



PRODUCT SERIES

PASINS 3D Series

3D Vision Passage Detection Module • For Automated Gates

940_{nm}

ToF Laser Source

Class 1

Eye Safety Rating

≤100_{ms}

Processing Latency

5

Detection Zones

8

Max Targets Tracked

CORE ADVANTAGES

01 / PRECISE

3D Spatial Perception

ToF laser + edge AI, centimeter-level accuracy. Precise detection of passage count, direction, and position

02 / SAFE

Class 1 Eye Safety

940nm invisible laser, IEC 60825-1:2014 Class 1 compliant. Fully operational in total darkness

03 / INTELLIGENT

Multi-Event Detection

Tailgating, intrusion, reverse passage, anti-pinch, object left-behind, barrier crossing, priority violation, height detection — 15+ event types

04 / RELIABLE

Industrial-Grade Quality

MTBF ≥ 30,000 hrs, DC 12–24V wide-range input, operating temp -10°C to +50°C

ToF 3D Vision Sensing

D-ToF Active Optical Measurement • Edge AI • Centimeter-Level Spatial Positioning

How It Works

The device emits 940nm pulsed laser and measures the time-of-flight of each pulse to calculate the distance to targets, obtaining 3D coordinates (X, Y, Z) for every object in the detection zone. The edge computing module runs deep learning algorithms to analyze point cloud sequences in real time, precisely identifying passage behaviors.



3D Point Cloud • Multi-Target Detection

ToF laser scanning captures real-time 3D human coordinates, distinguishing adults from children



Centimeter-Level Spatial Precision

Centimeter-level spatial resolution, accurate height and position for every person detected

30FPS

Capture Rate

20FPS

Detection Rate

≤100ms

Processing Latency

8

Max Targets Tracked

5

Max Zone Divisions

Typical Application Scenarios

Airport Security Train Station Metro Station Office Building Museum
Hospital Campus Hotel Shopping Mall Tourist Site

FOV Comparison

PASINS 3D/M1 & 3DV/M1

M1

Single-lane gate • arm height 1.5~1.75m

H90° V70°

PASINS 3D/M2 & 3DV/M2

M2

Double-lane gate • arm height 2.6~3.0m

H120° V70°

Key Features

- ✓ Fully operational in complete darkness
- ✓ No color/image data — full privacy protection
- ✓ Not affected by ambient light conditions
- ✓ Class 1 eye safe — no risk of injury

3DV Series Exclusive Feature

Integrated RGB camera for event video evidence — records violations such as tailgating

PRODUCT MODELS

Four Models • Flexible Adaptation for Every Scenario

M1 for single-lane gates, M2 for double-lane gates; 3DV series supports RGB video evidence

	3D/M1 Standard H90° × V70°	3D/M2 Standard H120° × V70°	3DV/M1 Advanced H90° × V70°	3DV/M2 Advanced H120° × V70°
Sensor Config	ToF × 1	ToF × 1	ToF + RGB Camera	ToF + RGB Camera
FOV H×V	H90° × V70°	H120° × V70°	H90° × V70°	H120° × V70°
Coverage Length	1.5 – 3.4 m	1.3 – 5.8 m	1.5 – 3.4 m	1.3 – 5.8 m
Coverage Width	0.5 – 2 m	0.5 – 2 m	0.5 – 2 m	0.5 – 2 m
Gate Type	Single-lane 1.5–1.75m length	Double-lane 2.6–3.0m length	Single-lane 1.5–1.75m length	Double-lane 2.6–3.0m length
Dimensions	125×98×75mm	125×98×75mm	125×98×75mm	125×98×75mm
Op. Temp	-10°C ~ +50°C	-10°C ~ +50°C	-10°C ~ +50°C	-10°C ~ +50°C
Video Evidence	—	—	✔ Supported	✔ Supported
Laser Wavelength	940nm • Class 1 (IEC 60825-1:2014)			
Power	DC24V, 2A			
Interface	Gigabit Ethernet • TCP/IP			
MTBF	≥ 30,000 hrs			



Laser Wavelength

940nm

Class 1 Eye Safety



Power Supply

DC24V / 2A

Wide-range input



Communication

Gigabit Ethernet

TCP/IP Protocol



Reliability

MTBF ≥ 30,000h

Industrial Grade

DETECTION FUNCTIONS

15+ Passage Behavior Detection • Full Coverage

Precision identification of passage behaviors and anomalies based on 3D point cloud analysis

Security Detection

- **Tailgating Detection**
Unauthorized person closely follows an authorized one; detects torso gaps $\leq 10\text{cm}$
- **Intrusion Detection**
Unauthorized pedestrian enters the detection zone, both forward and reverse directions
- **Priority Violation**
Unauthorized person enters the passage before the authorized individual
- **Reverse Passage**
Authorized person exits in the opposite direction after authorization
- **Barrier Crossing**
Unauthorized person crosses from one side of the gate to the other
- **Object Left-Behind**
Luggage left in the passage, object $\geq 25\text{cm}^3$, 100% detection rate

Anti-Pinch Protection

- **Person Anti-Pinch**
Real-time pedestrian position detection to prevent gate closure injuries
- **Child Anti-Pinch**
Detects children tailgating adults to prevent gate injuries to children
- **Luggage Anti-Pinch**
Real-time luggage position detection to prevent gate closure injuries
- **Loitering Detection**
Alert when pedestrian fails to pass within the authorized time window

Passage Recognition

- **Bi-Directional Counting**
Separate statistics and cumulative count of forward and reverse passage numbers
- **Height Detection**
Real-time detection of passing person height, accuracy $\pm 3\sim 5\text{cm}$
- **Adult / Child Recognition**
Auto-identify adults ($>1.4\text{m}$) and children ($0.9\sim 1.2\text{m}$)
- **Multi-Person Passage**
Multiple authorized persons pass simultaneously with real-time count and gap monitoring
- **Zone Masking**
Mask thick gate panels to eliminate false detections

Evidence & Intelligence

- **Event Video Evidence** 3DV
Auto-record videos of events like tailgating for local or remote storage
- **Self-Learning Intelligence** 3DV
Algorithm models continuously iterate to improve detection accuracy
- **Stroller / Wheelchair Passage**
Supports strollers, wheelchairs, luggage, and various passage forms
- **Hat / Luggage Passage**
Normal passage with hats ($\leq 40\text{cm}$ diameter) or carrying luggage

INSTALLATION

Ceiling-Mounted Installation • Quick & Simple

Mounted directly above the passage, 2.4–3.2m installation height, auto-adapts to different passage lengths

- 1

Determine Installation Position
Install above the passage center, with the long side parallel to the direction of passage
- 2

Secure Mounting Bracket
Longitudinal deviation $\pm 10\text{mm}$, lateral deviation $\pm 50\text{mm}$
- 3

Level Adjustment
Device level error offset less than 5°
- 4

Wiring & Commissioning
Connect DC24V power and Gigabit Ethernet to the host control system

TECHNICAL SPECIFICATIONS	
Mounting Method	Ceiling Mount
Installation Height	2.4 – 3.2 m
Longitudinal Dev.	$\pm 10\text{ mm}$
Lateral Dev.	$\pm 50\text{ mm}$
Level Accuracy	$< 5^\circ$
Power	DC24V, 2A
Interface	TCP/IP Gigabit
Consult technical support if installation height exceeds 3.2m or lateral distance is outside the FOV range	

Model	Passage Length	Install Height
3D/M1 3DV/M1	1.5 – 1.75 m	2.4 – 3.2 m
3D/M2 3DV/M2	2.6 – 3.0 m	2.4 – 3.2 m

Typical Application Scenarios

Airport Security

Train Station

Metro Station

Office Building

Museum

Hospital

Campus

Hotel

Shopping Mall

Tourist Site

Widely applied in rail transit, public buildings, commercial properties, and other automated gate passage detection scenarios, integrated with gate control systems for intelligent passage management.

Precision • Safety • Intelligence

The Intelligent Eye for Automated Gates

PASINS 3D Series • 3D Vision Passage Detection Module
Privacy Protection • All-Weather • All Scenarios



940nm
ToF Laser

Class 1
Eye Safety

>99%
Detection Accuracy

30,000h
MTBF

HYD Technology Co., Ltd.

Tel: 0755-86336380

Email: hyd-ai@hyd-technology.com

Web: www.hyd-technology.com

Add: Room 3006A, Tower F, Xinghe WORLD, Yabao Road No.1, Longgang District, Shenzhen, China



Scan for Official Website