ZKTeco

FA50RN / FA50M
FA51M / PV50M

Edge Computing
Facial Recognition Module

FA50RN, FA50M, FA51M, and PV50M are binocular camera modules designed based on high-performance heterogeneous processors. The binocular camera module has built-in facial and palm recognition algorithms. Facial recognition algorithm helps in face detection, alive body detection, mask detection, and can recognize the age, gender, emotional expressions, and identity of a user with his/her face. On the other hand, the palm recognition algorithm supports palm detection, alive body detection for palms, and user identification with palms.

Each binocular camera module in this series offers three types of applications for different scene deployments, these are:

• a capture module that obtains video streams through UVC;

• a module that receives video streams and extracts facial or palm features for comparison in the host;

• a module that receives video streams and extracts facial or palm characteristics for comparison in the module itself.

These binocular camera modules can be combined with software interfaces to efficiently integrate face and palm recognition functions into the platform according to the application's needs and platform functions. It would be the desired solution suitable for time & attendance, access control, and many other fields.
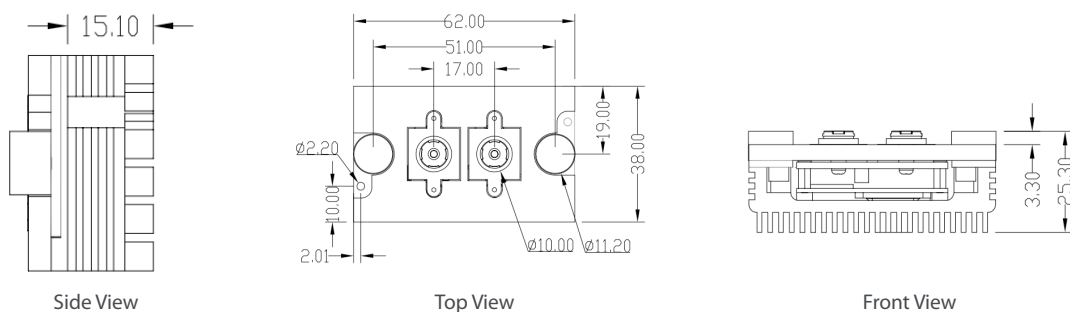
Features

• 2MP Starlight HDR Dual-Sensor with WDR up to 105dB.

• Detection distance:
  Facial Recognition - 50 cm to 200 cm.
  Palm Recognition - 15 cm to 40 cm.

• Provides a combination recognition method of facial and palm identification.

• Illuminance of 0.01 lux to 50,000 lux for facial recognition.

• Illuminance of 0.01 lux to 20,000 lux for palm recognition.

• Built-in near-infrared fill light and intelligent switch control based on an image detection algorithm.

• A thorough SDK available, supporting 3 primary OS (Windows, Android & Linux).

• Image transmission carried out by the UVC protocol.

• Comparison and results are delivered through HID protocol.

Specifications

General	Processor	Quad-core Cortex-A7@1.5GHz, 1.2 TOPS (INT8)	
	Image Sensor	Two 1/2.8" 2MP HDR CMOS	
	Camera	M8; 2MP; using Visible Light or Near-Infrared light	
	Communication Interface	USB 2.0	
	Communication Protocol	UVC & HID protocol	
	Power Supply	DC5V 1A (min.)	
	Operating Temperature	-10°C to 50°C	
	Operating Humidity	0 to 90% RH	
	Dimensions (L*W*H)	62 * 38 * 25.3 (mm)	
Optical & Image Parameters	Camera Type	Visible light	Near-infrared
	Field of View	D=73°; H=65°; V=40°	D=73°; H=65°; V=40°
	Image Resolution & Frame Rate	720*1280@25fps 480*640@25fps	720*1280@25fps 480*640@25fps
	Wide Dynamic Range	105dB	105dB
	Distortion	≤0.5%	≤0.5%
	Default Output Format	MJPEG	NV12
	Luminance	0.01 lux to 50,000 lux	0.01 lux to 20,000 lux
Operating System	Windows	Windows XP/ Windows 7/ Windows10 (32-bit or 64-bit)	
	Android	Android 4.1 or above	
ZKLiveFace Algorithm	Angle Tolerance	Yaw ≤±30°, Pitch ≤±30°, Roll ≤±30°	
	Face Capacity	50,000 for 1:1 and 1:N comparison	
	Face Features Recognition Accuracy	Age (±5 y/o) > 85% Gender > 96% Emotional expression > 88%	
	Facial Recognition Accuracy	FAR = 0.01% when FRR = 1%, FAR = 0.0001% when FRR = 5%	
ZKPalm Algorithm	Angle Tolerance	Yaw ≤±30°, Pitch ≤±30°, Roll ≤30°, Bend ≤20%	
	Palm Capacity	6,000 for 1:1 and 1:N comparison	
	Palm Recognition Accuracy	FAR=0.001% when FRR=0.68%	
Certifications	CE, FCC, RoHS		
Module Differentiation	FA50RN (Capture Module), FA50M (Facial Recognition Module), FA51M (Facial and Palm Recognition Module), PV50M (Palm Recognition Module)		

Dimensions (mm)

Side View

Top View

Front View

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