K23/26 online infrared thermal imaging thermometer

Technical Specification

catalogue

1 Product description

The K 2 3/26 series online infrared thermal imaging thermometer adopts a 17μm non-cooling infrared focal plane detector, high performance infrared lens and signal processing circuit, and embedded advanced image processing algorithm, with small size, low power consumption, fast start-up, excellent imaging quality and accurate temperature measurement.

The device selection of K 2 3/26 series online infrared thermal imaging thermometer fully considers the requirements of high and low temperature working performance, and ensures that the whole machine has excellent environmental adaptability.

K 2 3/26 series online infrared thermal imaging thermometer features:

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

2. High frame frequency design can be used to observe fast moving targets;

3. Use self-developed temperature correction algorithm to achieve accurate temperature measurement;

4. Output full code stream lossless 16Bit temperature 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 tested target in a personalized way.

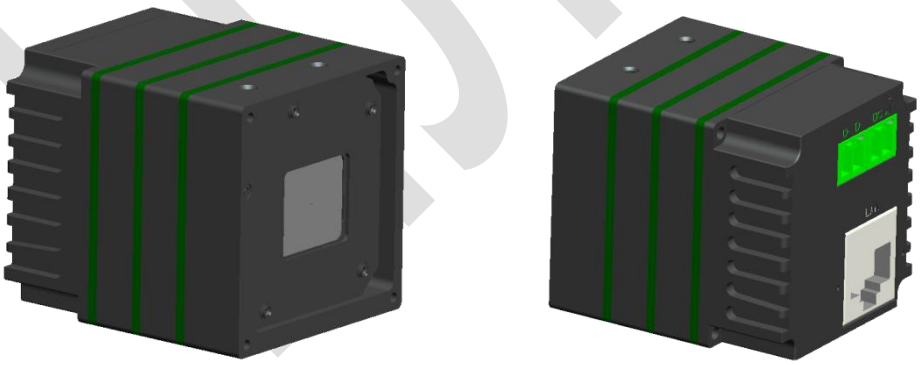

Figure 1 K23/26 series online infrared thermal imaging thermometer product diagram

2 Product technical indicators

prober		
Type of detector	Non-cooling coke plane micro-radiometric calorimeter	
Pixel count	K23 series: 384 x 288	K26 series: 640 x 480
Pixel spacing	17μm	
wavelength coverage	8～14μm	

Thermal sensitivity (NETD)	≤50mk@30℃	
frame frequency	≤ 50Hz (configurable)	
Image processing and display		
palette	A variety of palettes, including white heat, black heat, iron red, rainbow and so on	
Contrast, brightness	Automatic / Manual	
data format	16Bit temperature data (full stream)	
thermometric analysis		
temperature measurement accuracy	±2℃ or ±2%	
Temperature measurement range	150℃~800℃	Normal temperature range: -20℃~200℃ Medium temperature range: High temperature range: 350℃~1600℃ (Extensible to 2500℃)
electrical character		
data interface	RJ45	
Network standards	100 megabit network / 1 gigabit network (100 megabit network needs to reduce frame frequency)	
Agreement supported	UDP	
Power interface	2EDGKD-3.81mm/2P	
Enter the power supply voltage	DC12V	
CI	UART@ RS 485 (anti-control pan-tilt and camera, Modbus-RTU protocol)	
steady state power consumption	< 3 W	
Reverse connection protection	have	
Overvoltage protection	have	
enviromental parameter		
working temperature	-40℃ ~ + 6 0℃ (-20℃ ~ + 6 0℃ 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 6ms, 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		
outline dimension	40 mm× 40 mm× 46.5mm	40 mm× 40 mm× 51.5mm
weight	< 85 g	
mounting hole	Two M3x4 on each side	
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 win32, x 64, Linux (x86/ARM)	

data procurement	Get 16Bit temperature data (full stream) through the callback function

3 Electrical interface

3.1 Interface diagram

The external interface of the infrared thermal imaging camera has three ports, namely 2PIN SH port (RS485),2PIN SH port (power supply) and RJ45 port. The interface diagram is shown in the following figure.

- 2PIN SH connector (power supply) provides DC12V power interface;
- 2PIN SH Connector (RS485) provides an RS485 communication interface;
- The RJ45 connector provides a network digital video output.

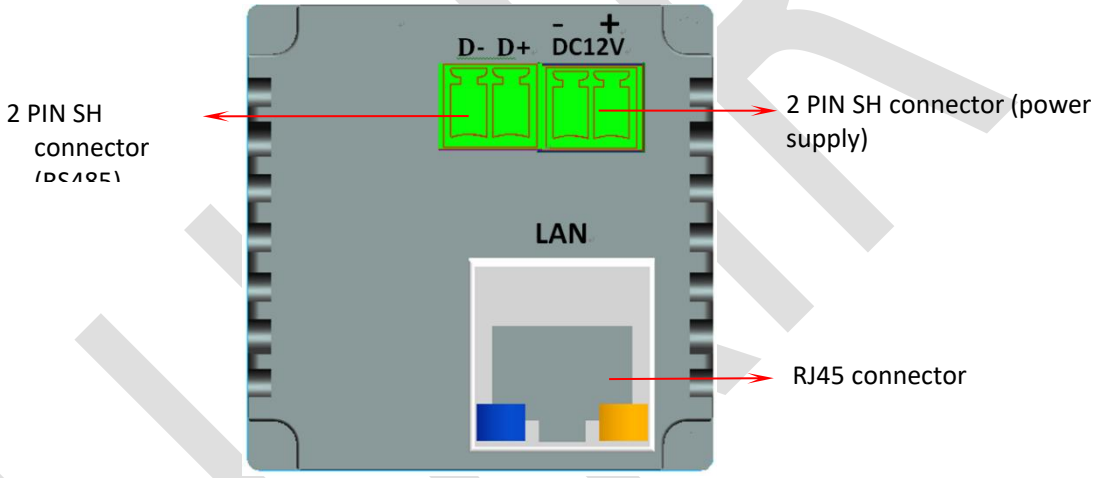

Figure 2 Interface diagram

3.2 Interface definition

The external interface of the infrared thermal imaging camera has three interfaces: two 2PIN SH connectors and one RJ45 connector. Among them, the RJ45 connector is standard defined, and the signal definition of the 2PIN SH connector (power supply) is shown in Table 1, and the signal definition of the 2PIN SH connector (RS485) is shown in Table 2.

Table 1 Signal definition of 2PIN SH connector (power supply)

Pin	Signal Name	Function	Description
1	DC12V +	Power	5V~12V Input
2	DC12V -	Power	Digital Ground

Table 2 Signal definition of 2PIN SH connector (RS485)

Pin	Signal Name	Function	Description

1	D+	Communication	RS485 D+
2	D-	C ommunication	RS485 D-

4 structure size

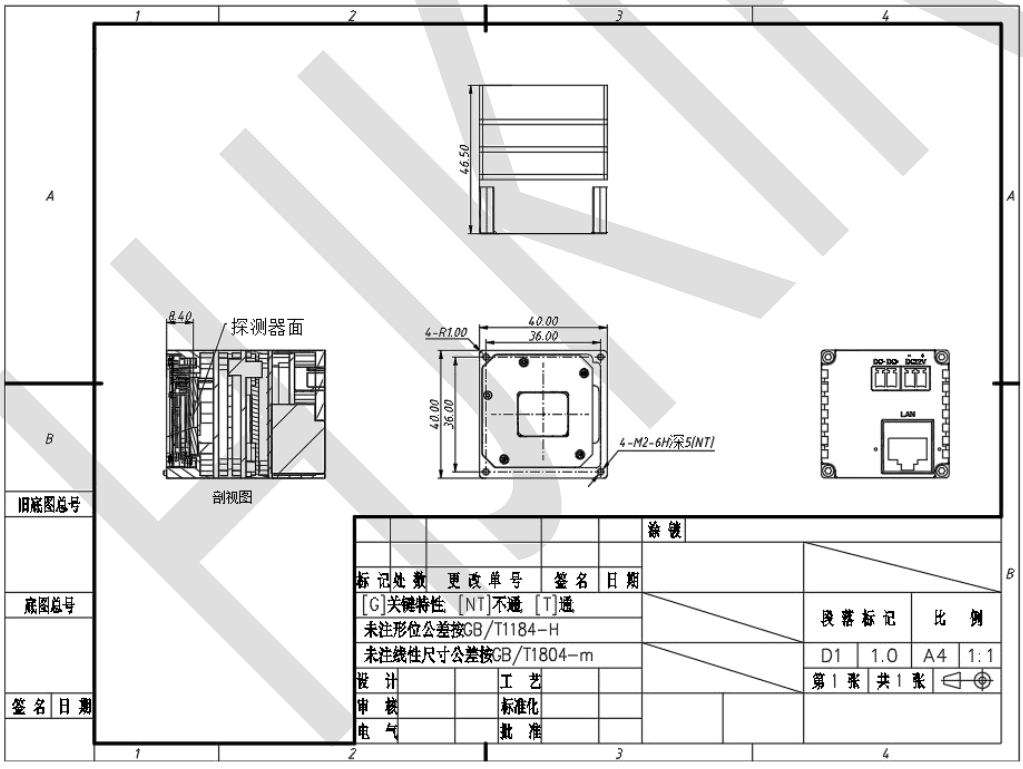

Figure 3 K23 movement structure size diagram

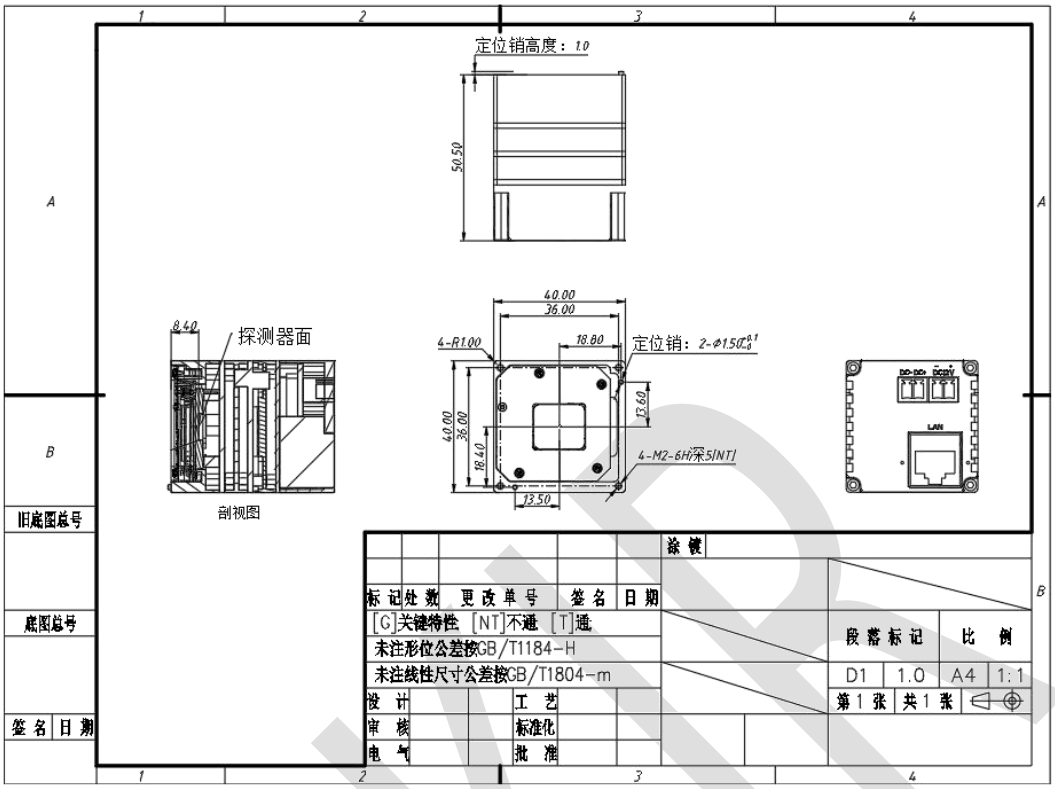

Figure 4 K26 movement structure size diagram

5 Introduction to software functions

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

2. Temperature curve: It supports drawing real-time temperature curves of global or specific temperature measurement objects, so as to

help users determine temperature trends, and the real-time temperature changes of key areas of coal piles can be previewed in real time on the board interface;

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 to help users find the over-temperature point more quickly and make corresponding decisions accurately;

5. Custom Temperature Alarm: Supports 11 different alarm types. Depending on the temperature changes of the object being monitored, 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-temperature range alarm, area temperature difference alarm, and average temperature alarm, totaling 11 types. This helps users quickly grasp the temperature changes of the object being monitored, enabling early warning and timely handling;

6. Alarm capture: It supports alarm capture to record the image of the alarm moment and record 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, the temperature measurement parameters can be manually set to correct the temperature measurement accuracy;

12. System management: The 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