

# Thermal Infrared Camera

## ARTCAM-THERMO series

### INSTRUCTION BOOKLET

QVGA	ARTCAM-320-THERMO-WOM Series ARTCAM-320-THERMO-LAN3 Series
VGA	ARTCAM-640-THERMO-WOM Series

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# 1. Attention

## ■About this manual

1. Before using the camera, please read this manual thoroughly.
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.
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 to be easier comprehended.
8. Please contact us if you find any unclear points or mistakes in this manual.
9. Quoting, copying or altering some or all parts of the manual without our permission is prohibited.
10. We are not responsible for any lost 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 the user, other people and their properties, please pay attention to the following icons.



## Warning

If the user fails to follow the instruction, physical injury on human or damages on hardware may occur.



## Caution

If the user fails to follow the instruction, serious injury or death may occur.

#### ■For Safe 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. 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 product becomes smoky or gets extremely hot on the surface, or makes unusual smells or sounds.
- Foreign material or water gets into the product.
- The product falls and becomes damaged.

●Do not place the product on unstable surfaces. The product may be fallen and people may get hurt.



## Caution

●Do not expose the product to steam or fumes to avoid electric shocks and fires.

●Do not leave the product in high temperature places such as inside of vehicles or under direct sunlight. High temperature may cause damages to the camera, or even cause fires.

●Do not cover the product with cloth or other materials. The product may get extremely hot and the heat may cause deformations on the parts or even cause fires.

●Please avoid dropping or shocking the product as the product may be damaged.

●Do not touch the cable with a wet hand. Such action may cause electric shocks.

●Please avoid continuously contacting the surface of the camera to your skin when the camera is being used. 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 period. Also please do not expose the camera under strong lights even when the product is not being used because the sensor might be damaged.

#### Maintenance

●Wipe the dirt on surface with soft cloth or tissue paper. Do not use alcohol, thinner or benzene to avoid damaging the surface paints.

#### Electro Magnetic Interference

●The camera may interference 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 manage 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 export licenses from Ministry of Economy, Trade and Industry, please contact the sales representative in advance.

#### ■Guarantee

To save the environment, we do not issue warranty in 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 sites below:

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

#### ■Dispose

To dispose this product, please return the camera to us. If you decide to dispose the camera without returning it us, please follow related regulations and have the camera disposed as an industrial waste. Please always keep records of the dispose, and make sure the disposed camera cannot be accessed or used by any 3rd party.

#### ■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 responsible for any direct or indirect damages caused by our products under any circumstances.

Please do not use this product on applications that require 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 are not held responsible for any damages on the users' property, equipment or personal safety caused by this product.

## 2. Introduction

ARTCAM-THERMO is a series of thermal cameras which employs a 640 x 480 / 320 x 240 microbolometer detector with spectral response from 8 to 14  $\mu\text{m}$  IR region.

ARTCAM-THERMO series adopt USB2.0 / LAN(100BASE) interface, so image data can be delivered to PC directly without a capture board.

Also, ARTCAM-THERMO-WOM is equipped with an on board memory which avoids data missing during transfer.

An optional NTSC video output is available.

Thermal images are easily obtained by using specialized viewer software, ART-THERMO.

## 3. Main Features

- IR spectral response

Uncooled microbolometer is adopted as IR detector which has spectral response of 8~14 $\mu\text{m}$  IR region.

- High Resolution

ARTCAM-640-THERMO series can export 640 x 480 pixel images which have relatively high resolution among microbolometers.

ARTCAM-320-THERMO series can export 320 x 240 pixel images.

Data (14bit) from IR detector can be transferred to PC without compression.

- USB2.0 Interface (ARTCAM-320-THERMO-WOM / ARTCAM-640-THERMO-WOM)

ARTCAM-320-THERMO-WOM and ARTCAM-640-THERMO-WOM adopt USB2.0 interface, so the data can be delivered to PC directly and no capture board is needed.

- LAN(100 Base) Interface (ARTCAM-320-THERMO-LAN3)

ARTCAM-320-THERMO-LAN3 adopts LAN (100 Base) interface, so the data can be delivered to PC directly and no capture board is needed.

- Thermal Infrared Camera Viewer Software

The attached software, ART-THERMO, with camera is compatible with Windows XP/Vista/7. With this software, users can easily preview, save thermal images and movies, make graphs, set alarm and change camera settings. Various functions, such as measurement and security, can also be achieved.

- Software Development Kit(Optional)

For customer who prefers to create their own image processing software or use our camera with other applications, we provide SDK upon requests.

## 4. The Product

### 4-1 ARTCAM-320-THERMO-WOM series

- 1) Camera
- 2) USB Cable      Type A-B connector cable, 3m approx.
- 3) AC Adapter (DC12V 5A)
- 4) Introduction Booklet
- 5) Viewer software/Device Driver CD

\*A standard f8mm lens is attached or an optional f16mm is also available.

<Options>

- 1) Germanium lens
- 2) Software Development Kit [ARTCAM-THERMO-SDK]

### 4-2 ARTCAM-320-THERMO-LAN3 series

- 1) Camera
- 2) LAN Cable      Approx.3m
- 3) AC Adapter (DC12V 5A)
- 4) Introduction Booklet
- 5) Viewer software/Device Driver CD

\*A standard f8mm lens is attached or an optional f16mm is also available.

<Options>

- 1) Germanium lens
- 2) Software Development Kit [ARTCAM-THERMO-SDK]

### 4-3 ARTCAM-640-THERMO-WOM series

- 1) Camera
- 2) USB Cable      Type A-B connector cable, 3m approx.
- 3) AC Adapter (DC12V 5A)
- 4) Introduction Booklet
- 5) Viewer software/Device Driver CD

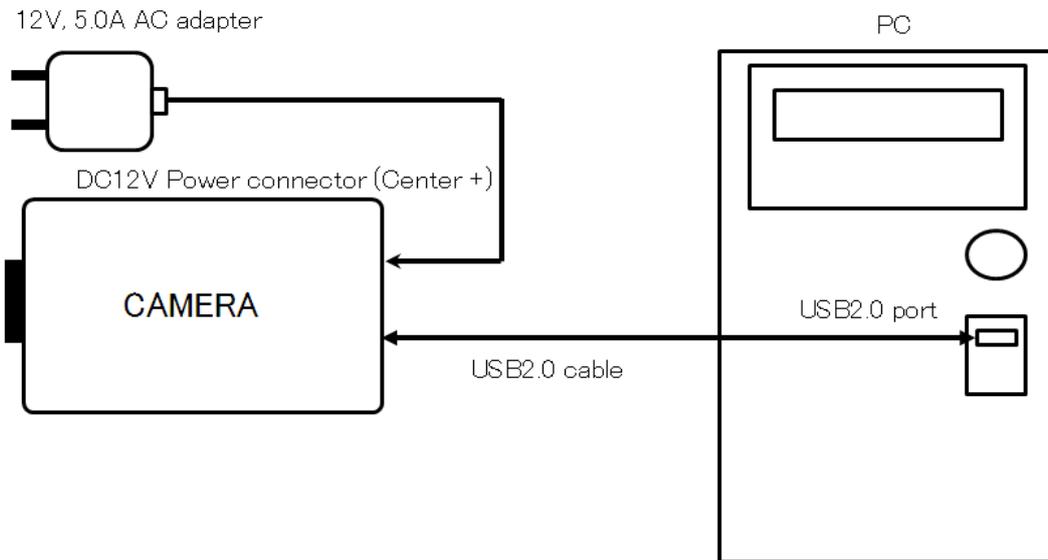
\* Lens and lens mount not included

<Options>

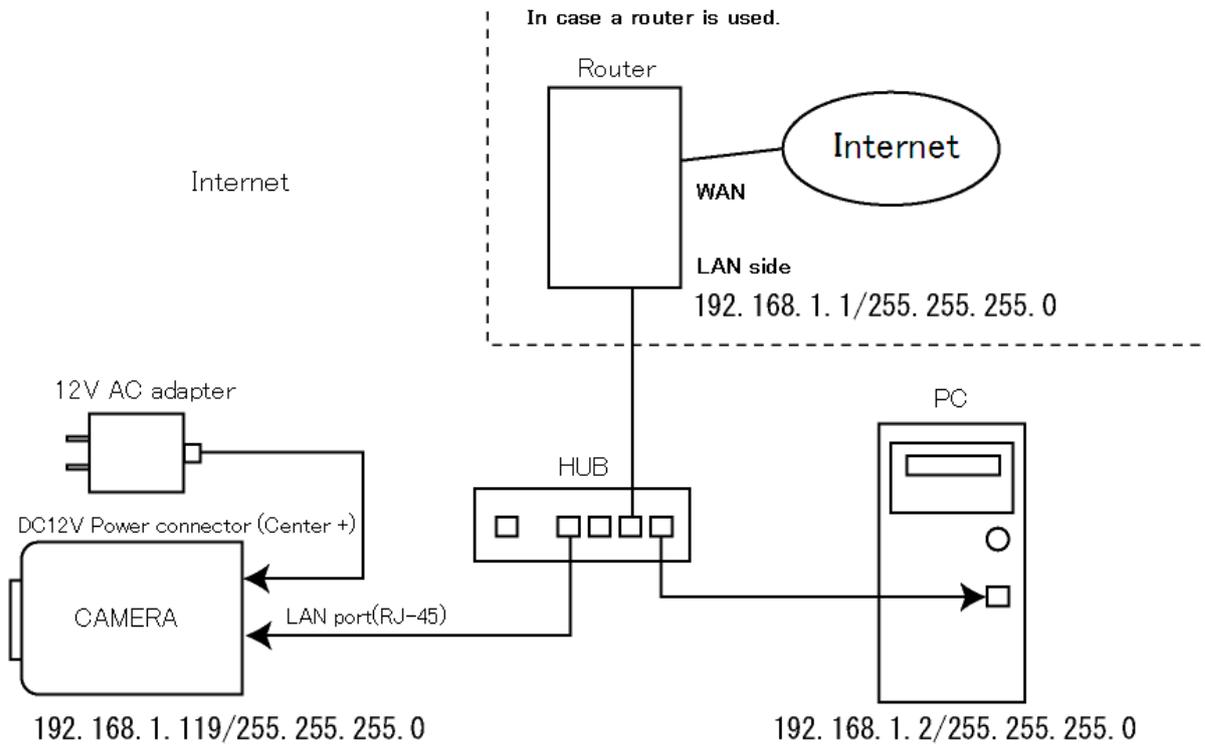
- 1) Germanium lens
- 2) Software Development Kit [ARTCAM-THERMO-SDK]

## 5. Connect the Camera

### 5-1 How to connect a camera(ARTCAM-320-THERMO-WOM / ARTCAM-640-THERMO-WOM)



5-2 How to connect a camera(ARTCAM-320-THERMO-LAN3)



\*Please connect the camera to the same network with the PC.

	IP Address
Router(LAN)	192.168.1.1
PC	192.168.1.2
Subnet Mask	255.255.255.0

## 6. Specifications

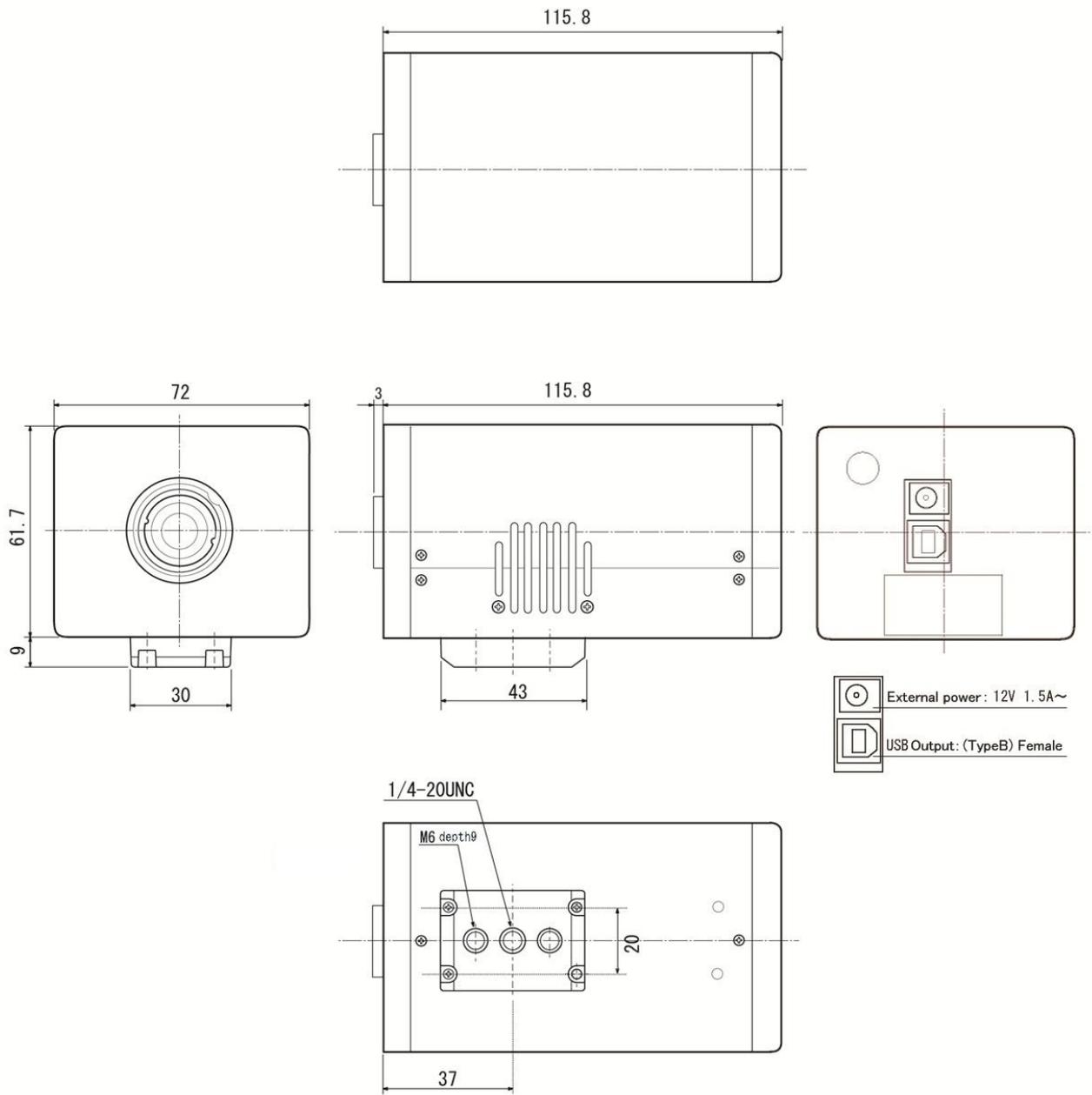
	ARTCAM-320-THERMO-WOM	ARTCAM-320-THERMO-LAN3	ARTCAM-640-THERMO-WOM
Sensor Type	Uncooled Microbolometer(Built in peltier device)		
Detected Wavelength	8~14μm		
Active Pixels	320(H)×240(V)		640(H)×480(V)
Pixel Size	23.5(H)×23.5(V)μm		
Temperature Resolution	L Range:<75mK H Range:<300mK		
Operability	>98%(Defective pixels fixed)		
Thermal Time Constant	16msec (typ)		
FOV	8mm lens(Standard): 50°(H)×37.5°(V) 16mm lens(Option): 26°(H)×20°(V)		—
Dynamic Range	L Range : -40~150°C H Range : 0~540°C		
Booting Time	≤15sec (Environment Temperature ≤35°C)		
Temperature Accuracy	Max value of either ±5% or ±5°C of readings.		
Frame Rate	60fps	30fps	60fps
Interface	USB2.0 Bulk transfer	LAN (100Base)	USB2.0 Bulk transfer
Power	DC12V (AC adapter)		
Power Consumption	Under Approx.10W (Environment Temperature 25°C)		
Ambient Conditions	Operating temperature / Humidity : 0~35°C / 10~80%(Non- condensing) Storage temperature / Humidity : 0~60°C / 10~95%(Non- condensing)		
Working Temperature	20~35°C Notice: Please have the camera work under suitable environment temperature.		
Dimension	72(W)×61.7(H)×115.8(D)mm * Lens, cable not included		82(W)×85.5(H)×120.5(D)mm * Lens, cable not included
Weight	Approx. 600g * Lens, cable and Tripod not included		Approx. 700g * Lens, cable and Tripod not included

### LAN Port Specifications (ARTCAM-320-THERMO-LAN3)

IEEE Specification	IEEE802.3u(100BASE-TX)
LAN Port	RJ-45
Modes of Operations	100BASE-TX / Half and Full Duplex
MDI/MDI-X Switch	Auto
Transmission Speed	100Mbps
Protocol	TCP/IP

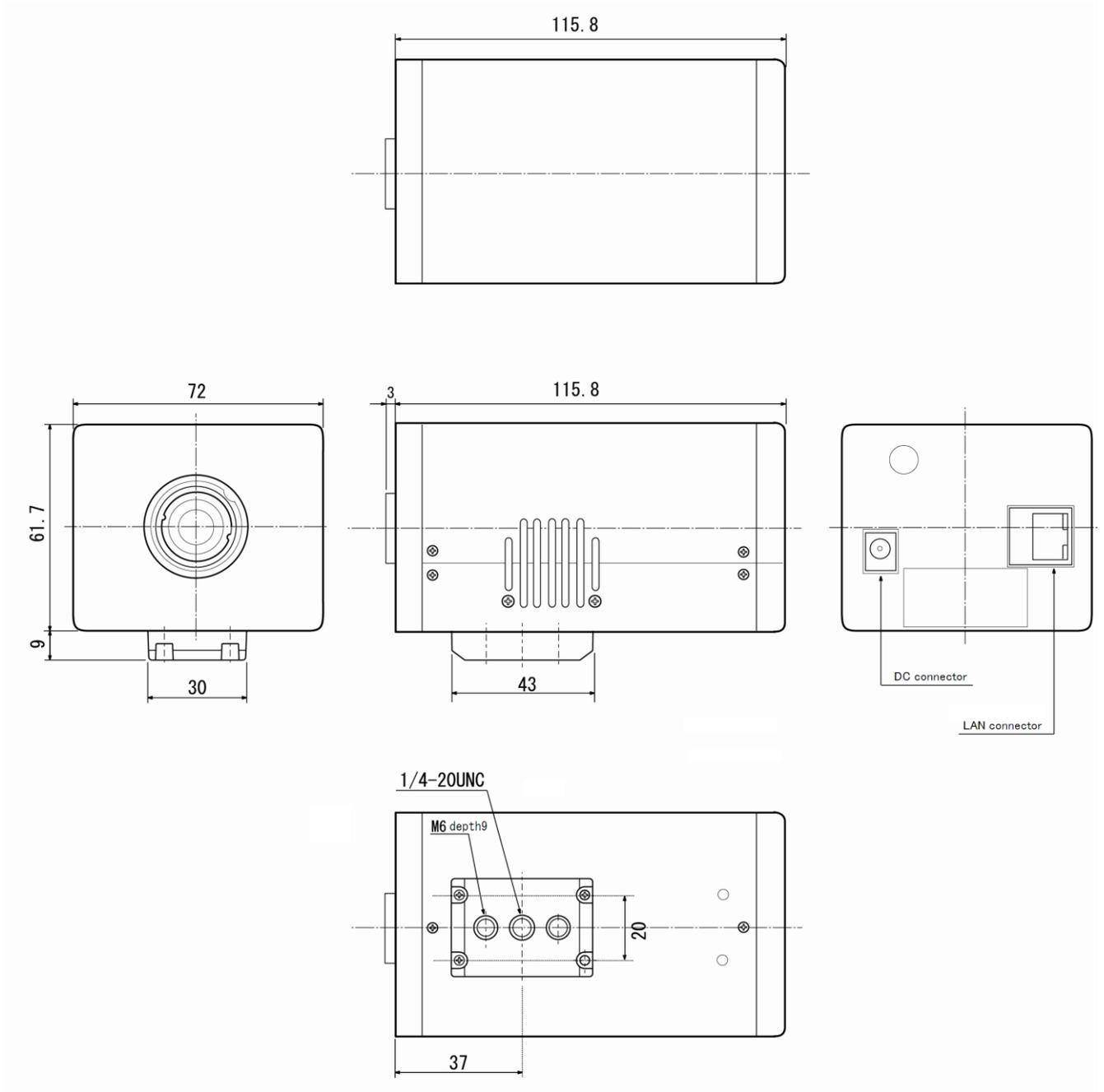
## 7. External Dimensions

### 7-1 ARTCAM-320-THERMO-WOM series



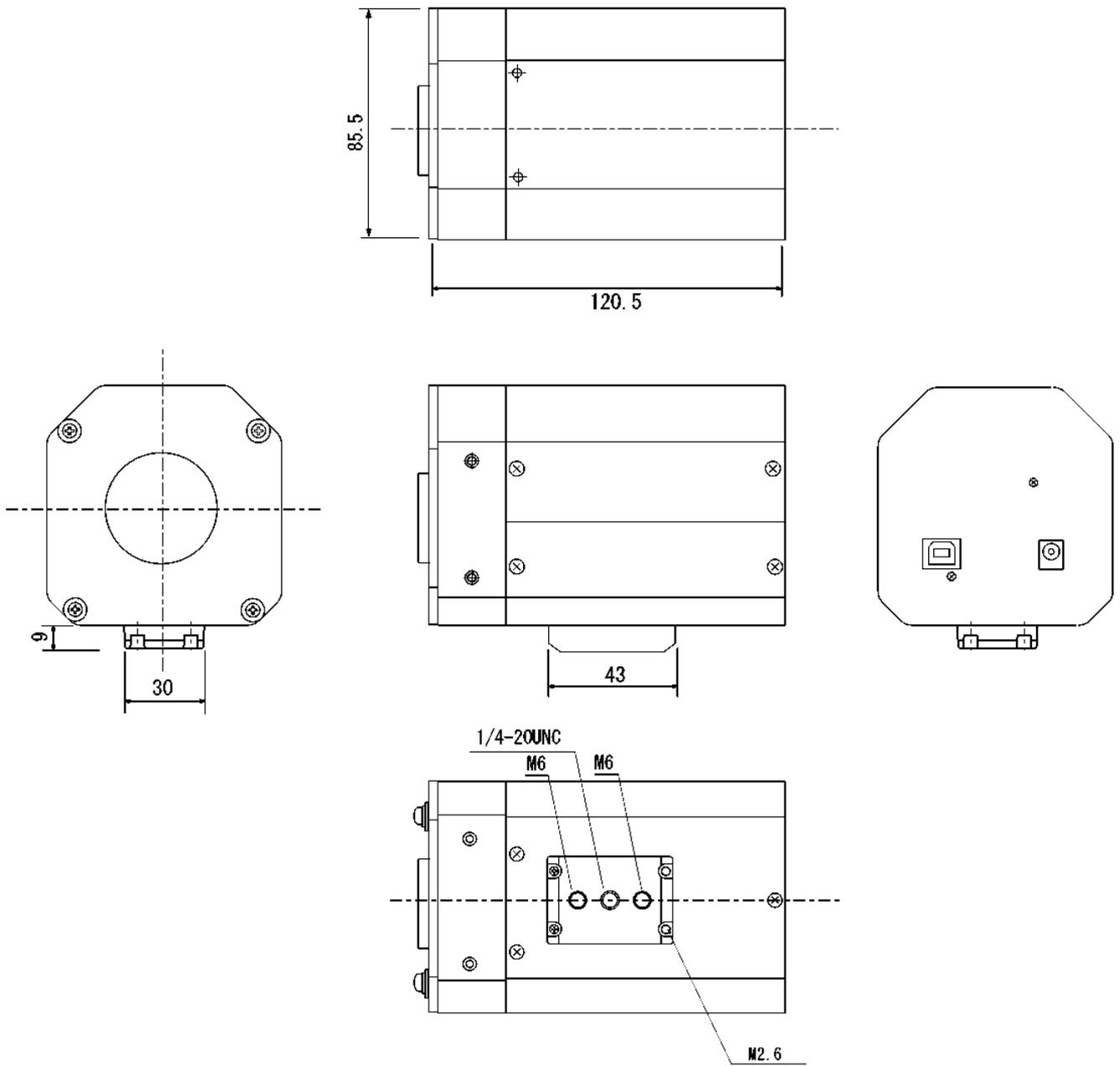
\*When a standard f8mm lens is mounted

7-2 ARTCAM-320-THERMO-LAN3 series



\*When a standard f8mm lens is mounted

7-3 ARTCAM-640-THERMO-WOM series



\*Optional lens and lens mount are available upon request.

## 8. System Requirements

### 8-1 Recommended System Requirements

- Intel chip set, Southbridge above ICH6
- CPU : Intel Core2duo 2.4GHz or higher
- Memory : Above 512MB
- OS: Windows XP or above

### 8-2 Minimum System Requirements

- USB2.0 Enhanced Host Controller
- CPU : Intel Pentium4 1.7GHz or higher
- Memory : Above 256MB
- OS: Windows XP or above



## Caution

■ Please refer the restrictions below when you use ARTCAM.

### (1) Recommended System Requirements

If the system specifications do not meet the requirements recommended above, it may be difficult to run at the maximum frame rate, especially at 48MHz high-speed mode.

### (2) Connection of Multiple USB Devices

Please be aware that depending on the specifications of the user's PC, it may be difficult to supply the power to the USB devices when multiple USB devices are connected.

### (3) USB2.0 cable Extension

We cannot guarantee the functionality of the USB2 camera if the user adopts USB2.0 extension cables or repeaters which are not confirmed by us. With the extension cables or repeaters, the bandwidth of transfer may differ, and thus caused malfunctions such as a low frame rate or recognition failure on the camera.

What may cause the problem is that the regulation of the power lines becomes not enough, and so causes impedance mismatch on data signals.

\*For the recommended extension cable, please contact our sales department. (TEL: +81-3-3389-5488)



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