Revision: 11.2022-002

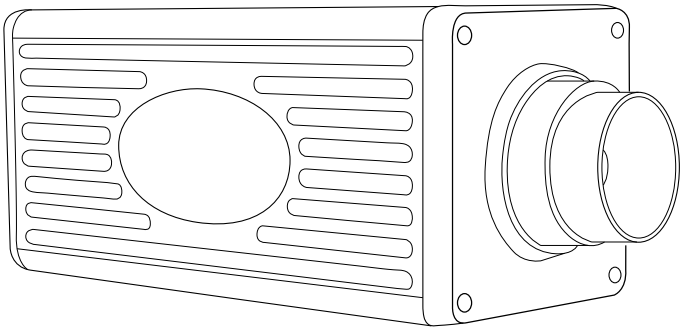
ICI | INFRARED CAMERAS INC

Industry

FMX HT-640 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.

2105 W. Cardinal Dr. Beaumont, TX 77705

For more information, contact us: (409) 861-0788 | sales@infraredcameras.com | www.infraredcameras.com

Revision History

11.2022-001	Document created
11.2022-002	Updated troubleshooting section

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

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 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 HT-640 P-Series cameras are used for surface temperature assessment of energy emitted from the first 1/1000th of an inch of a subject. A 768 × 576 resolution camera, it is capable of imaging metals including molten steel. It delivers sharp and clear images even at high operating temperatures making it perfect for monitoring welds, imaging the sun, performing research, or any application where precision, high temperature measurements greater than 1500°C (2732°F) are required.* The FMX HT-640 monitors equipment in real time and warns of a failure before it happens, saving money by preventing equipment damage, reducing production downtime, and keeping personnel safe.

Environment of use: industrial and petrochemical buildings, electrical plants, security rooms, science labs, 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.
- To prevent eye damage and personal injury, do not look into the laser. Do not point the laser directly at people or animals or indirectly off reflective surfaces.
- Do not disassemble or modify the 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.
- 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.
- 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 lens. Do not clean the lens too vigorously. This can damage the surface.
- Avoid condensation. Taking the imager from cold to hot will cause condensation in 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.
- 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.

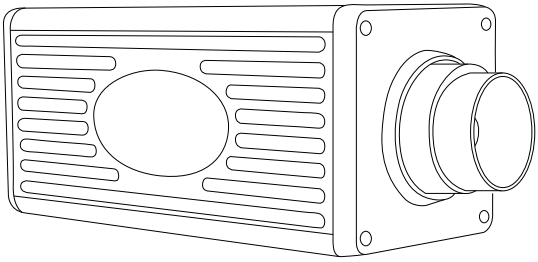
4. Technical Specifications

	FMX HT-640
Pixel Resolution	768 x 576
Accuracy	± 2°C (± 3.6°F) or 2% of reading
Temperature Range	650°C to > 1500°C (1202°F to > 2732°F)*
Operation Range	-20°C to 50°C (-4°F to 122°F)
Storage Range	-40 °C to 70 °C (-40 °F to 158 °F)
Pixel Pitch	15 µm
Focal Length	25 mm
FOV	22°x17.6°
IFOV	0.6 mrad
Focus	Manual
Spectral Band	0.5 µm to 0.54 µm
Frame Rate	30 Hz
Shock/Vibration	25 G/2 G
Dimensions (without lens)	152 mm x 101 mm x 76 mm (L x W x H ± 0.5 mm) (5.98” x 3.98” x 2.99” (L x W x H ± 0.02”))
Power	5 V DC
Weight (without lens)	< 500 g (1.1 lbs)
Interface	RJ45 Ethernet
Video	Raw
Image Polarity	Monochrome
IP Rating	IP54
Internal non-uniformity correction (NUC)	

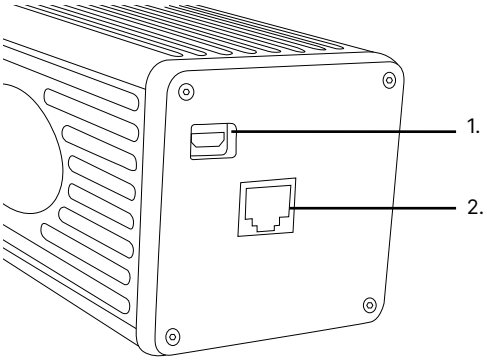
* The FMX HT-640 has been used to measure temperatures up to 3000°C (5432°F)

5. Structure

5-1 Appearance and Definitions of Housing Interface

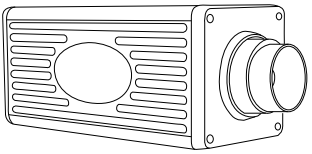


5-2 Definitions of Housing Interface



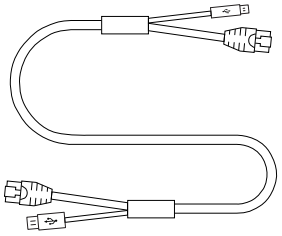
1. Mirco-USB interface
2. RJ-45 Internet access

6. Package Includes



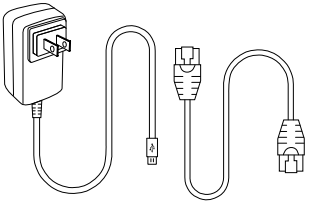
FMX Series IR Camera

Software USB Drive



Option 1: Combo Cable

or



Option 2: Power Adapter and Ethernet Cable

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

7. Quick Start Instructions

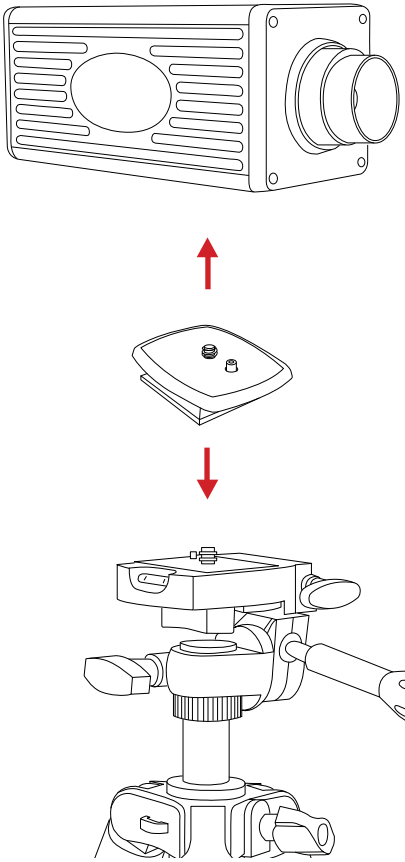
7-1 Option 1 Setup

A.

Mount the FMX Series camera to a tripod using the ¼-20 mount.

B.

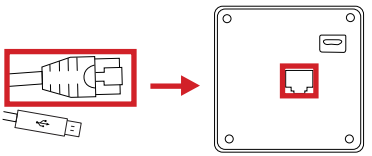
Plug Mirco-USB end of the combo cable into the 5V DC port on the back of the FMX Series camera.



MAKE SURE TRIPODS DO NOT BLOCK THE DIRECT PATH OF PERSON(S) TO BE IMAGED TO ENSURE THE EQUIPMENT WILL NOT BE MOVED OR KNOCKED DOWN. USING A DIVIDING BARRIER WILL HELP KEEP TRIPODS SEPARATE FROM THE PATH.

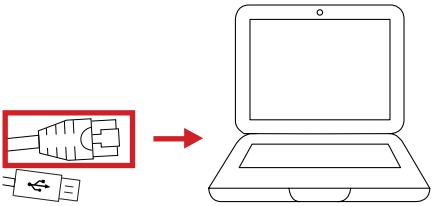
C.

Plug the Ethernet combo cable (same side as the Micro-USB) into the FMX Series camera Ethernet port.



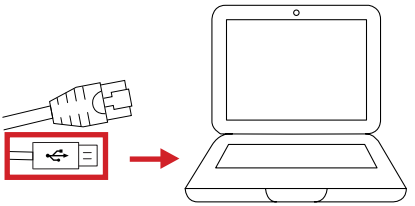
D.

Plug the other end of the Ethernet cable into the Ethernet port of the laptop computer.



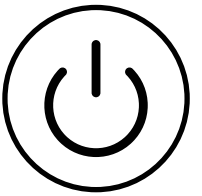
E.

Plug USB into an open USB port of the laptop computer.



F.

Power on devices.

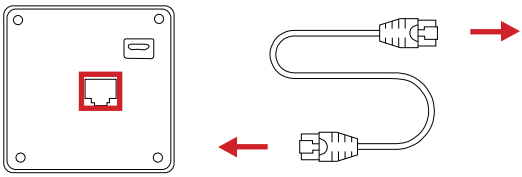


7-2 Option 2 Setup

SOME FMX SERIES IR CAMERA PACKAGES WILL COME WITH A POWER ADAPTER AND ETHERNET CABLE INSTEAD OF A COMBO CORD. COMPLETE STEP A FOR OPTION ONE SETUP BEFORE CONTINUING WITH THE FOLLOWING STEPS.

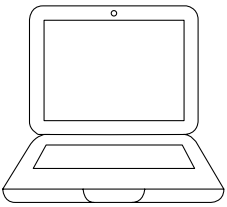
B.

After mounting the FMX Series camera, plug the Ethernet cable into the FMX Series camera Ethernet port.



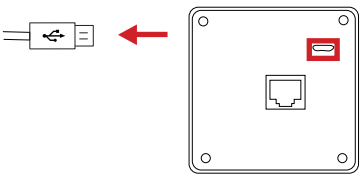
C.

Plug the other end of the Ethernet cable into the Ethernet port of the laptop computer.



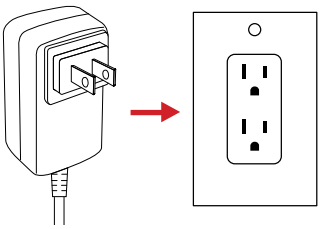
D.

Plug Mirco-USB end of the power adapter cable into the 5V DC port on back of FMX Series camera.



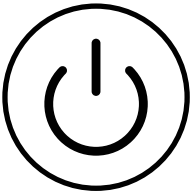
E.

Plug power cord into a 110/120V electrical outlet.



G.

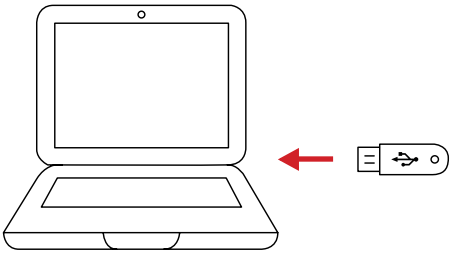
Power on devices.



7-3 Software Installation

A.

Install IR Flash software using the software USB drive. Refer to the IR Flash User Manual for instructions.



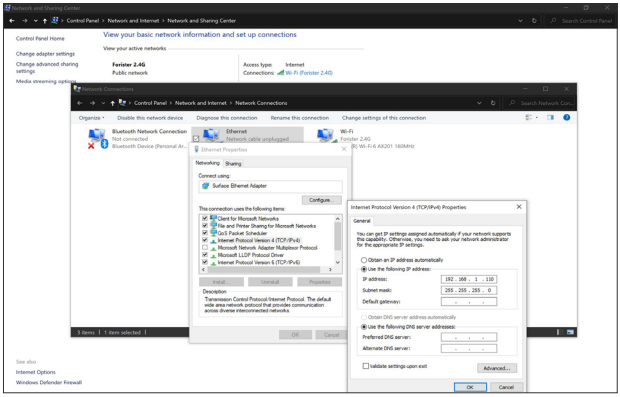
B.

Once installed, launch IR Flash software by double-clicking the associated desktop icon.

8. Operation Instructions

8-1 IP Address Configuration

The FMX HT-640 comes configured with static IP address. The 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. 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. 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.

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 192.168.10.110
    - 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

10-2 The imager shuts off unexpectedly

- Reconnect power & Ethernet cables
- Restart computer

10-3 No image

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

10-4 Camera out of focus

- Adjust focus ring

10-5 Unclear or dark visible images

- Turn on lights in imaging area
- If lens is foggy, use professional equipment to clean the lens

10-6 Temperature readings are incorrect

- Turn off the device; then, turn it back on
- The temperature range is 650°C to > 1500°C (1202°F to > 2732°F)*
- 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
- Ensure the camera has been powered on for several minutes
- Restart the Computer
- Ensure the camera is away from direct sunlight or reflective light
- Try newer version of IR Flash Pro software

* The FMX HT-640 has been used to measure temperatures up to 3000°C (5432°F)

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.

Infrared Cameras, Inc.
2105 W. Cardinal Dr.
Beaumont, TX 77705

Phone: (409) 861-0788
Toll Free: (866) 861-0788
International: (409) 861-0788

Customer Support: support@infraredcameras.com
Website: www.infraredcameras.com

You may reach a customer care representative by phone or email during regular business hours: Monday – Friday 8:00AM - 5:00PM CST.