Quick Start Manual

Fotric 320M/320F Series
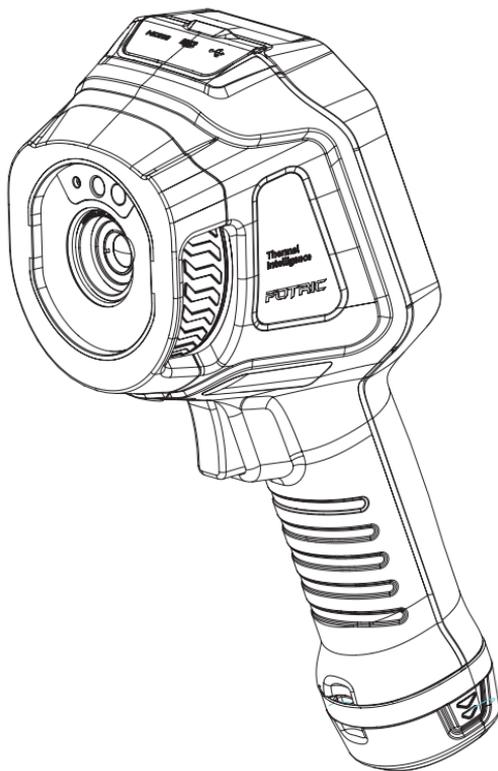
FOTRIC

— Thermal Intelligence —

Contents

Legal Disclaimer

1.1 Legal Disclaimer

Uncooled thermal imager manufactured by FOTRIC are entitled to 1 to 2 years warranty service (depending on the specific model) from the date of initial purchase and delivery. Warranty covers defects caused by materials and production processes, provided that such products are handled under normal storage, use, and repair conditions and in accordance with FOTRIC instructions.

Products not manufactured by FOTRIC but included in the system that FOTRIC sells to the original purchaser are covered by the specific supplier's warranty terms (if any) and FOTRIC is not liable for those products. This warranty is provided to the original purchaser and is not transferable. This warranty does not apply to any product that has been damaged by misuse, neglect, accident, or abnormal operating conditions. Consumable parts are not covered by this warranty.

Any defects in the products covered by this warranty must be reported and the product must not be used after, to prevent further damage. The purchaser must report any defects to FOTRIC immediately, otherwise this warranty will not apply.

If the product is proven defective in relation to materials or manufacturing after FOTRIC's inspection, it is up to the user whether it is to be repaired or replaced (refer to FOTRIC warranty policy), provided that the product must be returned to FOTRIC within 3 Months from above

Legal Disclaimer

mentioned report date. FOTRIC has no obligation or liability for any defects other than those mentioned above. This product is exempt from any other warranties, expressed or implied. FOTRIC hereby disclaims any implied warranties of merchantability and applicability for a particular purpose. FOTRIC is not responsible for any direct, indirect, special, incidental or consequential loss or damage based on contract, civil, or any other legal theory. This warranty clause shall apply the relevant provisions of the laws of the People's Republic of China. Any dispute or claim arising out of or relate to this warranty shall be finally settled through arbitration in accordance with the rules of the Shanghai Pudong New District People's Court of the People's Republic of China. The place of arbitration shall be Shanghai.

1.2 Usage Statistics

FOTRIC reserves the right to collect anonymous usage statistics to help maintain and improve the quality of the products and services provided.

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1.3 Copyright

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The names and logos shown on the products herein are either registered trademarks or trademarks of FOTRIC and/or its affiliates. All other trademarks, trade names or company names referenced herein are for identification purposes only and are the property of respective owners.

1.4 Quality Assurance

The quality management system for the development and production of these products in FOTRIC has been certified in accordance with the ISO 9001 standard.

FOTRIC is committed to a policy of continuous development, as we reserve the right to modify or upgrade any product without prior notice.

Legal Disclaimer

1.5 Export Control

Thermal imaging products are listed as export-controlled products by U.S. Department of Commerce, United Nations Security Council (UNSC), and European Union (EU). This product contains a focal plane array and cannot be used in controlled countries (such as North Korea, Iran, Syria, Cuba, Sudan, Russia, etc.). Please do not bring this product into or used in controlled countries. Any loss or liability arising from the above actions will be borne by the purchaser.

Safety Information

This product complies with the restrictions for Class A digital equipment in Chapter 15 of the FCC Rules. These restrictions are designed to prevent harmful interference to civilian installations. If not installed and used in strict accordance with the instructions , this device will generate, use and emit radio frequency energy, which may cause harmful interference to radio communications.

Definition

! Warning> Represents a hazardous situation or behavior that could result in personal injury or death.

! Caution > Represents conditions or actions that could result in damage to the device or permanent loss of data.

! Notice> Represents useful information for users.

Please read before using:

! Warning > This is class A product. In a domestic environment, this product may cause radio interference in which cause the user may be required to take adequate measures.

! Warning > Do not disassemble or do modifications to the battery of the thermal imager . The battery contains safety and protection devices, which, if damage occurs, can cause the battery to become hot, or cause an explosion or an ignition. If there is a leak from the battery and you get

Safety Information

the fluid in your eyes, do not rub your eyes. Flush well with water and immediately get medical care. The battery fluid can cause injury to your eyes if you do not do this.

! Warning > The thermal imager is equipped with a laser pointer. Do not look directly into the laser beam. The laser beam can cause eye irritation.

!Caution> The thermal imager uses a very sensitive thermal sensor, so do not point the infrared camera (with or without the lens cover) at strong energy sources, for example, devices that cause laser radiation, or the sun. This can have an unwanted effect on the accuracy of the camera. It can also cause damage to the detector in the camera which is not covered in Fotric's warranty.

!Caution> Original packing box must be used during transportation.Please do not strongly hit the thermal imager during use and transportation.

! Caution > When storing the thermal imager, it is recommended to use the original packing box and place it in a cool and dry place, away from strong electromagnetic field.

!Caution> Please avoid oil and various chemical substances to contaminate or damage the surface of the lens. Please cover the lens with cap when not use.

!Caution> Do not use the camera in temperatures higher than +50° C (+122° F), unless other information is specified in the user documentation or technical data. High temperatures can cause damage to the camera.

!Caution> In order to prevent potential risk of data loss, please copy (back up) the data to a computer or server

Safety Information

periodically.

! Caution > Please do not open the thermal imager' s shell or modify it without permission. Repair services can only be performed by authorized FOTRIC personnel.

! Notice> After the thermal imager is turned on, it may take about 10~15 minutes to warm up before accurate measurement.

**!Notice>** Every thermal imager's temperature correction has been performed before delivered from factory.

Thermal Imager

Front View

Speaker

Indicator lamp

Touch Screen

Power Button

Gallery Button/NUC

Laser Button

Back Button

Mic

AI Programmable Key

Direction and
Confirm Button
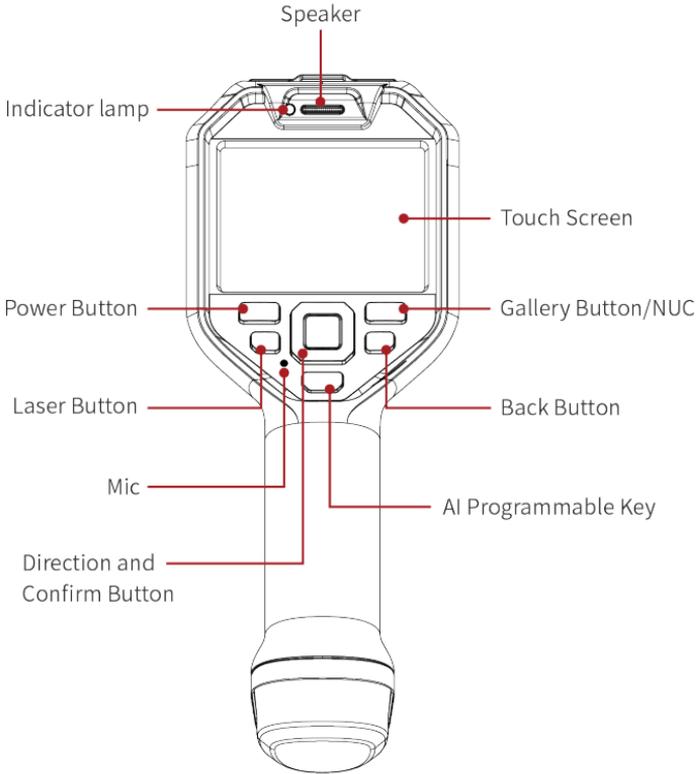
Thermal Imager

Rear View

Laser Pointer

Lens cover

Thread hole
for Tripod

Capture button，
Freeze and Save

Battery

LED flash lamp

Digital camera

Wrist strap bracket
Fix point

Thermal Imager

Top View

HDMI Interface

USB Type-C
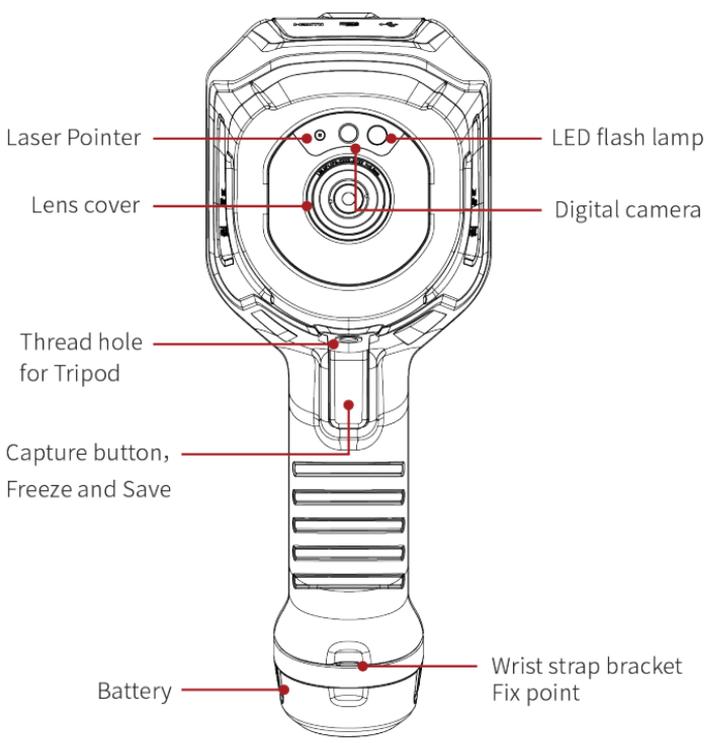
TF Storage
card interface
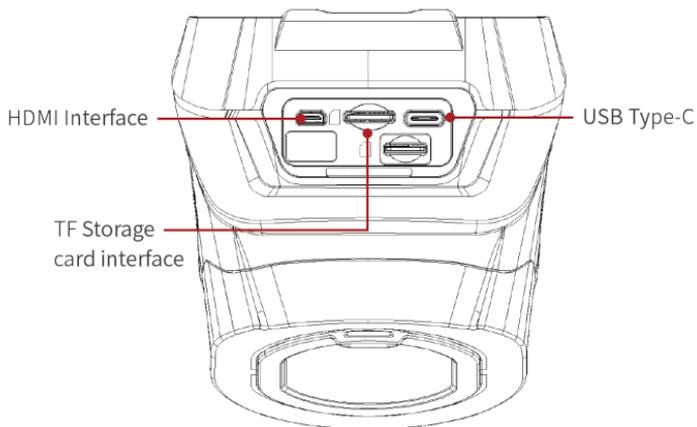
Thermal Imager

Side View

Focus Ring* ——————————
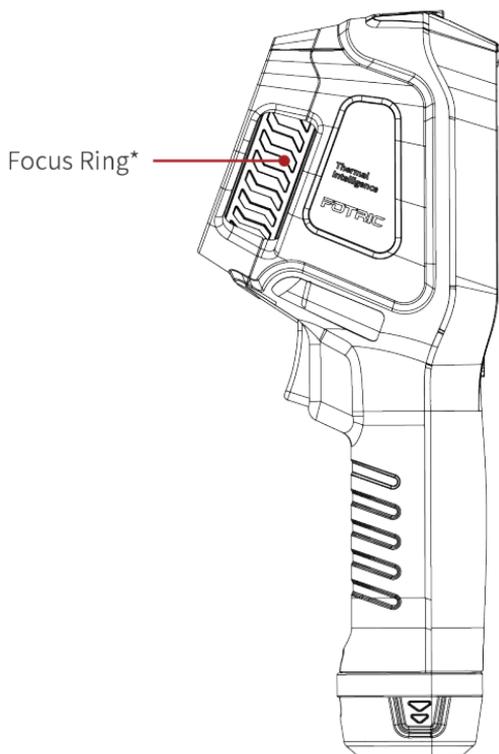
* Available for 320M series

Interface

Main Interface
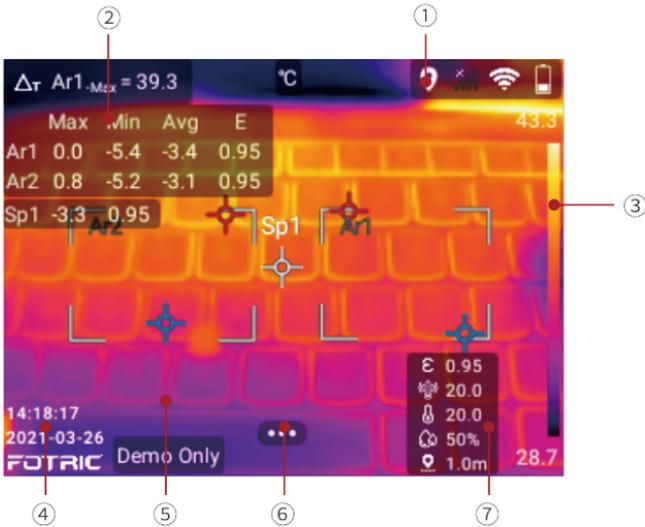
① **Status Bar:** Display Battery, Wifi, Bluetooth, GPS, TF card low storage warning, Laser warning etc.

② **Measurement Result:** Display overview and ROI Max/Min temp, Emissivity etc.

③ **Palette and Temperature scale:** Display pallet and Temperature scale range.

④ **Logo and System time:** Display System data &time, Logo

Interface

⑤ **Thermal Imaging Display:** Display thermal image, positions of Overview temperature & ROI temperature MAX/MIN, etc.

⑥ **System Menu Button:** Press to enter Temperature scale mode, Parameters, Image mode, ROI measurement tools, Palette and Settings.

⑦ **Parameters:** Display emissivity, Reflected temp, Environment temp, Humidity, and Distance.

Interface

System Menu
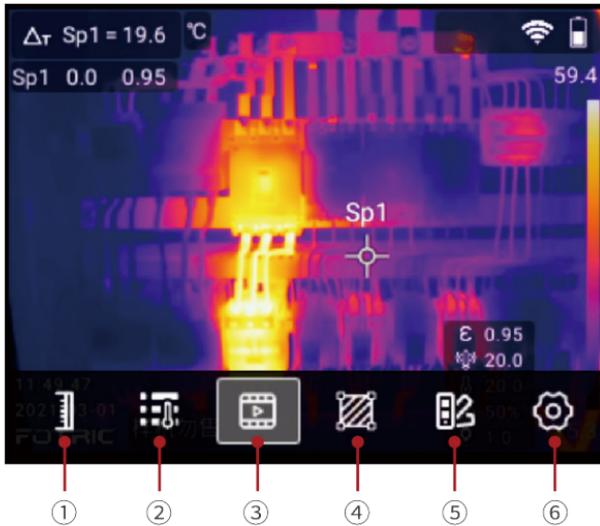
① **Temperature scale:** Auto scale, Manual scale, Touch scale settings.

② **Parameters:** Emissivity, reflected temperature, ambient temperature, humidity, target distance and IR window compensation settings.

③ **Image mode:** Thermal image, Visible light digital image, Picture in Picture, T-DEF image fusion mode settings.

④ **Measurement tools:** Add, delete and edit ROI

Interface

measurement tools include spots, rectangles, circle, and lines. Temperature rise calculation, ROI alarm display and other settings.

⑤ **Palette：** Multiple palettes and inverted palettes, color Isotherm, and Magicthermal advanced palette.

⑥ **Settings：** Capture mode, Connect, Temp measurement Range, Storage & Save options, Device Set.

Interface

Gallery
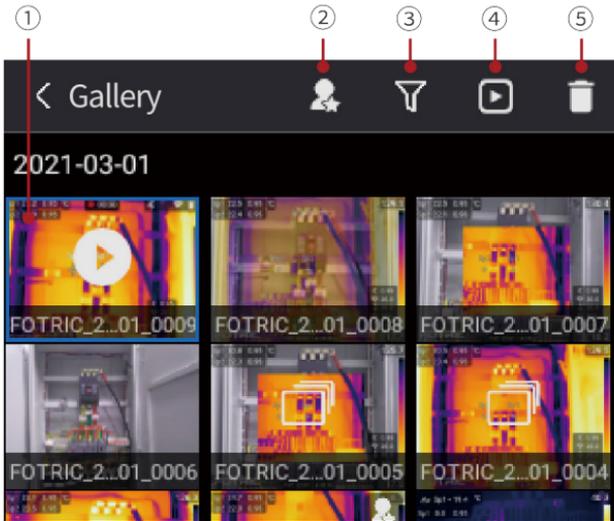
① **Images and videos：** Display captured thermal photos, visible image photos, full radiation and MP4 format thermal videos. Click to choose one; Long press to choose multiple.

② **Favorite：** Only Display favorite photos.

③ **Tags：** Filter by Tags, Display selected tags files.

④ **Analyze：** Analyze thermal photos and videos.

⑤ **Delete：** Delete selected files.

Interface

System Settings
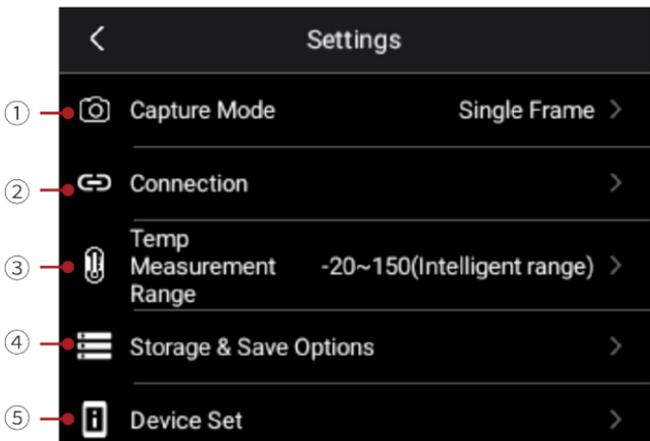
①: Single frame Capture, Recording and time-lapse settings.

②: Wifi, Bluetooth, FTP transfer setting.

③: Temperature measurement range, include Intelligent Range.

④: Settings such as SuperResolution, Video format, delete all saved files, etc.

⑤: Language&Time&Region, TWB, Display settings, Screen off, Reset, About, etc.

Quick-Start

For quick start of the thermal imager, please follow the procedures as below:

1. Insert the battery into the battery compartment of the thermal imager. (Make sure the battery is fully charged before starting up the thermal imager)

2. Insert TF storage card into the TF card slot.

3. Long press the Power Button to turn on the thermal imager.

4. Aim the thermal imager toward the object of interest.

5. For 320M series, adjust the Manual focus ring to get a clear image.

    For 320F series, keep object distance of more than 0.5meters to stay focus.

6. Press the Capture Button to freeze the thermal image, so that it can be analyzed in this interface.

7. Press the Capture Button again; the analyzed thermal image will be saved automatically.

Quick-Start

For quick–start of Fotric AnalyzlR PC software, please follow the procedures as below:

1. Visit **www.fotric.com/support/AnalyzIR** to download and install.

2. Click to start the AnalyzlR professional analysis software

3. Use Type-C USB cable to connect the thermal imager to PC; or insert the TF card into the PC card slot. Copy the images from Gallery folder to PC.

4. Click IR file workspaces in the quick collection bar below the Analyz lR software, and select to add the thermal image files.

5. Analyze, save and generate report as a Word document.

Tips

- It is very important to adjust the focal length correctly. An incorrect focal adjustment will affect the imaging quality and temperature measurement accuracy of the thermal imager.

- The thermal imager has a resolution limit, which depends on the detector size, lens, and distance to the object. If necessary, please move closer to the object. Stay away from hazardous areas or energized electrical components

- Be careful when using the thermal imager perpendicular to the target, because you may become the main radiation source of infrared ray.

- Please choose a high-emission area (for example, an area with rough surface) for measurement.

- Blank objects (and objects with low emissivity) are mainly reflected in the environment, so they may appear wrong result in the thermal imager.

- Various types of faults (such as faults that occur in building construction) may generate the same type of heat distribution pattern.

- Analysis of the infrared images requires corresponding professional knowledge.

- Please ensure your battery is fully charged before use.

* This manual may be inconsistent with the product due to product upgrade or customization; please always refer to the specified product.

Documents

Manuals Download

Before using the product, please visit the following website to download and read the user manuals and operation videos :

FOTRIC 320M/320F series:

http://www.fotric.com/support/Fotric320

Documents

Analysis and Report Software

PC Software Download

PC software AnalyzlR is a standard configuration of the product. Please visit the following website to download its installation setup and user manuals:

www.fotric.com/support/AnalyzIR

Appendix A

Emissivity Table

(For reference only)

Material Name	Surface Condition	Temperature (°C)	Emissivity (ε)
Aluminum	Non-oxidized	100	0.20
	Oxidized	100	0.55
Brass	Polished brown	20	0.40
	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

Appendix A

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	0.90
Wood	Polished	20	0.90
Water	Distilled water	20	0.96
Skin	Human	32	0.98
Pottery	Fine	21	0.90
	Abrasive	21	0.93

Innovation Excellence Integrity

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