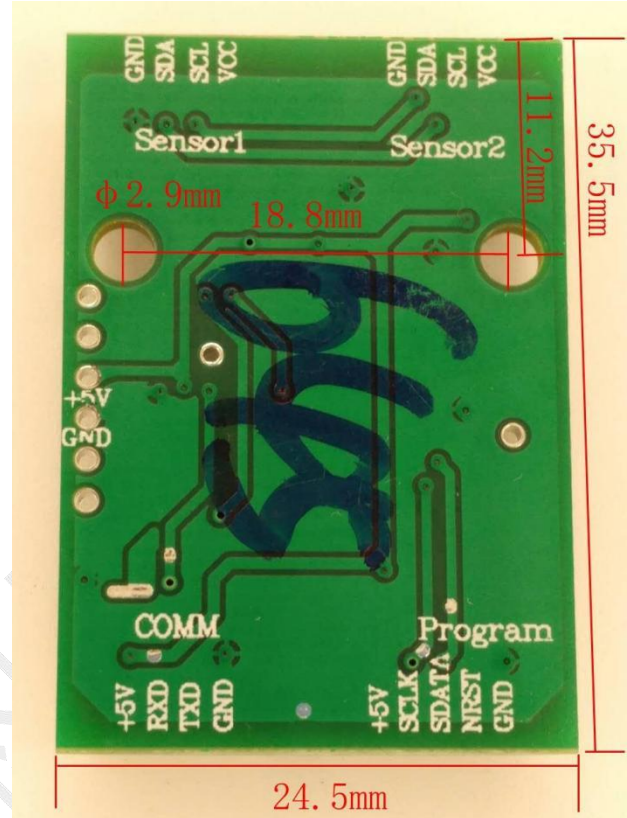
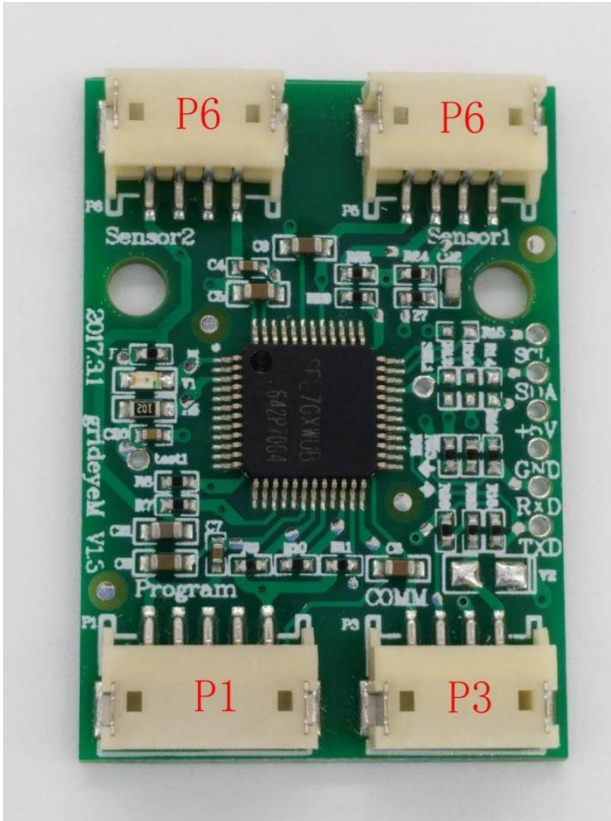


## Introduction of AMG8853DM module specification of human body sensor array (V1.3-2017)

### I. control panel (AMG8853M)



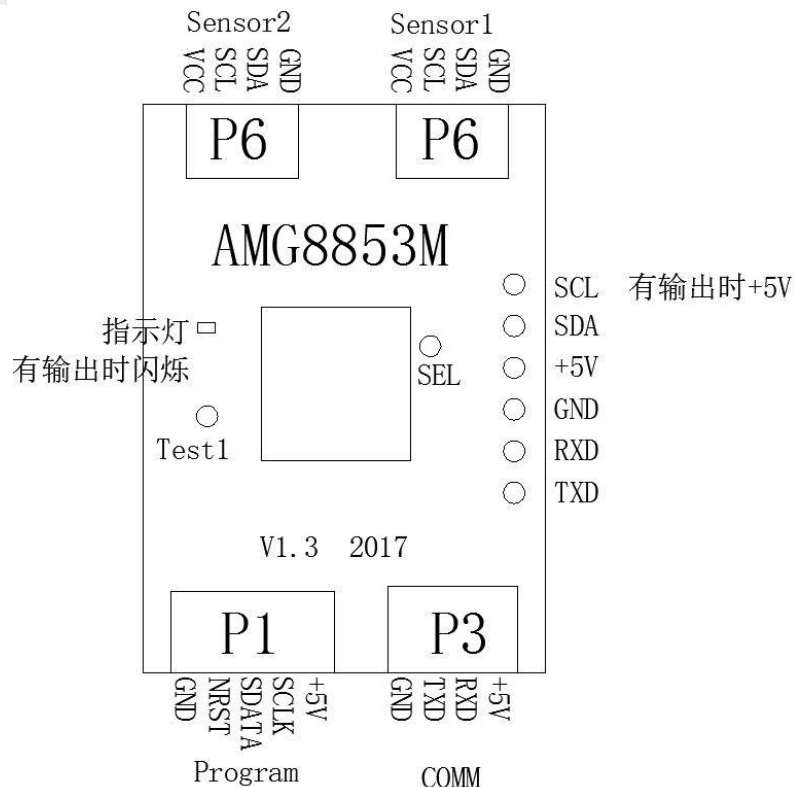
A cara o cruz

P1: program: program writing port

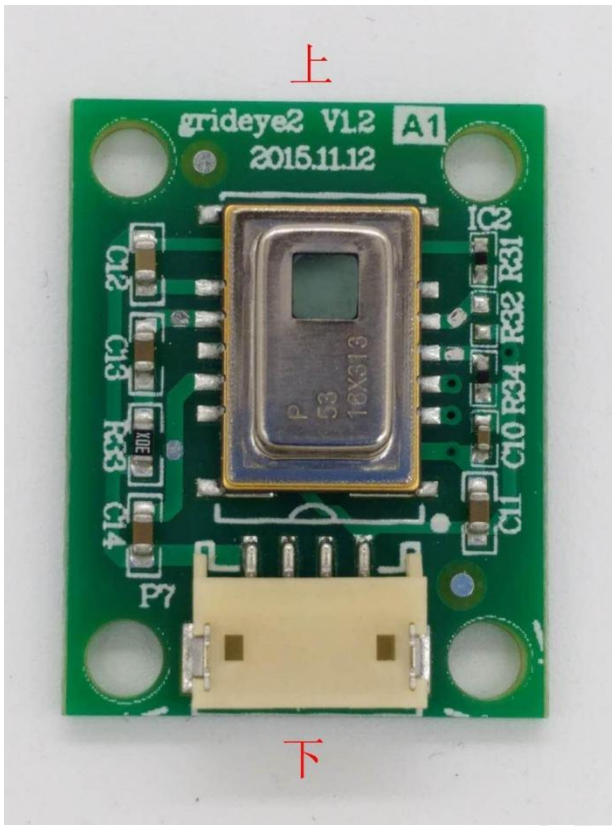
P3: comm: upper computer communication port

P6: sensor1: sensor board interface 1

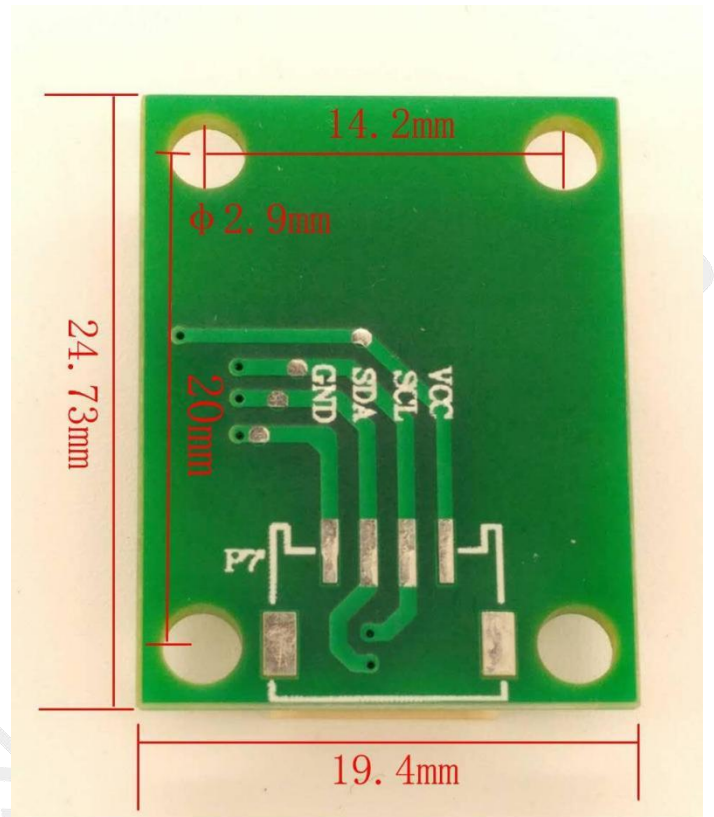
P6: sensor2: sensor board interface 2



## II. the sensor board (AMG8853S)

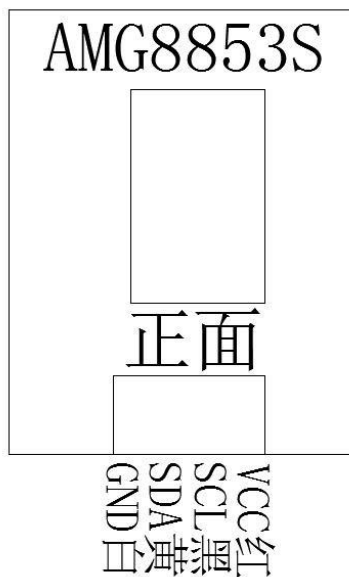


Front view

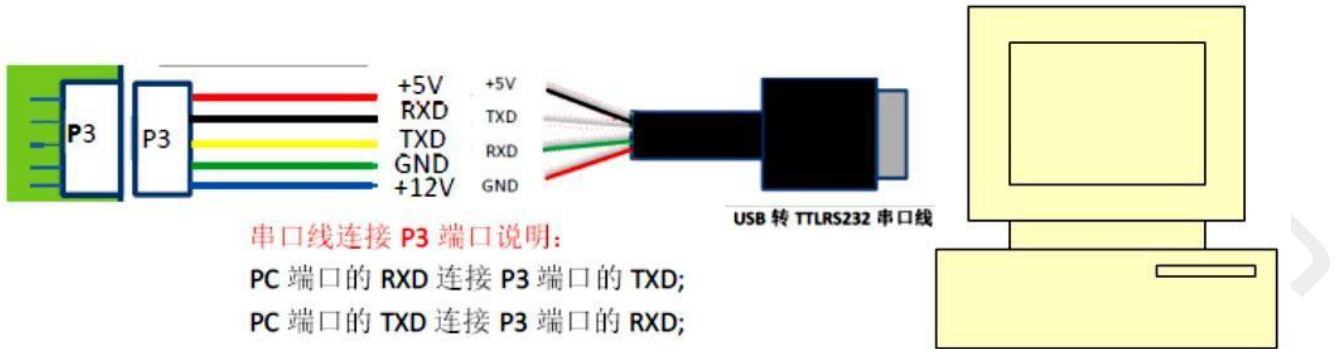


back view

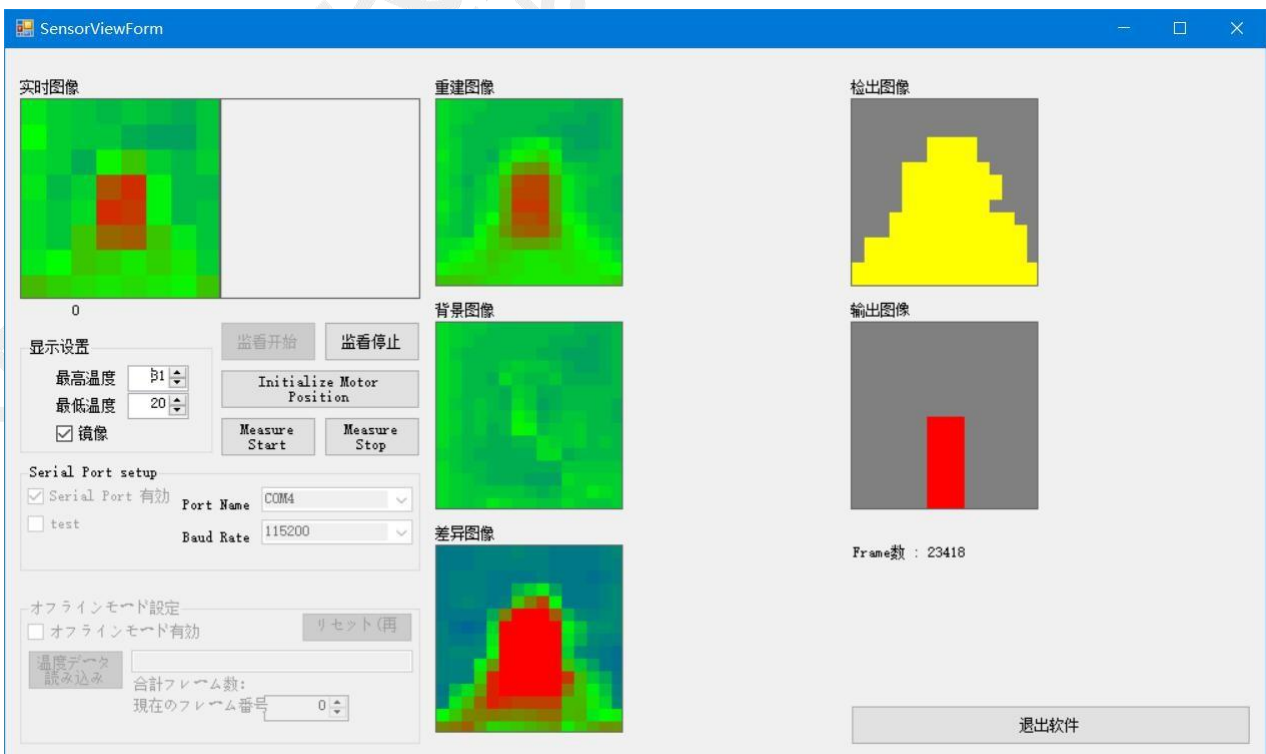
Note: the interface of 4pin cable is installed on the front, and the text on the back is not the line sequence of the front interface. The correct line sequence is as follows:



Third, the module PC display tool



Through the USB to TTL RS232 serial port (purchased by ourselves), we can do the initial test of the module through the screen, and the baud rate can be set to 115200. The middle three 15×15 images are the result of software smoothing. All algorithms are integrated in MCU, and the PC only displays images. Adjusting the highest and lowest temperatures in the monitoring software will not affect the detection results, but only as the adjustment of the image display effect.



#### IV. Module performance

Array specification:

8×8 pixel frame rate:

10 frames per second

Angle of view: 60 degrees

Absolute temperature accuracy: 2.5°C

Use ambient temperature: -20°C

~ 80°C and detect object

temperature: -20°C ~ 100°C

With the first generation of grideEye, \* the standard detection distance is 5m. It can cover 33 square meters. Using the second generation GrideEye, the standard detection distance is 7m. It can cover 65 square meters.

\* Standard detection distance: when the sensor detects the human body laterally (not from the head), the ambient temperature is 30.

The test result of degrees Celsius. The lower the ambient temperature, the longer the distance to detect the human body will be. V. Functional Effects and Precautions

After the module is powered on, it will detect the heat distribution in the field of vision as the background. When there is heat movement and the area size meets the requirements, the heat in this area will be determined as human body and tracked until it disappears from the field of vision. Heat that does not move will not be detected. Due to the judgment of the area size of moving heat, the following phenomena will appear: 1. When the human body cuts directly into the side of the field of vision, the detection effect is more intuitive. 2. When the human body approaches from far to near, it can only be detected when it is 4 meters or even closer. Because the area of the human body in the sensor's field of vision is small when the distance is far, it is judged as a non-human body, and it is not judged as a



human body until the area is large enough. 3. When the human body is near and far away, it can reach or even exceed the detection limit distance, and the human body can be detected, because after being judged as a human body, the system keeps track of this heat area until it disappears.

In application, we should consider the actual situation on the spot, for example, the seat where people have been sitting will leave heat, and the signal will not disappear immediately after people leave, but only after the seat temperature is close to the ambient temperature. For example, reexamination

After the heat source with the size of human body moves, it will be judged as human body by the system and tracked all the time, which leads to inaccurate judgment.

In this case, it is necessary to cut off the power and restart (when restarting, the human body

should not block the background heat source), so that the module can redefine the background.

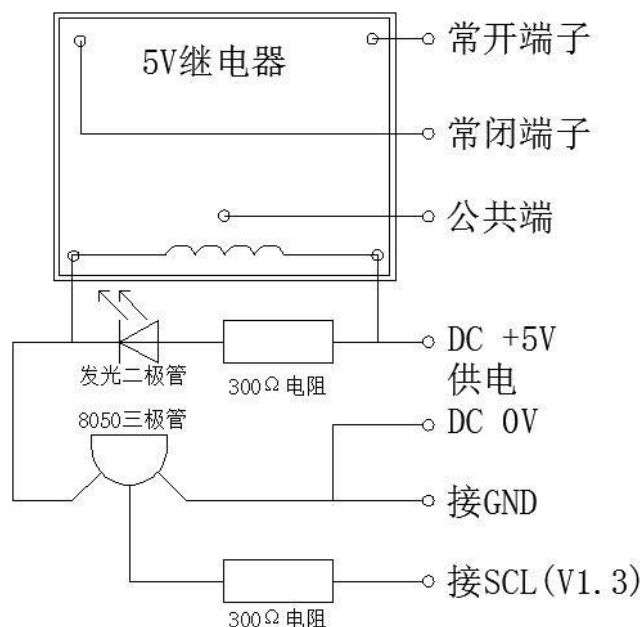
VI. Usage

The control board (AMG8853M) and the sensor board (AMG8853S) are connected by the equipped 4pin connecting line. Please confirm the correct installation direction of the sensor board up and down during product design. I2C protocol is used to communicate with the control board and the sensor board.

The control board (AMG8853M) is powered by 5V. After the calculation of the algorithm, it is concluded that SCL(V1.3) will output a high level of +5V, and the indicator light will blink. At the same time, the communication interface will output various detection data.

When using two sensors, it is necessary to update the MCU's program with the burn-writer, and also to configure the address. Two Sensor PCB, one chip selects 0: R31 connected with 0 ohm resistor, but R32 is not connected; For the other chip, 1: R32 is connected with 0 ohm resistor, and R31 is not connected.

When passive contacts are needed, high and low level signals need to be converted. The following figure shows the conversion circuit for reference.



When communicating with the upper computer, the communication interface can transmit information such as the total number of human inspection results, human inspection results, and the temperature values of each pixel of Grideye. UART communication mode is used for communication with the upper computer, with 8 data bits, 1 start bit and 1 end bit. The verification mode is even verification, and the baud rate is 115,200, and the interval between each frame of data is 100ms. For specific communication methods, please refer to Communication Specifications.