

A1280H

**Uncooled Thermal Imaging Module
User Expansion Component Manual**

V1.0.0

Historical Versions

Version	Date	Description
V1.0.0	2024-08	Initial release

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The user expansion components are connected to the rear end of the camera module. Each type of user expansion component provides different types of user control interfaces and video output interfaces, all of which feature over-voltage, under-voltage, and reverse polarity protection. Various digital video signals can be selected for output via user software or by sending commands to activate different digital video signals. The camera module can only support the output of one type of digital video signal at a time.

1.TAH04V100F016 User Expansion Component

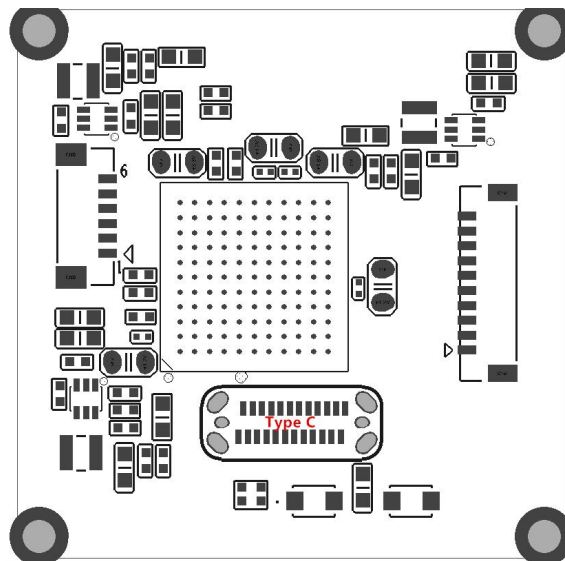


Figure 1.1 TAH04V100F016 User Board

The user expansion component uses a standard USB Type-C connector, which includes a power supply interface (5 VDC) and a USB 2.0 interface (UVC digital video and USB control signals). A standard USB cable (not included) can be used, with one end connecting to the board's Type-C interface and the other end featuring a standard USB 2.0 interface.

Table 1.1 Pinout of USB2.0 Type C Connector

Pin No.	Pin Name	Type	Description
A4,B4,A9,B9	VBUS	Power supply	Power input (5VDC)
A1,B1,A12,B12	GND	Power supply	Power GND
A6,B6	USB_DP	Input/Output	USB
A7,B7	USB_DM	Input/Output	

2.TAH04V100F008C User Expansion Component

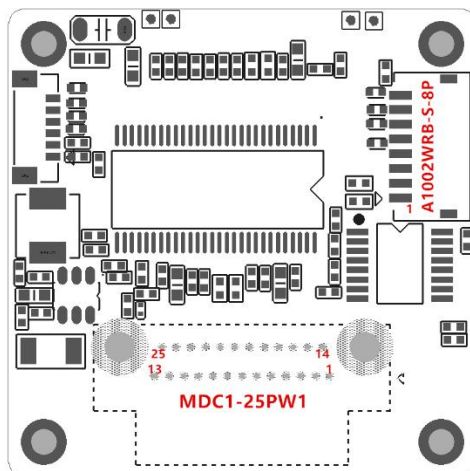


Figure 2.1 TAH04V100F008C User Expansion Component

The user expansion component supports two types of user interfaces. One interface uses a Helishi 25-pin MDC1-25PW1 connector, which includes power (5–20 VDC), RS-422, CameraLink digital video, and external synchronization, among other functions. The interface definitions can be found in Table 2.1. Additionally, a Helishi 25-pin MDC1-25SL5 mating cable (3030302003) is provided as standard to enable interconnection between the thermal imaging module and other systems.

Table 2.1 Pinout of Helishi 25-Pin MDC1-25PW1 Socket

Pin No.	Pin Name	Type	Description	
1,2,3	VCC	Power supply	Power input (5-20V DC) ⁽³⁾	
14,15,16	GND	Power supply	Power GND ⁽²⁾	
4	RS422_TX+	Input/Output	RS-422 Serial communication interface (3.3V) ⁽¹⁾	
5	RS422_TX-			
6	RS422_RX+			
7	RS422_RX-			
8	SYNC	Input/Output	Sync signal (3.3V)	
9,19	SGND	Power supply	Signal GND ⁽²⁾	
10	CMLK_TX0+	Output	Camera LINK digital video	Data signal
11	CMLK_TX0-			
12	CMLK_TX2+	Output		Data signal

Pin No.	Pin Name	Type	Description
13	CMLK_TX2-	Output	Data signal
20	CMLK_TX1+		
21	CMLK_TX1-		
22	CMLK_TX3+	Output	Data signal
23	CMLK_TX3-		
24	CMLK_TXCLK+	Output	Clock signal
25	CMLK_TXCLK-		
17	NC	/	Not connected
18	NC	/	Not connected

Notes:

(1) Both TX and RX in the serial communication interface refer to the transmit and receive of the thermal imaging module.

(2) GND and SGND are short-circuited inside the thermal imaging module.

(3) Recommended typical service voltage: 12V DC.

The other interface uses a CJT 8-pin A1002WRB-S-8P connector, primarily for motor control functions. It includes power supply for the motor driver board (5–18 VDC) and an RS422 interface for motor control. The interface definitions can be found in Table 2.2. Users can choose to use the A1002HB-8P connector (not included) to achieve interconnection between the thermal imaging module and the motor driver board to complete motor control functions.

Table 2.2 Pinout of CJ 8-Pin A1002WRB-S-8P Connector

Pin No.	Pin Name	Type	Description
1, 2	MOTOR_POWER	Power supply	Power output (5–18VDC) ⁽²⁾
3, 4	GND	Power supply	Power GND
5	RS422_TX+	Input/Output	RS-422 serial communication interface ⁽¹⁾
6	RS422_TX-		
7	RS422_RX+		
8	RS422_RX-		

Notes:

(1) Both TX and RX in the serial communication interface refer to the transmit and receive of

the thermal imaging module.

(2) The two power supply lines are already short-circuited inside the thermal . This line primarily serves as the power output for the motor control board, with the output voltage being the same as the supply voltage. The recommended typical supply voltage is 12 VDC.

3.TAH04V100F015C User Expansion Component

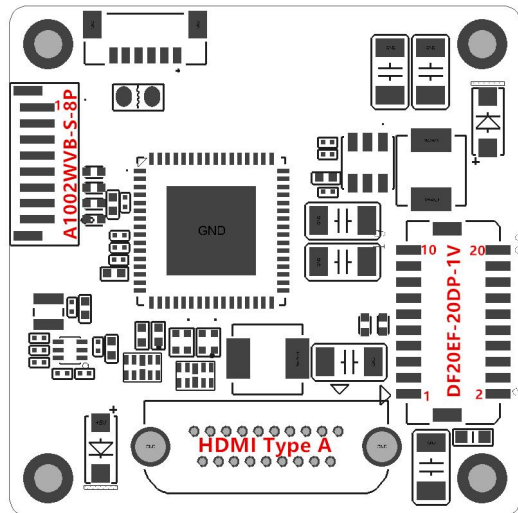


Figure 3.1 TAH04V100F015C User Expansion Component

The user expansion component supports three types of user interfaces. One is a standard HDMI Type-A interface. Another uses a Hirose 20-pin DF20EF-20DP-1V connector, which includes a power supply interface (5–18 VDC), RS232 and RS422 communication interfaces, and two external synchronization interfaces. A Hirose 20-pin plug (3030390048) is also provided, with one end connecting to the DF20EF-20DP-1V connector (the cable is approximately 30 cm in length) and the other end with bare wires that can be connected to other systems.

Table 3.1 Pinout of Hirose 30-Pin DF20EF-20DP-1V Connector

Pin No.	Pin Name	Type	Description
1, 3	GND	Power GND	Power GND
2, 4	POWER	Power supply	Power input (5–18VDC) ⁽¹⁾
6,9	GND	Power supply	Power GND
5	RS232_RX	Input/Output	RS-232 serial communication interface ⁽²⁾
7	RS232_TX		
8	RS422_RX-	Input/Output	RS-422 serial communication interface ⁽²⁾
10	RS422_RX+		
13	RS422_TX-		

Pin No.	Pin Name	Type	Description
15	RS422_TX+		
17	ALARM	Output	Alarm output (3.3V)
11	SYNC_IN	Input	Sync signal (3.3V)
19	SYNC_OUT	Output	Sync signal (3.3V)
12	NC	/	Not connected
14	NC	Input	Reserved
16	NC	Input	Reserved
18	NC	Input	Reserved
20	NC	/	Not connected

(1) Recommended typical service voltage: 12V DC.

(2) Both TX and RX in the serial communication interface refer to the transmit and receive of the thermal imaging module.

Another interface uses a CJT 8-pin A1002WVB-S-8P connector, primarily for motor control functions. It includes a power supply for the motor driver board (5–18 VDC) and an RS422 interface for motor control. The interface definitions can be found in Table 3.2. Users can choose to use the A1002HB-8P connector (not included) to establish interconnection between the thermal imaging module and the motor driver board to complete the motor control functions.

Table 3.2 Pinout of CJT 8-Pin A1002WVB-S-8P Connector

Pin No.	Pin Name	Type	Description
1, 2	MOTOR_POWER	Power supply	Power output (5–18VDC) ⁽²⁾
3, 4	GND	Power supply	Power GND
5	RS422_TX+	Input/Output	RS-422 serial communication interface ⁽¹⁾
6	RS422_TX-		
7	RS422_RX+		
8	RS422_RX-		

(1) Both TX and RX in the serial communication interface refer to the transmit and receive of the thermal imaging module.

(2) The two power supply lines are already short-circuited inside the thermal . This line primarily serves as the power output for the motor control board, with the output voltage being the same as the supply voltage. The recommended typical supply voltage is 12 VDC.

4.TAH04V100F027C User Expansion Component

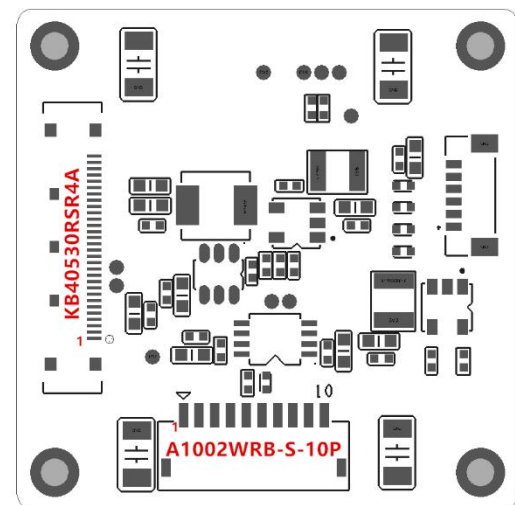


Figure 4.1 TAH04V100F027C User Expansion Component

The user expansion module supports two types of user interfaces. One interface uses a Wangdehai 30-pin KB405-30RSR4A connector, which includes a power supply interface for the core component (5–18 VDC), one UART communication port (3.3V level), one BT1120 digital video interface, and one external synchronization interface (1.8V level). Additionally, a Wangdehai 30-pin plug (3030302307) is provided, with one end connecting to the KB405-30RSR4A connector (the cable is approximately 30 cm in length) and the other end available for connecting to other systems.

Table 4.1 Pinout of Wangdehai 30-Pin KB405-30RSR4A Connector

Pin No.	Pin Name	Type	Description	
1, 2, 3, 4	IR_POWER	Power supply	Power input (5–18VDC) ⁽¹⁾	
5, 6, 7, 9, 12, 14	GND	Power supply	Power GND	
8	SYNC	Input/Output	Sync signal (1.8V)	
10	UART_TX	Input/Output	UART communication interface (3.3V) ⁽²⁾	
11	UART_RX			
13	CLK	Input/Output	Parallel data 1.8V	CLK signal
15	DV0	Output		Data signal 0
16	DV1	Output		Data signal1
17	DV2	Output		Data signal2
18	DV3	Output		Data signal3
19	DV4	Output		Data signal4

Pin No.	Pin Name	Type	Description
20	DV5	Output	Data signal5
21	DV6	Output	Data signal6
22	DV7	Output	Data signal7
23	DV8	Output	Data signal8
24	DV9	Output	Data signal9
25	DV10	Output	Data signal10
26	DV11	Output	Data signal11
27	DV12	Output	Data signal12
28	DV13	Output	Data signal13
29	DV14	Output	Data signal14
30	DV15	Output	Data signal15

Note:

(1) Recommended typical service voltage: 12V DC.

(2) Both TX and RX in the serial communication interface refer to the transmit and receive of the thermal imaging module.

Another interface uses a CJT 10-pin A1002WRB-S-10P connector, primarily for motor control functions. It includes a power supply for the motor driver board (5–18 VDC) and an RS422 interface for motor control. The interface definitions can be found in Table 4.2. Users can choose to use the A1002HB-10P connector (not included) to establish a connection between the thermal imaging module and the motor driver board to complete motor control functions.

Table 4.2 Pinout of CJT 10-Pin A1002WRB-S-10P Connector

Pin No.	Pin Name	Type	Description
1, 2	MOTOR_POWER	Power supply	Power output (5–18VDC) ⁽²⁾
3, 4, 5	GND	Power supply	Power GND
6	SYNC	Input/Output	Sync signal (1.8V)
7	RS422_TX+	Input/Output	RS-422 serial communication interface ⁽¹⁾
8	RS422_TX-		
9	RS422_RX+		
10	RS422_RX-		

(1) Both TX and RX in the serial communication interface refer to the transmit and receive of the thermal imaging module.

(2) The two power supply lines are already short-circuited inside the thermal . This line

primarily serves as the power output for the motor control board, with the output voltage being the same as the supply voltage. The recommended typical supply voltage is 12 VDC.

5.Precautions

To protect you and others from injury or to protect your equipment from damage, please read all the following information before using your equipment.

- (1) The product shall not face towards the sun or other high-intensity radiation sources directly;
- (2) The optimal environment temperature for operating is - 20 °C to 50 °C;
- (3) The detector window shall not be touched or hit with hands or other objects;
- (4) The equipment and cables shall not be touched with wet hands;
- (5) Please do not bend or damage cables;
- (6) Scrubbing your equipment with diluents is prohibited;
- (7) Do not unplug and plug cables when the power is on;
- (8) Wrong cable should not be connected in case that brings damages to the equipment;
- (9) Please pay attention to prevent static electricity;
- (10) Please do not disassemble the equipment. If there is any fault, please contact us, and professional personnel will carry out maintenance.