NS43 series online infrared thermal imager thermometer

Technical Specifications

HJKIR

Contens

1 Product Description

The NS43 series infrared thermal imager uses a 12 μm uncooled infrared focal plane detector, a high-performance infrared lens, an excellent imaging processing circuit, and is embedded with advanced image processing algorithms. It has the characteristics of small size, low power consumption, fast startup, excellent imaging quality, and accurate temperature measurement.

The NS43 series infrared thermal imager movement fully considers the requirements of high and low temperature working performance to ensure that the whole machine has excellent environmental adaptability.

NS43 online temperature measurement infrared thermal imager outputs full-stream lossless temperature data and video stream data in H.264 compression format, and provides SDK to facilitate customer back-end integration development, fully analyzing the temperature of the target being measured.

N S4 3 series infrared thermal imager movement features:

1. It has all-weather passive thermal imaging function, has strong smoke penetration performance, and can be used in a wide range of ambient temperature ;

2. Support ONVIF protocol and can be connected to mainstream NVR;

3. Adopt self-developed temperature measurement and correction algorithm to achieve accurate temperature measurement, with the temperature measurement accuracy up to ±2%;

4. Output full-stream lossless temperature data and video stream data in H.264/H.265 compression format, provide client software and SDK development kit to facilitate customers to carry out secondary development and system integration, and fully carry out personalized temperature analysis of the measured target .

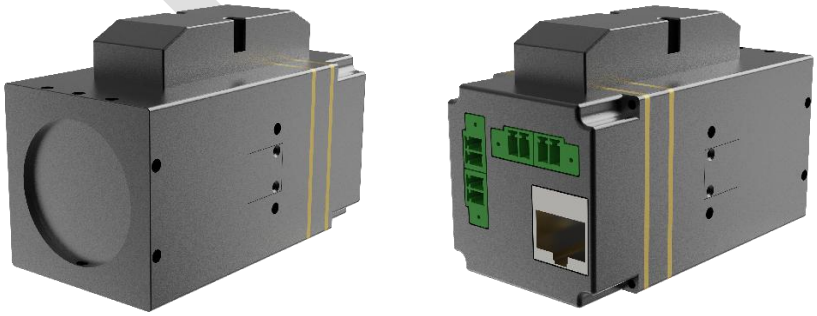


Figure 1 NS43 series online infrared thermal imager thermometer product picture

2 Product Specifications

detector	
Detector Type	Uncooled focal plane microbolometer
Number of pixels	384 × 288
Pixel spacing	1 2 μm
Wavelength range	8～14μm
Thermal sensitivity	≤ 50mk @30℃
Frame rate	25Hz
Image processing and display	
Image Optimization	support
Non-uniformity	support
Image Noise	support
Electronic zoom	1.0～4.0 times infinite magnification
Polarity control	support
Color Palette	Multiple color palettes, including white hot, black hot, iron red,
Contrast, brightness	Automatic/Manual
Gamma Correction	support
Enhanced	support
Network video	H.264 /H.265
Grayscale range	Automatic/Manual
Image Mode	HDR wide dynamic mode
OSD	support
Temperature measurement analysis	
Temperature	±2℃ or ±2%
Temperature measurement range	Normal temperature range: -20℃～200℃ (standard) Medium temperature range: 150℃~500℃ (optional) High temperature range: 350℃~1600℃ (optional)
Temperature correction	Emissivity, reflected temperature, effective distance
Automatic tracking of hot and cold	support
Center point	support
Average	support
Temperature	Point, line, rectangle, circle, ellipse, polygon
Alarm function	High temperature, low temperature, temperature range, range
Video	Support MP4, GCV
Photograph	Support JPEG
Temperature data	Area csv, temperature curve csv
Electrical Characteristics	
Data Interface	RJ45
Data Types	H264, H265, 16-bit original temperature data

Web Standards	Gigabit Ethernet /Adaptive 10M/100M/1000M
Protocol support	IPv4/IPv6, TCP , UDP, NTP, HTTP, RTSP, RTP, ICMP, WebSocket, ONVIF
Power interface	4 PIN SH
Input power voltage	DC12V
Steady-state power	< 4.0W
Communication	UART@RS485 (reverse control of PTZ and camera , Modbus
IO Input and Output	support
Environmental parameters	
Operating	-40℃～ + 60℃ (-20℃~+60℃ to ensure temperature measurement
Storage temperature	-50℃～ + 70℃
Temperature shock	5℃/min (-40℃～60℃)
Vibration resistance	4.3g, 2 hours for each of x, y and z axes
Shock resistance	Acceleration 30g, half sine wave, pulse width 6ms, impact 3 times in
humidity	≤95% (non-condensing)
Lenses	
focal length	Various focal length lenses are available
Focus mode	Electric, automatic focus
Physical properties	
size	45mm×58mm×88.3mm
weight	< 240 g
Mounting holes	Two M3× 5 on the bottom
SDK development package	
Operating Environment	Support Windows (32Bit/64Bit) , Linux (32Bit/64Bit), MacOS, Android and most ARM systems
Secondary Development	Provide API, SDK and Demo. Support development in multiple languages such as C/C++, C#, Java, Javascript, Typescript, Python, Swift, etc.

3 Electrical interface

This section introduces the user interface definition of the infrared thermal imager core interface board. The external output interface mainly provides RJ45 connector and 4 PIN SH connector .

3.1Interface Diagram

There are two types of external output connectors , namely two 4- PIN SH connectors and an RJ45 connector . The interface diagram is shown in the figure below.

- 4- pin SH connector provides a DC 12V power interface and an RS485

communication interface .

- 4- pin SH connector provides a switch input and output interface .
- RJ45 connector provides network digital video output .

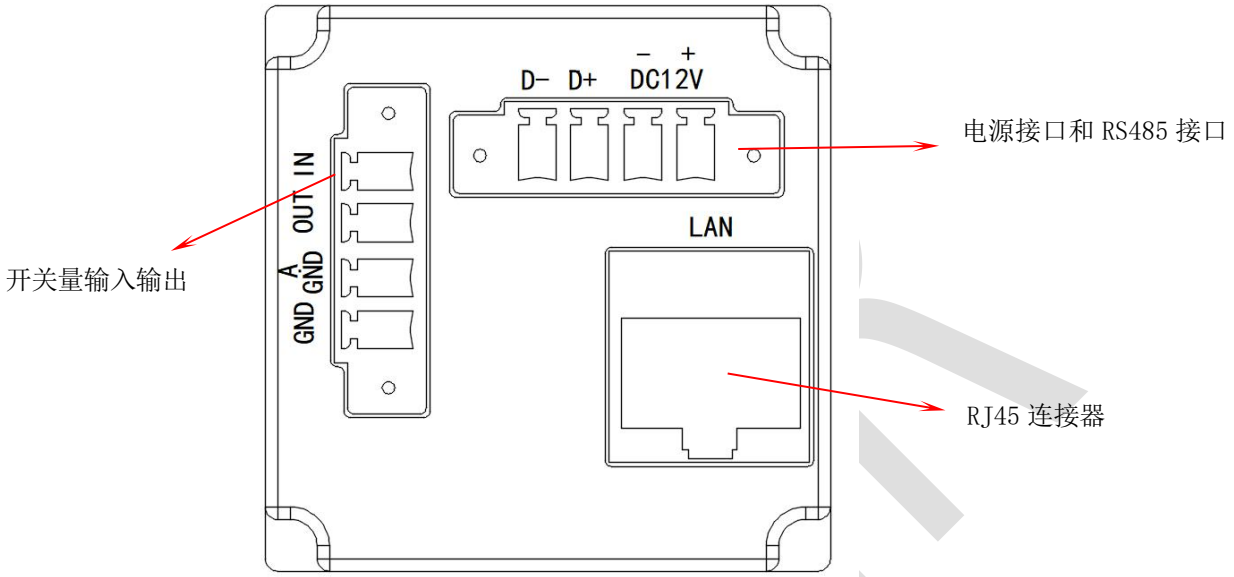


Figure 2 Interface board connector definition

3.2Interface Definition

external user interfaces : RJ45 connector and 4 -pin SH connector. The RJ45 connector is a standard definition, and the signal definition of the 4 -pin SH connector is shown in Table 1 .

Table 1 Signal definition of 4 -pin SH connector

Pin	Signal Name	Function	Description
1	VCC_IN	Power	DC 12V Input
2	DGND	Power	Digital Ground
3	D+	Conference	RS485 D+
4	D-	Conference	RS485 D-

Table 2 Signal definition of 4- pin SH connector

Pin	Signal Name	Function	Description
1	in	IO Input	TTL 3.3V
2	Out	IO Input	TTL 3.3V
3	A GND	IO Input	Digital Ground
4	DGND	IO Input	Digital Ground

4 Structural dimensions

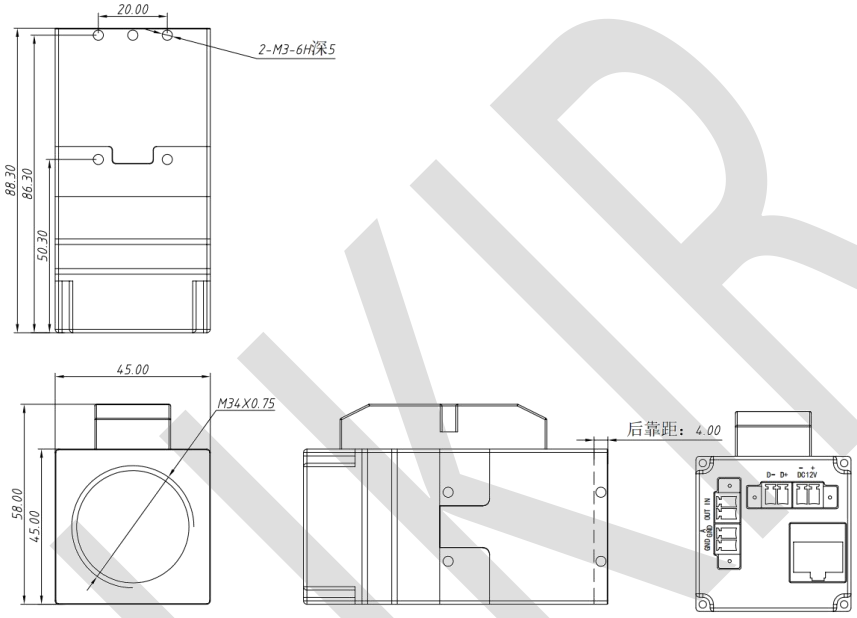
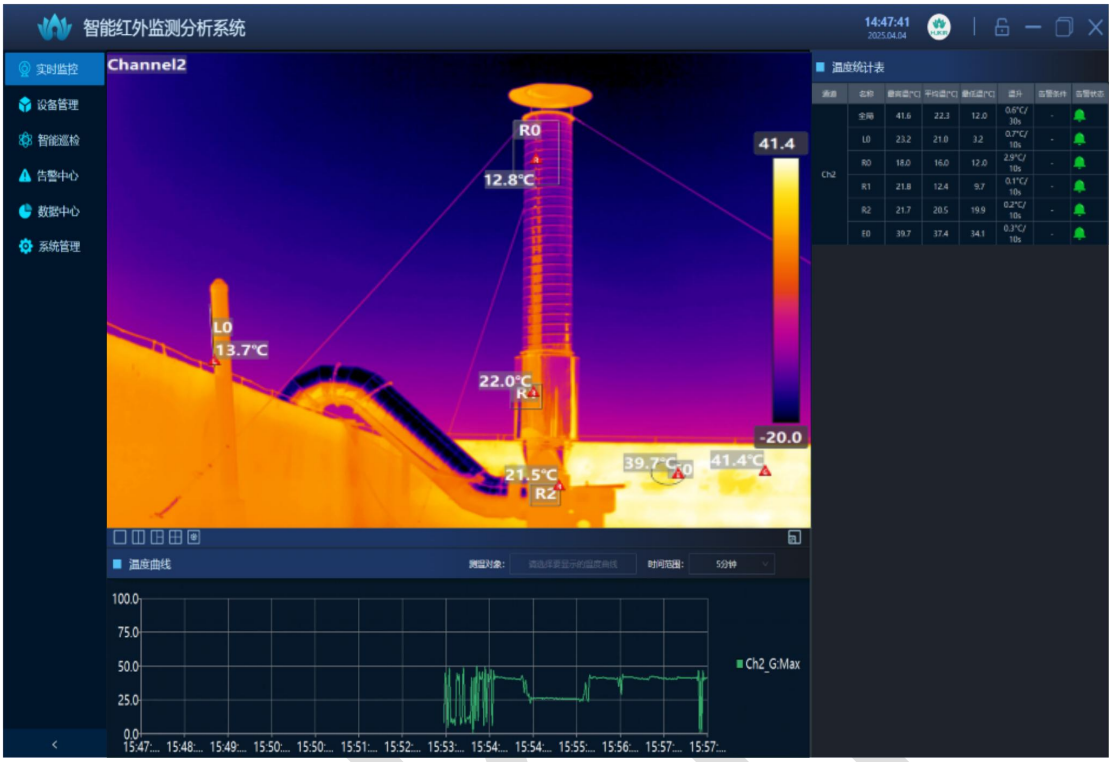


Figure 3 NS43/46 product structure and dimensions

5 Software Features



The basic functions of the software are as follows:

1) Real-time video display

- Real-time display of full radiation thermal images and high-definition visible light video ;
- A maximum of 32 temperature measurement objects can be drawn, such as points, lines, circles, rectangles, and polygons;
- Up to 12 color palettes, suitable for more application scenarios;
- Maximum temperature, minimum temperature, average temperature and multi-point temperature tracking ;
- Supports up to 32 devices online at the same time; automatically reconnects when disconnected;
- Adaptive display resolution, supports vertical screen display.

2) Intelligent analysis

- Real-time display of temperature curve, custom display time period and temperature range, temperature data can be stored in real time;
- MP4 format video recording, timed photo taking;
- Temperature correction can be performed by adjusting emissivity, reflected temperature, distance, secondary calibration, etc.

3) Alarm Center

- High temperature, low temperature, interval temperature, temperature rise, temperature difference and other types and levels of alarm;
- When an alarm is triggered, short videos, photos, temperature information and other logs are stored for easy query afterwards;
- IO, RS485, Modbus and other alarm output forms;
- Customizable alarm thresholds and levels: Assist staff in assessing the urgency and development trend of potential hazards.

4) User Management

- Support multi-user login ;
- User permissions can be set in different levels.

6 Optional lenses and detailed parameters

Focal length (mm)	Dimensions（mm）	F#	Detector resolution			Field of view (°)		Spatial resolution (mrad)
			level	vertical	Pixel size（um）	level	vertical	
4	⌀ 41-h23	1.0	384	288	12	55	41	3
4.8	⌀ 40 -h37	1.0	384	288	12	52	39	2.5
5.7	⌀ 40-h15	1.0	384	288	12	49	35	2.1
8	⌀ 40-h25.8	1.0	384	288	12	33	25	1.5

9.5	⌀ 40-h15	1.0	384	288	1 2	27	20	1.26
13	⌀ 31 -h24	1	384	288	1 2	19	15	0.92
19	⌀ 39-h35.8	1.0	384	288	12	13	10	0.63
25	⌀ 37 -h24.5	1.0	384	288	1 2	10	8	0.48
35	⌀ 40 -h28	1.0	384	288	1 2	8	7	0.34
4.8	⌀ 40 -h37	1.0	640	512	1 2	83	67	2,5
8	⌀ 40 -h25.8	1.0	640	512	12	55	44	1.5
9.5	⌀ 40-h15	1.0	640	512	1 2	45	36	1.26
13	⌀ 31 -h24	1.0	640	512	12	33	26	0.92
19	⌀ 39-h35.8	1.0	640	512	12	twenty three	18	1.33
25	⌀ 37 -h24.5	1.0	640	512	12	17	14	0.48
35	⌀ 40 -h28	1.0	640	512	12	12	10	0.34