

The **Ultima III** is a 1.3 megapixel USB 2 color camera that is designed for microscopy and other scientific applications where cost-effiency and ease of use are important.  The Viewbits family of products is designed to provide both accurate color as well as high resolution spatial information.  Current OEMs use this camera to inspect fruits, capture images for school ID badges, examine semiconductors, and more.

# ULTIMA III SPECIFICATIONS

## SAMPLE PICTURES

### Output Video and Camera Control Characteristics

| | |
|---|---|
| Maximum resolutions of output window: | 1280x1024, full resolution mode<br>640x512, decimated by 2 mode |
| Frame rate at resolution (48MHz): | 30 fps at 1280x1024, full resolution<br>74 fps at 800x600<br>80 fps at 768x576<br>110 fps at 640x480<br>179 FPS AT 400X400 |
| Maximum frame rate (48MHz): | 494 fps at 220x220 |
| Output bits per pixel: | 24 |
| Lookup table: | Downloadable, 10 bits of chip imaging ADC to 8 bits of output |
| Pixel rates: | 6.66 MHz, 8 MHz, 10 MHz, 12 MHz, 13.33 MHz, 16 MHz, 20 MHz, 24 MHz, 32 MHz, 40 MHz, 48 MHz |
| Exposure: | 0.03 - 40.31 ms (48MHz, 1280x1024, 1:1) |
| Pixel Gain Control: | Programmable (hardware), 48 gain levels from 1 to 15<br>Separate software gain controls for R, G, B: 48 gain levels from 1 to 15 |
| Output window modes: | View port (from 1280x1024 to 8x8 with 2 pixels/1 line step positioning)<br>Frame Decimation (1:1, 1:2, 1:4, 1:8)<br>Horizontal "mirroring"<br>Vertical "flipping" |
| Gamma, brightness and contrast control: | Programmable with lookup table, hardware gamma correction |

### Imaging Chip Characteristics

| | |
|---|---|
| Type: | Color 1.3 megapixel CMOS 1/2" sensor |
| Pixel Size: | 5.2 μm x 5.2 μm |
| Image Array Size: | 8.6mm diagonal |
| Shutter: | Rolling shutter |
| Scanning mode: | Progressive |
| ADC Resolution: | 10 bits |

viewbits
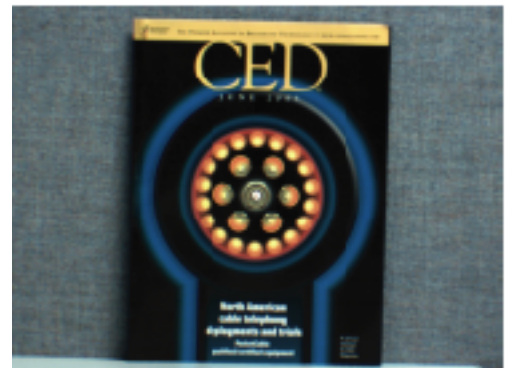
# ULTIMA III SPECIFICATIONS

## GUI's

### Camera Electrical Characteristics

| | |
|---|---|
| Supply Voltage: | 5 V supplied by USB 2.0 interface |
| Supply Current: | 456 mA (at 5.0 V) |
| Maximum Power Consumption: | 2.28 W |

### Camera Physical Characteristics

| | |
|---|---|
| Operating Temperature: | 0 to +50° C |
| Lens Mount Type: | C-mount |
| Weight, without lens: | 108 g |
| Dimensions, W x L x H: | 54.2 x 54.2 x 32.6 mm |
| Camera Housing material: | Duralumin |

### Camera Interface Characteristics

| | |
|---|---|
| Interface Type: | USB 2.0, 480Mbps |
| Connector Type: | USB mini-B, 5 pin |
| Maximum Data Rate: | 38.15 MBps |

### System Requirements

| | |
|---|---|
| Operating System: | Windows 2000 SP2 or Windows XP SP1 |
| Processor: | Pentium IV -- 1.8 GHz or greater |
| RAM: | 512 MB for Windows XP |
| Hard Disk Space: | 5 MB for installation plus additional space for captured images |
| Video: | 24 bit True Color, 8 MB video memory |

1 - housing body
2 - PCB
3 - housing cover

Units: mm

mini USB
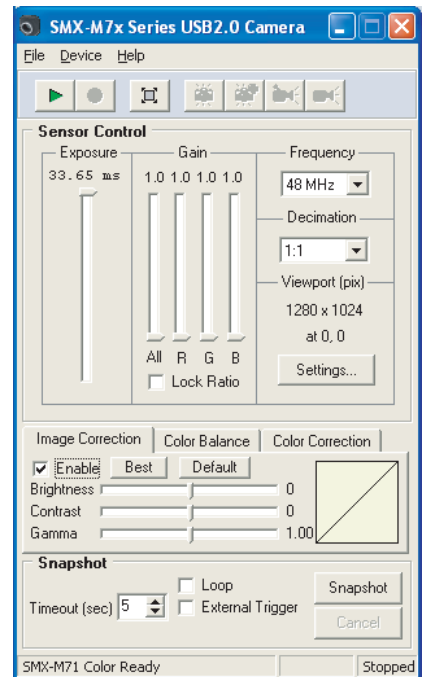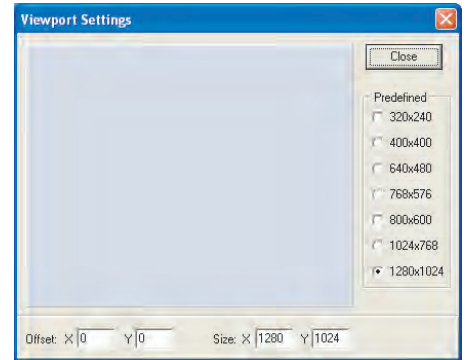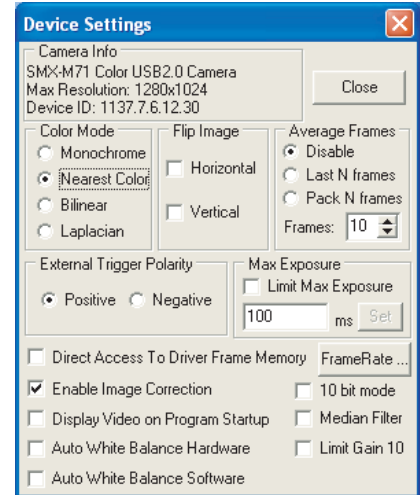
external connector
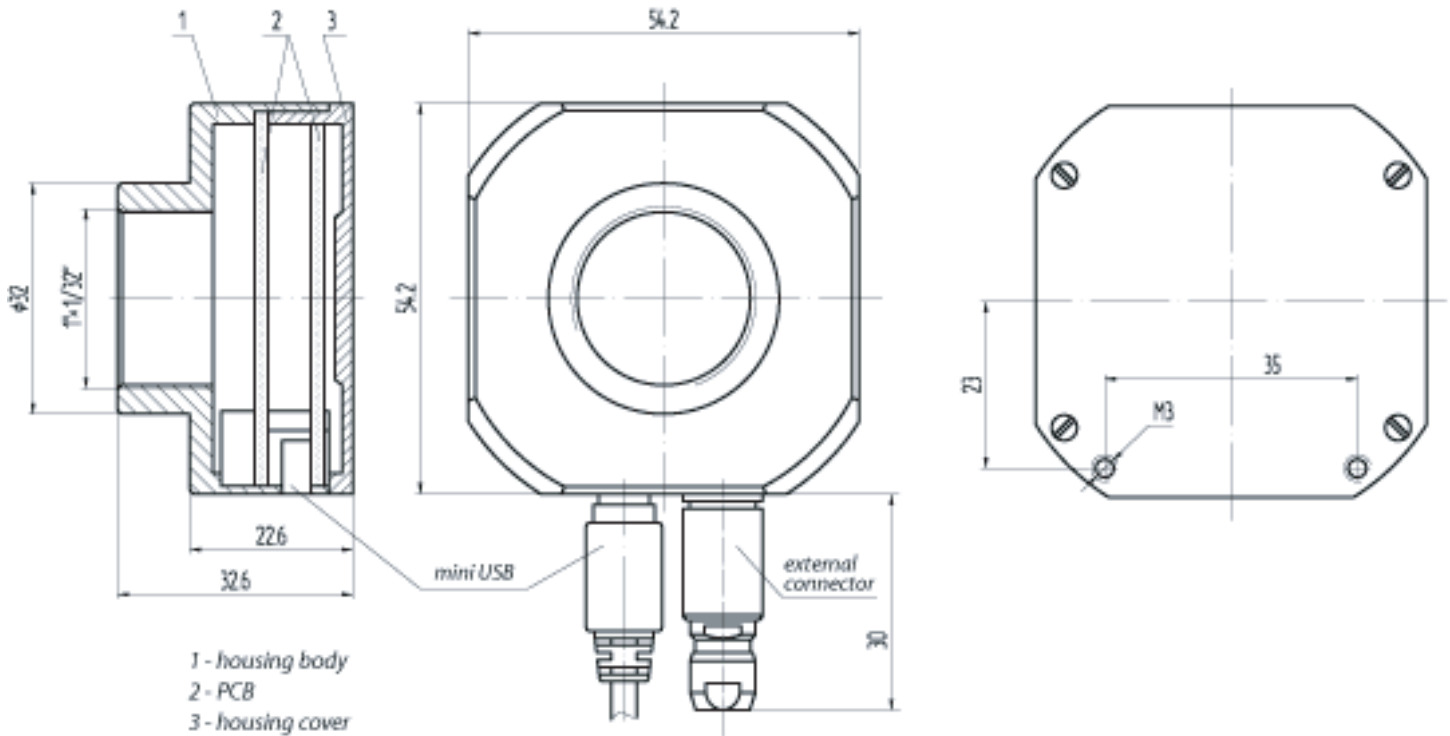
**External connector pinout**

| Pin# | Signal |
|------|--------|
| 1 | External trigger input (positive) |
| 2 | Frame start pulse output |
| 3 | Not used |
| 4 | External trigger input (negative) |
| 5 | Synchronous shutter start output |
| 6 | Common (GND) |

mini USB

external connector

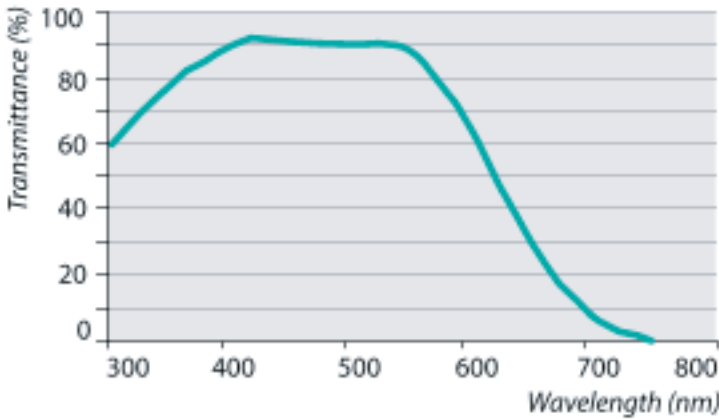viewbits
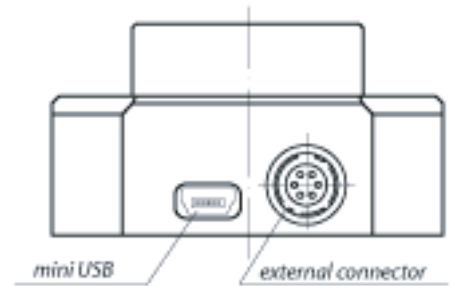
# CAMERA ACCESSORIES

### Tripod Adapter

The lightweight duralumin adapter with two screws allows quick and easy camera fixing to the tripod, offering additional protection to the camera.
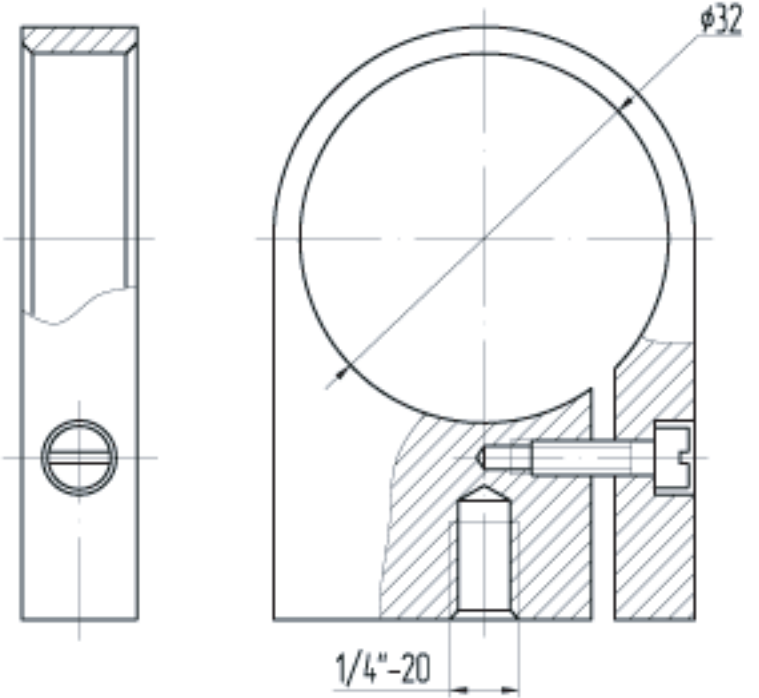
### Optional Infrared Filter

The infrared filter reduces infrared noise.
It filters out light above 650nm.

IR Filter Blocking Characteristic

### Camera Cable

Camera cable - is a USB A to Mini B cable. 3m or 5m length.

# ORDERING INFO

CMOS ULTIMA III
CMOS ULTIMA III WITH INFRARED FILTER

# QUICKSTART GUIDE

http://www.viewbits.com/pdf_files/UltimaIII%20Quickstart.pdf

viewbits