FD25 Video Intercom Face and Palm Vein Module Specifications

Version 1.0 April 2025

Huashengtong (Wuxi) Imaging Technology Co., Ltd.

FD25 Facial and Palm Vein Module User Manual

statement

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Perform all parametric testing on each product.

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Version History

Version Date		Modifications		
		Modified page number		content
1.0	2025/4/21	ALL		first edition

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1 Module Overview

1.1 Features

FD25 high-performance video intercom face and palm vein module is a customized development based on AI chip for face recognition application scenarios.

The binocular live face and palm vein recognition solutions developed by the company are designed to empower AI in the biometrics industry and promote industry upgrades.

Create more secure, reliable, convenient, easy to use and cost-effective biometric products.

The module uses binocular face and palm vein recognition technology, equipped with bionic recognition algorithm, and is optimized for various complex application scenarios.

It has been specially optimized to support UVC/UAC transmission of MJPG mainstream image and video formats and two-way video intercom function.

It not only achieves industry-leading security, but also provides a good user experience, such as fast recognition speed, low power consumption, and environmental adaptability.

Strong (not afraid of various complex lighting environments), wide height coverage, etc. It has the following characteristics:

ÿ Support binocular live 3D face recognition, simple operation, fast recognition, high accuracy and strong adaptability

ÿ Support palm vein recognition, low misrecognition rate and high accuracy

ÿ Clear image, supports binocular outflow

ÿ Low cost/high performance: Using face recognition module can achieve low cost/high performance goals

ÿ Support UVC transmission of MJPG mainstream image and video formats and two-way voice intercom function

1.2 Scope of application

FD25 high-performance video intercom face and palm vein module is widely used and suitable for various face and palm vein recognition systems. For example:

ÿ Security field: door locks, industrial computers, safes, POS machines, etc.

ÿ Management areas: private clubs, financial security, management software, licensing, etc.

ÿ Financial field: medical insurance collection, pension collection, etc.

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2 parameters

2.1 Technical Parameters

Table 2-1 Technical Parameters

project		Technical Parameters
Module size		40*20mm
Operating voltage		+5.0V
Working current		296mA
Power-on time		< 0.240s
recognition time		<0.5s
interface	UART	4-pin, 3.3v TTL, 115200bps
	USB 1.1/2.0 (default)	UVC
RGB lens	Resolution	1/4.5'', 1280H x 720V
	FoV	H 74°, V 60.7°, D 84°
IR lens	Resolution	1/4.5'', 1280H x 720V
	FoV	H 74°, V 60.7°, D 84°
Face Recognition	User capacity	100
	Registration distance	35cm~85cm
	Comparison	35cm~120cm
	distance face comparison	TAR: 98%, @FAR: <0.00001%
	Face liveness detection	TAR: 98%, @FAR: <0.0001%
	1:N search time	ÿ1s
Palm vein recognition	User capacity	100
	Registration distance	15cm~30cm
	comparison distance	15cm~30cm
	Palm vein comparison	TAR: 98%, @FAR: <0.00001%
	Palm vein liveness detection	TAR: 98%, @FAR: <0.0001%
	1:N search time	ÿ1s
Environment and reliability	Storage temperature	-40ÿ ~ 85ÿ
	Working temperature	-30ÿ ~ 70ÿ
	Operating humidity	< 93%, no condensation
	static electricity	ESDHBM ±2000 V
Microphone and speaker (video intercom)		Support two-way intercom

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2.2 Default supported video formats

Serial number	type	Pixel	Frame rate
1	320x240	MJPG	
2	480x320	MJPG	
3	800x480	MJPG	15
4	864x480	MJPG	
5	960x480	MJPG	

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3 Hardware Interface

IR   RGB

Figure 3-1 Front view of the FD25 module

trumpet   microphone

GND Rx Tx V   V NC Dn Dp GND
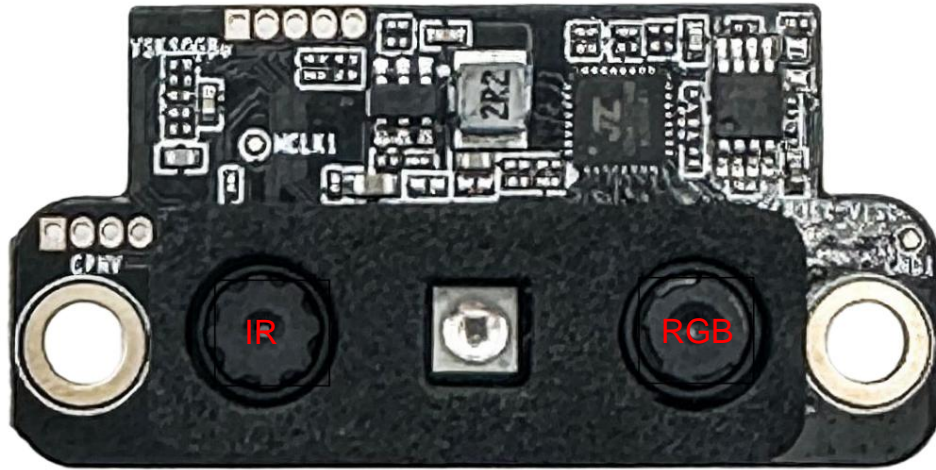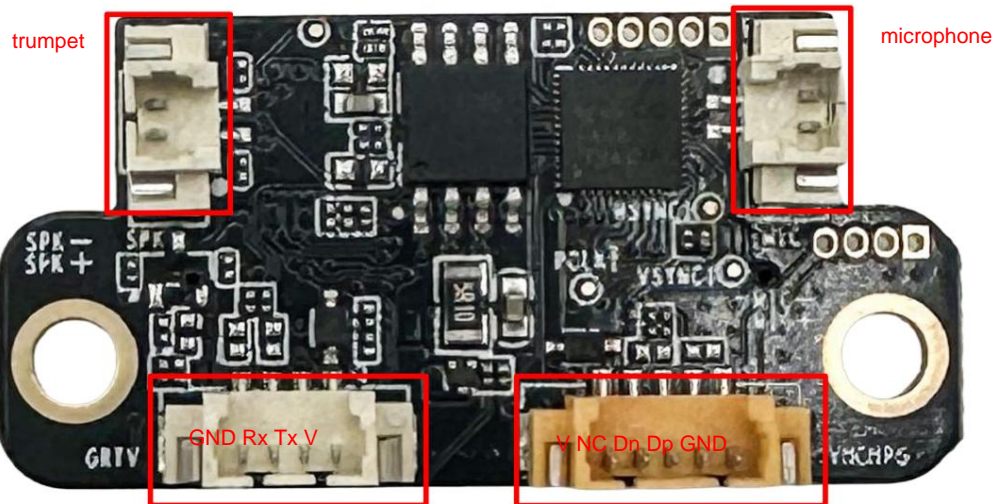
Figure 3-2 Back of the FD25 module

Note: The module uses the UART serial port for external communication, TX is connected to the host computer RX, and RX is connected to the host computer TX.

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3.1 Cat eye (USB) interface

The USB interface line sequence is shown in Figure 3-1, and the signal definitions are as follows:

Table 3-1 FD25USB interface definition

Port number	Port Name	direction	illustrate
1	**GND**	**-**	land
2	**USB DP**	**I/O**	**USB D+**
3	**USB DN**	**I/O**	**USB D-**
4	**NC**	**-**	**NC**
5	**VUSB_5V**	**I**	**Power supply (5-9v)**

This USB port is a UVC port.

3.2 Serial Port (UART)

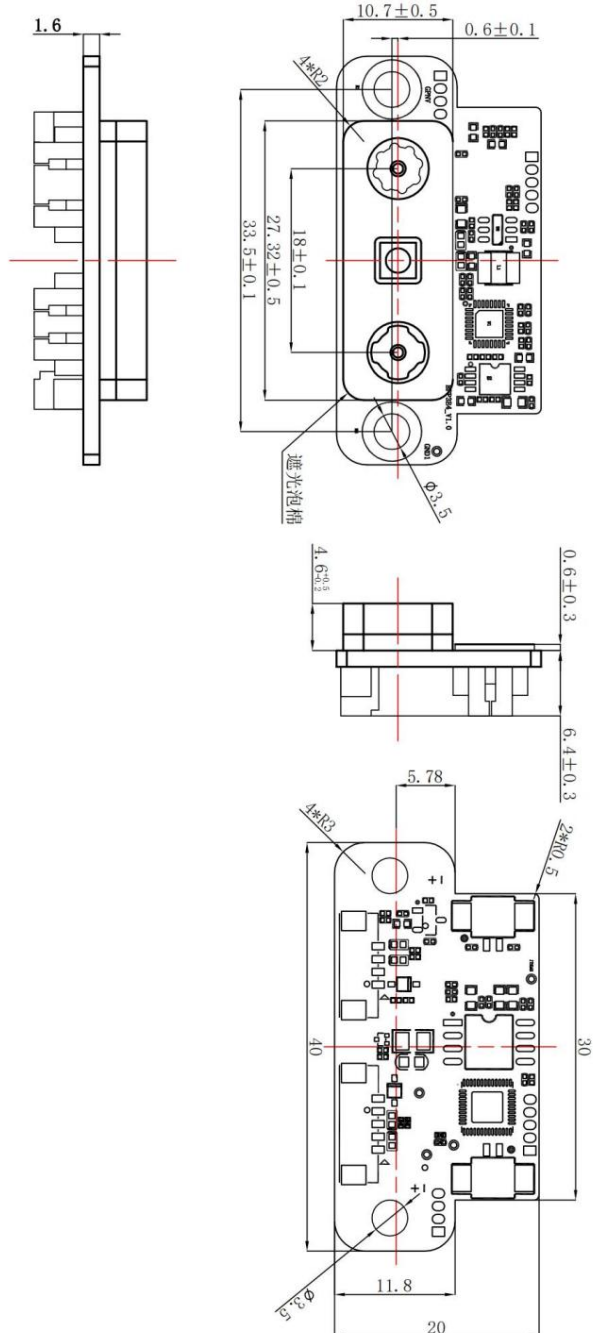The serial port line sequence is shown in Figure 3-2, and the signal definitions are as follows:

Table 3-2 FD25 debug UART interface definition

Port number	Port Name	direction	illustrate
1	**VBUS_5V**	**I**	**Power supply (5-9v)**
2	**TXD**	**O**	Serial port output
3	**RXD**	**I**	Serial port input
4	**GND**	**-**	land

4 Mechanical Dimensions

5. Ordering Information

Huashengtong (Wuxi) Imaging Technology Co., Ltd.

Tel: 18852395000

Email: zhigang.yao@hstyx.cn

Website: http://www.hstyxkj.com

Address: No. 88, Ximei Road, Xinwu District, Wuxi City, Jiangsu Province