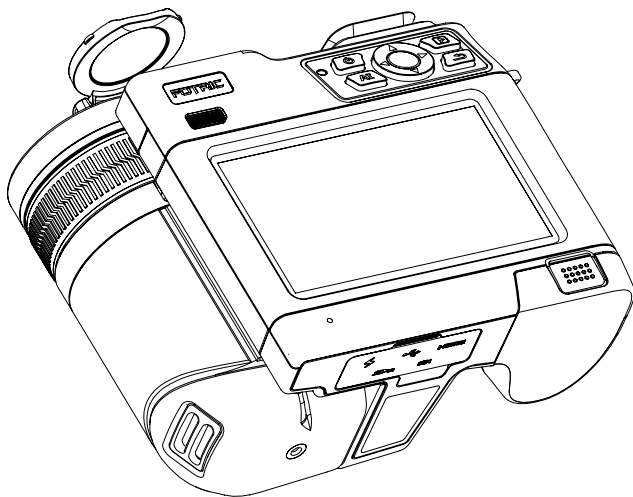


FOTRIC P-series

Quick Start Manual



FOTRIC

CONNECTING THE DIGITAL FUTURE

Symbols

For the symbols that appear in the documentation, the descriptions are listed below.

 Warning	 Caution
Potential death or serious injury inducing hazards	Potential danger of injury or property damage

Safety information

The purpose of this section is to ensure that the user uses the product properly to avoid danger or property damage.

Before using this product, please read this instruction manual carefully and keep it in a safe place for future reference.

Warning

- Never disassemble or modify the thermal imaging camera battery. The battery is equipped with safety and protective devices which, if tampered with, may cause the battery to overheat and may also cause an explosion or burn. If the battery is leaking and the leak gets into your eyes, do not rub it, wash it with water and get immediate medical attention.

- Thermal imaging cameras that use a laser pointer. Do not view the laser beam directly with the human eye. The laser beam can cause eye irritation.
- If the unit is not working properly, contact your dealer or our company and do not disassemble or modify the unit in any way (unauthorized modifications or repairs cause problems at your own risk).

Caution

- Avoid using the product in humid, dusty, extremely hot or cold environments, please refer to the product's parameter table for specific temperature and humidity requirements.
- Do not touch the sensor or lens directly to avoid staining and damage from oil and various chemicals. If cleaning is necessary, moisten a clean cloth and gently wipe off any dust. Close the lens cap when the camera is not in use.
- When the camera is turned on, it may take approximately 5-10 minutes for the camera to warm up before taking accurate readings.
- Avoid focusing or prolonged observation on the sun or objects with extremely high temperatures, as this may result in reduced sensor life damage or temporary black spots (minor cases can be recovered after calibrating the NUC, severe cases can result in permanent irreversible damage to the detector).

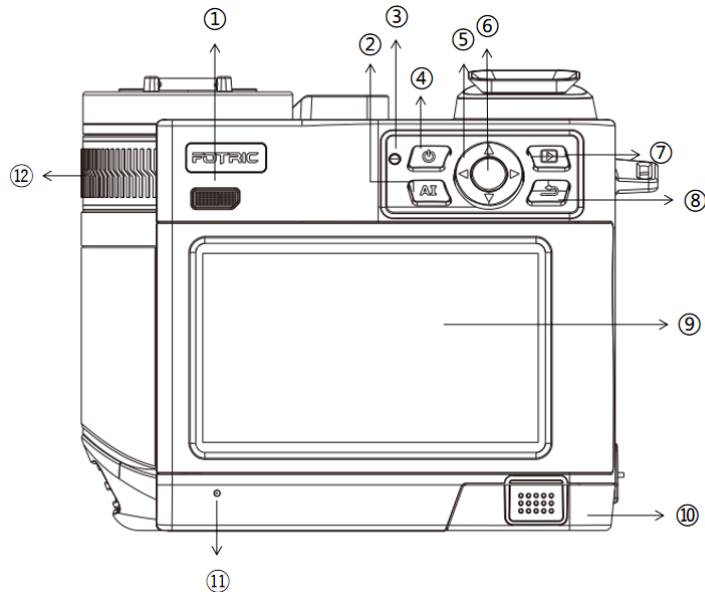
- Avoid damage to the sensor caused by over-range use of the device.
- It is strongly recommended to use the original power adapter, the specific requirements of the power adapter are shown in the product data sheet.
- To prevent the potential danger of data loss, always make a copy (backup) of your data on a computer.
- When storing the camera, it is strongly recommended to use the original box and to keep it in a cool, dry, ventilated environment free from strong electromagnetic fields.
- When shipping the camera, it is strongly recommended that it be shipped protected in its factory packaging.

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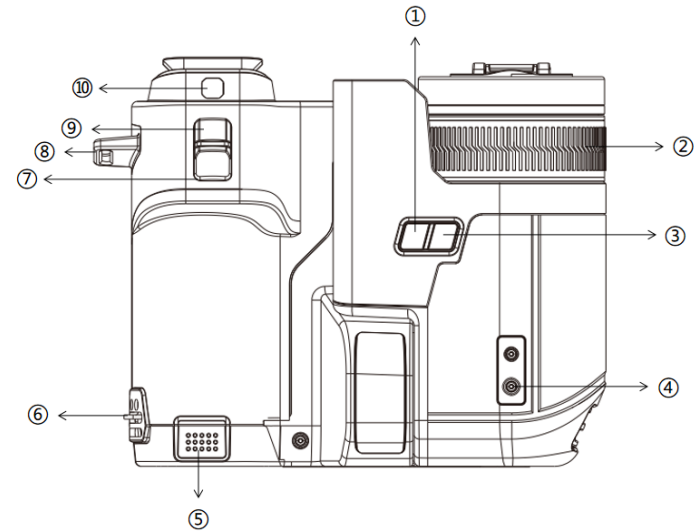
Thermal imaging camera

Front view



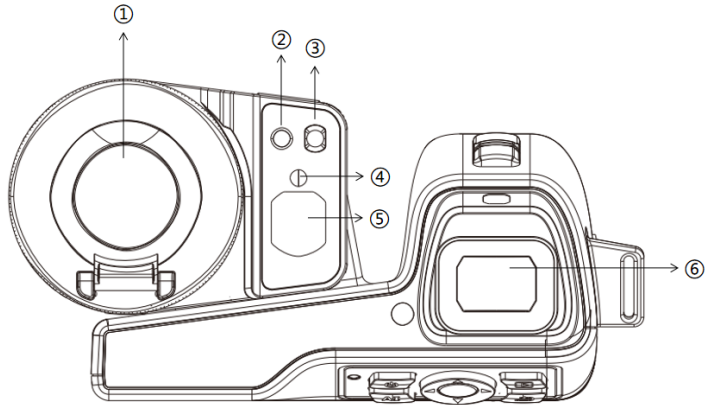
- ① Speaker
- ② AI key
- ③ Laser key
- ④ Power button
- ⑤ Arrow keys
- ⑥ Confirmation key
- ⑦ Gallery button
- ⑧ Back button
- ⑨ 5" LCD screen
- ⑩ Battery
- ⑪ Microphone
- ⑫ Manual focus ring

Rear view



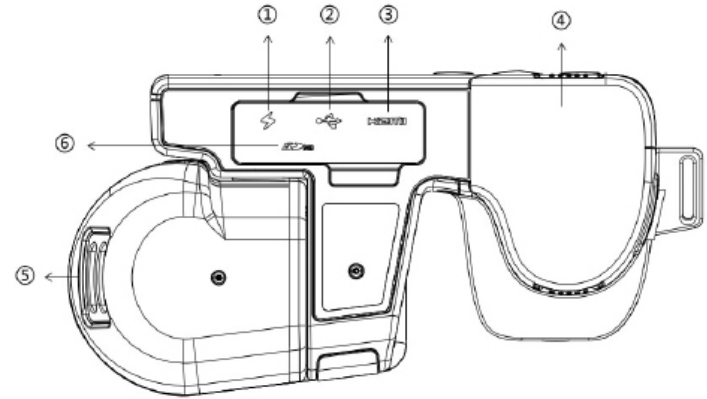
- ① AI key
- ② Manual focus ring
- ③ Laser key
- ④ Tripod fixing interface
- ⑤ Battery
- ⑥ Wrist band lower connection
- ⑦ Freeze image and snapshot button
- ⑧ Wrist band upper connection
- ⑨ Autofocus button
- ⑩ Digital camera

Top view



- ① Laser ranger
- ② Digital camera
- ③ Flash light
- ④ Laser emitter
- ⑤ Digital camera
- ⑥ View finder (Only available on specific models)

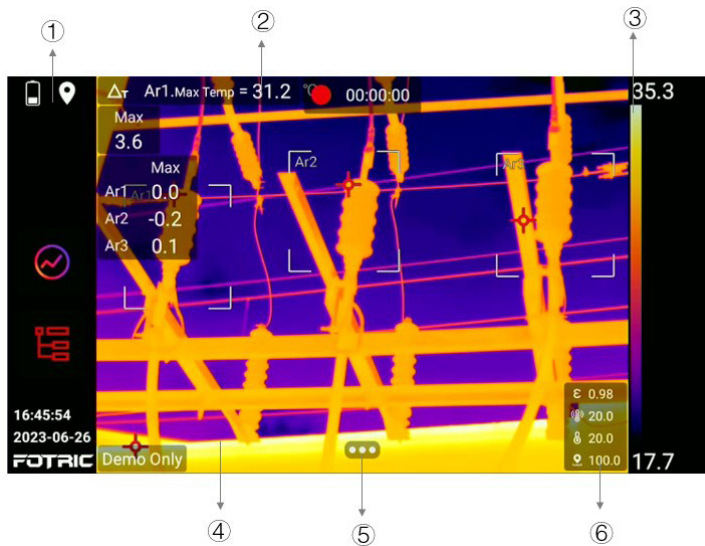
Interface



- ① Charging port
- ② USB interface
- ③ HDMI interface
- ④ Battery
- ⑤ Thread hanger
- ⑥ SD memory card socket

Interface introduction

Main interface



① Display battery, Wi-Fi, cellular network, Bluetooth, GPS, SD card capacity low, laser warning, Compass, time, Logo and other reminder icons.

② Displays global and area temperature, emissivity, area, length, and other values.

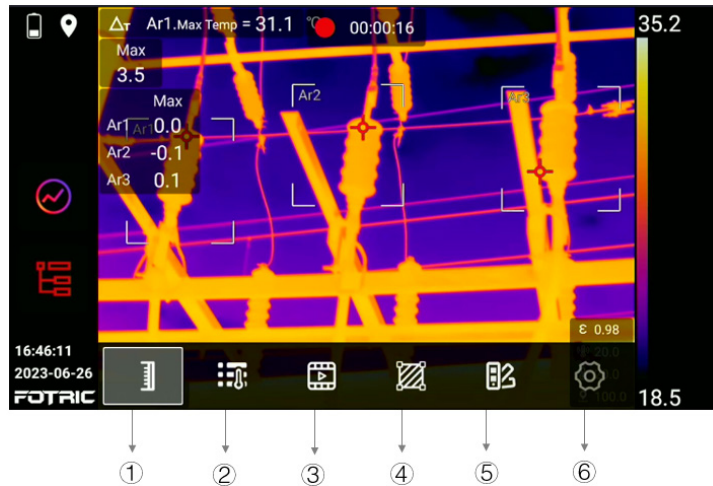
③ Displays the values of the palette color band and the upper and lower temperature span/scale limits.

④ Displays real-time thermal image, temperature measurement markers(ROIs) and target distance.

⑤ Enable users to adjust the temperature span/scale, temperature measurement parameters, image mode, ROIs, color palette and to summon settings menu.

⑥ Displays emissivity, reflected temperature, ambient temperature, relative humidity, target distance and other measurements

System menu

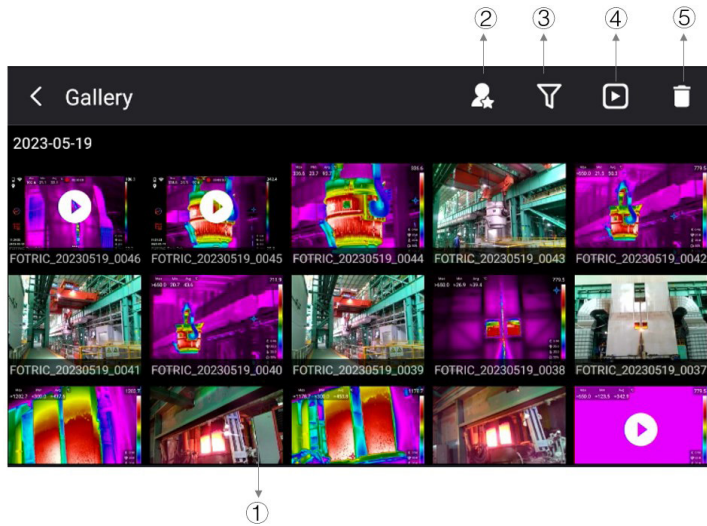


- ① Select among automatic temperature span, manual temperature span, touch temperature span setting.
- ② Adjust emissivity, reflection temperature, ambient temperature, relative humidity, target distance, infrared window compensation factors.
- ③ Switch between infrared, visible light, picture-in-picture, and image fusion mode.
- ④ Apply ROIs such as spot, rectangle, circle, line. Calculate temperature rise among ROIs or against a specific temperature value.

⑤ Apply various color palettes and inverse palettes, including color alarms (isotherms).

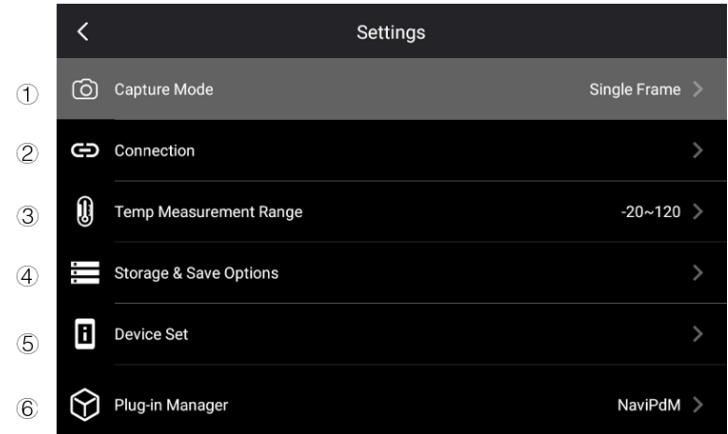
⑥ Change settings about capture mode, network connection, temperature measurement range, storage and save options, device settings, etc.

Gallery



- ① Displays the captured thermal image, visible light photo, full radiometric thermal video, non-radiometric videos. Short click to select, long press to multi-select;
- ② Display only images with the favorite toggle activated;
- ③ Filtering by tags attached to the images;
- ④ Enter the analysis mode to analyze the captured thermal images and full radiation video files;
- ⑤ Delete the selected file.

Settings



- ① Capture mode: switch between single-frame shooting, recording (radiometric or MPS), and time-lapse mode;
- ② Connection: WLAN, hotspot, Bluetooth, FTP transfer, and Network;
- ③ Temperature range: Switch among 3 different temperature ranges, can also enable intelligent range;
- ④ Storage and save option: Super resolution, video compression format, saving visible light image as separate JPEG photos, saving measurement settings such as distance, and deletion of all saved files;
- ⑤ Device set: language, time and region settings, focus type,

display settings, geolocation, energy saving mode, manual span/scale mode, volume, reset and camera information.

⑥ Optional function upgrades and plug-ins.

Quick start

Please follow these steps:

1. Place the battery in the camera's battery compartment.
2. Before turning on the camera for the first time, charge the battery to full power.
3. Insert the SD card into the corresponding slot.
4. Long press the power button to turn on the thermal imaging camera.
5. Aim the thermal imaging camera at the target object.
6. Tap the autofocus button or rotate the manual focus ring to clearly image the target object.
7. Press the snapshot button once to freeze the image, and the user may conduct analysis and make adjustment on the thermal image.
8. Press the snapshot button again to save the image and changes user made.
9. (From here, users may either choose IRExplorer or AnalyzIR to conduct analysis on the thermal images. Detailed instructions for accessing IRExplorer are included in the 'Software activation and download' section)
10. Download the AnalyzIR software from '<https://www.fotric.com>'

com/fotric-analyzir'.

11. Install AnalyzIR and related drivers on the PC.
12. Start AnalyzIR professional analysis software.
13. Connect the camera to the computer using a Type-C USB cable or connect to the SD card with a reader.
14. Copy the images from the Gallery folder in the SD card of the camera to the PC.
15. Open AnalyzIR and drag thermal image(s) into the software interface
16. Analyze, save and generate reports.
17. Click Export to export the report as a Word file.

Cautions

- It is very important to properly adjust the focus when taking the image. Poorly focused images will not only affect the thermal image clarity but also compromise the temperature measurement accuracy.
- By default, the thermal imaging camera will automatically adjust the temperature span/scale, but the temperature span/scale can also be adjusted manually if needed.
- After the camera is turned on, it is recommended to let it warm up for about 5~10 minutes for better temperature measurement.
- You may manually select the appropriate temperature range based on the inspection scene; Alternatively, you can also choose the intelligent range, which allow the camera to automatically adjust its temperature range.
- Thermal imaging cameras have a 'clarity' limit that depends on the detector resolution, field of view, and the distance to the target.
- Please make sure to keep the camera away from hazardous areas or energized electrical components.
- Please be mindful when inspecting the a highly reflective surface at a perpendicular angle, as you may be the primary source of reflected radiation.

- Please always select an area with high emissivity (e.g., an area with an unsmooth surface) for measurement if possible.
- Shiny objects (and objects with low emissivity) may appear warm or cold in the thermal imaging camera because they are reflecting radiation from its vicinity.
- Please avoid direct sunlight exposure if possible.
- Various types of faults (such as those occurring in building construction) may produce similar heat distribution pattern.
- Proper analysis of infrared images requires the certain expertise.
- Please make sure the battery is fully charged before storing the camera away for a long time.

This manual may be inconsistent with the product due to product enhancements or version changes.

In case of inconsistency, please refer to the actual product.

Please read the manual before use

Please visit the following website to read or download the brochure:

<https://www.fotric.com/support>

Software activation and download

IRExplorer:

Go to Settings->Device Set->Plug-in manager->Service plugin->IRExplorer->Turn on Network connection

If the user is connecting with a device capable of scanning the QR code, open and scan the QR code either from 'IRExplorer' interface or from the swipe-down menu on the main interface. The QR code will take the user to the Log-in interface

If the user is connecting with a device that cannot scan QR code, open a browser and type the IP address from 'Network connection'. The IP address will take the user to the Log-in interface

Log in and access data from the device with the 'user name' and 'password' provided on the 'Network connection' interface.

AnalyzIR:

Users may visit the following website to download the software:

<https://www.fotric.com/fotric-analyzir>

For instructions on using the software, please refer to 'AnalyzIR

User Manual' on the same page.

Maintenance

- Temperature measuring equipment is recommended for temperature calibration measurement once every one to two years.
- Pay attention to keep the lens clean, use a soft non-woven cloth to gently wipe and brush away dust, or use an oil-free cotton cloth dipped in 96% concentration of ethanol, wring it out and wipe it gently, avoid wiping it hard to cause permanent damage to the lens.
- Please ensure that the battery is fully charged when storing for a long time.

Appendix A

Emissivity Table

(For reference only)

Material Name	Surface Condition	Temperature (°C)	Emissivity (ϵ)
Aluminum	Non-oxidized	100	0.2
	Oxidized	100	0.55
	Polished brown	20	0.4
Brass	Unpolished	38	0.22
	Oxidized	100	0.61
Copper	Severely oxidized	20	0.78
Iron	Oxidized	100	0.74
	Rusty	25	0.65
Cast iron	Oxidized	200	0.64
	Non-oxidized	100	0.21
Wrought iron	Roughened	25	0.94
	Polished	38	0.28
Nickel	Oxidized	200	0.37
Stainless steel	Oxidized	60	0.85
Steel	Oxidized at 800°C	200	0.79

Common brick	Surface	20	0.93
Concrete	Surface	20	0.92
Glass	Polished plate	20	0.94
Lacquer	White	100	0.92
	Natural color black	100	0.97
Carbon	Smoke black	25	0.95
	Candle soot	20	0.95
	Graphite rough surface	20	0.98
Paint	Average of 16 colors	100	0.94
Paper	White	20	0.93
Sand	Surface	20	0.9
Wood	Polished	20	0.9
Water	Distilled water	20	0.96
Skin	Human	32	0.98
Pottery	Fine	21	0.9
	Abrasive	21	0.93

Appendix B

Statement

Federal Communications Commission (FCC) Declaration of Conformity

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Exposure to Radio Frequency (RF) Energy

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. And user must follow the specific operating instructions for satisfying RF exposure

compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.


The mobile device is designed to meet the requirements for exposure to radio waves established by the Federal Communications Commission (USA). These requirements set a SAR limit of 1.6 W/kg averaged over one gram of tissue.

The highest SAR value reported under this standard during product certification for use when properly worn on the body is 0.522 W/kg.

Warnings

According to Article 10 (10) of Directive 2014/53/EU, the packaging shows that this radio equipment will be subject to some restrictions when placed on the market in Belgium (BE), Bulgaria (BG), the Czech Republic (CZ), Denmark (DK), Germany (DE), Estonia (EE), Ireland (IE), Greece (EL), Spain (ES), France (FR), Croatia (HR), Italy (IT), Cyprus (CY), Latvia (LV), Lithuania (LT), Luxembourg (LU), Hungary (HU), Malta (MT), Netherlands (NL), Austria (AT), Poland (PL), Portugal (PT), Romania (RO), Slovenia (SI), Slovakia (SK), Finland (FI), Sweden (SE), the United Kingdom (UK), Turkey (TR), Norway (NO), Switzerland (CH), Iceland (IS), and Liechtenstein (LI).

The WLAN function for this device is restricted to indoor use only when operating in the 5150 to 5350 MHz frequency range.

				
BE	BG	CZ	DK	DE
EE	IE	EL	ES	FR
HR	IT	CY	LV	LT
LU	HU	MT	NL	AT
PL	PT	RO	SI	SK
FI	SE	UK	TR	NO
CH	IS	LI		

The device for operation in the band 5150-5250 MHz is only for indoor use.

Wi-Fi transmission performance

	Band	Rates	Power
2.4GHz	802.11b	1Mbps	16dBm±2.5dB
	802.11b	11Mbps	16dBm±2.5dB
	802.11g	6Mbps	16dBm±2.5dB
	802.11g	54Mbps	14dBm±2.5dB
	802.11n HT20	MCS0	15dBm±2.5dB
	802.11n HT20	MCS7	13dBm±2.5dB
	802.11n HT40	MCS0	14dBm±2.5dB
	802.11n HT40	MCS7	13dBm±2.5dB
5GHz	802.11a	6Mbps	15dBm±2.5dB
	802.11a	54Mbps	13dBm±2.5dB
	802.11n HT20	MCS0	15dBm±2.5dB
	802.11n HT20	MCS7	13dBm±2.5dB
	802.11n HT40	MCS0	15dBm±2.5dB
	802.11n HT40	MCS7	13dBm±2.5dB
	802.11ac VHT20	MCS0	14dBm±2.5dB
	802.11ac VHT20	MCS8	13dBm±2.5dB
	802.11ac VHT40	MCS0	13dBm±2.5dB
	802.11ac VHT40	MCS9	12dBm±2.5dB
	802.11ac VHT80	MCS0	13dBm±2.5dB
	802.11ac VHT80	MCS9	12dBm±2.5dB

Wi-Fi reception performance

	Band	Rates	Sensitivity
2.4GHz	802.11b	1Mbps	-96dBm
	802.11b	11Mbps	-87dBm
	802.11g	6Mbps	-91dBm
	802.11g	54Mbps	-73dBm
	802.11n HT20	MCS0	-90dBm
	802.11n HT20	MCS7	-72dBm
	802.11n HT40	MCS0	-87dBm
	802.11n HT40	MCS7	-68dBm
5GHz	802.11a	6Mbps	-90dBm
	802.11a	54Mbps	-70dBm
	802.11n HT20	MCS0	-88dBm
	802.11n HT20	MCS7	-69dBm
	802.11n HT40	MCS0	-86dBm
	802.11n HT40	MCS7	-66dBm
	802.11ac VHT20	MCS8	-68dBm
	802.11ac VHT40	MCS9	-64dBm
	802.11ac VHT80	MCS9	-60dBm

About this brochure

The photographs, graphics, icons, and illustrations provided in this manual are for illustrative purposes only and may differ from the actual product. This manual may be updated by FOTRIC without prior notice due to product version upgrade or other needs.

The trademarks and images used in this manual are for illustrative purposes only and are the copyright of the trademark owner.

Disclaimers

the products (hardware, software, etc.) provided in this manual may be defective, faulty or malfunctioning, and FOTRIC disclaims all warranties of any kind, express or implied, including, but not limited to, warranties of merchantability, satisfactory quality, fitness for a particular purpose, non-infringement of third party rights, etc. FOTRIC shall not be liable for any special, incidental, consequential or indirect damages arising out of the use of this manual or our products including, but not limited to, loss of business profits, loss of data or documentation.

To the maximum extent permitted by law, none of our liability will exceed the amount you paid for this product.

After the product is connected to the Internet, it may be exposed to risks including but not limited to network attacks, hacker attacks, virus infections, etc. The company will not be responsible

for any abnormal work of the product, information leakage and other problems caused by this, but will provide technical support for you in a timely manner.

Products can sense motion detection and fire events when properly installed and configured, but cannot prevent accidents or resulting personal injury or property damage.

Thermal imaging products are classified as export controlled by the U.S. Department of Commerce, Export Control Classification Number (ECCN) 6A003.b.4.b. This product contains a focal plane array, Export Control Classification Number 61002. a3.f. This product may not be used in controlled countries (e.g. North Korea, Iran, Syria, Cuba, Sudan, etc.) and should not be brought into or used in controlled countries. You will be responsible for any loss or liability arising from the above actions.

In using this product, you are requested to strictly comply with applicable laws. You agree that this product is for civilian use only and may not be used in violation of the rights of third parties, medical/safety equipment or other applications where the failure of the product could result in life-threatening or personal injury, and for purposes such as mass destruction fog, biochemical weapons, nuclear explosions or any unsafe use of nuclear energy or dangerous or inhumane uses. Any loss or liability arising from such use will be borne by you. In the event of a conflict between the above and applicable law, the provisions of the law shall prevail.

How to contact FOTRIC

If you need to contact FOTRIC, please address the following

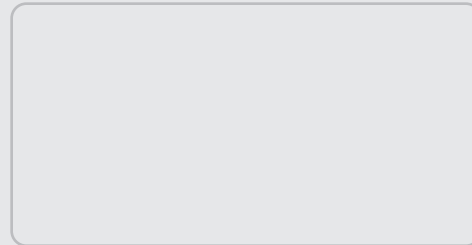
✉ info@fotric.com

🏠 www.fotric.com



Warranty Card

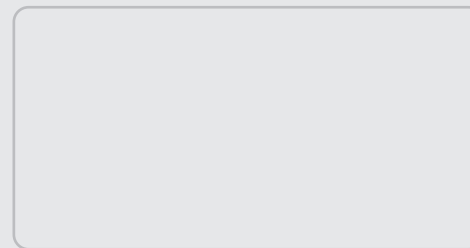
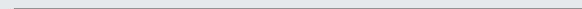
Thank you for choosing FOTRIC thermal imaging camera. We design products to deliver long-lasting performance under our warranty policy (starting from date of original purchase). If any manufacturing defects appear under normal use, the product will be repaired or replaced by FOTRIC INC. with no cost to the owner





Certificate of QC

This is to certify that the thermal imaging camera listed on this card meets the requirements of FOTRIC quality control procedures.





FOTRIC thermal cameras' technical standards are formulated following the international standards for the industrial testing infrared thermal imager and the relevant standards cited therein, as listed below:

FCC 47 CFR Part 15 Radio Frequency Devices

EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

EN 301 489-1 V2.2.3:2019 Electro Magnetic Compatibility (EMC) standard for radio equipment and services

Draft EN 301 489-3 V2.1.2:2021 Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz

EN 301 489-17 V3.2.4:2020 Specific conditions for Broadband Data Transmission Systems

EN 62368-1:2014/AC:2015 Audio/video, information and communication technology equipment - Part 1: Safety requirements

EN 60825-1:2014/FDA 21 CFR 1002.10 Safety of laser products - Part 1: Equipment classification and requirements

IEC 60068-2-27:2008 Environmental testing - Shock

IEC 60068-2-6:2007 Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)

KS C 9832:2019 Electromagnetic compatibility of multimedia equipment - Emission requirements

KS C 9835:2020 Electromagnetic compatibility of multimedia equipment - Immunity requirements



Innovation Excellence Integrity

Company Disclaimer

Equipment described herein may require EU, US and UNSC authorization for export purposes.

Imagery for illustration purposes only.

Specifications are subject to change without notice.

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