

# CameraLink InGaAs Camera

## ARTCAM-130SWIR INSTRUCTION BOOKLET

1.3M PIXELS

ARTCAM-130SWIR

**<<Provisional Version>>**

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# 1. Attention

## ■About the Manual

1. Before using the camera, please read this manual thoroughly and use the camera properly.
2. Please keep this manual reachable and always refer to the contents when needed.
3. Please contact us if the manual is lost or damaged. We will provide a replacement. Our contact address is written in the end of this booklet.
4. We cannot guarantee the safety of improper uses of the camera.
5. For your safety, please follow the directions of this manual.
6. All contents are subject to change.
7. Images in this manual may have been simplified for easier comprehension.
8. Please contact us if you find any unclear points or mistakes in this manual. Our contact address is written in the end of this booklet.
9. Quoting, copying or altering some or all parts of the manual without our permission is prohibited.
10. We are not responsible for any losses or damages on your profits due to the use of our products.
11. Please understand that our oversea branches do not provide maintenance or repair services.

## ■About the Icons

To keep the safety of users, other people and their properties, please pay attention to the following icons.



### Warning

If users fail to follow the instruction, physical injury on people or damage on hardware may occur.



### Caution

If users fail to follow the instruction, serious injury or death may occur.

#### ■For Safety Use



## Warning

- In following circumstances, please stop using the product and turn off the power immediately to prevent the risks of fires and electric shocks. If the product is defective, please contact us for repair or exchange. Our contact address is written in the end of this booklet. For your safety, please do not disassemble, modify or repair the camera on your own.

Please stop using the product and turn off the power immediately when:

- The camera emits smoke or gets extremely hot on the surface, or gives unusual smells or sounds.
  - Extraneous material or water gets into the product.
  - The product falls and gets damaged.
- Do not place the product on unstable surfaces. The product may fall and cause people hurt.



## Caution

- Do not expose the product to steam or fumes to avoid electric shocks and fires.
- Do not leave the product in heated places such as near fire, inside of vehicles or under the direct sunlight. High temperature may cause damages to the camera, or even cause fires.
- Do not cover the product with cloths or other materials. The product may get extremely hot and the heat may cause deformation on the parts or even cause fires.
- Please avoid dropping or giving shock on the product as the product may be damaged.
- Do not touch the cable with a wet hand. Such action may cause electric shocks.
- When the camera is working, please avoid touching the surface of the camera for a long while. The surface temperature of the camera may cause burns.

#### ■Other Notices

- Please do not use the camera under strong lights such as sun light for a long while. Also, please do not expose the camera under strong lights even when the product is not being used because the sensor might get damaged.

#### ■Maintenance

- Wipe the dirt off the surface with soft cloth or tissue paper. Do not use alcohol, thinner or benzene to avoid deforming the camera or damaging the surface paint.

#### ■Electro Magnetic Interference

- The camera may interfere with electronic devices such as TV and radio. Please do not place the camera next to such equipment.

#### ■Export Control

This product is a List Control item subject to the Foreign Exchange and Foreign Trade Act and its relevant legislations No.1 10(2) and (4). To export this product from Japan, obtaining export licenses from the Ministry of Economy, Trade and Industry is required. It is also necessary for our company to grasp the information of users and the purposes of use. If the end users or purposes of use change after the purchase and thus cause the need to apply for export licenses from Ministry of Economy, Trade and Industry, please contact the sales representative in advance.

This camera shouldn't be exported to the countries below:

- a. Belorussia, Bolivia, Cuba, Eritrea, Iran, Lebanon, Libya, Malaysia, Mauritania, Myanmar, Nicaragua, North Korea, Pakistan, PRC, Russia, Somalia, Sudan, Syria, Venezuela, Yemen and Zimbabwe.
- b. Countries under United Nation Security Council or EU embargoes or restrictions.

#### ■Guarantee

To save the environment, we do not issue warranty in a printed format. Instead, all records of the warranty periods, delivery dates and the customer information are well kept in our system.

For more details, please refer to the following link:

Hardware Warranty: [http://www.artray.us/download/artray\\_warranty.pdf](http://www.artray.us/download/artray_warranty.pdf)

#### ■Limited Responsibility

- We do not guarantee the functions of this product or the descriptions on this manual to be completely adapted to the users' end applications or marketing purposes. We are also not held responsibility for any direct or indirect damages caused by our products under any circumstances.
- Please do not use this product for a task that requires high reliability. This product is not manufactured to be used as medical, nuclear, aerospace, transportation equipment or equipment that is highly related to human safety. We do not hold responsibility for any damages on the users' property, equipment or personal safety caused by this product.

#### ■Disposal

- To dispose this product, please return the camera to us. If you decide to dispose the camera without returning it to us, please follow related regulations and have the camera disposed as an industrial waste. Please always keep track of the disposal, and make sure the disposed camera cannot be accessed or used by any third party.

## 2. Introduction

ARTCAM-130SWIR is an NIR camera which adopts an InGaAs (Indium Gallium Arsenide) sensor with a high sensitive spectral response from 400nm to 1700nm. The camera can send pictures to PC through CameraLink interface.

## 3. Main Features

- NIR Detection with High Sensitivity

The InGaAs sensor can detect radiation invisible to naked eyes and CCD/CMOS cameras in the wavelength range between 400nm to 1700nm bands.

- High Resolution

ARTCAM-130SWIR uses 1280 x 1024-pixel sensor.

## 4. The Product

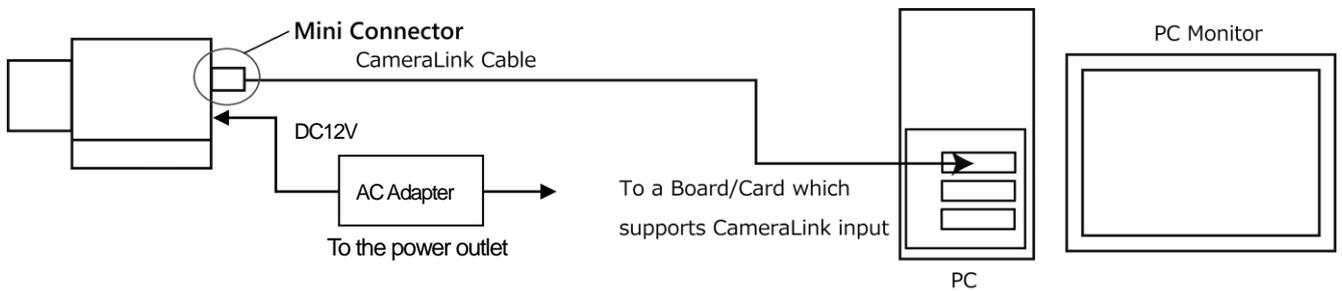
- 1) Camera
- 2) AC Adapter (DC12V)
- 3) CD-ROM (Instruction Booklet)

<Options>

- 1) CameraLink Cable (Mini Connector for the camera side)
- 2) NIR Lenses (C Mount, Compatible with 1" lens)
- 3) Grabber Board (PIXCI-EB1 by EPIX is recommended)

## 5. Connecting the Camera

### 5-1 How to connect a camera



### 5-2. Shutter Speed

The shutter speed is set directly on the sensor register, so please refer to the following formulas for the real exposure time.

Model	Method
ARTCAM-130SWIR	Range: 1-1,048,575 (Exposure Time : 1/1000000-1.048575sec) Exposure Time = Default Shutter Value x 1[ $\mu$ sec] *When the camera works at 70.00MHz

## 6. Grabber Board

### 6-1. Recommended Grabber Board

PIXCI-EB1 by EPIX

### 6-2. Tested Drivers, Libraries and Viewers

#### Drivers:

PIXCI(R) EB1 PCI Express Camera Link Video  
CaptureBoard for Win XP/Vista/7/8 64-Bit Ver3.8  
Build: 121226.184301(17-Dec-2012)  
EPIXXCW6.SYSVer 3.8

#### Libraries:

EPIX XCLIBW64.DLLVer.3.8

#### Viewers:

EPIX XCAP-Lite V3.8

### 6-3. Operation Restriction

The Driver for EPIX Grabber board needed to be installed beforehand.

In the restriction of EPIX Grabber board, please invalidate hibernation mode and sleep mode.

Please do not plug or unplug when the software is working.

The software possibly stops working when EPIX Grabber board has an error.

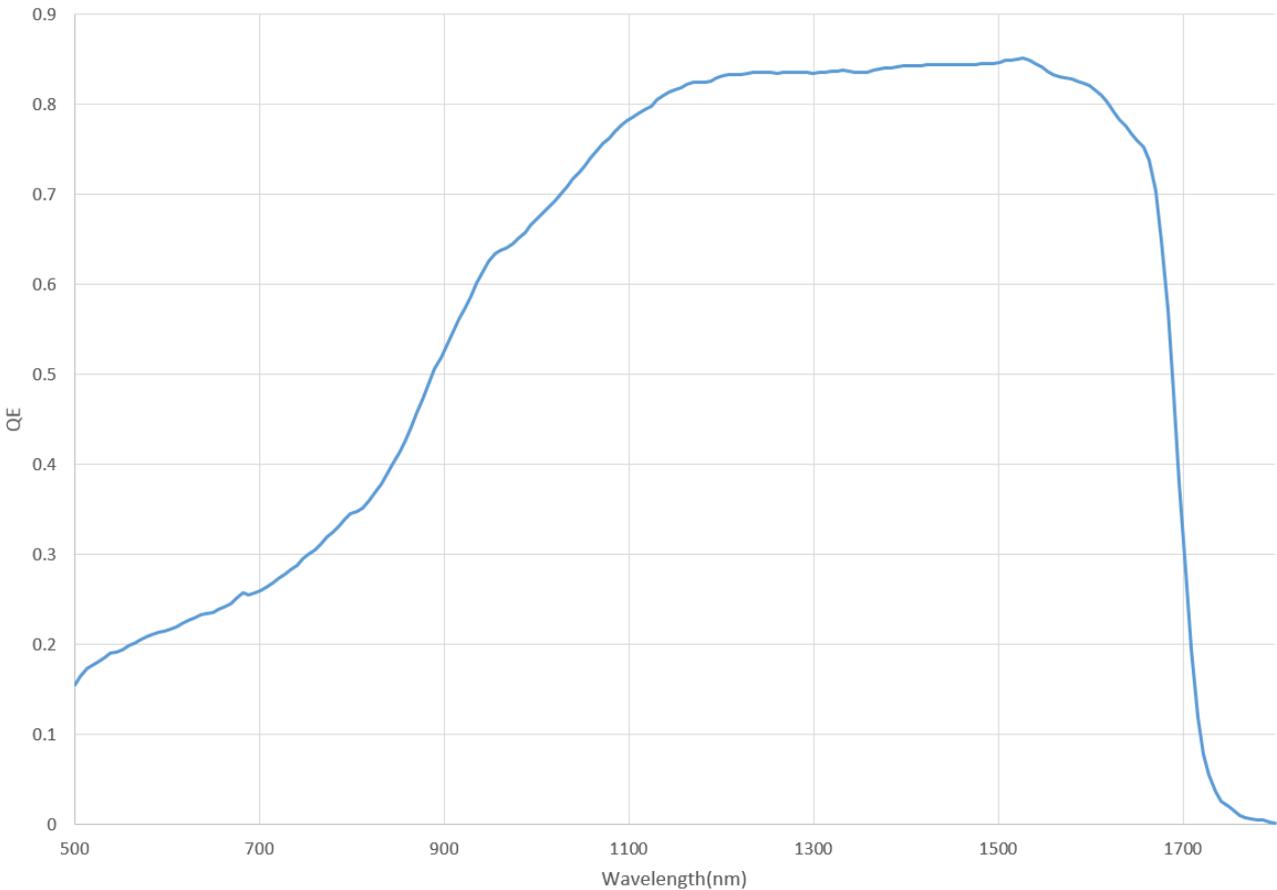
## 7. Specifications

	ARTCAM-130SWIR
Sensor Type	InGaAs Image Sensor
Number of effective pixels	1280(H)×1024(V)
Resolution	1280(H)×1024(V)
Sensor Size	Diag. 16.391mm (Approx. 1")
Scan Mode	Progressive Scan
Pixel Size	10(H)×10(V)μm
Detected Wavelength	400~1700nm
Operability	>99.5%
Shutter Type	Global Shutter
Frame Rate	30fps
Shutter Speed	1/1000000~1.048575sec
Full Well Capacity	High Gain:10Ke, 35e with CDS Medium Gain:500Ke, 170e Low Gain:1Me, 350e
A/D Resolution	13bit
Interface	CameraLink
Synchronization System	Internal Synchronization
Lens Mount	C-mount
Power	DC12V
Power Consumption	Under Approx.20W
Ambient Conditions	Operating Temperature/Humidity: 0~35°C/10~80%(Non condensing) Storage Temperature/Humidity : 0~60°C/10~95%(Non condensing)
External Dimensions	61.5(W)×71.6(H)×59.0(D)mm *Lens, tripod and cables not included
Weight	TBD

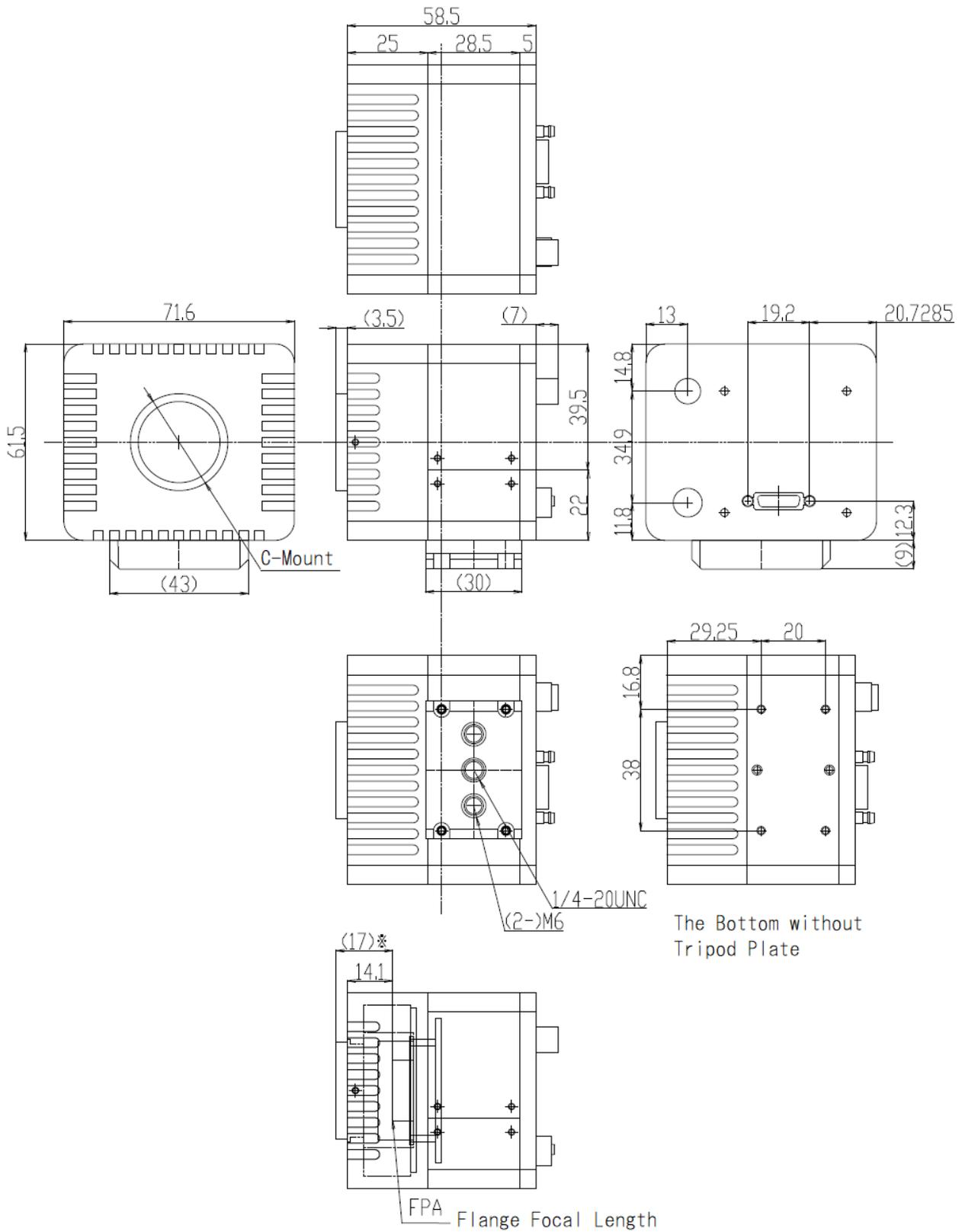
Depending on lens you use, our product might not reach the best condition and problems, such as the low resolution and lightness, might occur.

Please consult our sales representative for the recommended lenses.

## 8. Spectral Sensitivity Characteristics



# 9. External Dimensions



## 10. Recommended PC Specs

### 10-1. System Requirements

- With CameraLink input board (PIXCI-EB1 by EPIX is recommended)
- CPU: Intel Core i5 series or higher
- Memory:  $\geq 512\text{MB}$
- OS:  $\geq$ Windows 7



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