X series online infrared thermal imaging thermometer technical specifications

Contents

1 Product Description

X series infrared thermal imager uses a 17μm high-resolution uncooled infrared focal plane detector, a high-performance infrared lens and imaging processing circuit, and is embedded with advanced image processing algorithms. It has the characteristics of small size, low power consumption, fast startup, and excellent imaging quality. It is widely used in equipment and systems that require miniaturization and light weight, such as unmanned aerial vehicle optoelectronic pods, security monitoring, and portable equipment.

X series infrared thermal imager infrared thermal imager movement features:

1. Strong environmental adaptability and can be used in a wide range of ambient temperature;

2. Original image processing algorithm, clear image, wide dynamic display, zero noise image quality;

3. Ultra-small circuit structure design, suitable for assembly and integration;

4. Adaptive non-blocking correction technology enables continuous observation of fast-moving targets.

Figure 1 X series infrared thermal imager core appearance

2 Product Specifications

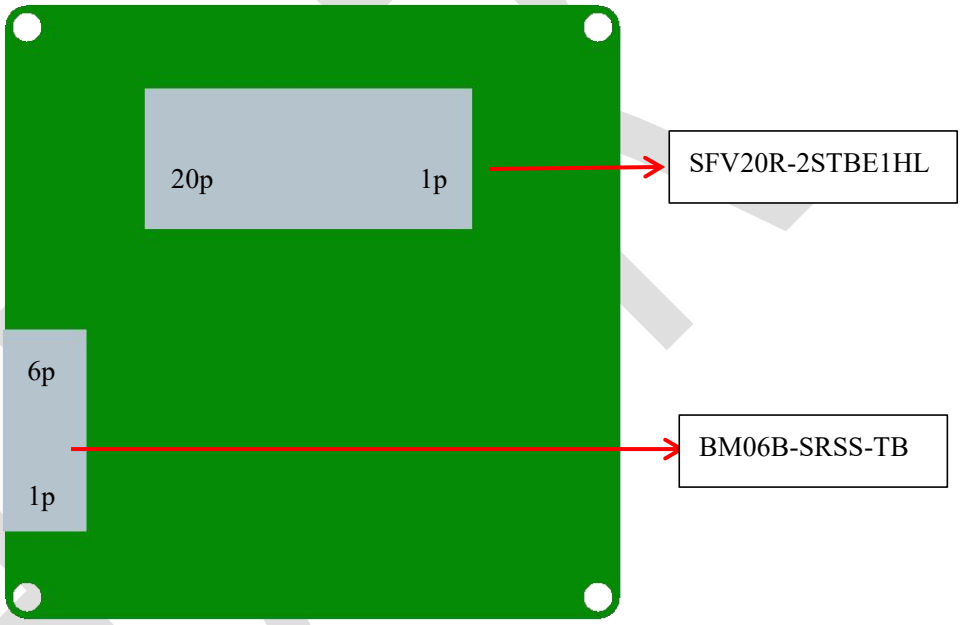
Detector	
Detector Type	Uncooled focal plane microbolometer
Number of pixels	640x480
Pixel spacing	17μm
Wavelength range	8～14μm
Thermal sensitivity (NETD)	≤50mk@30℃
Frame rate	25Hz
Image processing and display	
Imaging time	≤ 7 S
Analog video output	CVBS (PAL)
Color Palette	Multiple color palettes including white hot, black hot, iron red, rainbow, etc.
Electronic zoom	× 1/ × 2/ × 4
Contrast, brightness	Automatic/Manual
Digital Video	BT656@TTL(1.8V)
Electrical Characteristics	
Analog electrical interface	BM06B-SRSS-TB
Digital electrical interface	SFV20R-2STBE1HLF
Supply voltage	3V～5VDC
Steady-state power consumption	< 1.3 W
Communication standards	UART@ RS232
Environmental parameters	
Operating temperature	-40℃～60℃
Storage temperature	-50 ℃ ～ 70 ℃
Temperature shock resistance	5℃/min (-40℃～60℃)
humidity	≤95%(non-condensing)
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 the installation direction
humidity	≤95%(non-condensing)
Lenses	
Focusing method	Manual focus
Physical properties	
Dimensions	28 mm × 28 mm × 51 mm

weight	< 65g
Mounting holes	Two M2 × 4 on each side

3 Electrical interface

3.1 Interface Definition

X series infrared thermal imager provides an analog electrical interface (6 pins) and a digital electrical interface (20 pins). The electrical interface diagram is as follows :



- the analog electrical interface (6pin) connector is BM06B-SRSS-TB , which provides a CVBS (PAL system) analog video output interface, a 3V~5V power input interface, and a UART@ RS232 communication interface. The specific definitions are shown in Table 1.

Table 1 BM06B-SRSS-TB connector signal definition

Pin	Signal Name	Function	Description
1	VCC_IN	Power	3V～5V Input
2	DGND	Power	Digital Ground
3	RS232_TX	Output	RS232 transmit
4	RS232_RX	Input	RS232 receive
5	AGND	GND	Analog Ground
6	EXT_CVBS	Output	Analog video

- the digital electrical interface (20pin) connector is SFV20R-2STBE1HLF (0.5mm pitch 20-pin FFC socket) , which provides a BT656 digital parallel interface (1.8V TTL level) , a 3V~5V power input interface, and a UART@ RS232 communication interface. The specific definitions are shown in Table 2 .

Table 2 SFV20R-2STBE1HLF connector signal definition

Pin	Signal Name	Function	Description
1	BT656_CLK	Output	Digital Clk
2	BT656_DAT0	Output	Digital Data
3	BT656_DAT1	Output	Digital Data
4	BT656_DAT2	Output	Digital Data
5	BT656_DAT3	Output	Digital Data
6	BT656_DAT4	Output	Digital Data
7	BT656_DAT5	Output	Digital Data
8	BT656_DAT6	Output	Digital Data
9	BT656_DAT7	Output	Digital Data
10	DGND	GND	Digital Ground
11	DGND	GND	Digital Ground
12	DGND	GND	Digital Ground
13	DGND	GND	Digital Ground
14	NC		
15	PWR_IN	Power	3V～5V Input
16	PWR_IN	Power	3V ～5V Input
17	PWR_IN	Power	3V ～5V Input
18	PWR_IN	Power	3V ～5V Input
19	RS232_TX	Output	RS232 transmit
20	RS232_RX	Input	RS232 receive

Note: 1. Only one of the power input interfaces in the analog electrical interface and the digital electrical interface can be connected to the power supply.

2. Only one of the UART communication interfaces in the analog electrical interface and the digital electrical interface can be selected for communication .

3.2 Interface Timing

The digital video interface timing is in standard BT656 format, using interlaced scanning, the image format is YUV422, the clock is 27MHz, the number of lines is 625, and each line has 1728 clock cycles. The line-field transmission format is as follows:

Table 3 Line video data transmission format

EAV Code				B lanking Video				S AV Code				Active Video			
F F	00	00	E AV	10	80	10	80	F F	00	00	SAV	C	Y	C r	Y
4 Bytes				280 Bytes				4B ytes				7 20 * 2 = 1 440 Bytes			

Table 4 Field video data transmission format

Line	Video
1~22	blacking
23~310	Odd field
311~335	blanking
336~623	Even field
624~625	blanking

4 Structural dimensions

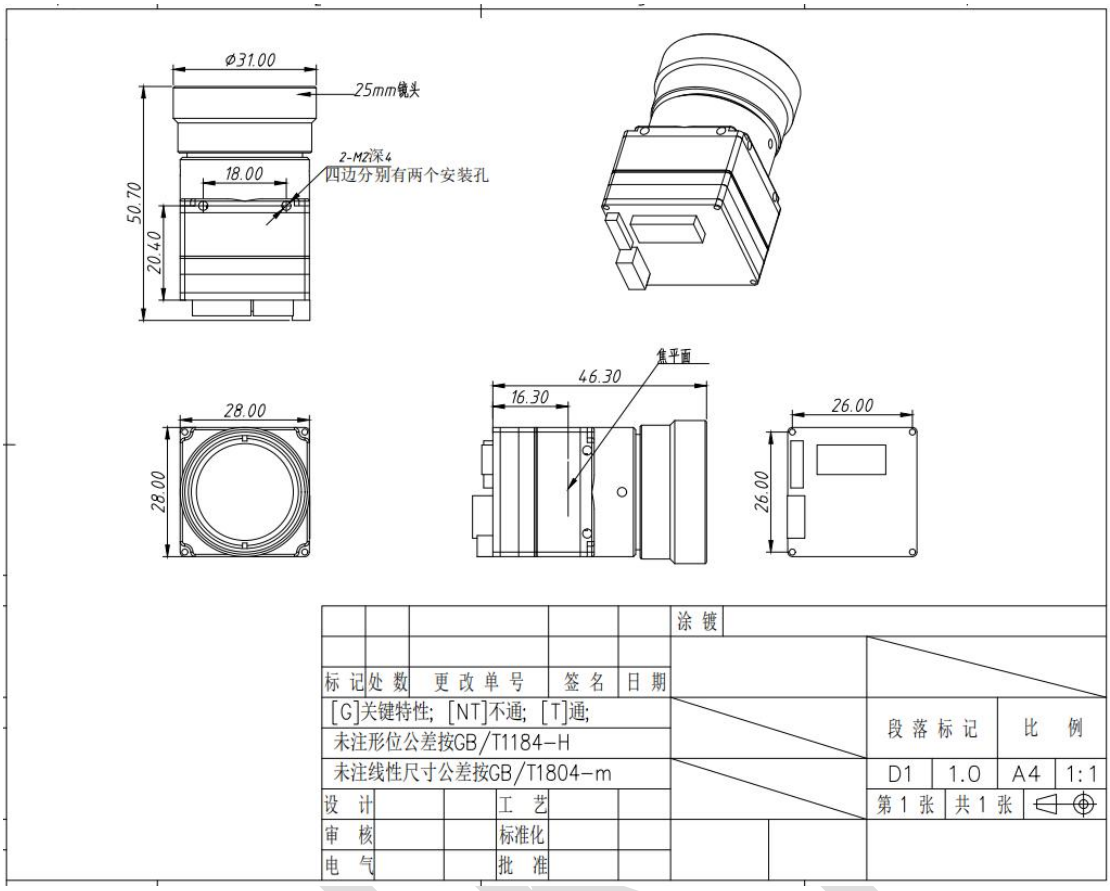


Figure 2 Structural dimensions