M200 Series

Handheld Thermal Camera

Technical Data V1.0.2
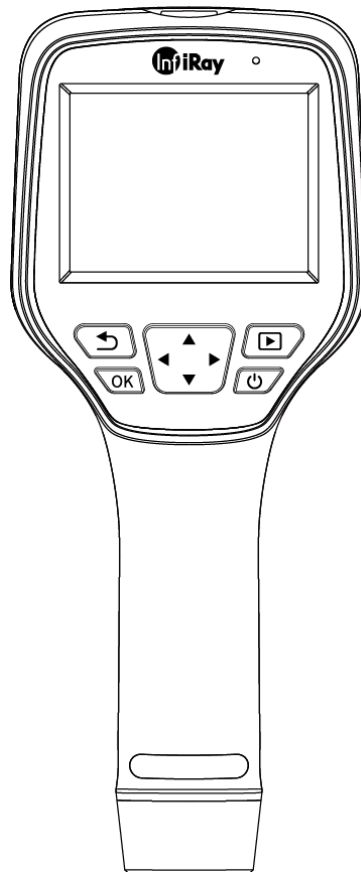
IRay Technology Co., Ltd.

www.infiray.com

Table of Contents

1. Overview

1.1 Update Comments

Our manuals are updated several times per year. Please visit our website to access the latest manuals.

1.2 Authorized Release Notes

The authorized release of this manual is the Chinese version. In case of disagreement due to translation errors, the Chinese version shall prevail. If there is any update in the future, the Chinese version will be revised first.

2. M200 Technical Data

2.1 M200A

General Description
With built-in 256*192 pixels infrared detector, M200A series handheld temperature measurement thermal camera can provide clearer temperature images, more accurate and stable temperature measurement data; At the same time, it is equipped with smart touch screen and dual-spectrum imaging; 7 kinds of color Palettes available to achieve multi-scenario observation, support E-zoom, timed image capture, alarm image capture and multiple analysis functions, which can ensure accurate test results, efficient diagnosis and processing.

Advantages
1. Custom point/line/area temperature analysis is supported, and temperature measurement range can reach -20℃ ~ +550℃. 2. Powerful image fusion function and 7 kinds of color Palettes, together with 2MP visual camera, can provide more comprehensive information, making it easier to observe under complex conditions. 3. Wi-Fi transmission is supported. When connecting to mobile APP, analyzing and sharing temperature screen and temperature measurement data at any time is available. 4. With 3.5-inch LCD capacitive touch screen and battery quick-release design, it also supports use of tripod and handheld mobile mode. 5. With laser pointer, it can quickly locate the measurement target; Intelligent above and below alarm in the full frame and custom alarm temperature are available; Time-lapse image capture and alarm image capture.

Thermal Module	
Detector Type	VOx Uncooled FPA detector
Resolution of Detector	256*192
Response Band	8~14μm
Pixel	12μm
NETD	40mK
IFOV	3.8mrad
Frequency	25Hz
Focus	3.2mm
FOV	56°*42°
Focus Mode	Focus-free
Temperature Measuring Range	-20 ℃~150℃, 100℃~ 550 ℃
Temperature Measuring Accuracy	±2% or ±2℃, the greater value shall prevail

Camera Functions	
Temperature Measuring Mode	Center spot/hot and cold spot tracking and temperature display
Custom Point/Line/Area Temperature Measurement	Movable spot/line/area temperature measurement, up to 10 spots, 10 areas,10 lines
Temperature Measuring Unit	Celsius, Fahrenheit, Kelvin
Emissivity Setting	Adjustable between 0.01 and 1.0, step 0.01
Ambient Temperature Setting	-10℃～50℃, step 1℃
Distance Setting	0.25~4m，step 0.25m
Dual-spectrum Fusion	Thermal, visual, PIP, fusion
Color Palettes	7（Whitehot，Blackhot，Iron，Lava，Rainbow，Rainbow HC，Blackred）
E-zoom	1×,2×,4×
Temperature Scale	Auto/Manual
Temperature Alarm	Make alarm when the temperature is above/below the threshold in the full frame
Temperature Scale	Manual/Auto
Laser Pointer	Available
Visual Camera	2 MP
Image Capture	XX-IR.jpg（thermal image with temperature data）and XX-DC.jpg（visual image），short press the trigger to capture image
Time-lapse Image Capture	Set time interval and number of image captures according to actual needs
Annotation Function	Voice annotation via microphone
Video Recording	Long press the trigger to start the recording
Language	English, Polish, Russian, Korean, Hungarian, Brazilian Portuguese, German, French, Spanish, Italian, Turkish, Traditional Chinese
Screen	3.5-inch touch screen（480*640）
Video Transmission	UVC video transmission，video stream+ temperature data of full frame
Above Alarm	Set value of high temperature and low temperature, set auto image capture
File Naming	Manual Input, QR code scanning
Memory	Built-in memory card (max. 32G)
Battery Type	Rechargeable Li ion Battery, dismountable
Power Interface	USB-C
Connecting Type	USB, Wi-Fi
Charging Time	3h
Operating Time	8h
Power Management	Automatic shutdown：5 minutes, 10minutes, 20 minutes, disable

Others	
Analysis Software	PC (Thermal Analysis Software) or Mobile device (IOS/Android APP)
Tripod Mounting Socket	Yes, 1/4″-20-UNC
Operating Temperature	-10℃ ~ +50℃
Storage Temperature	-20℃ ~ +60℃
RH	10% ~ 95%，non condensing
Drop	2m
Encapsulation	IP54(IEC 60529)
Shock &Vibration	Shock 25g(IEC 60068-2-27)；Vibration 2.5g(IEC60068-2-6)
Dimension（L×W×H）	258.4*105.1*102.3mm
Weight	635.5g（incl. battery）
Certificate	CE/FCC/RoHS/UKCA
Accessories	5V2A power adapter, battery charger, battery×2, USB cable, SD card, Quick Start Guide, Calibration Certificate, Packaging List, Portable Bag

2.2 M200F

General Description
With built-in 256*192 pixels infrared detector, M200F series handheld temperature measurement thermal camera can provide clearer temperature images, more accurate and stable temperature measurement data;   At the same time, it is equipped with smart touch screen, manual focus lens and dual-spectrum imaging; 3 kinds of color Palettes are added compared with M200A, support E-zoom, timed image capture, region alarm, alarm image capture, and multiple analysis functions, which can ensure accurate test results, efficient diagnosis and processing.

Advantages
1. Support manual focus, the small targets can be identified via manual fine focus. 2. Custom point/line/area temperature analysis is supported, and temperature measurement range can reach -20℃ ~ +550℃. 3. Powerful image fusion function and 10 kinds of color Palettes, together with 5MP visual camera, can provide more comprehensive information, making it easier to observe under complex conditions. 4. Support real-time temperature analysis. 5. Wi-Fi transmission is supported. You can analyze and share the temperature display and temperature measurement data at any time by connecting the camera to mobile App. The intelligent PC analysis software can reset the measurement

settings, one key to generate test report for convenient data analysis.
6. With 3.5-inch LCD capacitive touch screen and battery quick-release design, it also supports use of tripod and handheld mobile mode.
7. With laser pointer, it can quickly locate the measurement target; Intelligent above and below alarm in the full frame and custom alarm temperature are available; Time-lapse image capture and alarm image capture.

Thermal Module	
Detector Type	VOx Uncooled FPA detector
Resolution of Detector	256*192
Response Band	8~14μm
Pixel	12μm
NETD	40mK
IFOV	1.71mrad
Frequency	25Hz
Focus	7mm
FOV	24.8°*18.7°
Focus Mode	Manual Focus
Temperature Measuring Range	-20 ℃~150℃， 100℃~ 550 ℃
Temperature Measuring Accuracy	±2% or ±2℃，the greater value shall prevail

Camera Functions	
Temperature Measuring Mode	Center spot/hot and cold spot tracking and temperature display
Custom Point/Line/Area Temperature Measurement	Moveable spot/line/area temperature measurement; Support 10 spots/ 10 lines/ 10 areas at most; hot spot tracing for line/area temperature measurement; Max. temperature display for line temperature measurement, Max./Min./Avg. display for area temperature measurement
Temperature Measuring Unit	Celsius, Fahrenheit, Kelvin
Emissivity Setting	Adjustable between 0.01 and 1.0, step 0.01
Ambient Temperature Setting	-10℃～50℃, step 1℃
Distance Setting	0.5~12m， step 0.5m
Dual-spectrum Fusion	Thermal, visual, PIP, fusion
Color Palettes	10 (Whitehot, Blackhot, Iron, Lava, Rainbow, Rainbow HC, Blackred, Purple-orange, Special, Special 2)
E-zoom	1×,2×,4×
Temperature Scale	Auto/Manual

Temperature Alarm	Make alarm when the temperature is above/below the threshold in the full frame
Temperature Scale	Manual/Auto
Laser Pointer	Available
Visual Camera	5 MP
Image Capture	XX-IR.jpg（thermal image with temperature data）and XX-DC.jpg（visual image）, short press the trigger to capture image
Time-lapse Image Capture	Set time interval and number of image captures according to actual needs
Annotation Function	Voice annotation via microphone
Video Recording	Long press the trigger to start the recording
Language	English, Polish, Russian, Korean, Hungarian, Brazilian Portuguese, German, French, Spanish, Italian, Turkish, Traditional Chinese
Screen	3.5-inch touch screen （480*640）
Video Transmission	UVC video transmission, video stream+ temperature data of full frame
Above Alarm	Set value of high temperature and low temperature, set auto image capture
File Naming	Manual Input, QR code scanning
Memory	Built-in memory card (max. 32G)
Battery Type	Rechargeable Li ion Battery, dismountable
Power Interface	USB Type-C
Connecting Type	USB, Wi-Fi
Charging Time	3h
Operating Time	8h
Power Management	Automatic shutdown：5 minutes, 10minutes, 20 minutes, disable

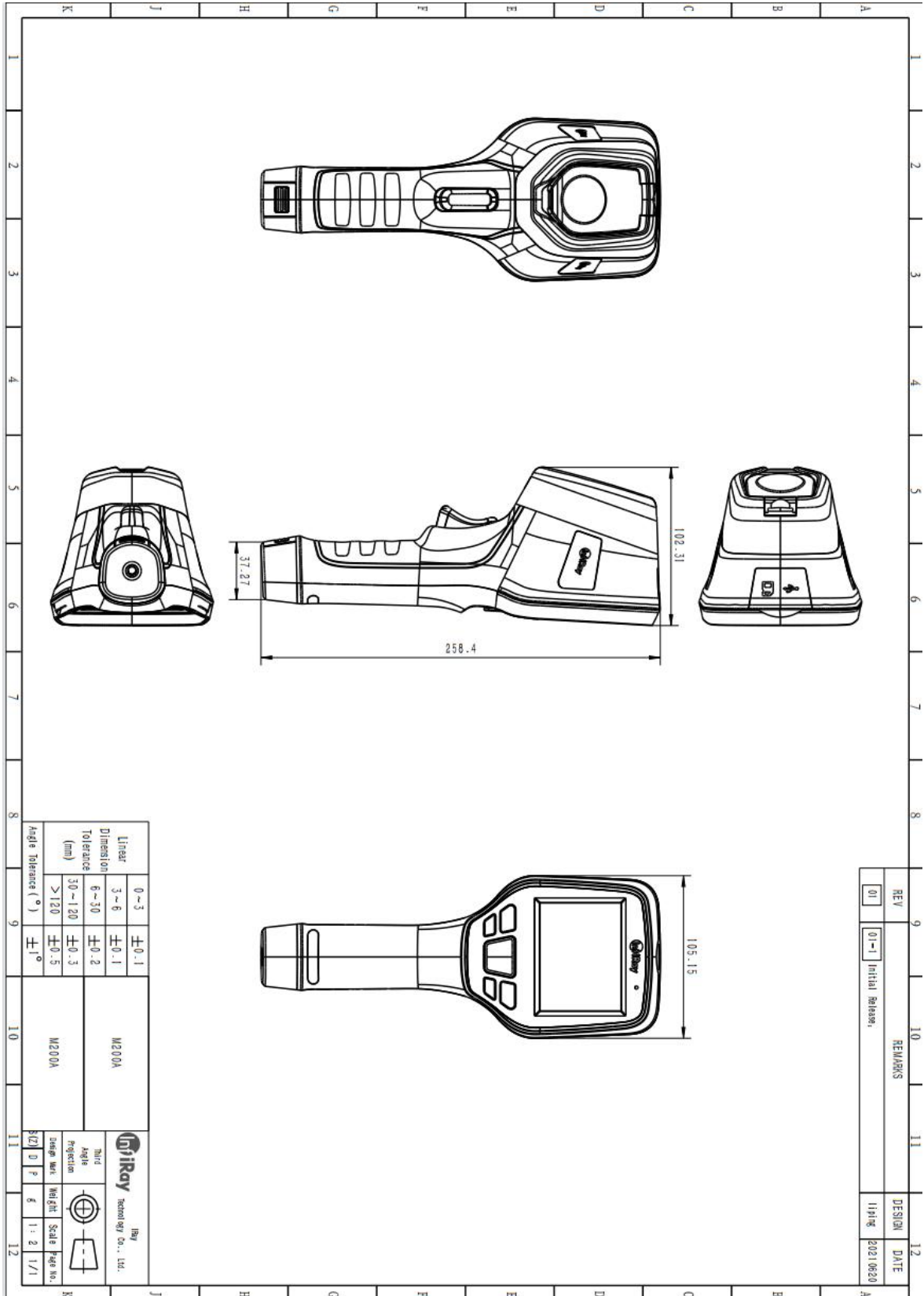| Others	
Analysis Software	PC (Thermal Analysis Software) or Mobile device (IOS/Android APP)
Tripod Mounting Socket	Yes, 1/4″-20-UNC
Operating Temperature	-10℃ ~ +50℃
Storage Temperature	-20℃ ~ +60℃
RH	10% ~ 95%, non condensing
Drop	2m
Encapsulation	IP54(IEC 60529)
Shock &Vibration	Shock 25g(IEC 60068-2-27)；Vibration 2.5g(IEC60068-2-6)
Dimension （L×W×H）	258.4*105.1*102.3mm
Weight	660.5g （incl. battery）

Certificate	CE/FCC/RoHS/UKCA/WEEE/TSCA/TELEC
Accessories	5V2A power adapter, battery charger, battery×2, USB cable, SD card, Quick Start Guide, Calibration Certificate, Packaging List, Portable Bag

3. Structural Drawings

3.1 M200A

3.2 M200F