9.0M pixels progressive
USB3.0 COLOR CMOS CAMERA

ARTCAM-900MI-USB3

INSTRUCTION MANUAL

Contents

1. Description

ARTCAM-900MI-USB3 is a 1/2.3" CMOS color camera developed for industrial use.
Image can be saved directly to your PC with high-speed transfer via USB3.0 interface.

2. Main Features

* High sensitivity and high resolution
  Max.resolution of 3488 x 2616 pixels. Image size can be altered.

* Flange-back adjustment
  With Artray's original mechanism, flange-back is adjustable while real-time image is displayed.

* Electric shutter
  Shutter speed can be adjusted on software screen.

* Frame rate
  9.7 fps (Full 3488*2616)

*About Gain Control
  This camera has the function to set detail of gain control.
  Initial Gain: Basic value of analog gain.
  Analog Gain: Magnification against initial gain
  Digital Gain: Magnification of digital gain
  Color Gain: There are 4 kinds of colors
           – R, G1, G2, B. Each color has above 3 kinds of gain controls.
  Global Gain: control all above color gain same time.

Each calculation method is as below:	Setting Range
Initial Gain = Initial Gain setting value / 32	0～127
Analog Gain = AnalogGain setting value * InitialGain	1、2、3、4、or 6
Digital Gain = Analog Gain * Digital Gain Setting Value	1～7

* Sub-sampling function・Binning
  "Sub-sampling function" (which maintains the same image size while roughing
  image quality) is available.This will increase the fame rate.

  While binning mode is set, resolution setting has lower limit.

  While 1/2 binning is set:
      Output resolution 640 * 480 (Effective pixels at SDK setting is 1280 * 960)

  While 1/4 binning is set:
      Output resolution 400 * 300 (Effective pixels at SDK setting is 1600 * 1200)

  If you set up smaller range than above range, image would be not output normally.

  At normal viewer mode: lower limit is 120x4

3. List of Items

1) Camera   1 （equipped with tripod breaket, but not lens）
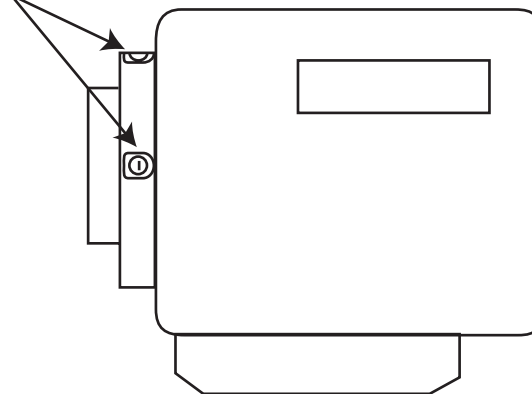2) User Instruction   1
3) Software CD   1

《Option》
1) Filing & 2D measuring system
2) SDK(ARTCCM-SDK)

4. Position of Each Part

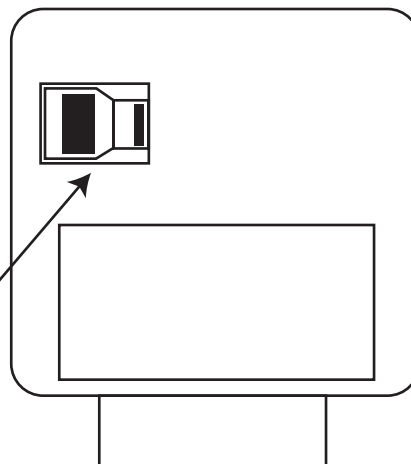## 4-1 Side panel

Flange-back adjustment screw

|Caution|
     Do NOT remove the cover. This may break camera or cause static electricity.

4-2 Back panel

USB
     :USB3.0 interface
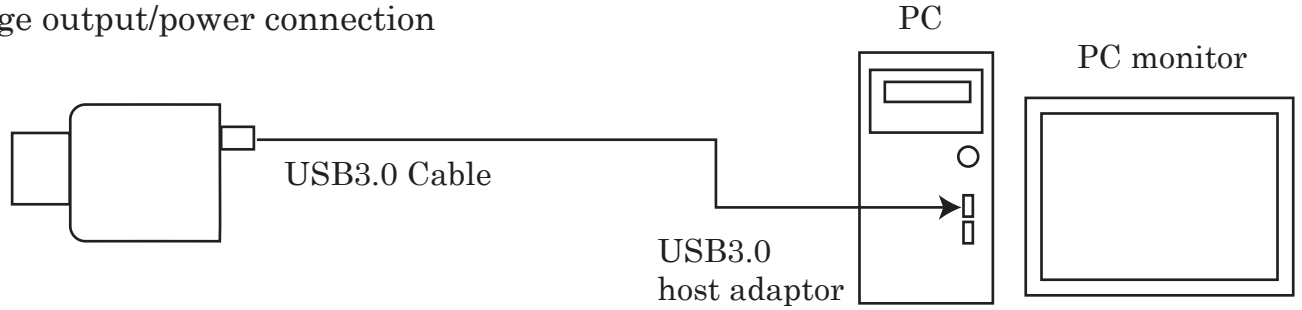
5. Functions and operation

5-1 Selection of lens
The mount of lens is C-mount.
C-mount fixing screw is installed in the camera.

5-2 Camera connection
Image output/power connection

PC

PC monitor

USB3.0 Cable

USB3.0
host adaptor

6.Dimension

36. 5

48

M2

4   4

50

R5

47

9

30

3. 3   56

1

ARTRAY

Focus ring

43

2. 5

14

12   11

1/4-20UNC

M6   M6

M2. 6 × 8   M2. 6 × 6

20

26. 35

22

37

M2. 6

4   14
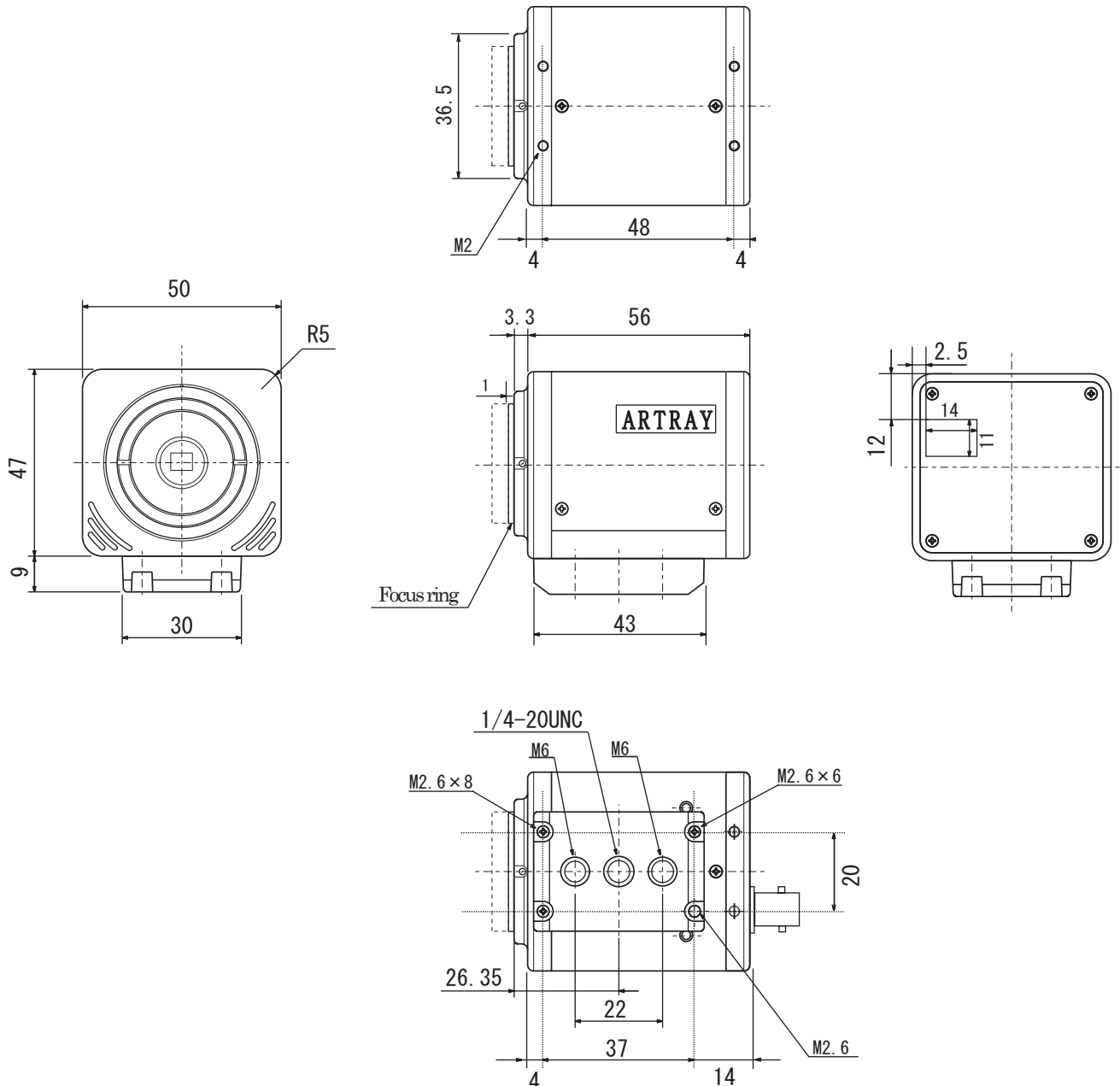
ARTCAM-900MI-USB3

7. Specification

7-1 Specifications of camera

		ARTCAM-900MI-USB3
1.	Image Senser	1/2.3"CMOS
2.	Color mothod	Single-panel CMOS color method
3.	Max. resoluion	9.0M pixel
4.	Lens size	1/2.3"format
5.	Soan mode	Progressive
6.	Pixel size	1.75μm x 1.75μm(6.104×4.578mm pixel areas)
7.	S/N ratio	35dB
8.	Sensitivity	0.44V/Lux-sec(550nm)
9.	Electric shutter mode	Manual
10.	White balance	Manual/auto, switchable by the software
11.	Synchro system	Only Internal syschro
12.	Flange back	Manual adjustment (C Mount is adjusted already)
13.	Lens mount	C mount (Lens is NOT attached)
14.	Offset	
15.	Gain	Manual adjustment, adjustable by the software
16.	Power supply	DC+5V (Provided by USB bus power)
17.	Power condensing	2.0W approx
18.	Ambient temperature and humiding	0-35℃(recommended), 80%(non-condensing)
19.	Dimension and weight	50(W)×56(H)×59.3(D)mm

7-2 Electric characteristics

	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	35dB		
5.	γcharacteristics	1.0 fixed		
6.	Power consumption	<2.0W		
7.	Image interface	USB3, digital output		

7-3　Image Sensor

	Parameter	SPEC	Comment	Remark
1.	Imager	MT9P001		
2.	Optical size	Equivalent to 1/2.3"		
3.	Total resolution			
4.	Max resolution	3488 x 2616		
5.	Pixel size	1.75 x 1.75μm		
6.	Sensitivity	0.44V/Lux-sec(550nm)		
7.	IR cutting filter	Color: Have		

7-4　Physical specifications

	Parameter	SPEC	Comment	Remark
1.	Lens	In accordance with C mount		
2.	Max weight			
3.	Dimension	50 x 56 x 59.3mm		
4.	Material of enclosure	Aluminium		

7-5　Operating environment

	Parameter	SPEC	Comment	Remark
1.	Operating temperature	-10-50℃ (10-95%RH、non-condesing)		
2.	Storage temperature	-35-80℃ (10-95%RH、non-condesing)		
3.	MTBF	70K hours(at 60℃)		
4.	EMI	EN61000-6-4		
5.	EMS	EN61000-6-2		
6.	Vibration proof	Acceleration: 5.0G Frequency: 11～200Hz Sweep cycle: 300sec Test time: Ups and down　　10min Left and right　　10min Back and fouth　　10min Tesk OK		
7.	Shock proof	Endure shock of maximum 50G from direction XYZ. Unpacked condition		

7-6 Technical standard

	Parameter	SPEC	Comment	Remark
1.	UL approved	Materials used in wiring are compliant with UL. Storage temperature (10-95%RH, non-condensing)		
2.	CE	Soon to conform		

<<System requirements>>
*CPU: Pentium4 above 2.4GHz
  USB3.0 Interface Equipped.
*Free memory: above 1GHz
*OS Windows XP / Vista / 7