UNI-T®

UTi720M/UTi721M
Thermal Imager for Smart Phone

P/N:110401111336X

Preface

Thank you for purchasing this brand new UTi720M/UTi721M smartphone thermal camera module. In order to use this product safely and correctly, please read this manual thoroughly, especially the safety notes.

After reading this manual, it is recommended to keep the manual at an easily accessible place, preferably close to the device, for future reference.

Limited Warranty and Liability

Uni-Trend guarantees that the product is free from any defect in material and workmanship within one year from the purchase date. This warranty does not apply to damages caused by accident, negligence, misuse, modification, contamination or improper handling. The dealer shall not be entitled to give any other warranty on behalf of Uni-Trend. If you need warranty service within the warranty period, please contact your seller directly.

Uni-Trend will not be responsible for any special, indirect, incidental or subsequent damage or loss caused by using this device.

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1. Specifications

UTi720M/UTi721M

Sensor	Uncooled vanadium oxide
Emissivity	0.95 (default) 0.01~1.00
IR resolution	256*192 (49152)
Pixel size	12μm
Spectral range	8~14μm
Palettes	Ironbow, Rainbow, Black Hot, White Hot, Red Hot, Lava, Rainbow HC
Field of view	56.0° (H) × 42.2° (V)
IFOV	3.8mrad
Lens focal length	3.2mm
Focus	Focus free
NETD	<50mK@25℃
Frame rate	25Hz
On screen analyzer	Point, Line, Rectangle (up to 3 graphics can be added for each type)
Temperature display	Center spot, Hi/Lo spot tracking
Temperature units	℃ (default), ℉
Hi/Lo temperature alarm	√
Image modes	Thermal, fusion [fuse visual image (on phone) and infrared image], PIP
Camera modes	Photo capturing & Video recording
Image format	JPG
Photo browsing	Images can be rotated, brushed, analyzed, deleted and saved.
Image storage	Stored in the smartphone
Data communication	Type-C USB (male)

Language	English/French/German/Italian/Spanish/Swedish
Mobile APP	√ (support Google Play)
Operating system	Android 6.0 and higher versions
Certificates	RoHS UKCA FCC CE (EN61326-1)
Operating temperature	-10℃~ 50℃ (14℉~ 122℉)
Storage temperature	-20℃~ 60℃ (-4℉~ 140℉)
Operating humidity	10% ~ 95%RH (non-condensing)
Operating power consumption	<350mW (typical value at room temperature)
Drop Proof	1m

UTi721M

Temperature scale	Low scale: -20℃~150℃ High scale: 0℃~550℃ (auto switch)
Temperature measurement modes	Industry, human body
Accuracy	Industry: 0℃~550℃, ±2℃/±2% (Whichever is greater, ambient temperature:25℃)
	Human body: 30℃~40℃, ±0.5℃ (room temperature without wind)
Temperature measurement range	-20℃~550℃ (-4℉~1022℉)

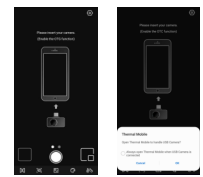
UTi720M

Temperature measurement modes	Industry
Accuracy	0~200℃, ±2℃/±2% (Whichever is greater, ambient temperature:25℃)
Temperature measurement range	-20℃~200℃ (-4℉~392℉)

2. Connection

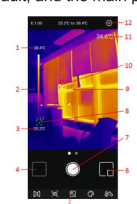
Enter mobile APP. If the thermal camera module (the Device) is not detected, an interface for users to select model will appear, as shown below.

Select "UTi721M" or "UTi720M" to enter the following interface. At this time, users can open the “Gallery” and "Settings" pages, but other functions are unavailable. After inserting the device, a prompt will pop up. Select "YES" to connect the device.



3. Screen Indicators/Icons

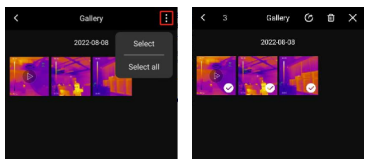
After the device is loaded, the initial smartphone page is shown in the figure below. The palette is Ironbow by default, and the main page is divided into the following sections.



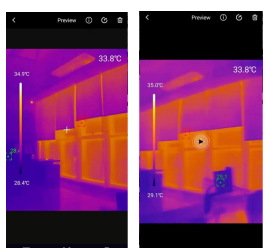
No.	Description	No.	Description
1	Upper limit	7	Photo capturing /Recording/Saved
2	Temp. bar	8	Lo spot
3	Lower limit	9	Center spot
4	Gallery	10	Hi spot
5	Menu bar	11	Center spot value
6	PIP	12	Settings

4. Gallery

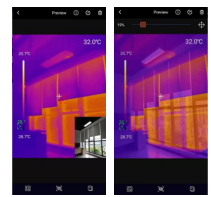
On the initial page, tap “Gallery" (NO.4 in Screen Indicators/Icons) to view the photos/videos. Tap the icon ⋮ to select/select all/share/delete photos/videos.



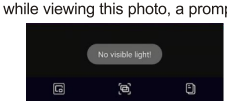
Tap an image/video to enter an interface where users can preview/share/delete/ edit (image only) this image/video, view its PIP/fusion mode or detailed information (filename, date, time, resolution, Hi spot, Lo spot, center spot, mode, emissivity).



If the PIP or fusion mode is turned on when capturing a photo, tap the icon ⧉ when viewing this photo, a small PIP window will appear in the lower right corner. Users can tap ⧉ to check the fusion status, and drag the upper slider to adjust the fusion ratio of visible light and infrared light.

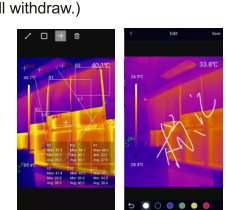


If the PIP or fusion mode is not turned on when capturing a photo, when users tap the PIP or fusion icon while viewing this photo, a prompt "No visible light!" will pop up.

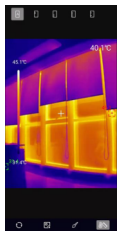


In the photo viewing interface, tap the icon ✎ to edit the current photo. The specific editing operations are as follows:

1) Rotate: Tap ⟳ icon to change the photo direction.
2) Add on screen analyzers: Tap ⊞ to display the interface as shown in the lower left. The analyzers can be added/moved/deleted.
3) Brush: Tap ✎ to display the interface as shown in the lower right. Users can mark a photo in different colors. Tap ↩ to withdraw the previous mark. (After saving a photo, tap ↩ can still withdraw.)



4) Isotherm: Tap to enter the isotherm selection interface, as shown below.



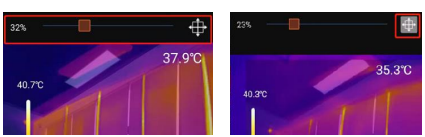
5. Main Interface

5.1 Camera Switching

Tap "" to mirror infrared image.

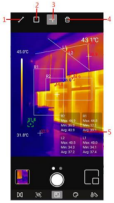
5.2 Fusion

When users tap the icon , a slider for adjusting fusion will appear at the top. Dragging the slider can adjust the fusion ratio of visible light and infrared light (left figure). Tap the icon at the upper right corner, and it will be highlighted (right figure). At this point, users can drag the screen to manually adjust the fusion distance. Tap the icon again to exit.



5.3 On Screen Analyzer

Tap to enter the interface for adding on screen analyzers. Users can add/move/delete the analyzers (line/rectangle/point). Tap the icon to delete all added analyzers. To delete a single analyzer, drag the analyzer to the edge until it disappears. Analyzers added in the main interface can be deleted in the editing interface.

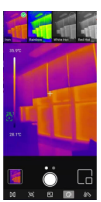


No.	Description
1	Line
2	Rectangle
3	Point
4	Delete
5	Temperature analysis area

Tapping the corresponding icon can add an on screen analyzer and expand a semi-transparent information bar on the bottom right of the interface to display the temperature information of the added analyzer. If users drag an analyzer to change its position, its temperature information will be updated synchronously. Up to 3 analyzers can be added for each type.

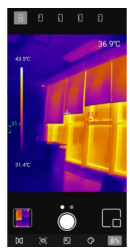
5.4 Palettes

In the main interface, tap , and the optional palettes will show on the top of the screen, including Ironbow, Rainbow, White Hot, Red Hot, Black Hot, Lava, Rainbow HC.



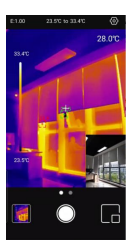
5.5 Isotherm

In the main interface, tap , and the optional isotherm tools will show on the top of the screen, including Auto, Below, Above, Section and, Manual.



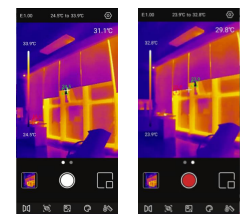
5.6 PIP

Tap , and the APP will turn on the smartphone camera and display a small PIP window. Tap the icon again to turn it off.

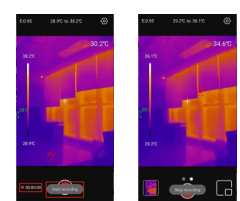


5.7 Photo Capturing/Video Recording

Slide the camera icon left/right to switch between Photo Capturing and Video Recording modes. Both photos and videos will be automatically saved in “Gallery" (NO.4 in Screen Indicators/Icons).



Slide the camera icon left/right to enter the video mode. Tap video icon to record videos, and the recording duration will be displayed in the lower right corner. Tap the video icon again to end the recording.

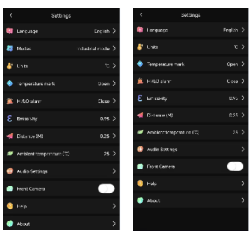


5.8 Shutter Calibration

When the device is on, Shutter will automatically activate for calibration according to ambient changes or the different temperature of measured target.

6. Settings

Tap ⚙ to enter the setting interface. Users can perform the following functions.



Main menu	Submenu
Language	English/German/French/ Italian/Swedish/Spanish
Modes (UTi721M only)	Industrial,Human body
Units	℃,℉
Temperature mark	The following markups can be turned on or off: HI temperature LO temperature Centre point
HI/LO alarm	HI/LO alarm can be turned on or off. After turning on the alarm, HI/LO value can be adjusted.
Emissivity	0.01~1.00 adjustable
Distance(M)	0.05~5.00 adjustable
Ambient temperature (℃)	0~50℃ adjustable
Audio settings	Users can select whether to record sound during video recording.
Front camera	Switch the front and rear cameras of the phone.
Help	View the user manual
About	Display the current APP version and device model.

7. FCC Compliance statement

This device complies with Part 15 of the FCC Rules. 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.

8. Cautions

- Do not use soluble liquids on the device, as it may cause damage.
- When using the device, please try to keep it stable and avoid violent shaking.
- Please do not violently disassemble the product to avoid irreversible damage.
- Please avoid hard objects contacting the device lens.
- Please do not point the product lens at high-intensity energy sources (including the sun, laser emission equipment and the reflection sources of these equipment), otherwise, it may affect the measurement accuracy, and damage the infrared detector of the product.
- Please put the product into the carrying box when it is not used.
- Due to different batches, the materials and details of actual products may be slightly different from the graphic information. Please refer to the goods received.
- The experimental data in the manual are theoretical values and all from Uni-Trend's internal laboratories, for reference only. Customers cannot use them as bases for placing orders. If users have any questions, please contact customer service.

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