

April 17,2006

200FPS 0.36M pixels progressive
USB2.0 COLOR(BW) CMOS BoardCamera
(Global shutter)

ARTCAM-036MI-OP

INSTRUCTION BOOKLET

ARTRAY CO.,LTD.

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1. Description

ARTCAM-036MI-OP is a 1/3" CMOS color(BW) camera developed for built-in.
Image can be saved directly to your PC with high-speed transfer via USB2.0 interface.

2. Main Features

* Board lens

Board boulder allows use of board lens compatible with 1/3"

* Electric shutter

Shutter speed can be adjusted on software screen.
An object moving at high-speed can be captured by global shutter.

* Frame rate

By adjusting image size, ARTCAM-036MI-OP can be used as high speed camera.

VGA : 50FPS

Equivalent to QVGA : 200FPS (e.g. 640x120) *Impossible to change size in horizontal.

* Gain

"Gain" can be controlled from the PC.

* Offset

"Offset" can be controlled from the PC.

* B/W sensor camera

ARTCAM-036MI-BW-OP

3. List of Items

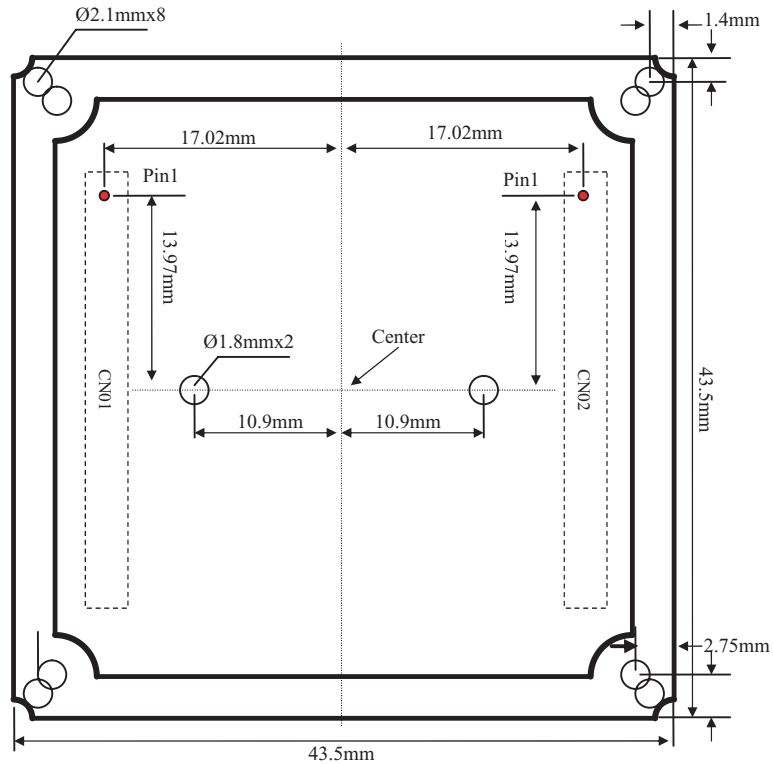
- | | |
|---------------------|---|
| 1) Camera | 1 |
| 2) 8mm board lens | 1 |
| 3) User Instruction | 1 |
| 4) Software CD | 1 |

《Option》

- 1)Filing & 2D measuring system
- 2)SDK(ARTCCM-SDK)
- 3)5.0m camera cable

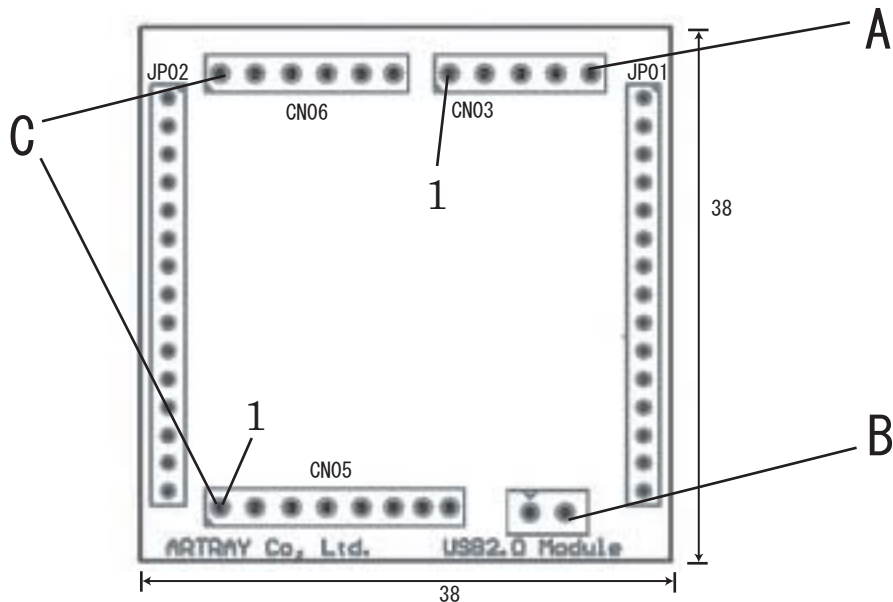
4. Position of Each Part

4-1 Frame for sensor Layout



For enclosure assembly, use 8 holes of $\phi 2.1$

4-2 Frame for control Layout



A. USB(CN03)

:USB2.0 interface conector

- 1 : Power supply +5V Red
- 2 : Data D- White
- 3 : Data D+ Green
- 4 : Power supply GND Black

Connector cable JAE PS-5SD-S4C2

B. TRG (CN04)

1. +, 2.- : Applied voltage +12V-24V

Connector cable JAE PS-2SD-S4C2

C. Extended connector

(not used in standard settings)

7. Specifications of camera

	ARTCAM-036MI-OP
1. Image pick up device	1/3"CMOS
2. Color method	Single-panel CMOS color method
3. Max. resolution	0.36M pixel
4. Lens size	1/3"format
5. Soan mode	Progressive
6. Pixel size	6.0 μ m x 6.0 μ m (4.51 x 2.88 pixel areas)
7. S/N ratio	54dB
8. Sensitivity	2.0V/Lux-sec(550nm)
9. Electric shutter mode	Manual 1/30-1/20000, Global shutter
10. White balance	Manual/auto, switchable
11. Synchro system	Internal syschro
12. Flange back	Manual adjustment
13. Lens mount	
14. Offset	Manual adjustment
15. Gain	Manual adjustment
16. Power supply	DC5V (SELV)
17. Power condensing	2.0W approx
18. Ambient temperature and humidity	0-35°C(recommended), 80%(non-condensing)
19. Dimension and weight	43.5(W) x 43.5(H) x 30.0(D)mm,24g approx

Electric characteristics

NO	Parameter	SPEC	Comment	Remark
1	Power	+5V 0.4A		supplied by USB port
2	Shutter control	Manual adjustment		software control
3	Gain control	Manual adjustment		software control
4	S/N ratio	54dB		
5	γ characteristics	1.0 fixed		
6	Power consumption	<2.0W		
7	Image interface	USB2, digital output		

Image pick up device

NO	Parameter	SPEC	Comment	Remark
1	Imager	MI9V022		
2	Optical size	Equivalent to 1/3"		
3	Total resolution			
4	Max resolution	752 x 480		
5	Pixel size	6.0 x 6.0 um		
6	Sensitivity	2.0V/Lux-sec(550nm)		
7	IR cutting filter	color:have		

Physical specifications

NO	Parameter	SPEC	Comment	Remark
1	Lens	Board lens		
2	Max weight	24g (with cable)		
3	Dimension	43.5 x 43.5 x 30mm		
4				

Operating environment

NO	Parameter	SPEC	Comment	Remark
1	Operating temperature	-10-50°C (10-95%RH、non-condensing)		
2	Storage temperature	-35-80°C (10-95%RH、non-condensing)		
3	MTBF	70K hours(at 60°C)		
4	EMI	EN61000-6-4		
5	EMS	EN61000-6-2		
6	Vibration	Acceleration:29.4M/S Frequency:5-200Hz Sweep cycle:10min Test time: Ups and down 2h Left and right 2h Back and fourth 2h Task OK		

Technical standard

NO	Parameter	SPEC	Comment	Remark
1	UL approved	Materials used in wiring are compliant with UL. Storage temperature (10-95%RH, non-condensing)		
2	CE			

<<System requirements>>

PCs which use south-bridge of ICH4, ICH5 and ICH6 are recommended

*CPU: Pentium4 1.7GHz or higher

Embedded USB2.0 port (PCI/PCMCIA USB2.0 ports are not compliant)

*Memory 512MB or higher

*OS Windows 2000(SP4)/XP(SP1)

ARTRAY CO.,LTD.

5F Ueno bldg, 1-17-5 Kouenjikota Suginami-ku,

Tokyo 166-0002 Japan

Tel:(81)3(3389)5488 Fax:(81)3(3389)5486

Email: artray@artray.co.jp

URL: <http://www.artray.co.jp>

Refer to the restrictions below when using ARTCAM/ARTCNV

1. USB host chip

Use the USB host chip which is Intel authorized USB2 host controller.

Make sure if you find "Intel®82801DB/DBM USB2 ENHANCED HOST CONTROLLER" on USB Controller window according to the following procedure.

"Control Panel" -> "Hardware" -> "Device Manager" -> "USB Controller"

NOTICE: We cannot guarantee the proper operation of this camera/converter when you use the external USB host card due to its design and its transfer rate. The transfer speed is slow because it is connected to host via PCI bus. In case of using ARTCNV, color transfer is not available. (Only Monochrome.)

2. Hyper Thread Bios

Disable this function in case of PC with a built-in Intel hyper thread.

3. With the other USB2.0 hardware

You may be unable to use the other USB2.0 hardware such as Memory stick, External HDD, External DVD, CDROM and etc. when you use this camera/converter due to bulk transfer mode of this camera/converter.

It is because bulk transfer device is not recognized, especially in case of Cypress control chip, due to handshaking of USB port and PC bios.

It is hard to solve this matter for the reason that it is related to the lower firmware of control chip and PC bios.

As a recommended measure, add PCI USB host card on PC and use its USB ports for the external USB hardware.

4. Extension of USB2.0 cable

We cannot guarantee the proper operation of the extension cable even though it is compatible with USB2.0 except the extension cables below we have confirmed its proper operation because USB transfer frequency of this camera is 192MHz.

For the recommended extension cable, we refer you to our sales dep't. (TEL: +81-3-3389-5488)

In case of the trouble using the extension cable, you may have "Camera error", "Disappearance of Device driver", " Operation error in high-speed mode", "Unknown USB device" and etc.