NX23/26 series online infrared thermal imaging thermometer

Technical Specification

catalogue

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1. Product description

The NX23/26 series online infrared thermal imaging thermometer adopts 17μm non-cooled infrared focal plane detector, high performance infrared lens, excellent imaging processing circuit and embedded advanced image processing algorithm, with the characteristics of small size, low power consumption, fast start-up, excellent imaging quality and accurate temperature measurement.

The device selection of NX23/26 series online infrared thermal imaging thermometer fully considers the requirements of high and low temperature working performance, and ensures the excellent environmental adaptability of the whole machine.

The NX23/26 series of online infrared thermal imaging temperature meters output full code stream lossless temperature data and H.264/H.265 compressed video stream data, and provide SDK for customers to integrate and develop the backend, so as to fully analyze the temperature of the measured target.

Features of NX23/26 series online infrared thermal imaging thermometer:

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

2. Support ONVIF protocol and can access mainstream NVR;

3. Self-developed temperature correction algorithm is adopted to realize accurate temperature measurement, and the temperature measurement accuracy can reach up to ±2%;

4. Output full-bitstream lossless temperature data and H.264/H.265 compressed video stream data, provide client software and SDK development package, facilitate customers to carry out secondary development and system integration, and fully analyze the temperature of the target for personalized analysis.

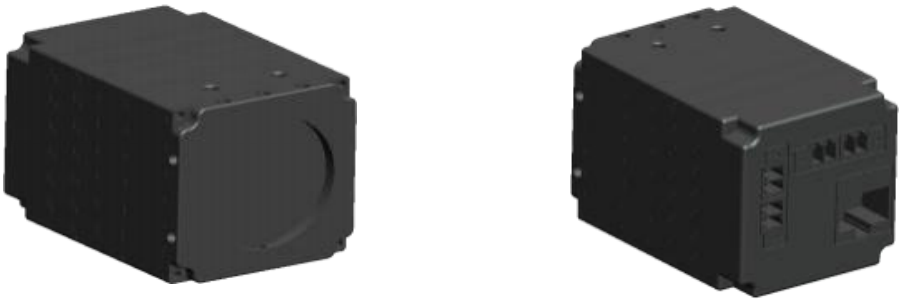

Figure 1 NX23/26 series online infrared thermal imaging thermometer product diagram

2 Product technical indicators

prober		
Type of detector	Non-cooling coke plane micro-radiometric calorimeter	
Pixel count	NX 23 Series: 384 x 288	NX 26 Series: 640 x 480
Pixel spacing	17μm	
wavelength coverage	8～14μm	
Thermal sensitivity (NETD)	≤50 mk@30℃	
frame frequency	25 Hz	
Image processing and display		
Image optimization	support	
Non-uniformity correction	support	
Image noise reduction	support	
Electronic zoom	1.0~ 4.0 times magnification	
polarity control	support	
palette	There are nine palettes, including white heat, black heat, iron red, rainbow and so on	
Contrast, brightness	Automatic/manual	
Gamma correction	support	
Enhance the algorithm	support	
Network video compression format	H.264/H.265	
Adjust the grayscale range	Automatic/manual	
Image mode	HDR wide dynamic mode	
OSD	support	
thermometric analysis		
temperature measurement accuracy	±2℃ or ±2%	

Temperature measurement range	In the normal temperature profile: - 20 ℃ ~ 200 ℃ temperature profile: 150 ℃ ~ 800 ℃ high temperature: 350 ℃ ~ 1600 ℃ (can be expanded to 2500 ℃)2500℃)
Temperature correction	Radiance, reflected temperature, acting distance
Automatic tracking of hot and cold spots	support
Temperature display	
Central point temperature display	support
Average temperature display	support
Temperature measuring tools	Point, line, rectangle, circle, ellipse, polygon
Alarm function	High temperature, low temperature, temperature range, interval inversion, trend
picture recording	Supports MP 4, GCV
take a picture	support JPEG
Export temperature data	Regional csv, temperature curve csv

electrical character	
data interface	RJ 45
data type	H264, H265, 16 Bit original temperature data
Network standards	Gigabit network/adaptive 10M/100M/1000M
Agreement supported	IPv4/ IPv 6 、 TCP 、 UDP 、 NTP 、 HTTP 、 RTSP、 RTP、 ICMP 、 WebSocket 、 ONVIF
Power interface	4 PIN SH
Enter the power supply voltage	DC 12V
steady state power consumption	<4.0W
Reverse connection protection	have
Overvoltage protection	have
Communication standards	UART@ RS 485 (reverse control ofthe gimbal and camera, Modbus-RTU protocol)
IO IO	support
Focus on methods	hand movement
enviromental parameter	
working temperature	-40℃~+60℃ (-20℃~+60℃ to ensure the accuracy of temperature measurement)
Storage temperature	-50 ℃~+70 ℃
Resistant to temperature shock	5℃/ min(-40℃~+60℃)
vibration resistance	4.3g, x, y, z axis for 2 hours each
shock resistance	Acceleration 30g, half sine wave, pulse width 6 ms, and three impacts in the installation direction
humidity	≤95% (non-condensable)
camera lens	
focal distance	A variety of focal length lenses are available
Focus on methods	hand movement
physical characteristics	

size	NX23：45mm× 45mm× 60. 1mm	NX26：45mm× 45mm× 64. 1mm
weight	<90g	
mounting hole	The bottom is two M3 x 5	
client		
Real-time temperature display	support	
A variety of temperature measurement objects	support	
Alarm function	support	
Video / photo / replay	support	
SDK SDK		
Java runtime environment Java	Supports Windows (32 Bit/64 Bit), Linux (32 Bit/64 Bit), MacOS, and Android As well as most ARM systems	
Secondary development	Provide API, SDK and Demo. Support development using C/C++, C#, Java, Javascript, Typescript, Python, Swift and other languages	

3 Electrical interface

This section describes the user interface definition of the infrared thermal imaging cameras core interface board. The external output interface mainly provides RJ45, connector and 4PIN SH connector.

3.1 Interface diagram

There are two kinds of connectors for external output, namely two 4 PIN SH connectors and RJ 45 connectors, as shown in the figure below.

- The 4PIN SH connector provides a DC12V power interface and an RS485 communication interface.
- The 4PIN SH connector provides a switch input/output interface.
- The RJ45 connector provides network digital video output.

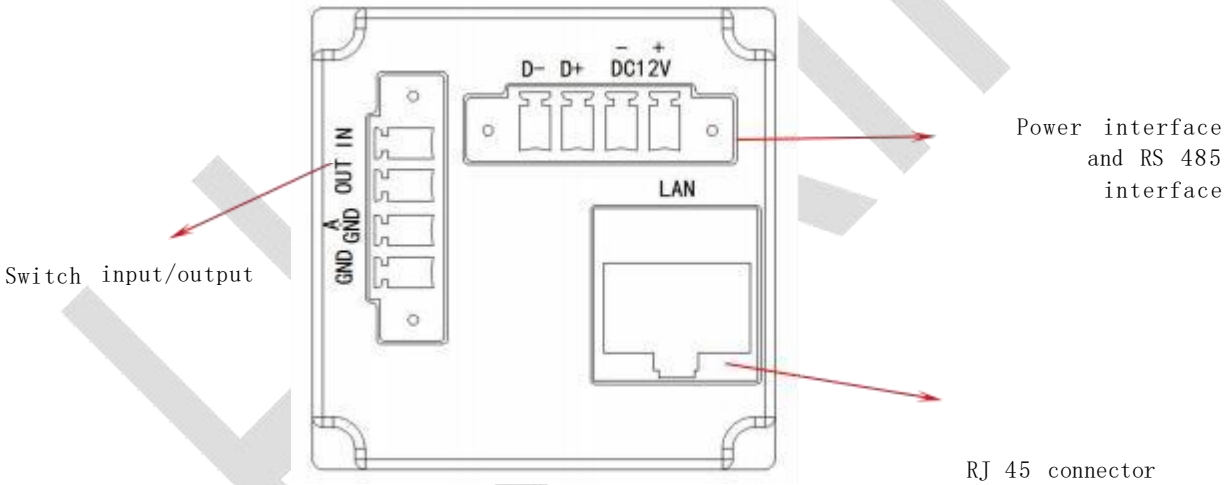

Figure 2 Definition of interface board connectors

3.2 Interface definition

There are two kinds of external user interfaces: RJ45 connector and 4PIN SH connector. The RJ45 connector is the standard definition, and the signal definition of 4PIN SH connector is shown in Table 1.

Table 1 Signal definition for 4PIN SH connector

Pin	Signal Name	Function	Description
1	VCC_IN	Power	5V~ 12 V Input
2	DGND	Power	Digital Ground

3	D+	Communication	RS485 D+
4	D-	Communication	RS485 D-

Table 2 Signal definition of 4PIN SH connector

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

4 Structural dimensions

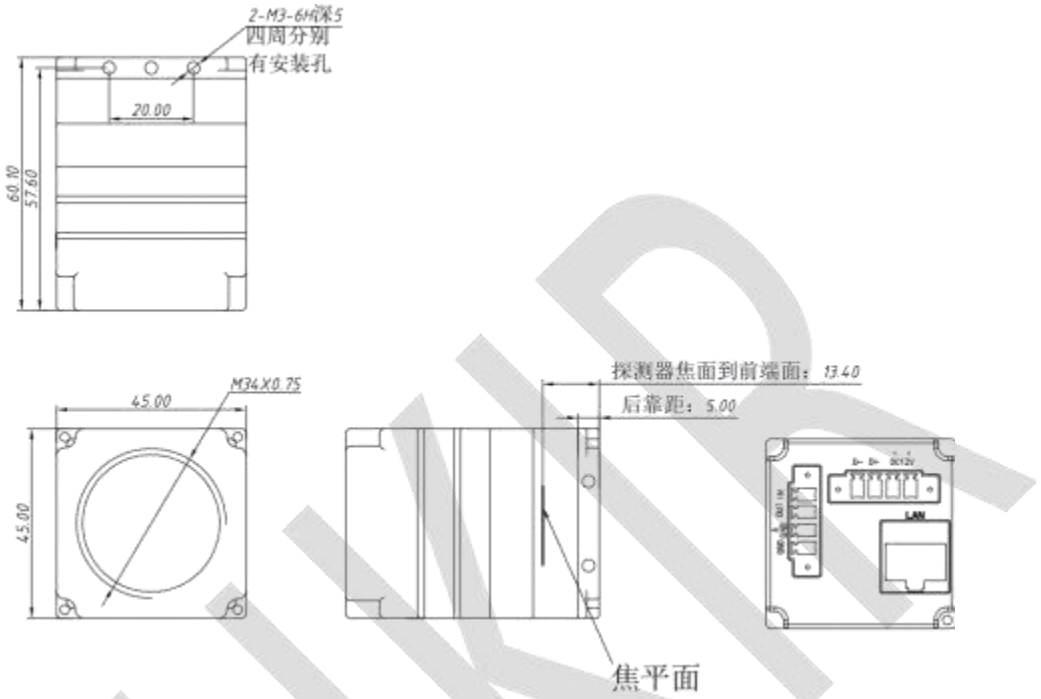

Figure 3 NX 23 structural dimensions

5 Software functions

1. Real-time display: can display the full radiation thermal image in real time all day long.

2. Temperature curve: It supports drawing real-time temperature curves for global or specific temperature measurement objects to help users determine temperature trends, and can preview real-time temperature changes in key areas of coal piles in real time on the board interface

spend;

3. Temperature tracking: It supports the function of high and low temperature tracking, automatically analyzes the temperature change trend of the whole picture or specific area of the thermal image, automatically captures the highest/lowest temperature point, and finds potential hazard areas in advance;

4. Temperature marking: It supports the high temperature marking function, which can automatically mark the high temperature position on the image, and assist users to find the super temperature point more quickly, so as to make corresponding decisions accurately;

5. Custom Temperature Alarm: Supports 11 different alarm types. Depending on the temperature changes of the object under test, these are mainly divided into over-temperature alarm, temperature rise alarm, temperature drop alarm, high-temperature range alarm, low-

temperature alarm, low-temperature range alarm, out-of-range temperature alarm, area temperature difference alarm, and average temperature alarm, totaling 11 types. This helps users quickly grasp the temperature changes of the object under test, enabling early warning and timely handling;

6. Alarm capture: It supports alarm capture, records the image of the moment of alarm and records the alarm video. When an alarm event occurs, the system will automatically capture the current monitoring picture and record the alarm video;

7. Data storage: alarm data, detection data and file data are stored in the corresponding data pages for users to quickly call and analyze;

8. Multi-dimensional data supervision: The system can be divided into alarm data, detection data and file data, which can be classified according to different ways of data generation, so as to carry out more targeted data analysis;

9. Historical data analysis: The system can analyze pictures and videos manually stored offline and automatically stored for alarm, so as to facilitate users to trace the temperature changes of the measured target and judge the causes of abnormal conditions based on this;

10. Automatic recovery: supports automatic recovery after power failure, automatic saving of the last device connection properties and other functions;

11. Temperature correction: temperature correction is supported, temperature measurement parameters can be set manually to correct the temperature measurement accuracy;

12. System management: System operation management can set multi-dimensional data such as system language, file storage, alarm data saving, account management and role permission, and record system operation logs.

6 Optional lens and detailed parameters

focal distance (mm)	size (mm)	F#	detector resolution			angle of field (°)		Spatial resolution (mrad)
			horizontal	perpendicular	Pixel size (um)	horizontal	perpendicular	
4	。41-h23	1.0	384	288	17	81	58	4.25
4.8	。 40-h37	1.0	384	288	17	71	54	3.54
5.7	。40-h15	1.0	384	288	17	71	52	2.98
8	。40-h25.8	1.0	384	288	17	46	35	2.13
9.5	。40-h15	1.0	384	288	17	38	29	1.79
13	。 31-h24	1	384	288	17	28	21	1.31
19	。39-h35.8	1.0	384	288	17	19	14	0.89
25	。 37-h24.5	1.0	384	288	17	15	11	0.68
35	。 40-h28	1.0	384	288	17	11	8	0.49
4.8	。 40-h37	1.0	640	480	17	114	88	3.54
8	。 40-h25.8	1.0	640	480	17	81	59	2.13
9.5	。40-h15	1.0	640	480	17	64	48	1.79
13	。 31-h24	1.0	640	480	17	45	35	1.31
19	。39-h35.8	1.0	640	480	17	31	24	0.89
25	。 37-h24.5	1.0	640	480	17	24	18	0.68
35	。 40-h28	1.0	640	480	17	18	13	0.49