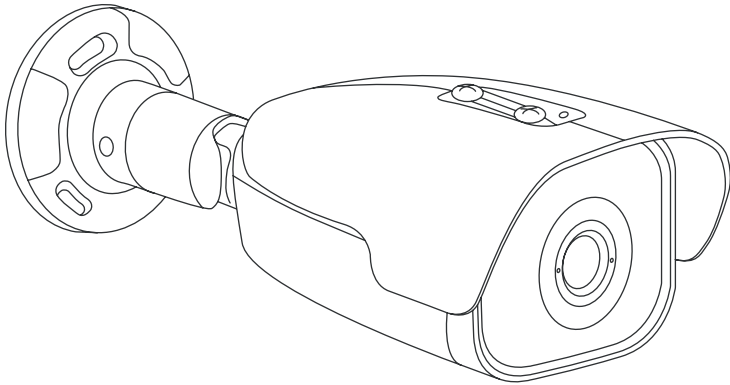ICI | INFRARED CAMERAS INC

Industry

FMX 300X P-SERIES
USER MANUAL

PLEASE READ THIS MANUAL BEFORE SWITCHING THE UNIT ON.
IMPORTANT SAFETY INFORMATION INSIDE.

ICI cameras fall under US Federal Law and Export Control.

Revision History

02.2024-001   Document created

Contents

1.   Disclaimers

1-1   Terms and Conditions

Warranty Terms and Condition of Sale are made available online at:

https://infraredcameras.com/support/terms-and-conditions-of-sale/

1-2   U.S. Government Regulations

This product may be subject to U.S. Export Regulations. Please send any inquiries to support@infraredcameras.com

1-3   Copyright

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1-4   Quality Assurance

Infrared Cameras, Inc. is committed to a policy of continuous development; therefore we reserve the right to make changes and improvements on any of the products without prior notice.

1-5   Customer Help

For customer help, visit:

https://infraredcameras.com/support/

E-mail:

support@infraredcameras.com

2.   User Notice

2-1   Calibration

Annual calibration to the thermal camera is recommended. Contact customer service to schedule maintenance.

2-2   Accuracy

For very accurate results, we recommend that you wait a minimum of 5 minutes after you have started the camera before measuring a temperature.

2-3   Cybersecurity

After the products are connected to the Internet, they may face risks including but not limited to network attacks, hacker attacks, virus infections, etc. The company will not be responsible for the abnormal operation of the products and any loss or liability caused therefrom shall be at your own risk.

2-4   Disposal of Electronic Waste

Electrical and electronic equipment (EEE) contains materials, components and substances that may be hazardous and present a risk to human health and the environment when waste electrical and electronic equipment (WEEE) is not handled correctly.

Equipment marked with the below crossed-out wheeled bin is electrical and electronic equipment. The crossed-out wheeled bin symbol indicates that waste electrical and electronic equipment should not be discarded together with unseparated household waste, but must be collected separately.

All local authorities have established collection schemes under which residents can dispose of equipment at a recycling center or other collection points, or WEEE will be collected directly from households. More detailed information is available from the administration of the relevant local authority. Always dispose of waste in accordance with local, state, and federal regulations.

2-5   Intended Use

The FMX 300X P-Series cameras are used for surface temperature assessment of energy emitted from the first 1/1000th of an inch of a subject.

Environment of use: industrial and petrochemical buildings, electrical plants, security rooms, science labs, animal reserves as well as environmental conservatories, among others.

You agree that this product is for civilian use only, and shall not use applications that may infringe the rights of third parties, medical and safety devices or other applications where product failure may lead to life-threatening or personal injury, as well as weapons of mass destruction, chemical and biological weapons, nuclear explosions, unsafe use of nuclear energy, dangerous or humanitarian purposes. Any loss or liability caused therefrom shall be at the your own risk.

2-6   Manual Update

The user manual will be updated from time to time. To access the latest manuals, translations of manuals, and notifications, go to:

https://infraredcameras.com/product-resources/

The manufacturer reserves the right to alter the specifications of the product without prior notification. The manufacturer allows himself the right to modify without any preliminary opinion the technical specifications of the product.

2-7   Scope of Application

Infrared Cameras, Inc. issues generic manuals that cover several cameras within a model line.

This means that this manual may contain descriptions and explanations that do not apply to your particular camera model. This manual may contain technical inaccuracies or typographical errors.

2-8   Authoritative Versions

The authoritative version of this publication is English. In the event of divergences due to translation errors, the English text has precedence.

Any late changes are first implemented in English. Other languages may or may not be available.

2-9   Training

To read about infrared training, visit:

https://infraredtraininginstitute.com/

3. Safety Information

- This device must be installed by qualified service personnel or system installation personnel.

- Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- Do not disassemble or modify the thermal device.

- Do not point the imager (with or without the lens cover) at intensive energy sources, e.g. devices that emit laser radiation, or the sun. This can affect the accuracy of the camera, and cause damage to the detector. Using the sun shield is highly advised.

- Do not use the imager in an ambient temperature outside of the operation range. High/low temperatures can cause damage to the device.

- Prior to start of the device, make sure that the power supply is properly connected. If the power supply is connected incorrectly, the device may be damaged.

- Do not place any objects on the power cord, and do not place the device where the power cord can be easily touched.

- Avoid placing the power cables and electrical wiring in places where they will be tread upon or pressed, especially the connecting points leading from the plug, power socket, or other unit.

- Ensure the device is firmly affixed to when installing on walls or ceilings.

- Do not get water or salt water on the device or permit the device to get wet. Damage to the device may occur.

- Remove any water or moisture on the device before you install it. Damage to the device may occur.

- Clean the case with a damp cloth and a weak soap solution. Do not use abrasives, isopropyl alcohol, or solvents to clean the case or lens/screen.

- Be careful when cleaning the infrared lens. Do not clean the infrared lens too vigorously. This can damage the anti-reflective coating.

- Avoid condensation. Taking the imager from cold to hot will cause condensation in thermal imager. To protect the imager, power on the device and wait until it becomes warm enough for the condensation to evaporate.

- Keep device out of reach of children.

- Storage: If you do not use the imager for a long period of time, put the device in a cool and dry environment. Store the device in an ambient temperature of -40 °C to 70 °C (-40 °F to 158 °F).

- This product is a precise electronic device that must be handled with care during use, storage, and transportation to prevent dangerous actions such as the device being hit by external force, or falling from heights.

- During transportation and storage the original packaging box must be used.

- When transporting the camera, do not lift, carry, or pull the device by the cable. Lifting, carrying, or pulling the device by the cable may affect the waterproof performance of the camera or cause wiring problems.

- Do not drop or throw the device.

- Do not put the product into a fire.

- It is recommended to calibrate the device(s) annually.

- If the device operates abnormally, please contact the supplier and do not dismantle the device on your own.

THE ENCAPSULATION RATING IS ONLY APPLICABLE WHEN ALL THE OPENINGS ON THE CAMERA ARE SEALED WITH THEIR CORRECT COVERS, HATCHES, OR CAPS. THIS INCLUDES THE COMPARTMENTS FOR DATA STORAGE, BATTERIES (IF APPLICABLE), AND CONNECTORS.

4.   Technical Specifications

4-1   Industrial Specifications

	FMX 300X P-Series
Pixel Resolution	384 x 288
Accuracy	± 2 °C (± 3.6 °F) or ± 2%
Temperature Range	-20°C to 550°C (-4°F to 1022°F)
Operation Range	-40°C to 70°C (104°F to 158°F)
Storage Range	-20°C to 60°C (-4°F to 140°F)
Detector Array	UFPA (VOx)
Pixel Pitch	12 µm
Focal Length	Lens dependent
FOV	Lens dependent
IFOV	Lens dependent
Focus	Fixed
Spectral Band	8 µm to 14 µm
Thermal Sensitivity (NETD)	< (40 mK) 0.04 °C at 25 °C (77 °F)
Frame Rate	50 Hz - 60 Hz
Dynamic Range	14-bit
Humidity	95% relative
Pixel Operability	> 99 %
Shock/Vibration	25 G/2.5 G
Dimensions (without lens)	319.5 mm x 121.5 mm x 103.6 mm (L x W x D ± 0.5 mm) (12.58" x 4.78" x 4.08" (L x W x H ± 0.02"))
Weight (without lens)	1.8 kg (3.97 lbs)
Power	12V DC or PoE (802.3af); ≤ 8 W

Continues

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

	FMX 300X P-Series
Interface	1 RJ45 10M/100M port, 1 channel audio in/out, 2 channel alarm in/out, 1 RS485 channel (supports Pelco)
Network	IPv4, HTTP, HTTPS, QoS, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP
Interoperability	ONVIF, GB28181, SDK
Video Format	H.264/H.265
Audio Format	.711a/G.711u/AAC/PCM
Image Format	JPG
Image Polarity	20 options
Image Modes	IR, fusion (ICI Dual Vision), visible, picture-in-picture
Memory	MicroSD card (up to 256 GB)
Digital Camera	5 MP, 2560 × 1920, 1/2.8" progressive scan CMOS, Day conversion (ICR auto) Night conversion (electronic color to B&W); filling light up to 40 m (131.2 ft)
IP Rating	IP66
Language	Multi-language
Automatic alarms	
On alarm settings: capture video and image; send email; audio and visible alarms; fire alarm	
Receive network disconnection notifications, IP address conflicts, and memory errors	
Supports viewing up to 20 channels	
2-way voice intercom	
Supports IE and Chrome browser	

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

4-2 Lens Options

Lens Options				
Model No.	ICIFMX300XP-I-28	ICIFMX300XP-I-20	ICIFMX300XP-I-13	ICIFMX300XP-I-10
Lens	9.1 mm	13 mm	19 mm	25 mm
F#	1.0	1.0	1.0	1.0
Focus Type	Fixed	Fixed	Fixed	Fixed
FOV (HxV)	28°×21°	20°×15°	13°×10°	10°×7.9°
IFOV	1.32 mrad	0.92 mrad	0.63 mrad	0.48 mrad
Visible Lens	4 mm (65°×50°)	6 mm (46°×35°)	6 mm (46°×35°)	12 mm (24°×18°)

4-3 Operating Distance

Operating Distance*						
Lens	Detection		Recognition		Identification	
	Vehicle	Human	Vehicle	Human	Vehicle	Human
9.1 mm	1163 m	379 m	291 m	95 m	145 m	47 m
13 mm	1661 m	542 m	415 m	135 m	208 m	68 m
19 mm	2428 m	792 m	607 m	198 m	303 m	99 m
25 mm	3194 m	1042 m	799 m	260 m	399 m	130 m

Operating Distance of Smart Features*						
Lens	Recognition		Temperature Measurement		Fire Detection	
	Vehicle	Human	2 m x 2 m	1 m x 1 m	2 m x 2 m	1 m x 1 m
9.1 mm	218 m	71 m	253 m	126 m	1011 m	506 m
13 mm	311 m	102 m	361 m	181 m	1444 m	722 m
19 mm	455 m	148 m	528 m	264 m	2111 m	1056 m
25 mm	599 m	195 m	694 m	347 m	2778 m	1389 m

* Recommended distance of detecting, recognizing and identifying humans (1.8×0.5m) and vehicles (1.4×4.0m).

- If the weather is clear and the visibility is normal, without visible fog or haze, there is a 50% chance of reading the target at the specified distance.

- Assume the width of a person is 0.5 m (1.64 ft), the height is 1.8 m (5 ft 9 in), and the critical distance is 0.75 m (2.46 ft). In case of the width of the vehicle is 4.0 m (13.12 ft), the height is 1.4 m (4.59 ft), and the critical distance is 2.3 m (7.55 ft).

- According to the Johnson criterion of infrared images, suppose:

  ○ The detection target needs to be imaged at least 1.5 pixels in the critical direction.

  ○ Recognizing the target needs to image no less than 6 pixels in the critical direction.

  ○ Recognizing the target requires imaging no less than 12 pixels in the critical direction.

- The actual detection distance varies with the settings of the thermal camera, environmental conditions, user experience, monitoring or displaying type.
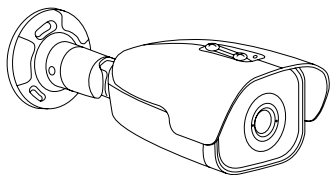
5. Structure

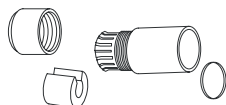### 5-1 Appearance and Definitions of Housing Interface
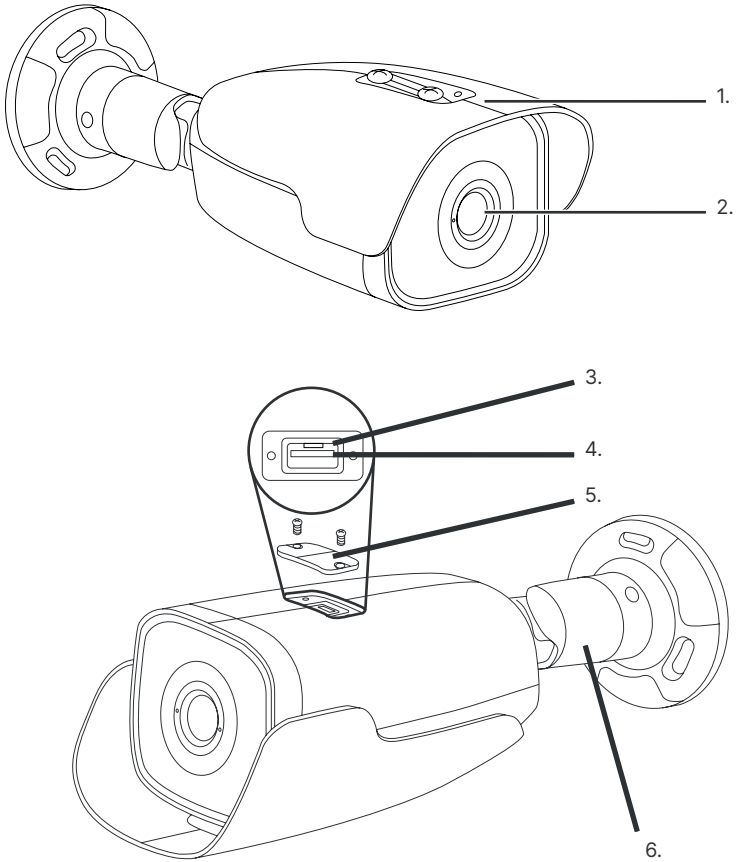
1.	Sun Shield	4.	Memory Card Slot
2.	Germanium Lens	5.	Memory Card Cover
3.	Reset Button	6.	Bracket

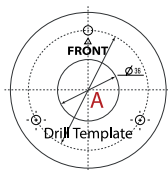# 6.   Package Includes

FMX 300X

Waterproofing Kit

Anchors x3

Alignment Guides

Screws x3

Hex Wrench

Memory Card

ENSURE ALL SYSTEM EQUIPMENT AND COMPONENT ITEMS ARE PRESENT BEFORE BEGINNING INSTALLATION

7.   Quick Start Instructions

7-1   Setup

USE THE ALIGNMENT GUIDES TO DRILL HOLES FOR SETTING DEVICE SCREWS.

DO NOT USE TOO LONG SCREWS WHEN INSTALLING THE DEVICE. USING SCREWS THAT ARE TOO LONG MAY DAMAGE THE THERMAL CAMERA.

THE INSTALLATION WALL SHOULD BE ABLE TO BEAR AT LEAST 4 TIMES THE WEIGHT OF THE CAMERA AND INSTALLATION ACCESSORIES.

THE INSTALLATION WALL SHOULD BE ABLE TO BEAR AT LEAST 4 TIMES THE WEIGHT OF THE CAMERA AND INSTALLATION ACCESSORIES.

IF THE INSTALLATION SITE IS A CONCRETE WALL OR CEILING, FIRST INSTALL EXPANSION SCREWS; THEN, INSTALL THE BRACKET. THE INSTALLATION HOLES OF THE EXPANSION SCREWS NEED TO BE IN LINE WITH THE BRACKET.
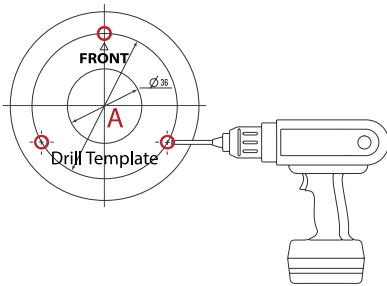
IF THE INSTALLATION SITE IS A WOODEN WALL, USE SELF-TAPPING SCREWS TO INSTALL THE BRACKET DIRECTLY.

THE DEVICE HAS FIXED FOCUS; THEREFORE, BEFORE INSTALLING THE DEVICE, PLEASE SELECT AN INSTALLATION POSITION AND LENS FOCAL LENGTH ACCORDING TO THE APPLICATION REQUIREMENTS TO ACHIEVE THE CORRECT FOCUS.

WHEN TRANSPORTING THE CAMERA, DO NOT LIFT, CARRY, OR PULL THE DEVICE BY THE CABLE. LIFTING, CARRYING, OR PULLING THE DEVICE BY THE CABLE MAY AFFECT THE WATERPROOF PERFORMANCE OF THE CAMERA OR CAUSE WIRING PROBLEMS.
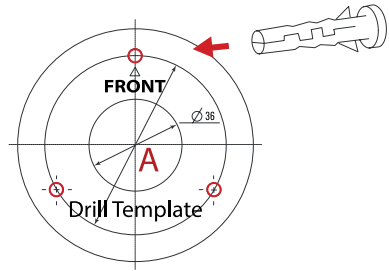
A.

Place the alignment guide on the mounting position and drill three Φ5 mounting holes according to the markers on the alignment guide.

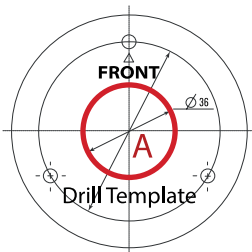The recommended depth is 25mm.

B.

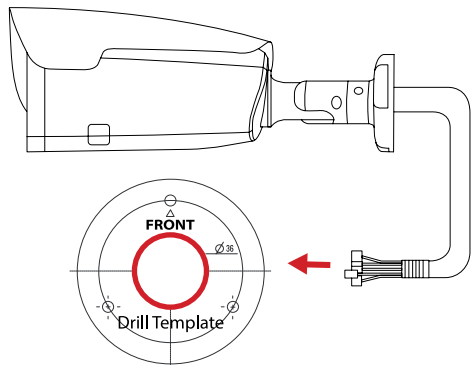Insert the expansion screws into the drilled holes.

C.

Open a φ 36 hole with "A" as the center of the circle according to the sticker.
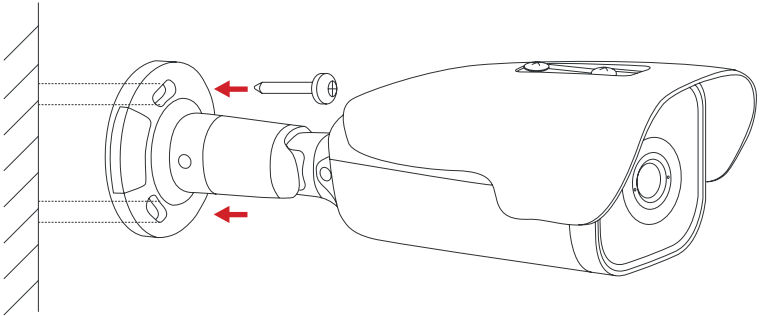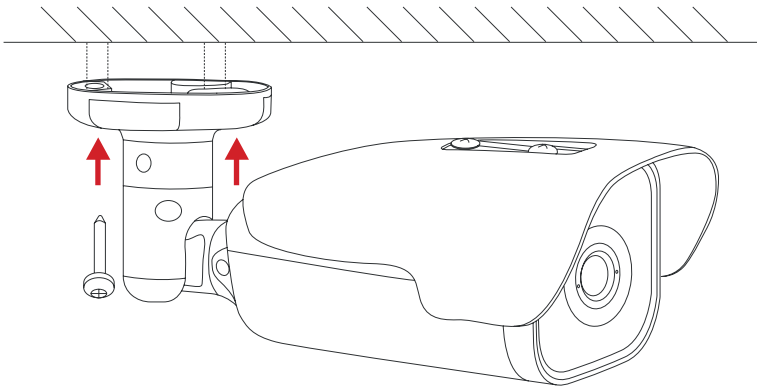

D.

Pass the tail wire of the camera through the A hole, then use screws to fix the camera to the mounting position.

Wall Mounting

Ceiling Mounting

IF THE INSTALLATION SITE IS A CONCRETE WALL OR CEILING, FIRST INSTALL EXPANSION SCREWS; THEN, INSTALL THE BRACKET. THE INSTALLATION HOLES OF THE EXPANSION SCREWS NEED TO BE IN LINE WITH THE BRACKET.

IF THE INSTALLATION SITE IS A WOODEN WALL, USE SELF-TAPPING SCREWS TO INSTALL THE BRACKET DIRECTLY.

WHEN USING THE CAMERA, INSTALL THE WATERPROOFING KIT TO PREVENT WATER FROM ENTERING THE NETWORK CABLE.

E.

Pass the network cable through the fastening nut and the main body of the waterproof cover.

F.

Place the rubber ring on the network cable between the main body of the waterproof cover and the fastening nut.


Fastening Nut   Rubber Ring   Waterproof Cover   Network Cable
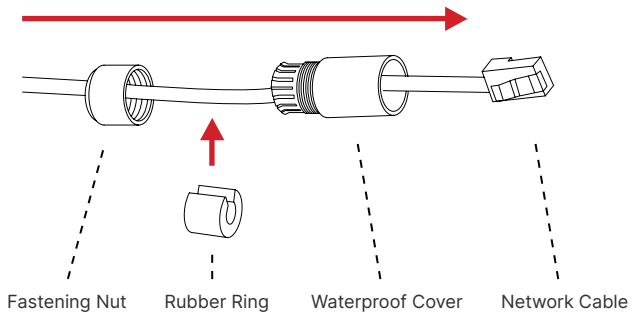
G.

Put the O-shaped rubber ring into the network port, and insert the network cable into the network port.

Network Cable   O-shaped Rubber Ring   Network Port

H.

Align the notch of the network port with the buckle of the main body of the waterproof cover, put the main body of the waterproof cover into the end of the network port, and tighten it clockwise.
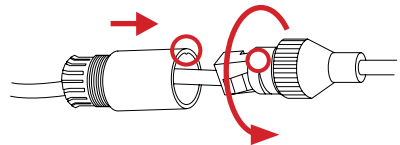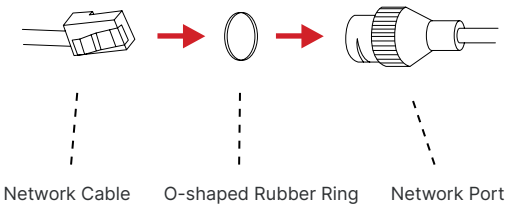
IN ORDER TO ENSURE THE NETWORK SECURITY OF THE CAMERA, IT IS RECOMMENDED IT CONDUCT REGULAR NETWORK SECURITY ASSESSMENT AND MAINTENANCE OF NETWORK SYSTEMS.
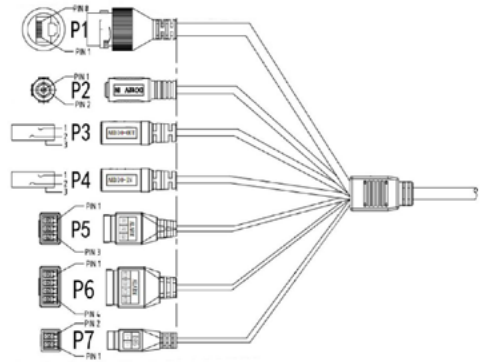
I.

Insert the waterproof rubber ring into the main body of the waterproof cover. Turn the fastening nut clockwise and press the waterproof rubber ring tightly.
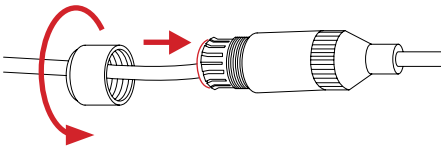
J.

ICI recommends having a service professional connect the device to facility networks and power sources.

Cable Definitions

- P1 network interface (LAN)

- P2 power interface (DC12V)

- P3 audio output (AUDIO OUT)

- P4 audio input (AUDIO IN)

- P5 alarm input (ALARM IN): PIN 1(ALARM-IN1) and PIN 2(ALARM-IN2) are alarm input, PIN 3 is GND;

- P6 is alarm output (ALARM OUT): pin_1(ALARM-OUT1) and in_2(ALARM-COM1) are channel 1 alarm output; pin_3(ALARM-OUT2) and pin_4 (ALRAM-COM2) is channel 2 alarm output;

- P7 RS-485 interface (RS485)

K.

Use the Hex Wrench to loosen the lock nuts indicated and adjust the angle of the device by turning or rotating the device. Tighten the lock nuts when device is properly aligned.

0° to 360°
Horizontal Pan

0° to 90°
Tilt Adjustment

0° to 360°
Roll Adjustment
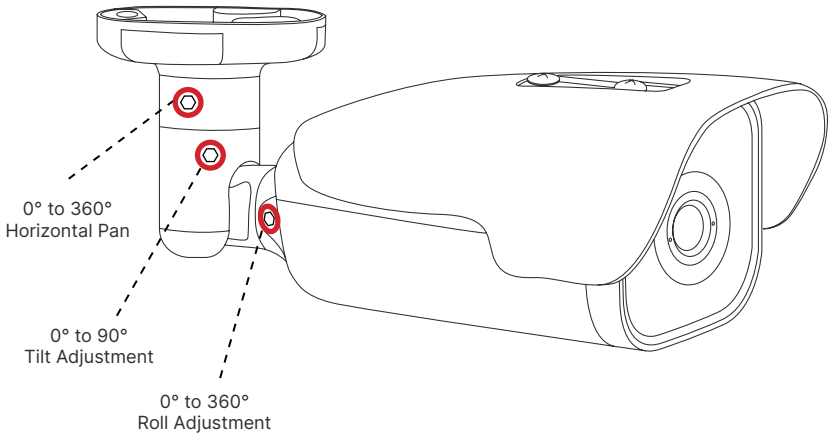
L.

Power on the device.

M.

Connect to the device through an Internet browser.

THE THERMAL IMAGER NEEDS SUFFICIENT WARM-UP TIME FOR THE MOST ACCURATE TEMPERATURE MEASUREMENTS AND BEST IMAGE QUALITY. THIS TIME CAN OFTEN VARY BY ENVIRONMENTAL CONDITIONS. IT IS BEST TO WAIT A MINIMUM OF 10 MINUTES FOR THE DEVICE TO COMPLETELY WARM-UP.

7-2   Alarm Interface Setup

The camera can be connected to alarm switch signal (0~DC 5V) input and switch output (no voltage). An external power supply is required when connecting the alarm. The specific wiring method is shown in the figure below.
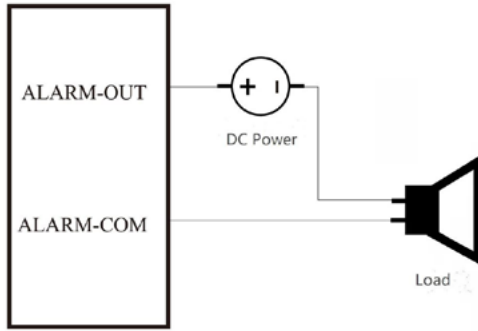
7-3   Memory Card

The camera can be connected to alarm switch signal (0~DC 5V) input and switch output (no voltage). An external power supply is required when connecting the alarm. The specific wiring method is shown in the figure below.

A.
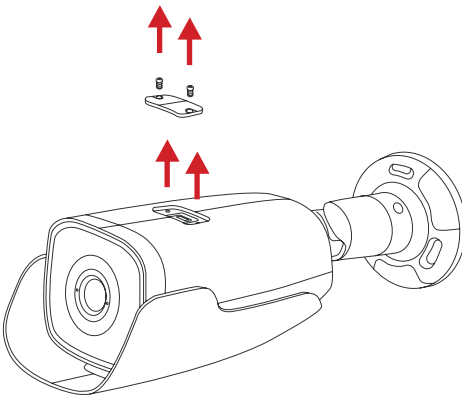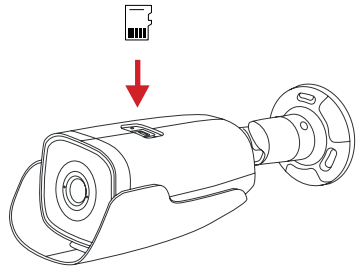
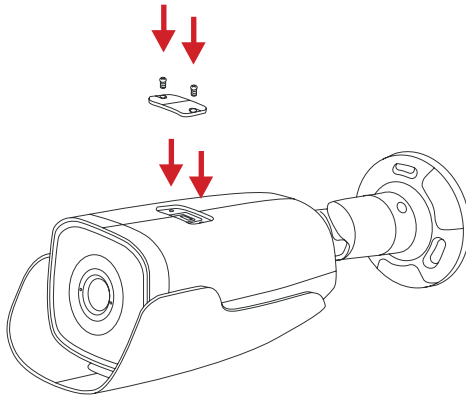Use a standard screwdriver to detach and remove the memory bay cover.

B.

Insert the Micro-SD Card into the top of the device until a clicking sound is heard.

C.

Use a standard screwdriver replace and the memory bay cover and screws.

8.   Operation Instructions

8-1   IP Address Configuration

The FMX 300X comes configured with static IP address for the infrared camera. The infrared camera lies at 192.168.10.117. Connecting the computer requires setting the IPv4 settings of the Ethernet port to a static IP address in the same "Class C." We suggest applying 192.168.10.110 with a subnet mask of 255.255.255.0. There is no need to set a gateway as this is a direct connection from the computer to the cameras with no router.
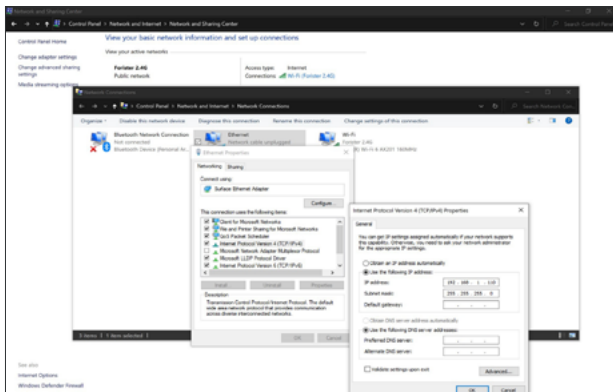
Be sure the static IP address is set by doing the following:

1.   Click on Windows icon.

2.   Click on Settings.

3.   Click on Network and Internet.

4.   Click on Ethernet.

5.   Click on Change Adapter Settings.

6.   Right click on Ethernet and choose properties.

7.   Double click on Internet Protocol Version 4 (TCP/IPV4) Properties.

8.   The IP address should read 192.168.10.110. If it does not, click in the box and fill in the correct number.

9.   The Subnet Mask should read 255.255.255.0. If it does not, click in the box and fill in the correct number.

10.   Click Ok.

8-2   IR Flash Pro

Software arrives installed on computers and tablets purchased from ICI as complete systems and it will launch automatically on startup. A copy of the software is provided on the Software USB Drive. Documentation can be found online on the IR Flash Pro web page under the Downloads section or at this address:

https://infraredcameras.com/ir-flash-pro-manual/

- **Processor:** Intel i5 Quad core or above
- **RAM:** 4 GB or above
- **OS:** Windows 8/8.1/10
- **Hard Drive:** 256 GB or above
- **Resolution:** 1920 x 1080

9. Cleaning and Maintenance

9-1   Cleaning the Germanium Lens

Do not use corrosive chemicals on the optical glass components. The germanium window surface is coated with anti-reflection coating. Dust, grease, and fingerprints will produce harmful substances and lead to a decline in performance, or cause scratches. If dirt is found, please use the following methods:

1. Use a blown balloon or a soft brush to clean the lens surface to avoid dust particles scratching the anti-reflection film on lens surface during the wiping process.

2. Use a soft cotton or microfiber cloth or lens wiping paper and dip in distilled water. Gently wipe the lens surface from the middle to the edge, paying attention to not crack the lens, or use too much liquid. If the lens is still not clean, replace the cloth and repeat the wiping process.

9-2   Disinfecting the Camera Surface

Do not use corrosive cleaning solutions on the optical glass components. It is recommended to disinfect the camera surface regularly with a non-corrosive sanitizing product. Follow the directions provided by the manufacturer of the cleaning solution. Adhere to the sanitation protocols and cleaning schedule set forth by the employer.

9-3   Device Calibration

It is recommended to have the device(s) re-calibrated annually. Contact customer service to schedule maintenance.

9-4   Storage

When the equipment is not in use, the device should be placed in a dust-free and moisture-free environment with a stable temperature and humidity.

DO NOT USE CORROSIVE CLEANING SOLUTIONS ON THE OPTICAL GLASS COMPONENTS. DISINFECT THE CAMERA SURFACE REGULARLY WITH A NON-CORROSIVE SANITIZING PRODUCT.

CALIBRATE YOUR DEVICES ANNUALLY. CONTACT CUSTOMER SERVICE TO SCHEDULE MAINTENANCE.

10. Radiometry

10-1 Introduction to Radiometry

The basic reason for employing image processing programs when analyzing IR images is to have a fast and comprehensive means to determine the information content of an image in numerical terms. Radiometry is considered the base from which to conduct this analysis.

Typically, converting the gray scale values to values of temperatures requires either a calibration of individual cameras or field calibration data. The method for calibrating images provided in this program is camera dependent because temperature calibration data is collected through an advanced calibration process at the factory and installed within the software program.

IR Flash Pro looks for a very specific file in its structure and mates that with the camera serial number automatically read by the program. If this software cannot match the camera to the calibration file, the user cannot perform temperature analysis on the data. Contact customer service if there is an issue.

IF YOUR PACKAGE INCLUDES ADDITIONAL LENSES A SEPARATE CALIBRATION IS REQUIRED FOR EACH LENS. CONTACT CUSTOMER SERVICE IS THERE IS AN ISSUE.

10-2 Radiometry Correction

The accuracy of temperature conversion is also dependent on the physics of the scene. These physical properties include humidity, emissivity and reflection of the target, the transmission in the intervening atmosphere, and the background/foreground temperature within the scene.

Information for an image is stored in the Project Information/Zones area and can be retrieved by clicking the drop-down tab next to "Image". ROI data is stored under "Zones". The dialog box shown below allows users to offset potential errors by typing precise values into the input field next to the property:

Users can include data in reports. To toggle data on/off click the squares. Boxes are green when selected.

Use the input fields to enter information and numerical data.

IMAGE DATA, I.E. INFORMATION FOR THE ENTIRE IMAGE, IS SEPARATE FROM REGION OF INTEREST DATA, INFORMATION STORED IN THE ROI CREATED BY THE USER. VISIT THE APPROPRIATE DROP-DOWN TAB TO INCLUDE PREFERRED INFORMATION IN THE REPORT.

10-2-1   Detail Parameters

Name, Date, and Time information is automatically recorded and stored when and image is captured. Images have a default name of "XXYZ_IR" where "X" is a series of numbers. Users can enter notes in the Comments section. Location/GPS is captured if enabled.

10-2-2   Emissivity

Users are provided the capability to enter any value of surface optical property of the target surface deemed appropriate to the analysis. To set the emissivity enter a value from 0.01 to 1.0 in the input box.

The accompanying table gives the typical emissivity of important materials:

Material	Emissivity
Water	.96
Stainless steel	.14
Aluminum plate	.09
Asphalt	.96
Concrete	.97
Cast iron	.81
Rubber	.95
Wood	.85
Brick	.75
Tape	.96
Brass plate	.06
Human skin	.98
PVC plastic	.93
Polycarbonate	.80
Oxidized copper	.78
Rust	.80
Paint	.90
Soil	.93

AS THE EMISSIVITY VALUE BECOMES LOWER THE ERROR BETWEEN THE ACTUAL SURFACE TEMPERATURE OF THE OBJECT AND THAT SHOWN BY THE CAMERA BECOMES GREATER. A GREAT DEAL OF ERROR CAN BE INTRODUCED INTO THE CALCULATION PROCESS IF YOU ARE NOT CAREFUL WITH THE EMISSIVITY SPECIFICATION.

10-2-3   Ambient Temperature

The Ambient Temperature, which is often referred to as the background, is the temperature of the air surrounding the target object. This number can affect surfaces whose energy will hit the face of the target object and reflect from it into the camera's field of view.

Entering a numerical value in the appropriate input box will adjust the temperatures of an image accordingly.

10-2-4   Distance and Angle of Capture

Although distance usually will not affect the temperatures measured by the software it can be helpful to know the distance to the target location. Generally, the further away the IR sensor is from the target/background area, the less thermal contrast seen in the image.

Angles of reflection can also affect the contrast. This is significant because when the IR sensor is operated at low angles over water there may be no perceived thermal difference between the horizon and the water, i.e. the horizon can seem to disappear. Users can change their angle by changing where they stand or by attaching a camera to an unmanned aerial system.

While there is an input box for Distance there is not an input for Angle. Use the Comments section to create notes.

10-2-5   Humidity

Humidity remains in the atmosphere even on bright days. Water of all three states can be found naturally in the atmosphere: liquid (rain, fog, and clouds), solid (snowflakes, ice crystals), and gas (water vapor). Water in any state is an obstacle to accurate temperature measurements. When the wave passes through the water particles, a part of its energy is absorbed and a part is scattered. Therefore the electromagnetic wave is attenuated.

Users can correct for atmospheric attenuation due to humidity by defining the value using the input field.

Users can include data in reports. To toggle data on/off click the squares. Boxes are green when selected.


Use the input fields to enter information and numerical data.

10-3   Histograms & Graphs

The bottom right corner of the screen plots image information in the form of a histogram or a 3D rendering. It also allows users to visualize the temperature data over time for any/all ROIs placed on the image; the last image below shows a plot for three Regions of Interest.
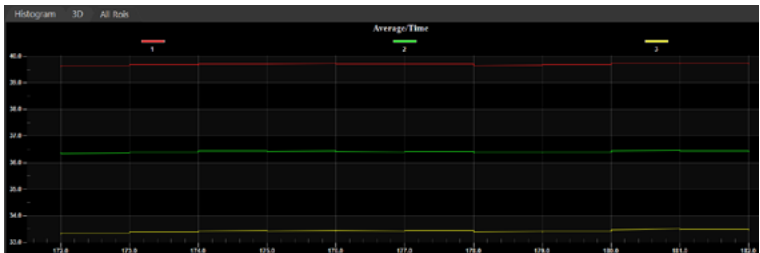
Histogram
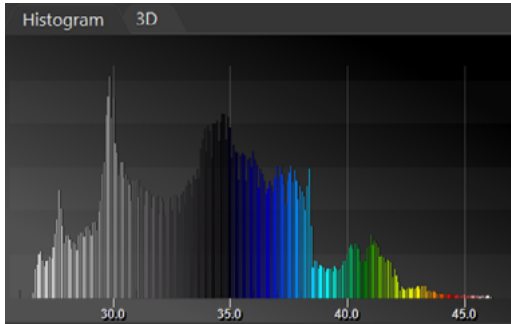
3D Rendering
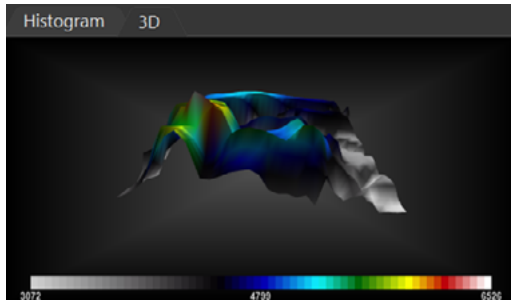
Data Over Time (ROI)

11.   Troubleshooting

If the user encounters any problems while using the imager, refer to the following options. If the problem persists, disconnect the power and contact the customer support department.

11-1   Camera(s) not showing, camera(s) lagging, or software crashing

- Close and reopen software

- Reconnect power & Ethernet cables

- Ensure that camera has been powered on for a few minutes

- Verify that static IP address is correct:

   ◦   Default IPv4 of 192.168.10.110

   ◦   Default subnet mask of 255.255.255.0

- Restart computer

- Verify that correct software is installed

- Uninstall & reinstall software, running as administrator

- Verify that firewall is not blocking software

- Try newer or different version of IR Flash Pro software

11-2   Thermal imager shuts off unexpectedly

- Reconnect power & Ethernet cables

- Check whether the power supply voltage

- Restart computer

11-3   No thermal image

- Open the lens cap

- If lens is foggy, use professional equipment to clean the lens

11-4   Camera out of focus

- Performance NUC operation using the software

11-5 Temperature readings are incorrect

- Turn off the device; then, turn it back on

- Ensure the device has sufficiently acclimated to the environment before taking measurements

- Ensure the camera has been powered on for several minutes

- Device is at proper height

- Ensure device is in focus

- Adjust emissivity

- Adjust for ambient temperature

- Perform a NUC operation

- Reconnect power and Ethernet cables

- Restart the Computer

- Ensure the camera is away from direct sunlight or reflective light

- Try newer version of IR Flash Pro software

11-6 Network recognized but not connected

- Change the network configuration according to the manual

12. About ICI

ICI manufactures complete systems and software. We can provide complete engineering, software, and OEM solutions. Our Fortune 500 clients rely on us for infrared equipment and thermography training (which we offer through the Infrared Training Institute).

In addition to providing custom germanium, silica, and sapphire optics, we also build windows for enclosures, as well as custom pan and tilt units. We can even provide customizable explosion-proof systems.

Our knowledge and experience stems from years of using infrared imaging and temperature measurement instruments to provide solutions to: managers, engineers, scientists, inspectors and operators in space, power companies, medical, pulp and paper, food industry, research and development, and various process industries. You can see our products and services used in industrial, commercial, and government applications worldwide. Additionally, our ICI 7320 was awarded "Product of the Month" by NASA*. Originally named Texas Infrared (still DBA), Infrared Cameras, Inc. has been in business since March, 1995.

Thank you for your dedicated and continued support.

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