

HI Series Tracking and Recognition Smart Module

—— 4K, dual 1080P

1 Product Introduction

Equipped with domestically developed intelligent AI chips and self-designed image recognition algorithms, the system performs real-time autonomous detection and identification of targets, automatically or manually selects targets for locking and tracking, while simultaneously providing off-target deviation measurements relative to the field of view center.

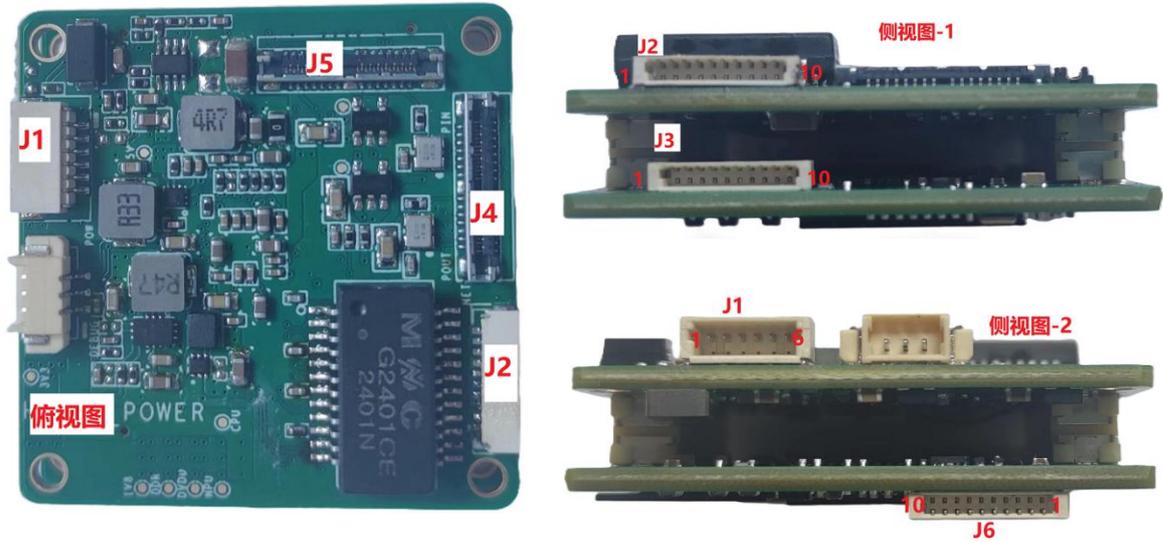
2 product function

- 1、 Supports AI intelligent detection and target recognition
- 2、 Supports initiating tracking by target confidence level, click, or other methods
- 3、 The tracking target supports adaptive aperture and allows manual adjustment of the aperture size
- 4、 Supports re-detection after tracking loss and demonstrates strong resistance to background interference and occlusion
- 5、 with electronic amplification capability
- 6、 Supports picture-in-picture display. You can control whether to show or hide picture-in-picture.
- 7、 Supports OSD customization
- 8、 Supports adjusting target position and size during tracking
- 9、 Strong adaptability to target deformation

3 Specification Parameters

Video parameter	Upload video	Visible light: resolution of 4 K or below Infrared: Resolution of 1280 or lower
	Network output video	1080P@30Hz
	Video display	Picture-in-picture, OSD information customization
Tracking metrics	Tracking frame rate	50HZ
	Tracking output delay	1 frame
	Tracing accuracy	±2 pixels
	Target memory tracking function	Obstruction ≤ 3 seconds
	Target size	16×16 to 128×128 pixels
	Tracking Mode	A. Manual confirmation B. Automatic recognition and confirmation
Monitoring indicators	Data refresh rate	$\geq 25\text{Hz}$
	Detect quantity	≥ 10 (different types, multiple objectives)
	Detectable	Visible light: $\geq 32 \times 32$ pixels Infrared: $\geq 16 \times 16$ pixels
	Stabilization test	Visible light: $\geq 64 \times 64$ pixels Infrared: $\geq 32 \times 32$ pixels
Electrical interface	Video input interface	MI PI, USB3.0 (compatible with 2.0)
	Video output interface	Gigabit port (compatible with 100 Mbps)
	Communication interface	TTL
	Power input	DC-12V/2A
Environmental suitability	Working temperature	-40°C ~ 60°C
	Storage temperature	-45°C ~ 80°C
	Launch shock	$\geq 200\text{g}$
Other	Core board size	38*38*13mm (customizable size)
	Average power consumption	$<4\text{W}@25^\circ\text{C}$ (excluding power consumption of visible light modules and infrared mechanisms)

4 Interface Definition



J1 interface (power communication): (Model: SH1.0_6P 1mm pitch surface-mount pin socket)

Pin definition:

Pin number	Signal name	Signal definition	Direction
1	Power supply positive	+12V	
2		+12V	
3	Power supply ground	GND	
4		GND	
5	Communication serial port	RXD	Tracker receiving
6		TXD	Tracker send

J2 interface (Gigabit network): (Model: BM10B-SURS-TF 0.8mm pitch surface-mount pin socket)

Pin definition:

Pin number	Signal name	Signal definition
1	Network	MDI2-
2		MDI2+
3		MDI1-
4		MDI1+
5		MDI3-
6		MDI3+
8		MDI4-
9		MDI4+
7、10	Signal ground	GND

Note: 100Mbps network connection to pins 1, 2, 3, 4, and 10

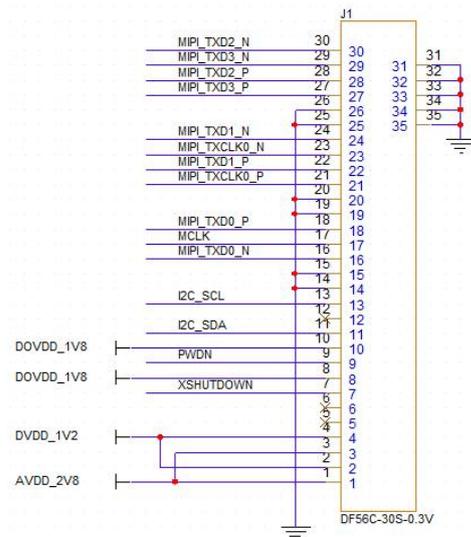
J3 interface (SD card slot): (Model: BM10B-SURS-TF 0.8mm pin layout)

Pin definition:

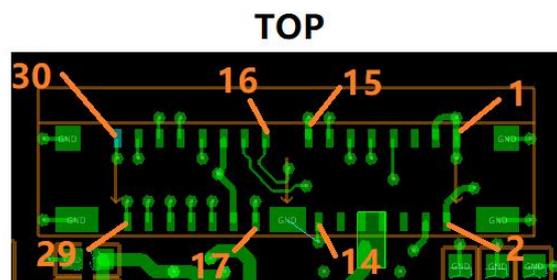
Pin number	Signal name	Signal definition
1	SDIO signal	SDIO0_CARD_DETECT
2	SDIO signal	SDIO0_CDATA2
3	SDIO signal	SDIO0_CDATA3
4	SDIO signal	SDIO0_CCMD
5	Source	3.3V
6	SDIO signal	SDIO0_CCLK_OUT
7	Power supply ground	GND
8	SDIO signal	SDIO0_CDATA0
9	SDIO signal	SDIO0_CDATA1
10	Power supply ground	GND

J4 and J5 interfaces (MIPI input) (Model: DF56C-30S-0.3

V) – schematic design



PCB Design (Top View)



J6 interface (USB3.0) (Model: BM10B-SURS-TF 0.8mm pitch surface-mount pin socket)

Pin number	Signal name	Signal definition	Remarks
1	USB source	VBUS	Main equipment output
2			
3	The earth	GND	
4			
5	USB2.0 data transfer or TYPE-C OTG	USB_D-	Twisted-pair
6		USB_D+	
7	TYPEC_TX signal	TYPEC_TX-	Twisted-pair
8		TYPEC_TX+	
9	TYPEC_RX signal	TYPEC_RX-	Twisted-pair
10		TYPEC_RX+	

remarks :

- 1) USB2.0 to pins 1, 2, 3, 4, 5, and 6
- 2) Twisted Pair Cables Should Be Kept as Short as Possible.