ZF-BP3-SH Face Recognition Module Specification

Version V1.0

Preface and Statement

We have done our best to ensure the accuracy of this manual. However, if you have any questions or find any mistakes, you can directly contact Kneron Holding Corporation (hereinafter refer to as the Company or Kneron) or our authorized agent, we will be very grateful.

As our company pursues constantly improving the products, the module and manual contents are subject to change without notice. Please visit our company's website (www.kneron.com) or telephone contact for the latest information.

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The sale of all products is subject to the terms and conditions of sale in the order. The company uses testing, tools, quality control and other technical means to support the product performance of the required specifications to meet a certain degree of assurance. There is no need to perform all parameter tests for each product.

Revision Log

Version	Date	Written by	Revised content
V1.0	20230303	Lincy	Create a document

Table of Content

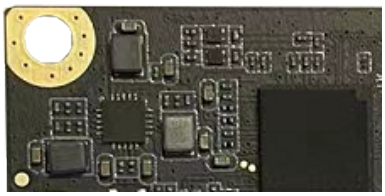
1. Product profile

ZF-BP3-SH refers to a 3D face recognition function module developed by Kneron, aiming to empower AI for the smart door lock industry, so as to create a more secure and reliable intelligent door lock products.

BP3-SH refers to a 3D face recognition module upgraded by Kneron on the basis of BP3-S products. The product uses 2M HD pixel dual infrared camera, and the algorithm is optimized for people with different skin colors. Through big data training, the security of the product algorithm is improved and the error rate is reduced. The accuracy optimization of the algorithm model further improves the environmental adaptability, especially improves the success rate of unlocking in a complex environment.

2. Product components

Algorithm board



front

back

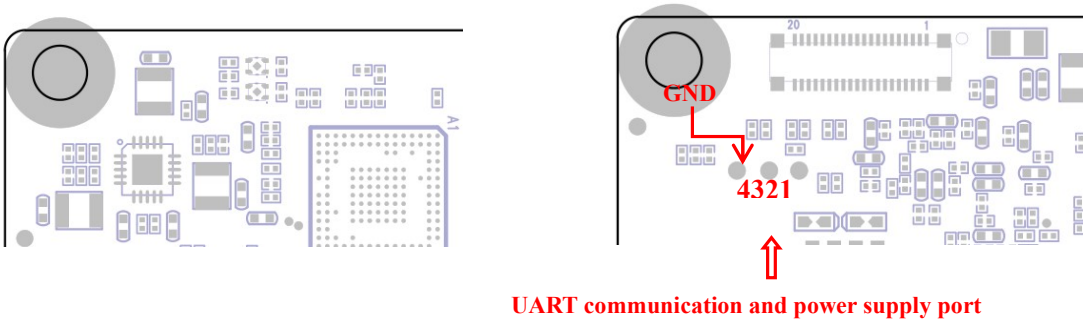
Camera components

front

back

3. Product structure and interface

3.1 algorithm board structure and interface

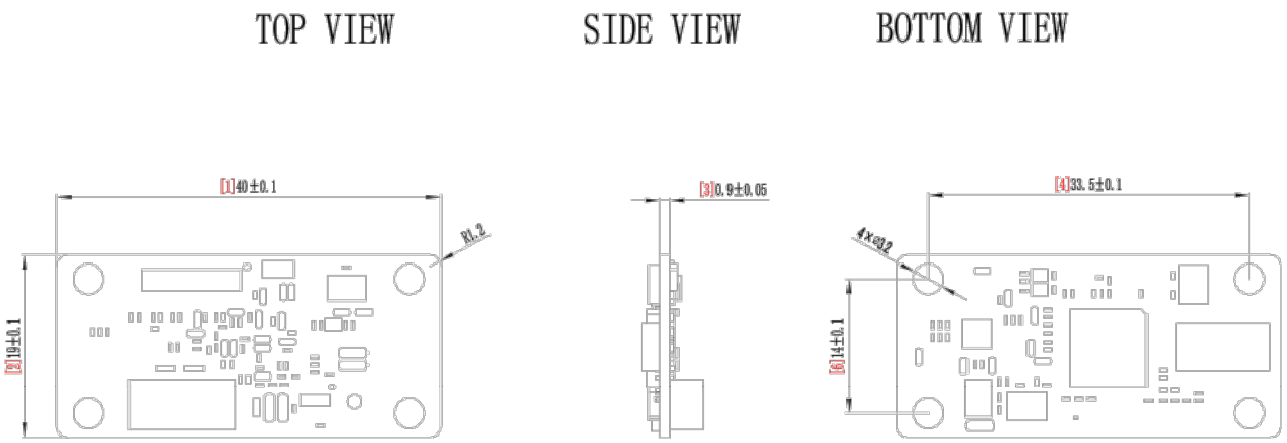


Algorithm plate structure diagram

Interface description, line order 1 on the righmost right:

U ART	definition	explaination
1	VCC	5-12V
2	TX	Sending, 3.3V
3	RX	Receiving, 3.3V
4	GND	the earth

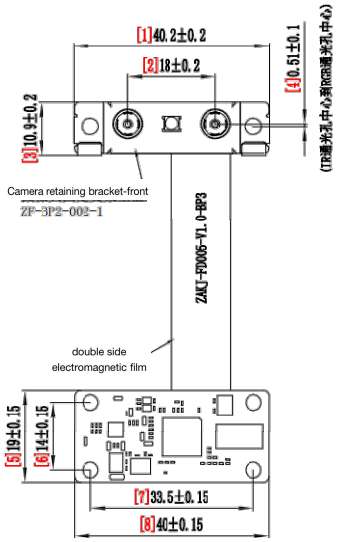
Algorithm board dimension (in mm)



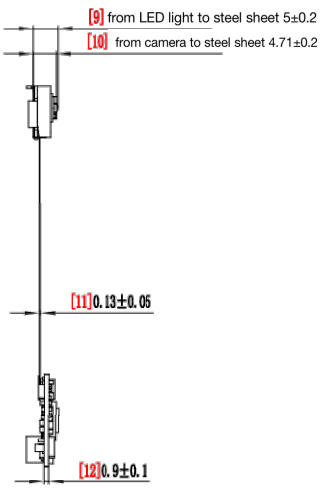
3.2 Camera component structure

Camam of dimension dimensions (in mm)

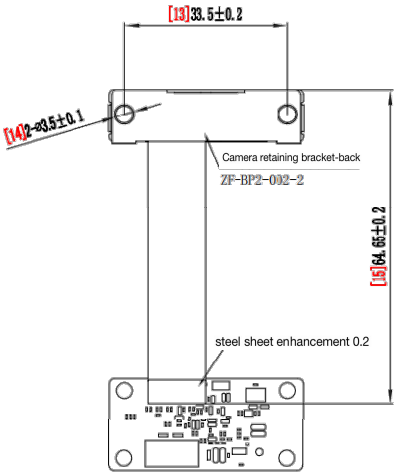
TOP VIEW



SIDE VIEW



BOTTOM VIEW



4. Specification of product

Item	Parameters
Product size	40 * 19 mm
Interface	UART
CPU	Dual core M4
NPU	Support
RAM	64MB DDR
ROM	32MB SPI NOR
Feature map	256 Bytes
Camera	Dual MIPI interface, dual IR + infrared LED
Resolution ratio	Dual 2M HD pixels
Infrared LED light	850nm
FOV	72(V)*57(H)
User capacity	100 (local registration, expanded to thousand)
Liveness detection	TAR> 98 @ FAR <1 in 100,000
Face recognition	TAR> 98 @ FAR <1 in 1 per million
FR distance	0.4 to 1 m, optimum 0.6m
FR time	≤ 1s
FR height	1.3～2m
Environment	Support for indoor / outdoor / dark / high light
Working voltage	5～12 V
Standby current	0 uA
Average power consumption	＜ 0.8 W
Working temperature	-25～60°
Storage temperature	-30～65°
Working humidity	From 10% to 95%, with no condensation

5. Attention

1. Product installation angle

The recommended height of the module camera part is 1.2m from the ground, and the upward tilt angle is 15-20°.

2. Protect the cover plate

(A) If the camera needs to cover protective cover plate, it is recommended to use glass or acrylic and strengthen according to the needs.

(B) The light transmission area corresponding to the protective cover plate and the infrared camera and flood light needs screen printing window. The window on the protective cover plate for the camera can refer to the field angle of each component in the drawing provided by our company.

(c) The infrared light transmittance of 850nm for the protective cover plate should reach at least 90%, and it is recommended to add corresponding anti-reflective coating.

(D) The glass thickness is recommended to be less than 1.2mm, and the acrylic thickness is recommended to be 1.5-2mm.

3. Dustproof and waterproof

Structural design needs to consider dustproof and waterproof, to avoid polluting the camera and thus affecting the face recognition effect.

4. Strong direct light

Avoid strong light direct camera. It will affect the face recognition effect.