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TOF · Spatial Intelligence

PASINS 3D Vision Module

Customer User Manual

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Document Information

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1. System Description

The 3D vision module is a product used for personnel passage behavior detection. It integrates a ToF laser sensing module and an edge-computing module. Deployed above the passageway, the module uses its integrated ToF optical sensing module to acquire spatial 3D data of the passage area. Through the embedded patented algorithm, it detects the number, position, and direction of people and objects passing through the passage area and outputs event detection results of personnel passage.

2. Panel & Interface Layout

There are two different module models. PASINS 3D has no RGB camera, while PASINS 3DV integrates an RGB camera module. The panel layout of the visual passage logic module is shown in the figure below.

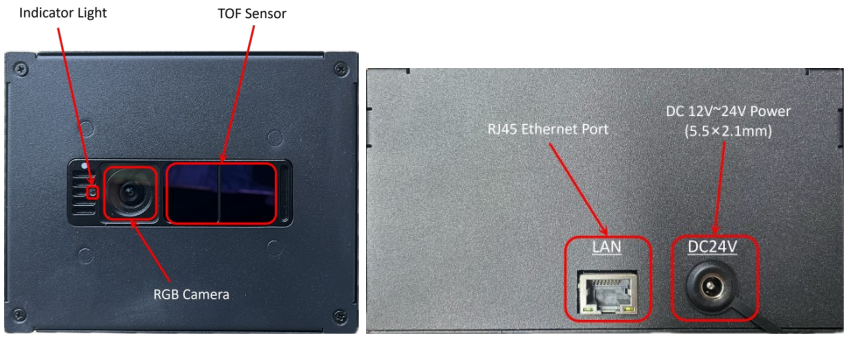


Figure 1 PASINS 3DV Panel & Interface Layout

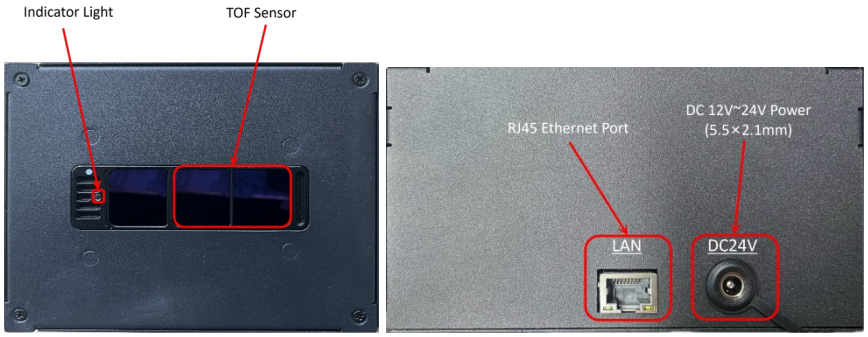


Figure 2 PASINS 3D Panel & Interface Layout

3. Hardware Installation & Deployment

3.1 Installation Requirements

The 3D vision module must be installed directly above the passageway, with its long side aligned parallel to the direction of the passageway. The installation height should be between 2.3 meters and 3.5 meters, with an optimal range of 2.8 to 3 meters. The module must be positioned along the centerline of the passageway; a deviation of up to ±100 mm is permitted in both the longitudinal and lateral directions. The device must be kept level, with a deviation from the horizontal plane of less than 5°.

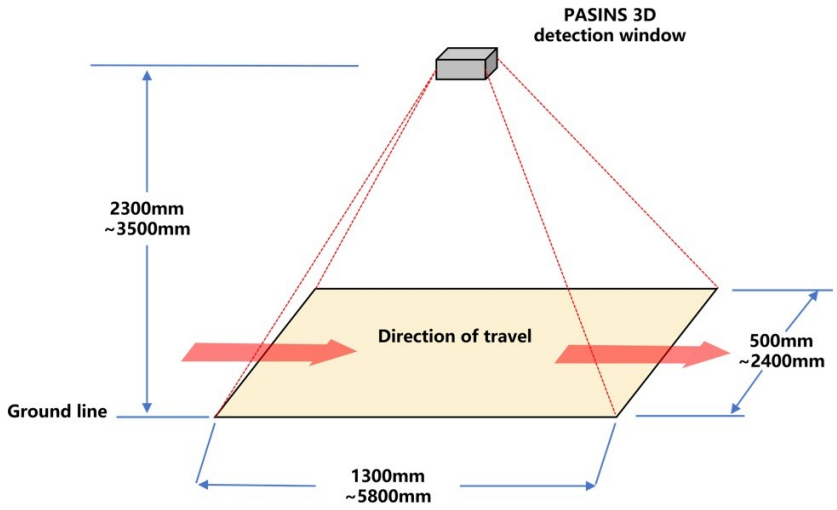


Figure 3 Device Deployment Diagram

See the table below for an example (Note: based on a detected human height of 1.8 m):

Model	PASINS 3D/M1 & PASINS 3DV/M1		PASINS 3D/M2 & PASINS 3DV/M2	
Detection surface height above ground (m)	Coverage length (m)	Coverage width (m)	Coverage length (m)	Coverage width (m)
2.2	/	/	1.3	0.5
2.3	/	/	1.7	0.7
2.4	1.2	0.8	2	0.8
2.5	1.4	1	2.4	1
2.6	1.6	1.1	2.7	1.1
2.7	1.8	1.2	3	1.2
2.8	2	1.4	3.4	1.4
2.9	2.2	1.5	3.8	1.5
3	2.4	1.7	4.1	1.7
3.1	2.6	1.8	4.5	1.8
3.2	2.8	2	4.8	1.9
3.3	3	2.1	5	2.1
3.4	3.2	2.2	5.5	2.2
3.5	3.4	2.4	5.8	2.4

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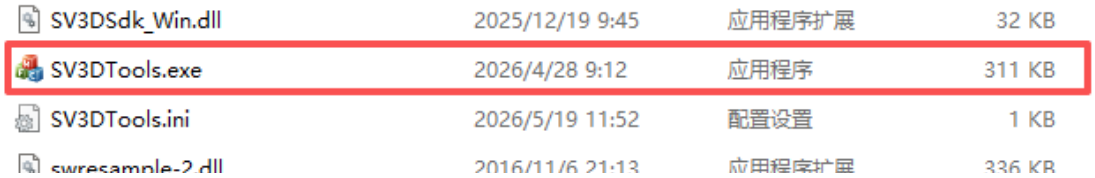
3.2 Connection Method

The 3D vision module is powered by DC 12-24 V, natively supports TCP interface communication, and supports RS232/RS485 serial communication through module conversion. (For communication protocol details, refer to the PASINS 3D Integration Interface Protocol document.)

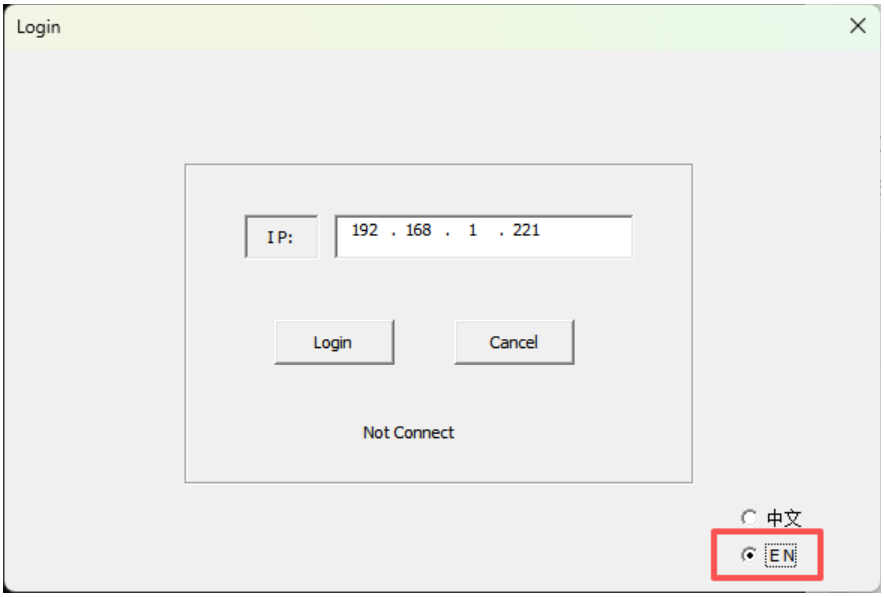
4. Software Registration & Test Warning

4.1 Using the Registration Tool

Connect the device directly via the network port, open the SV3D Tools folder, and double-click the SV3DTools to launch it. (The debugging PC and the module must be on the same network segment.)



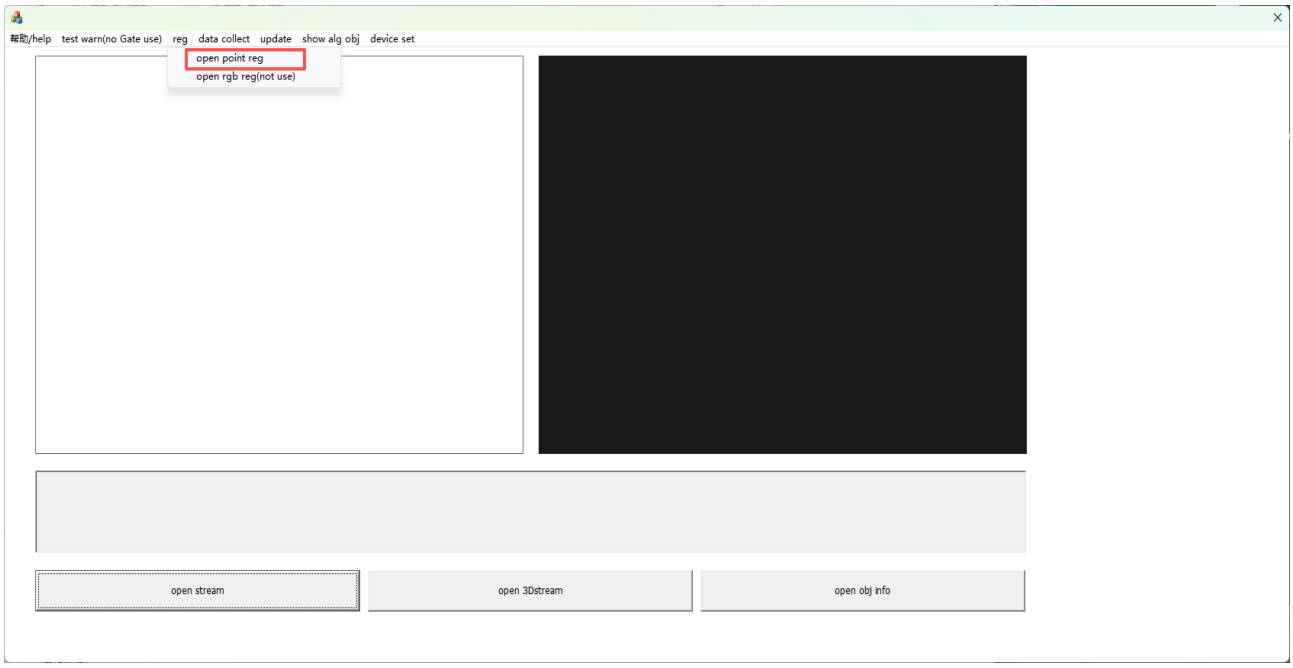
The login interface appears as shown below (language switching between Chinese and English is available in the lower-right corner):



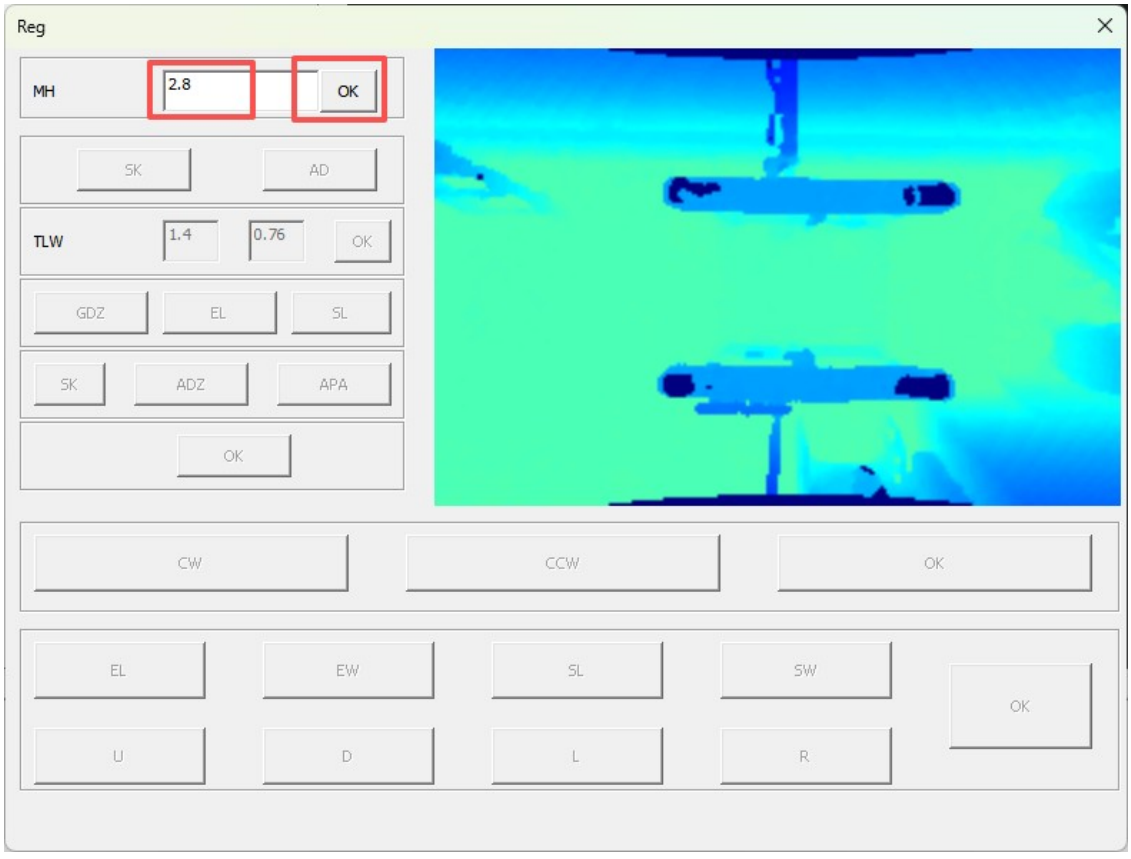
Enter the module IP: 192.168.1.221 (default IP) and click Log In.

4.2 Registration Procedure Overview

Step 1: Click Reg (Registration), then click Open Point Reg.



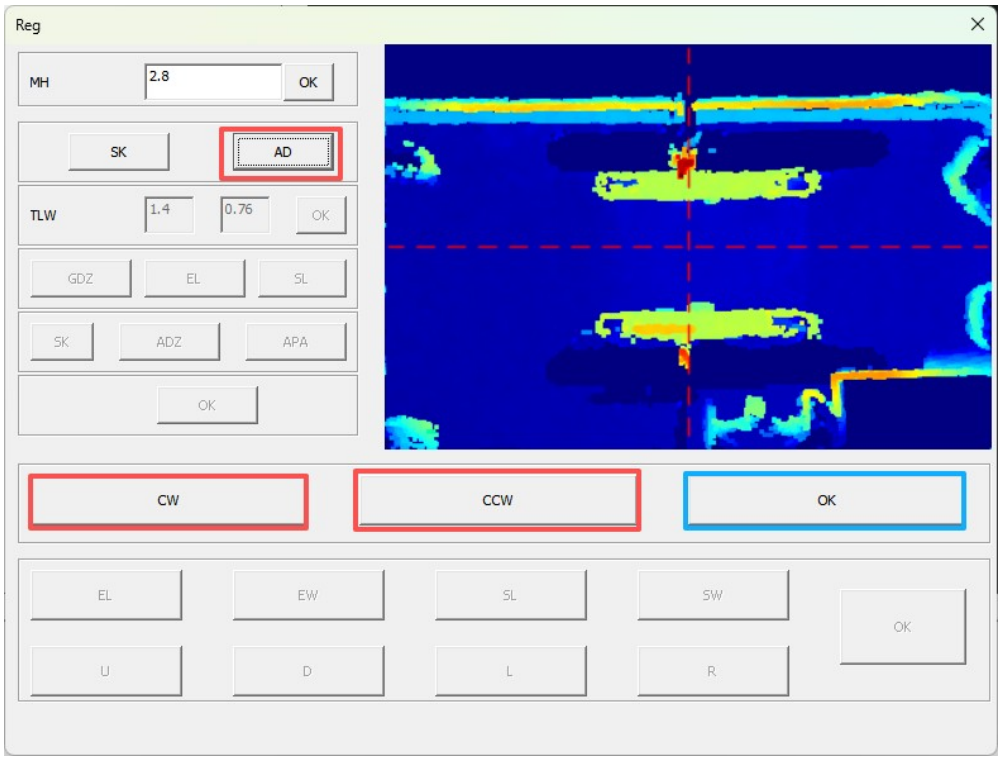
Step 2: (MH: Module Height) Enter the height of the module above the passage floor, then click OK.



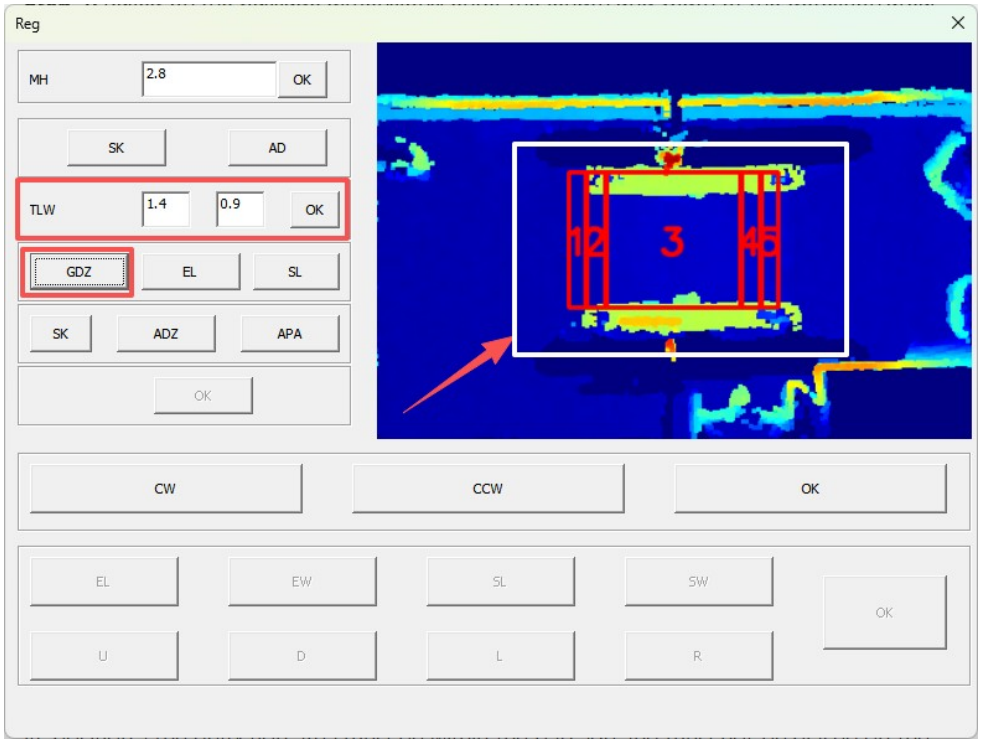
Step 3: Click AD (Adjust). Rotate the view using CW (Clockwise) / CCW (Counter-Clockwise) to align the image boundary parallel to the detection range based on the passage offset in the image. This alignment facilitates subsequent configuration adjustments. Click OK once the adjustment is finished.

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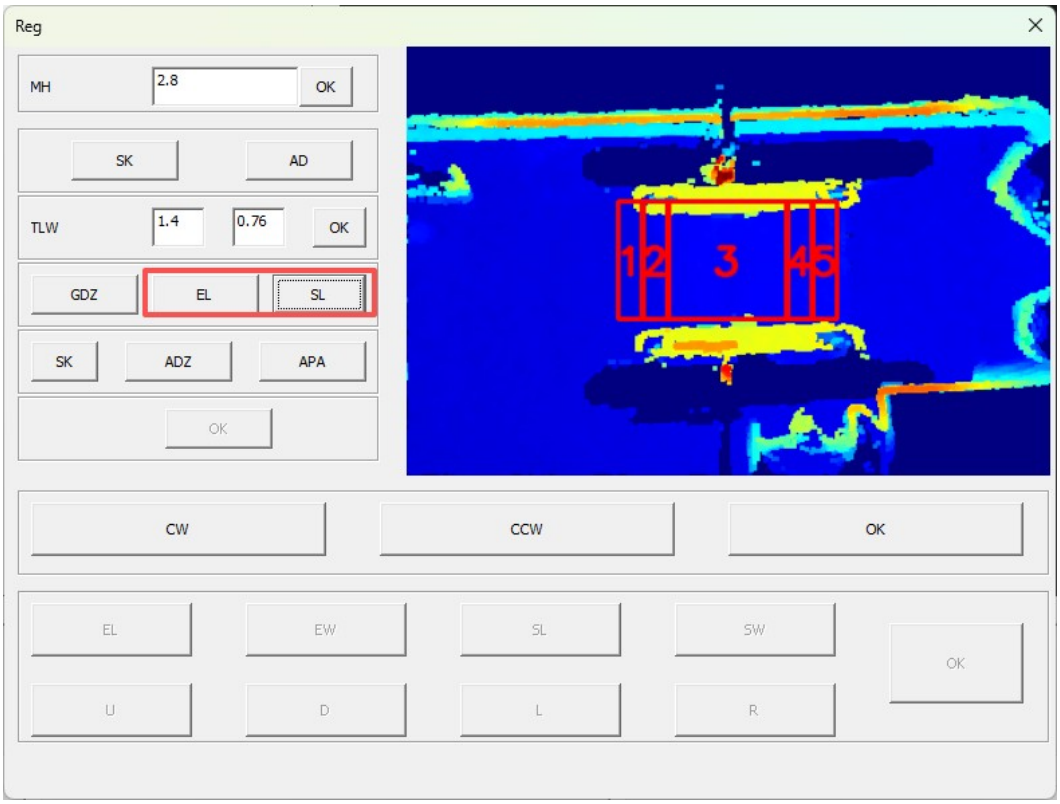
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Step 4: Based on the passage dimensions, enter the length and width of the detection area, then click OK; a default area will be automatically generated.



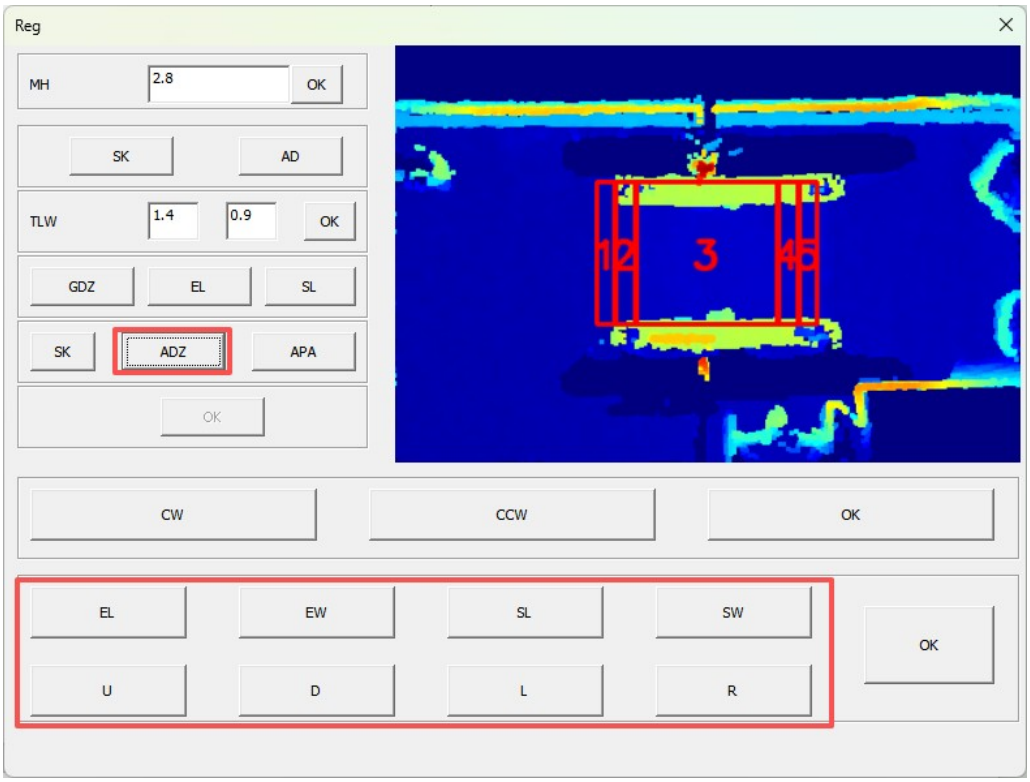
Step 5: Click EL (Enlarge Image) / SL (Shrink Image) to zoom in or out the preview image for demonstration and viewing convenience.



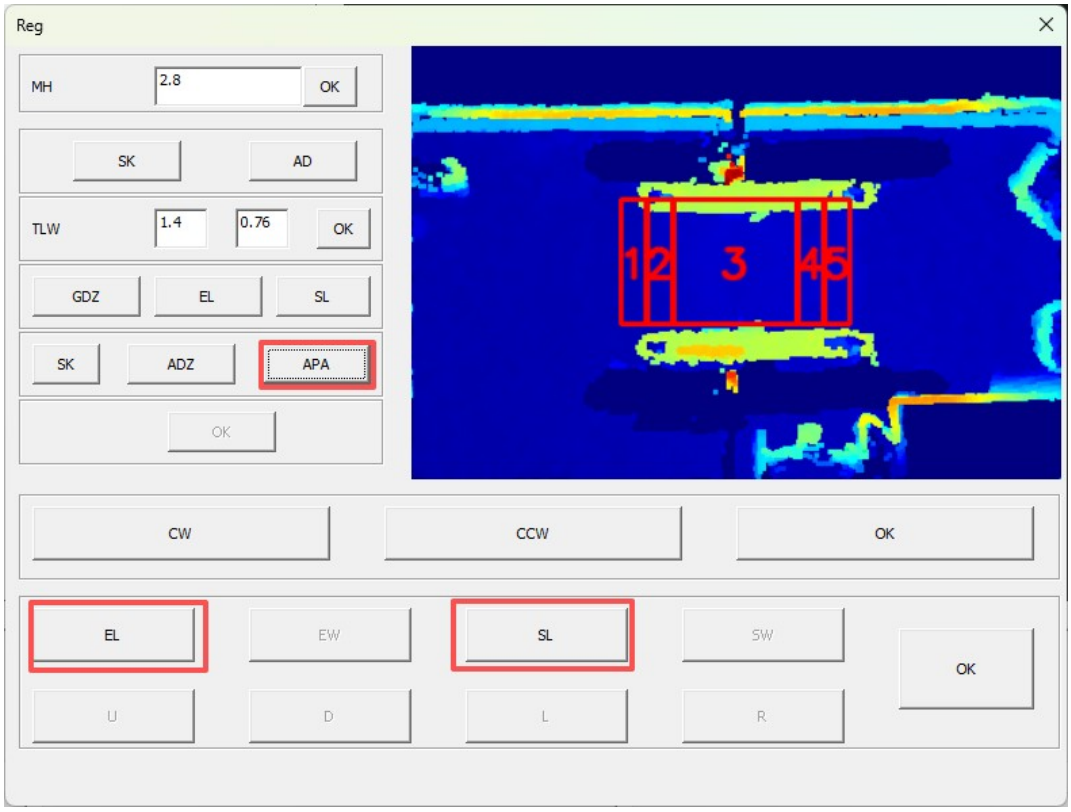
Step 6: After the default area is generated, click ADZ (Adjust Detection Zone). Use the buttons at the bottom to fine-tune the area to match the usable region. U (Up), D (Down), L (Left), R (Right) translate the entire area. EL (Expand Length), EW (Expand Width), SE (Shrink Length), SW (Shrink Width) adjust the area dimensions. (Note: The areas in the view are indicated by red frames, which should be placed in the open space of the passage area. Position the red frames as close to the edge of the gate passage as possible without overlapping the gate, as overlaps will reduce recognition accuracy.)

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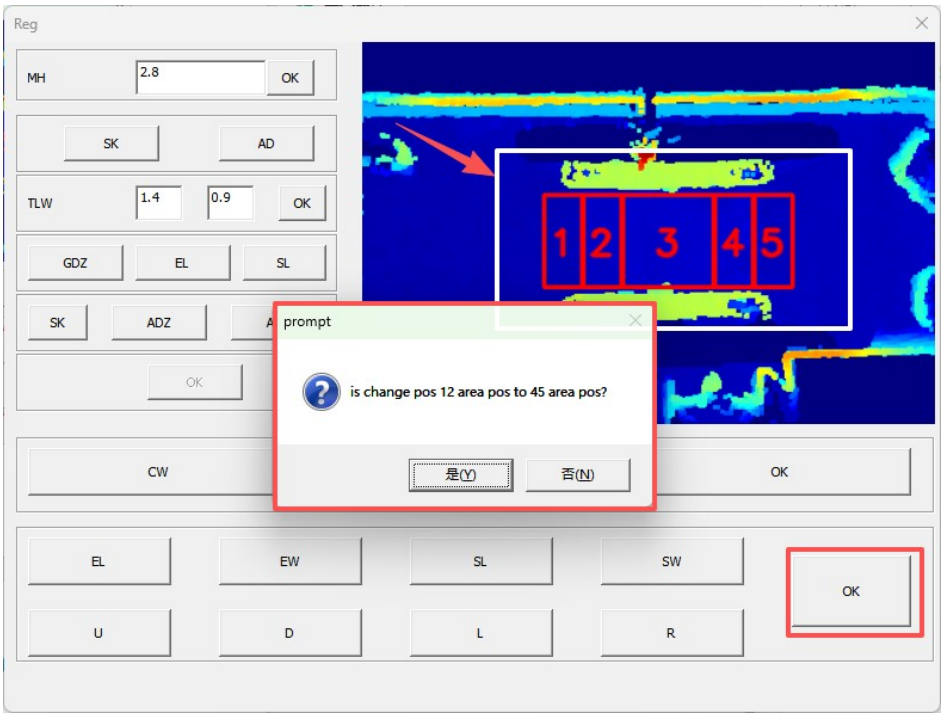
Step 7: Area 3 is generated based on the gate width and, by default, represents the anti-pinch range of the swinging gate leaf. Click APA (Adjust Anti-Pinch Area) to freely adjust the length of the anti-pinch area.



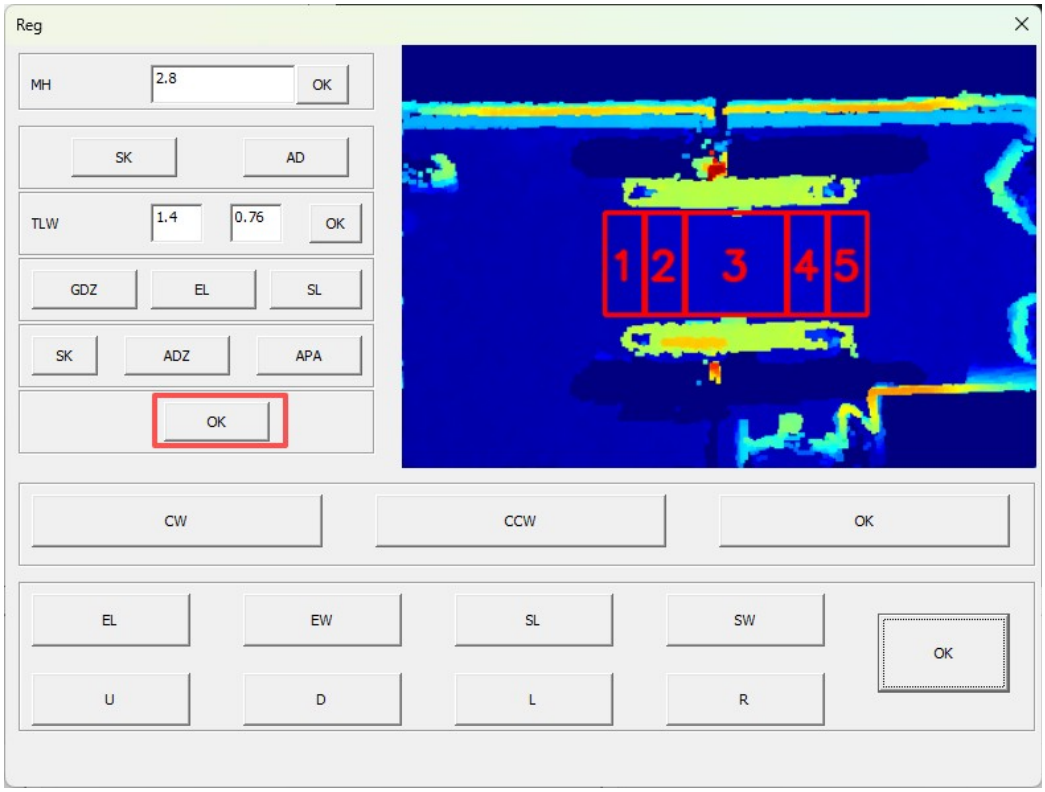
Step 8: After adjustment, click OK. A prompt then asks whether to swap the positions of Areas 1, 2 and Areas 4, 5. By default, the module treats Area 1 → Area 5 as forward passage (entry) and Area 5 → Area 1 as reverse passage (exit). Select Yes or No based on the actual passage direction.

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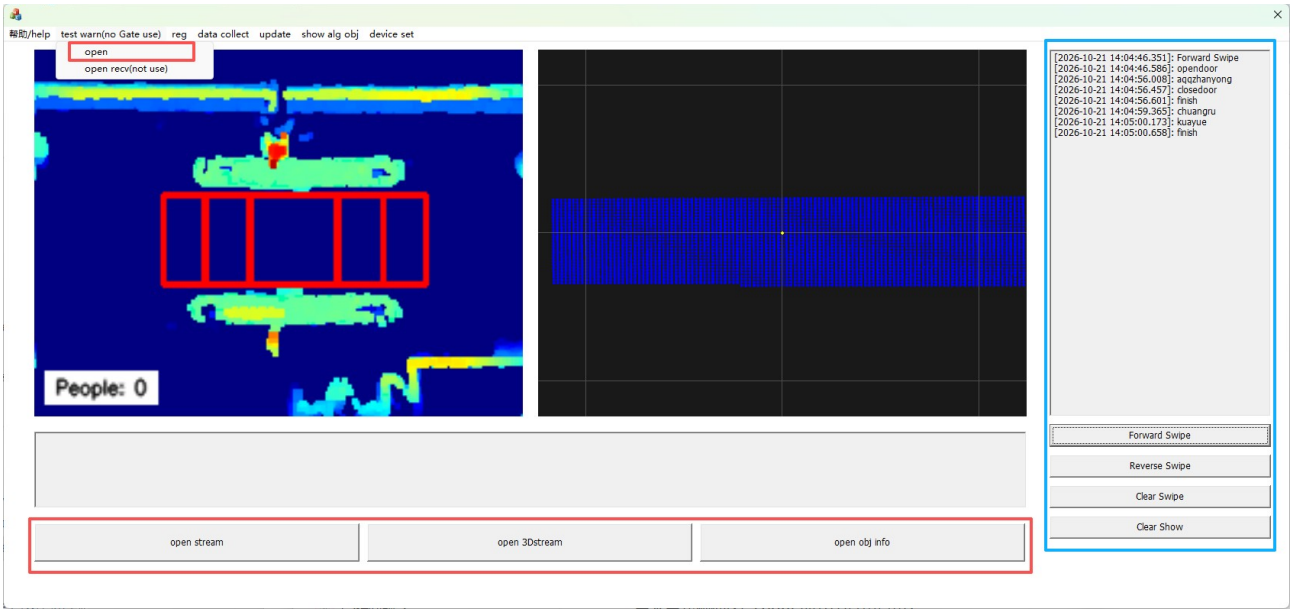
Step 9: After completing the above configuration, click the final OK. The module will upload the adjusted area data to the device, save the configuration automatically, and restart. Once the startup completes, the entire registration workflow is finished.



4.3 Using the Display Tool (Simulated Host Computer)

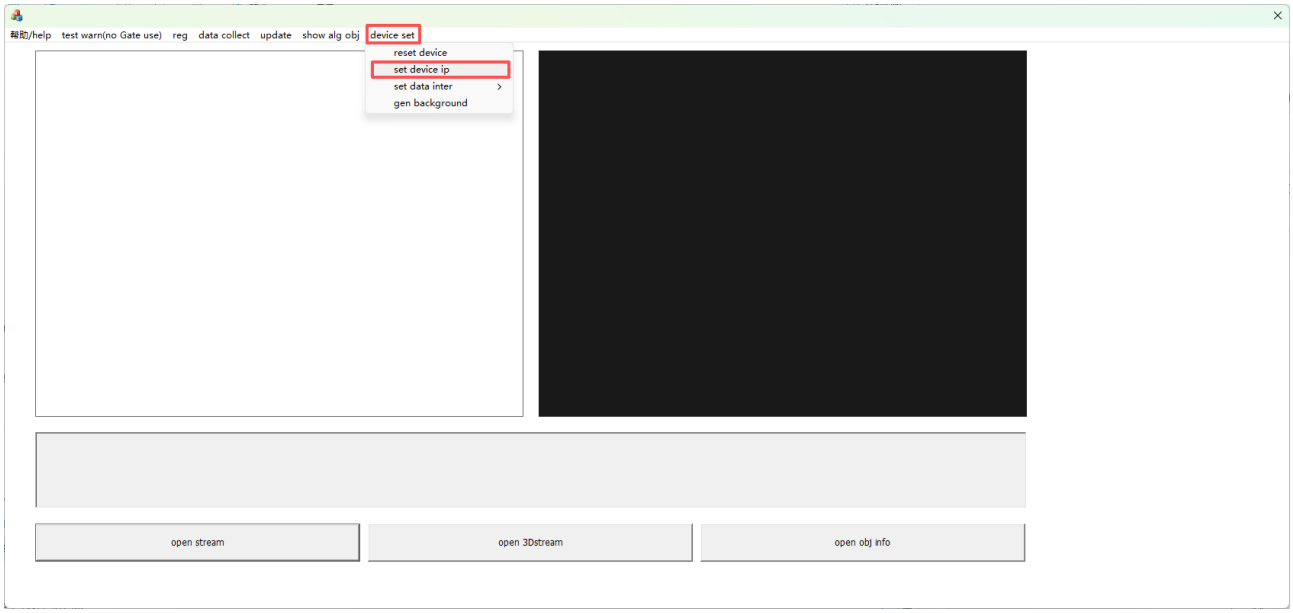
After logging in, click the buttons at the bottom in sequence - Open Stream, Open 3D Stream, and Open OBJ Info - to show the module's detection view. (Click Test Warning at the top and select the first option to enable it, allowing you to simulate operations such as sending card-swipe authorization from

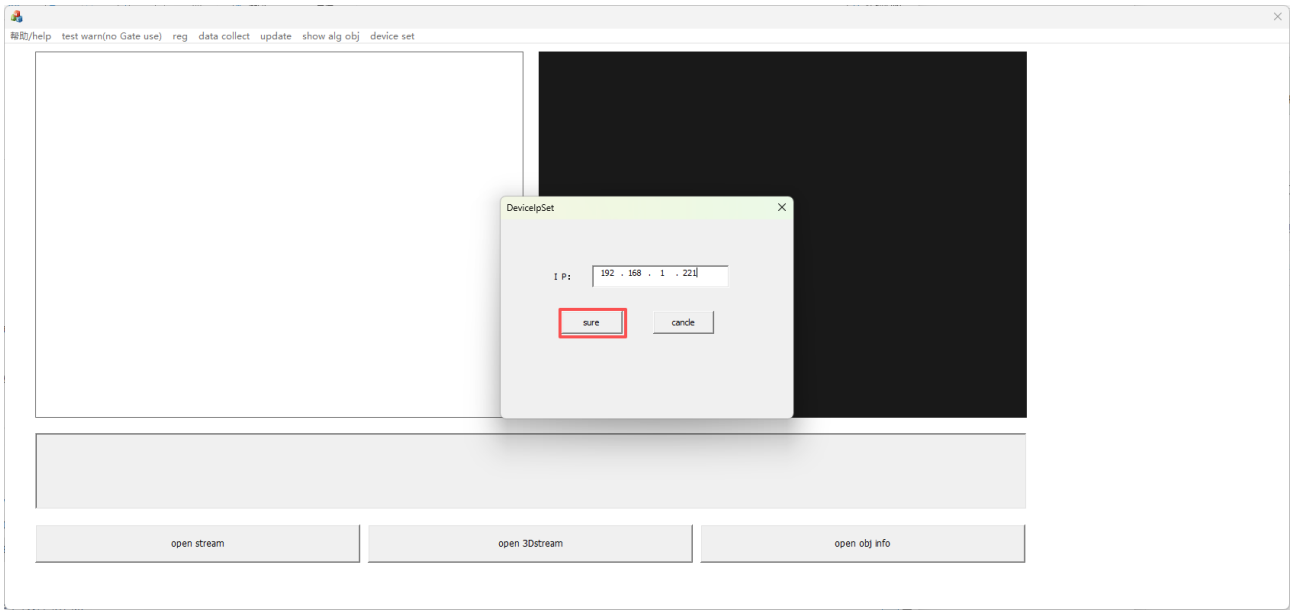
the host computer, test the working status of the module, and print related event messages on the right.) The interface is shown below:



4.4 Modify IP via Configuration Tool

After logging into SV3D Tools, you can modify the device IP. Click Device Set and select Set Device IP. A pop-up window will appear. Modify the IP address in the pop-up window and click Sure to save. The device will then restart. After rebooting, please log in using the new IP address.




帮助/help
test warn(no Gate use)
reg
data collect
update
show alg obj
device set
DeviceIpSet
I P:
192 . 168 . 1 . 221
sure
cancle
open stream
open 3Dstream
open obj info