

FMX 400 P SERIES IR CAMERA

USER MANUAL



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

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1. General Description

FMX 400 Series IR cameras are specially designed to take the body temperature of a person and to report the total number of persons scanned. Depending on various skin types and thickness, there may be temperature difference. The system has been widely applied for inspection services, and is available for adjunctive use in: hospitals, and sub-acute healthcare settings public areas, i.e. airports.

2. Safety Information

- This device must be installed by qualified service personnel or system installation personnel.
- This device must be installed in an environment with lightning protection measures.
- Do not touch the lens to prevent it from being damaged or getting dirty.
- Please take precautions to prevent the lens from being worn, scratched or even broken.
- Given that the uncooled thermal infrared image camera uses a very sensitive thermal sensor, under no circumstances (power on or off) should the lens be pointed directly at a strong radiation source (such as sun, direct or reflected laser beam, etc.), otherwise permanent damage will be caused to the uncooled thermal imager.
- 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 ambient temperature must not be lower than -25 °C, and the original packaging box must be used during transportation.
- 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.
- If the device operates abnormally, please contact the supplier and do not dismantle the device on your own.
- Do not drop or throw the device.
- Do not put the product into a fire.
- It is recommended to calibrate the device annually.

3. Features

- Automatic alarm capture
- Audio and visual alarms
- Record and capture functions
- Intelligent calibration
- Unmatched image sensitivity
- Real-time radiometric data streaming

4. Intended Use

FMX 400 Series IR cameras are designed for body surface temperature measurement of infants and adults without contacting the human body.

4-1. Normal Temperatures According to Age

The temperature of the human body varies throughout the day. It can also be influenced by numerous external factors: age, sex, and thickness of skin.

Age	Temp °C	Temp °F
0-2 years	36.4 to 38.0	97.5 to 100.4
3-10 years	36.1 to 37.8	97.0 to 100.0
11-65 years	35.9 to 37.6	96.6 to 99.7
>65 years	35.8 to 37.5	96.4 to 99.5

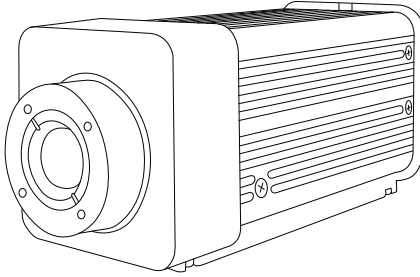
5. Technical Specifications, Accessories, and Documents

Camera specifications, accessories, and documentation for FMX 400 Series IR Camera monitoring devices can be found online:

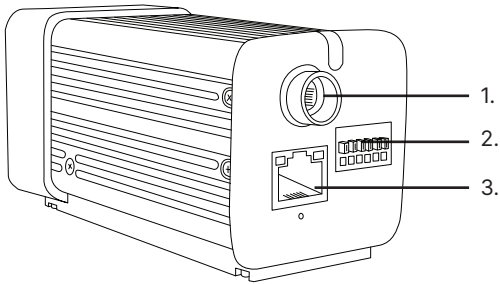
<https://infraredcameras.com/product-resources/>

6. Structure and Installation Instructions

6-1 Appearance



6-2 Definitions of Housing Interface



1. Coaxial plug interface
2. Analog I/O - reserved
3. RJ-45 internet access

6-3 Installation Instructions (Quick Start Guide)

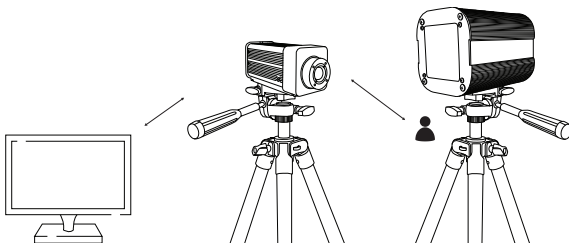
The installation guides for the FMX 400 Series IR Camera monitoring devices can be found online:

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

7. Operation Instructions

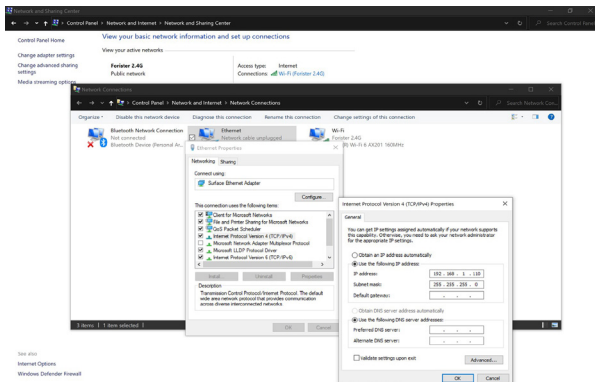
7-1 Assembly

Provide power to both the camera and temperature reference source and connect the Ethernet connection directly to the computer.



7-2 Computer Setup

The FMX 400 comes configured with static IP addresses for the infrared camera. The infrared camera lies at 192.168.1.123. Connecting the computer requires settings the IPv4 settings of the Ethernet port to a static IP address in the same “Class C.” We suggest applying 192.168.1.110 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 192.168.1.110. 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.

SOFTWARE DISPLAYS BEST WITH 1920 X 1080 RESOLUTION OR ABOVE.

7-3 IR Flash Skin Temperature Monitor Software

Installation, setup, and operations documentation for IR Flash STM can be found online:

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

8. Cleaning and Maintenance

8-1 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 cloth or lens wiping paper and dip in alcohol or lens wiping liquid. Gently wipe the lens surface from the middle to the edge, paying attention to not crack the lens, or use too much wiping liquid. If the lens is still not clean, replace the cloth and repeat operation.

8-2 Device Calibration

It is recommended to have your device re-calibrated annually. Contact customer service to schedule maintenance.

9. Site and System Setup Validation Checklist

Site: _____ **System:** _____
Contact Person: _____ **Date:** _____

**All those tasked with the initial setup of the temperature screening equipment must be present during this training.

***This portion of the validation requires a live video feed with the instructors.

9-1 The Screening Area

- Ensure that this area is free from:
 - Any direct or indirect (reflected) sunlight
 - Warm or cold conductive airflow
 - HVAC vents/intakes
 - Any radiant energy from electrical sources
 - Direct or indirect lighting on individual being screened
- Room temperature is 20 °C - 24 °C (68 °F - 75 °F)
- Relative humidity is within 10 % – 70%

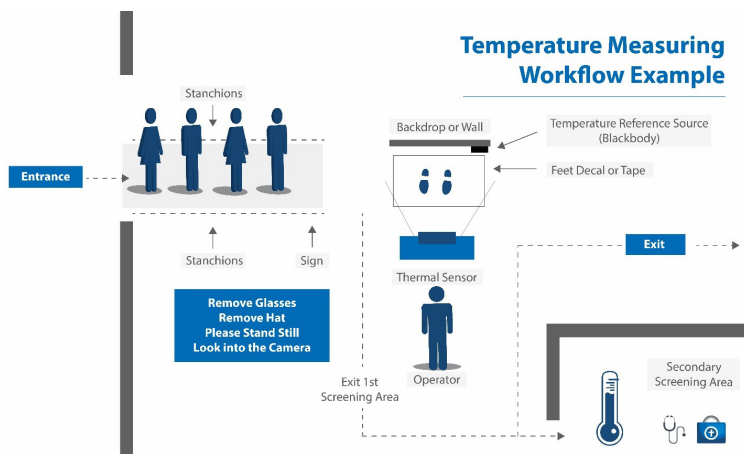
9-2 The Screening Background

- Placement is parallel and perpendicular to screening camera
 - At a distance of ~12 ft.
- Consists of a non-IR reflective homogeneous background
 - Minimum size is 10' x 8'
 - White to gray flat finish
- The temperature reference source is in front of background (direct line of sight to the screening camera) and is framed within the screening image

9-3 The Traffic Flow

- Establish a guided pathway from the entrance to the screening area
 - Design this pathway so there is an equilibration time
 - No restrooms on ingress pathway
 - Signage should instruct for removal of glasses, headwear, and masks
- Mark the point of measurement on the floor (“V/X” or a set of footprints)
 - The distance is unique to each screening system
- Ensure the line of sight from the temperature reference source to the camera is never blocked by an individual entering or leaving the point of measurement
- The secondary screening area should be setup near the screening area

9-4 Typical traffic flow illustration:



9-5 IR Camera Placement

- Level on tripod or other suitable support
- Perpendicular to floor and individual being screened
- Height of camera
 - Average male 70 ± 4 inches; Average female 65 ± 4 inches
 - 5'4" – 5'8" will image 4'8" to 6'4" individual.
 - Larger will require a height adjustment to camera.

- Distance of camera to individual being screened is 4 – 5 ft.
 - The individual's face and temperature reference source should be in the frame
- Distance to temperature reference source: 6-7 feet
 - Behind the individual being screened yet visible within the frame of the image
- Protect the camera from exposure to direct sunlight to avoid damage to the camera sensor

9-6 Temperature reference source

- On tripod or other stable stand, in front of background, and positioned for visibility within the frame of the image.
- Temperature is set at 35 °C (95 °F) or 37 °C (98.6 °F).
- Warm-up time is 15 minutes.

9-7 Software

- Set up the software according to the instructions provided
- Installation, setup, and operations documentation for IR Flash STM can be found online:

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

9-8 Final Step

Final validation is dependent upon a signed copy of this checklist from each person responsible for each site.

Upon completion please sign below:

ICI representative:

Company representative:

Sign name

Sign name

Print name

Print name

Date:_____

10. Troubleshooting

10-1 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 192.168.1.110
 - 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 STM software

10-2 Camera out of focus

- For FMX 400 cameras:
 - Adjust electronic focus with middle button
 - Close and reopen software
 - Try newer or different version of IR Flash Pro STM software
 - Restart computer

10-3 Temperature readings are incorrect or facial recognition is suboptimal

- Close and reopen software
- Check that software settings are correct:
 - Fixed temperature of 35 °C or 37 °C, depending on temperature reference source
 - Temperature reference source has crosshair over it
 - In Inspection System software:
 - Make sure that facial detection is on
 - Turn on core body compensation
 - Set automatic compensation to environmental temperature

- Remove masks & glasses
- Camera is proper distance from person
- Camera is at proper height
- Temperature reference source in view, perpendicular to camera, but not blocked
- Person is looking directly at camera lens, not at an angle
- Camera is in focus
- Reconnect power to camera & temperature reference source
- Temperature reference source power switch is on
- Camera and temperature reference source powered on for several minutes
- Ensure temperatures on back of temperature reference source match
- Restart Computer
- Camera is away from direct sunlight or reflective light
- Plain background
- Try newer version of IR Flash Pro STM software

11. About ICI

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You may reach a representative by phone or email Monday – Friday 8:00AM - 5:00PM CST.

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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