

Intelligent Face Recognition Terminal

VF106 User Manual



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1. Preface

Thank you for using the VF106 facial all-in-one machine device. Carefully reading this document can help you understand the functions and characteristics of this device, and quickly master the use and installation methods of the device.

1.1.Product introduction

VF106 adopts a quad core 64 bit Cortex-A55, with a maximum frequency of 2.0GHz and 1TOPS NPU. The system is equipped with Android 11 or above, 2GB/4GB of memory, and 16GB (32GB/64GB expandable) of storage. Integrated face recognition (up to 100,000 faces can be stored, with a recognition rate of over 99%), channel control, access control, face payment, temperature measurement, card swiping, code scanning, and other product functions. There are five communication methods available: RS485/232, Ethernet and WiFi, and 4G (optional).

This product features an 8-inch touch screen, voice broadcasting, good interactivity and ease of use, and can provide an Android SDK for secondary development. Can be used in industrial parks, office buildings, banks, schools, and other places.

1.2.Product feature

Quad core 64 bit Cortex-A55, with a main frequency of up to 2.0GHz and 1TOPS NPU.
System Android 11.

8-inch high brightness LCD touch screen, face recognition, and live voice broadcasting prompts.

The face database has up to 100000 images, with a recognition accuracy of over 99% and a recognition time of ≤ 0.3 seconds per person.

The recognition distance is 0.3-1.5m.

Matching 200W dual cameras (RGB, IR)

Supports wide dynamic recognition, with a dynamic range greater than 80dB.

Personnel wearing masks, glasses, and hats can effectively identify and support mask detection.

Built in silent live detection, which can effectively block photo, video, and mask attacks.

There are three networking options available: WiFi/Ethernet/4G (optional).

Provide SDK to support secondary development.

External alarm input, door magnetic status input, and door switch input.

Equipped with one RS485/RS232 interface, which can be connected to the access control controller.

Equipped with a high-precision clock chip and RTC battery, it can save time when powered off.

Static electricity protection contact 8KV, air 10KV.

The waterproof and dustproof level of face device without temperature measurement module and 4G module can reach IP66.

Support logo customization, protocol customization, and OEM.

Support the installation of gate machines, 86 boxes, flat walls, and columns.

1.1. Technical Parameters

Type	Configuration/Features	Description/Parameters
Complete machine	Product type	Face recognition, channel control Access control machine, face payment, card swiping, code scanning
	Product model	VF106
	Main chip	Quad core 64 bit Cortex-A55
	Main frequency	2.0GHz
	System	Android 11
	Processor computing power	1TOPS
	Memory	2GB /4GB
	Storage	16GB (32GB/64GB expandable)
	System startup time	≤60 seconds
	Working voltage	9~24V (recommended 12V power supply)
	Power	17W (Max)
Appearance	Material	Aluminum alloy CNC
	Surface	Anodic oxidation
	Color	Silvery
External interface (outgoing line)	Electrical interface	Power supply, 30V/1A relay, Ethernet, 485/232, alarm input, gate magnetic input, USB * 2
	Physical interface	8P8C RJ45, 5525 DC circular port, 3.5mm screw terminal, USB-A female port
Network/Wireless	Ethernet	10/100MEthernet
	WIFI/Bluetooth	WIFI 2.4G/BT 4.2
	Mobile network	4G
Face recognition	Camera version	1920*1080 RGB recognition , 1920*1080 IR live Dynamic range> 80dB
	Recognition mode	Configurable switching between 1: N recognition and 1:1 recognition
	Identification time	≤300ms
	Recognition distance	0.3~1.5m
	Face library	100,000 sheets
	Recognition rate	More than 99% (when the face database reaches 100,000)
	Light adaptation	Can adapt to recognition in direct sunlight and pure black environments
	Face input	1) Bulk import via PaaS platform 2) Bulk import via USB disk
Complete machine	Waterproof and	IP66 (excluding 4G module)

protection	dustproof	
	Electrostatic protection	contact 8KV, air 10KV
	Surge Protection	Power, Ethernet, 485 Differential Mode: 0.5KV, Common Mode: 1KV
Environment parameters	Operating temperature	Commercial grade chip 0~55 ° C; optional industrial grade chip
	Storage temperature	-40~80 ° C
	Humidity	10%~90%
Human-computer interaction	LCD	8-inch LCD touch screen
	TP	Capacitive touch, 5-point touch
	Voice interaction	Built-in 8 Ω 1W speaker / Supports TTS
Other	Configuration method	tool platform, touch screen
	Environmental friendly	RoHS
	Application scenarios	Indoor, outdoor
	Hood	Sheet metal hood, spray paint, white
Installation method	Desktop	Can be adapted to standard desktop base
	Wall-mounted	Supports 86 boxes, flat walls, reserved cable duct
	Turnstile/Column	With torch holder, support turnstile column
Adapter	Power adapter	12V/3A power adapter
Swipe card module	Antenna specifications	13.56MHz
	Antenna size	42mm*28mm
	Card reading distance	0-5cm (The card swiping distance may be different depending on the card type and specifications)
	Supported card types	S50, S70, FM1208, FM1216-137, MIFARE CLASSIC EV1 4K(S70) , mifare desfire ev2 d42, UL, FM12081K+7K, NTAG216, ultralight c, UL EV1, DESFIRE EV2 D41, Ultralight EV1, Mifare Desfire ev2 d82
Scan code module (low configuration version)	Symbologies	QR, DM, PDF417, CODE39, CODE93, CODE128, ISBN-10, ITF, EAN-8, EAN-13, UPCA, UPCE, etc.
	Scan code support equipment	Mobile phone screen/paper
	Image sensor	640*480
	Reading direction	360 °
	Scanning angle	Horizontal 47.2 ° , Vertical 59.7 ° , Field of View 71.6 °
	Precision	≥7mil
	Reading speed	50ms/per time (average), supports continuous reading
	Reading depth of field	29.36mm ~147.39mm (version 12, 15mil paper code)
		29.37mm ~157.86mm(version 12, 15mil paper code)
	Scan feedback	Buzzer sounds

Scan code module (High-end version)	Sports performance	0.182 m/s
	Ambient light	0~80000Lux
	Symbologies	QR Code, PDF417, EAN-8, EAN-13, ISBN-10, CODE39, CODE93, CODE128, UPCA, UPCE, ITF, aztec, etc.
	Scan code support equipment	Mobile phone screen/paper
	Image sensor	640*480
	Reading direction	360 °
	Scanning angle	Horizontal 75.4 ° , Vertical 61.7 ° , Field of View 88.7 °
	Precision	≥7mil
	Reading speed	50ms/per time (average), supports continuous reading
	Reading depth of field	15.47 ~ 185.97mm (version 12, 15mil paper code)
		28.26 ~ 282.14mm (version 12, 15mil paper code)
	Scan feedback	Buzzer sounds
	Sports performance	0.260 m/s
	Ambient light	0~80000Lux

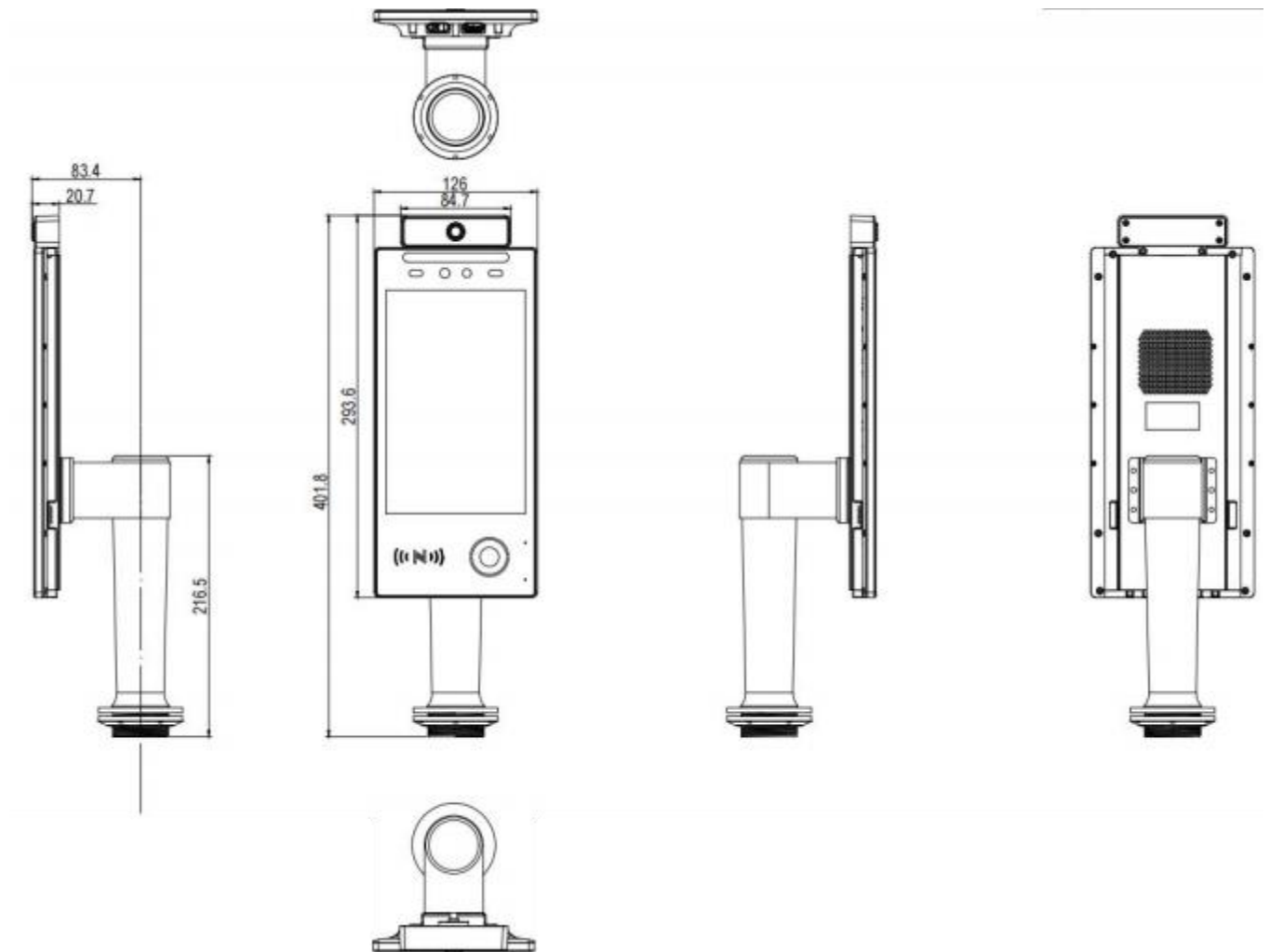
2. Product appearance

2.1. Appearance drawing

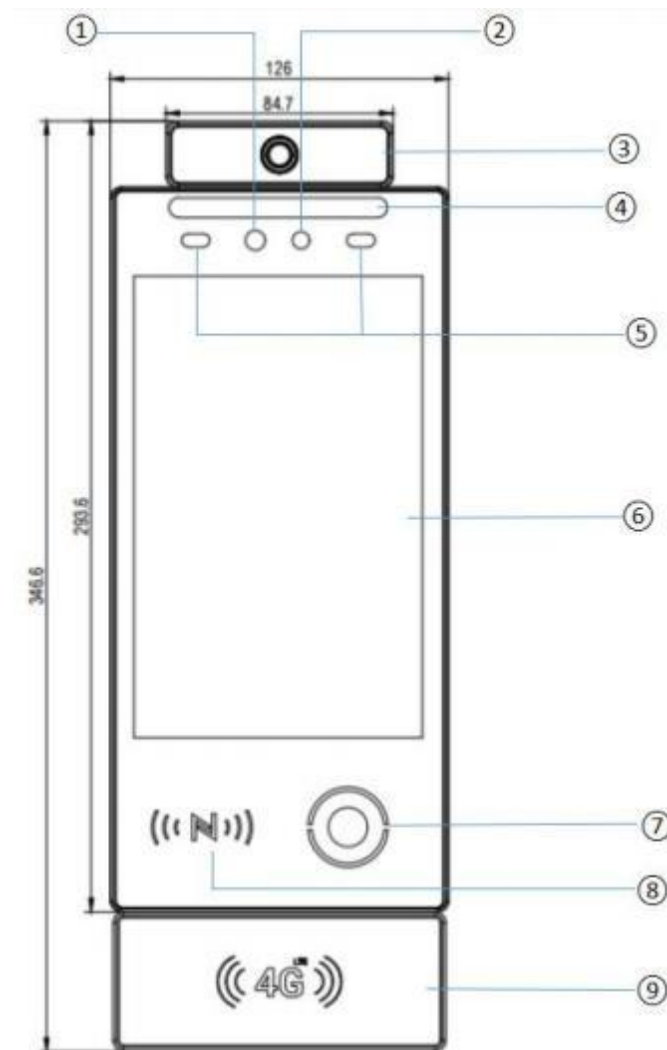


2.2. Appearance size diagram and introduction

Appearance size diagram

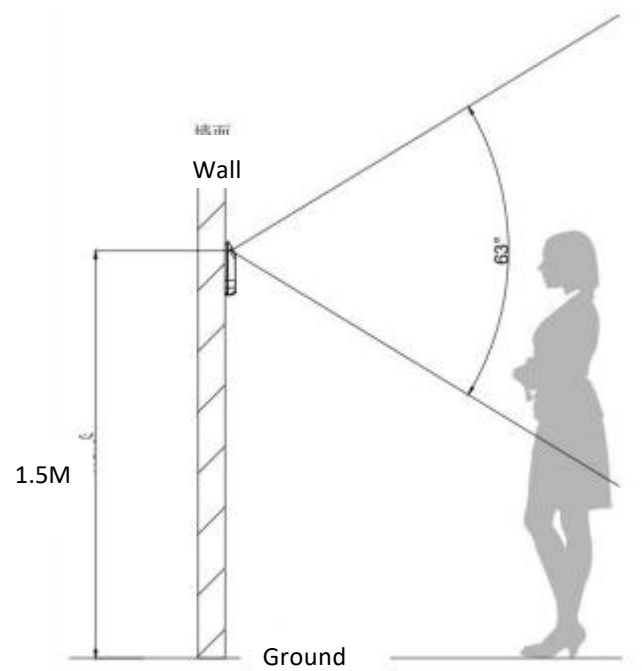


Appearance introduction

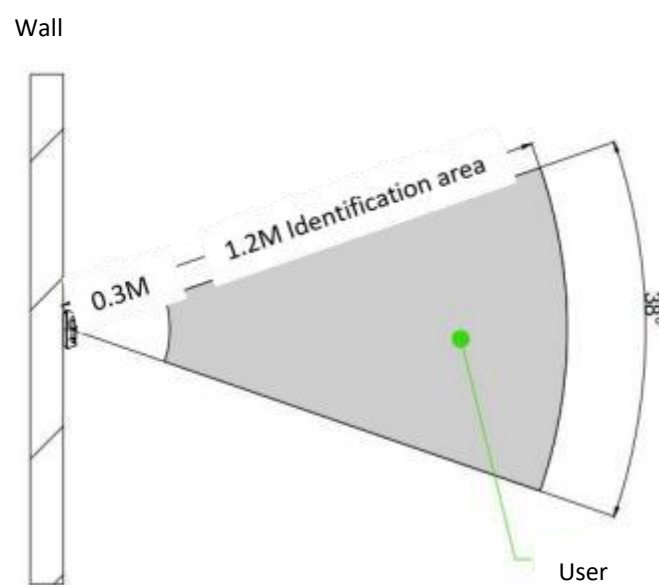


Serial number	Name	Instructions
①	Infrared camera	
②	RGB camera	
③	Temperature probe	Optional
④	White fill light	
⑤	Infrared fill light	
⑥	8 inch high brightness LCD touch screen	
⑦	Code scanning module	
⑧	Card swiping module	
⑨	4G module	Optional

2.3. Schematic diagram of reading area



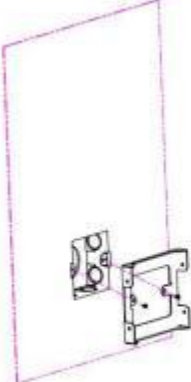
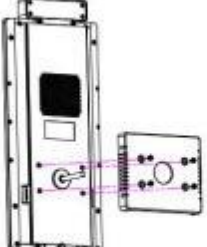
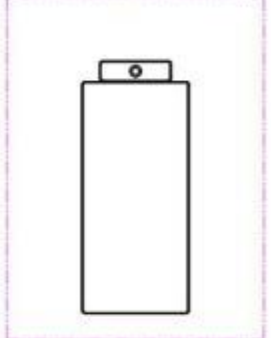
Side view



Top view

2.4. Installation method

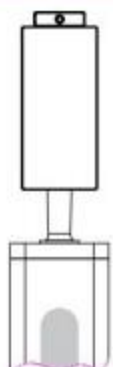
86 box installation

			
Step1:Connect metal bracket and 86 box screws.	Step2:Connect adapter bracket and device screws.	Step3:Install the device to the 86 box, connect side by	Step4:Complete installation.

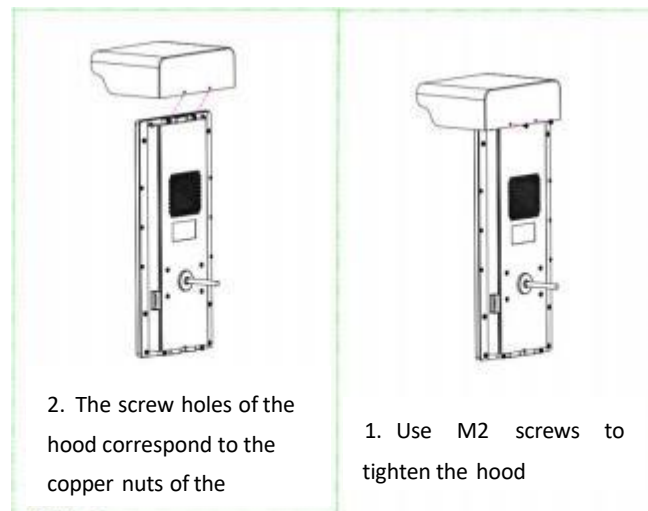
Gate installation

			
Step1:The opening size of the gate panel is 34mm in	Step2:Remove the torch holder nut.	Step3:Fix the panel to the torch holder and connect the wire ends	Step4: Assemble the panel to the gate and complete the installation

Column installation

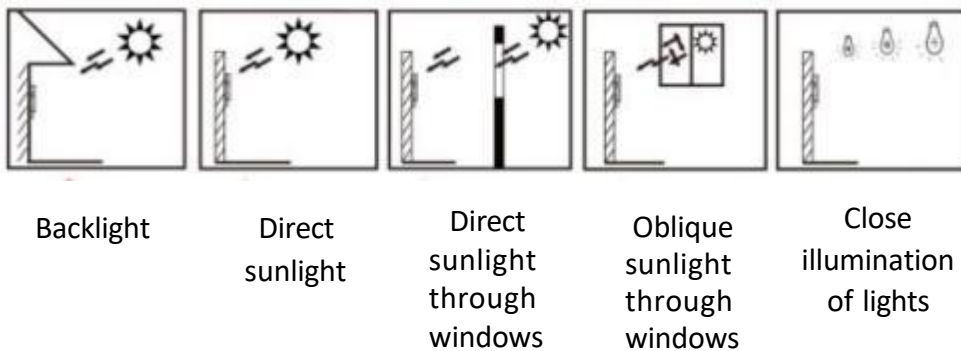
			
Step1:Remove the upper cover plate of the column.	Step2:Remove the torch holder nut.	Step3:Fix the upper cover plate and torch holder.	Step4:Assemble the upper cover plate to the column.

Optional hood installation method



Installation Precautions:

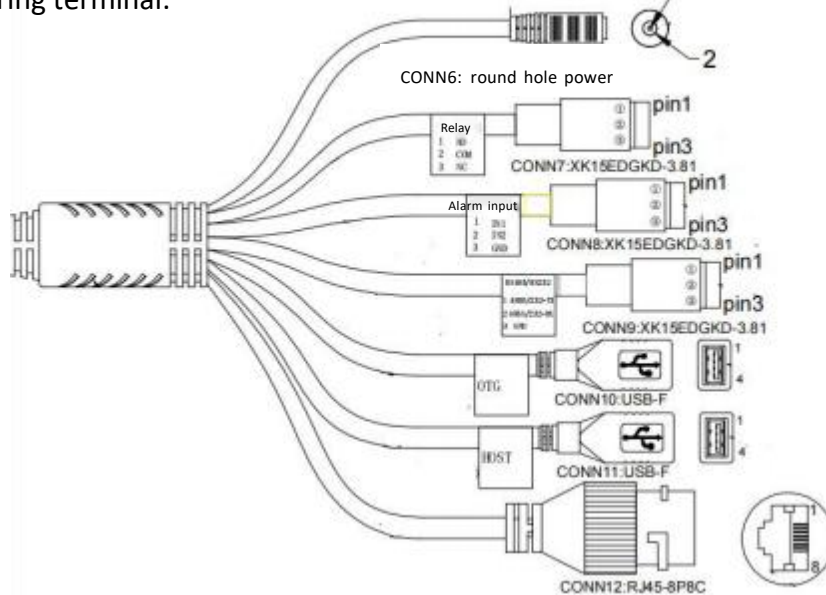
It is necessary to avoid backlight, direct sunlight, direct sunlight through windows, oblique sunlight through windows, and close illumination of lights.



2.5. Device wiring

Port description

The face recognition device has 7 wiring terminals, and the wiring is defined according to the wire mark of the wiring terminal.



Port name	Pin number	Pin definition
Power interface	DC round head	12V Power supply
Relay interface	1	NO: Normally open end of relay
	2	COM: Relay common end
	3	NC: Normally close end of relay
Alarm input	1	IN1: Alarm input 1
	2	IN2: Alarm input 2
	3	GND: Ground wire
RS485/RS232	1	485B: Line 485B 232-TX: 232 transmission pin
	2	485A: 485A line 232-RX: 232 receive pin
	3	GND: Ground wire
USB-OTG	female head	USB data
USB-HOST	female head	USB data
Network interface	RJ45	Connect network cable

Bare wire version

PIN#	Wire Harness Color	Pin definition	Pin description
PIN1	red	VCC	Power supply positive
PIN2	black	GND	power ground
PIN3	White	485B	485-B line
PIN4	blue	485A	485-A line
PIN5	brown	GND	power ground
PIN8	green	IN1	Alarm input 1
PIN9	Purple	IN2	Alarm input 2
PIN10	grey	NO	Normally open end of relay
PIN11	pink	COM	Relay common end
PIN12	cyan	NC	Normally close end of relay

Notice:

Unused pins must be insulated!

If the equipment is damaged due to short circuit due to lack of insulation treatment, the user shall be solely responsible!

3. Notes

Face registration photo requirements

Face pixels: minimum 80, maximum 512

Image size: 50 ~ 300K

Image height and width: 512 ~ 800 wide, 640 ~ 1024 high

Image format: JPG

Background requirements: life photos, no beauty filters, no heavy makeup, no sunglasses, scarves, masks, etc.

Face registration requirements

During face registration, the face needs to be in the registration box. It is best to occupy all the registration boxes, and look at the registration box for 2-3 seconds, waiting for the device to complete registration.

Wiring requirements

Unused pins must be insulated!

If the equipment is damaged due to short circuit due to lack of insulation treatment, the user shall be solely responsible!