PS801 Series Specifications

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Introduction

Percipio PS801 series 3D cameras, adopting innovative active stereo vision technology with core patents, achieve highly accurate 3D detection of small stationary objects. The cameras are equipped with a 5-megapixel RGB sensor that provides high-definition RGB images with distinct details.

PS801 series cameras feature the following:

- High Dynamic Range (HDR): the function can improve the quality of depth images in high contrast scenes, which contain both highly reflective objects and weakly reflective objects.
- Infrared floodlights: the built-in floodlights are used for infrared calibration.
- IP67 protection: the aluminum alloy housing is specifically designed to withstand harsh industrial environments, providing excellent dustproof and water-resistant capabilities.

The documentation introduces the detailed technical specifications of PS801 series 3D cameras (PS801-N-E1 and PS801-E1). For more specifications of Percipio's other products, please go to Product Specifications — PercipioDC documentation.

Figure 1 PS801 series 3D camera

Technical Specifications

Parameters	Value
Technical principle	Active stereo
Illumination	1 x infrared laser (λ = 855 nm) 2 x infrared floodlights[1] (λ = 855 nm)
Shutter	Rolling
Latency of image acquisition[2]	1446 ms
Frame rate[3] @ resolution (Depth)	1 fps @ 1280 x 960 1 fps @ 640 x 480 1 fps @ 320 x 240
Frame rate[3] @ resolution (RGB)	7 fps @ 2560 x 1920 20 fps @ 1280 x 960
RGB-D alignment	√
Output data	Depth, RGB, IR, point cloud images

[1] Infrared floodlights: the floodlights come with overheating protection. When the temperature gets too high, they will automatically turn off.

[2] Latency of image acquisition: the latency time between the host computer sending the software trigger signal and receiving VGA depth images from the camera that works in software trigger mode.

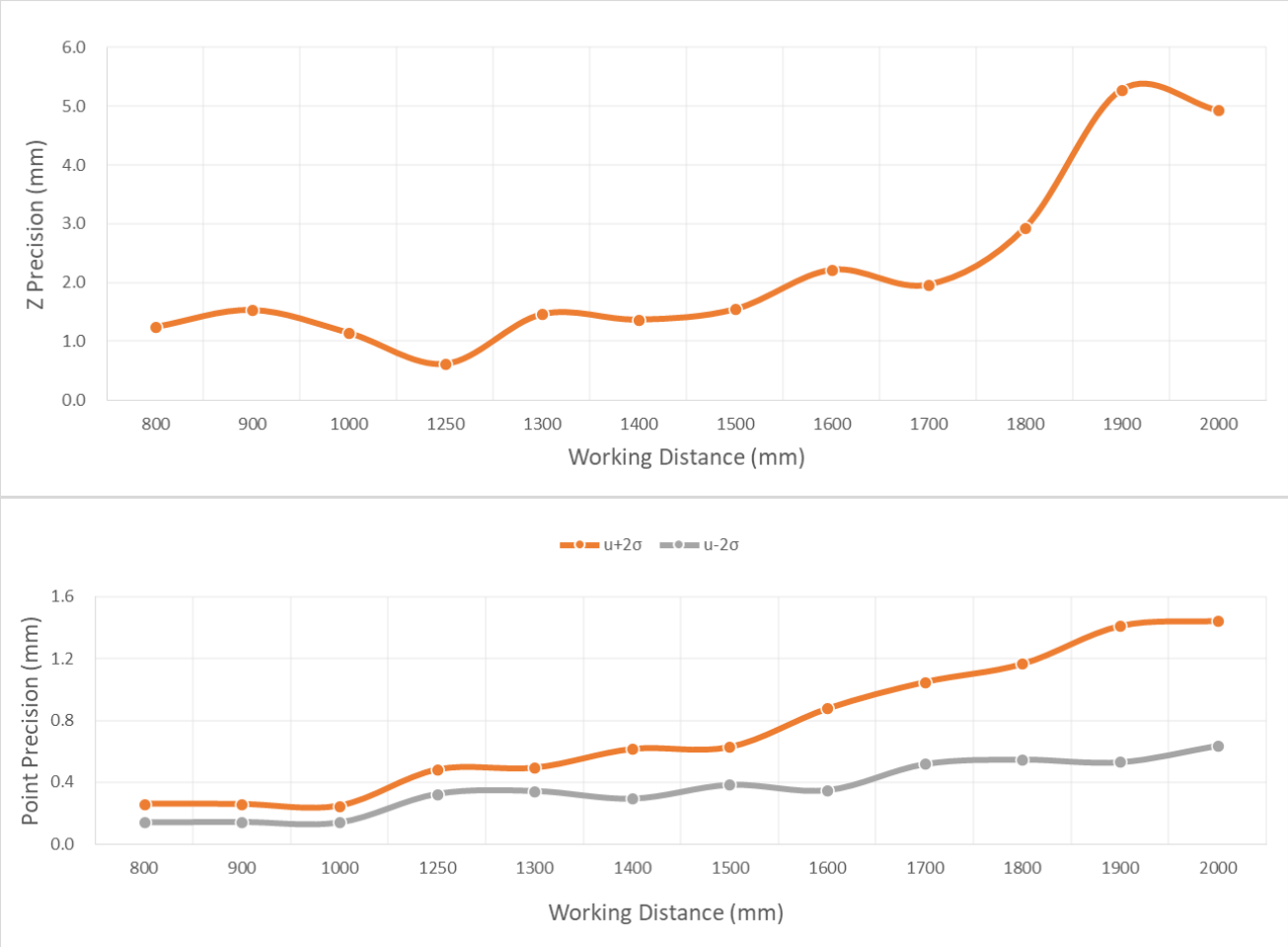
[3] Frame rate of depth/RGB images: the number of depth/RGB images that the host computer receives every 1 second from the camera. This is when the camera is working in free acquisition mode.

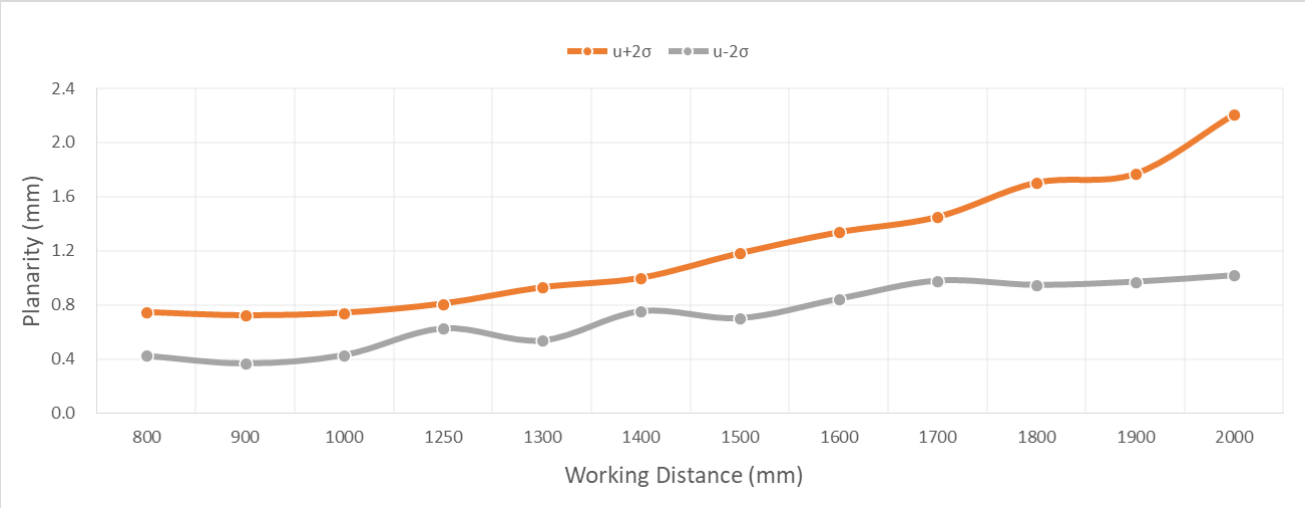
Measurement Performance

PS801-N-E1 and PS801-E1 differ in measurement performance.

PS801-N-E1 Measurement Performance

Parameters	Value
Recommended working distance	800 mm ~ 2000 mm
Max working distance	700 mm ~ 2000 mm
Near field of view	420 mm x 345 mm @ 700 mm (H/V ≈ 33°/27°)
Far field of view	1255 mm x 930 mm @ 2000 mm (H/V ≈ 34°/27°)





Z precision: the average deviation between the Z measured value and ground truth.

The line chart shows the Z precision at different working distances.

Point precision: the time-domain dispersion of all pixel points in the central ROI.

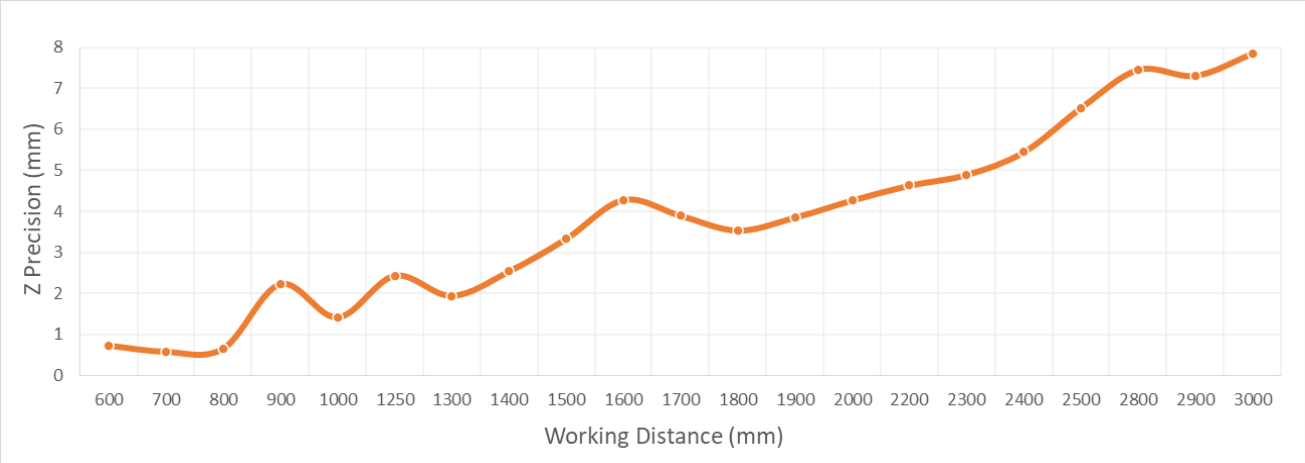
The line chart shows the distribution of point precision at different working distances.

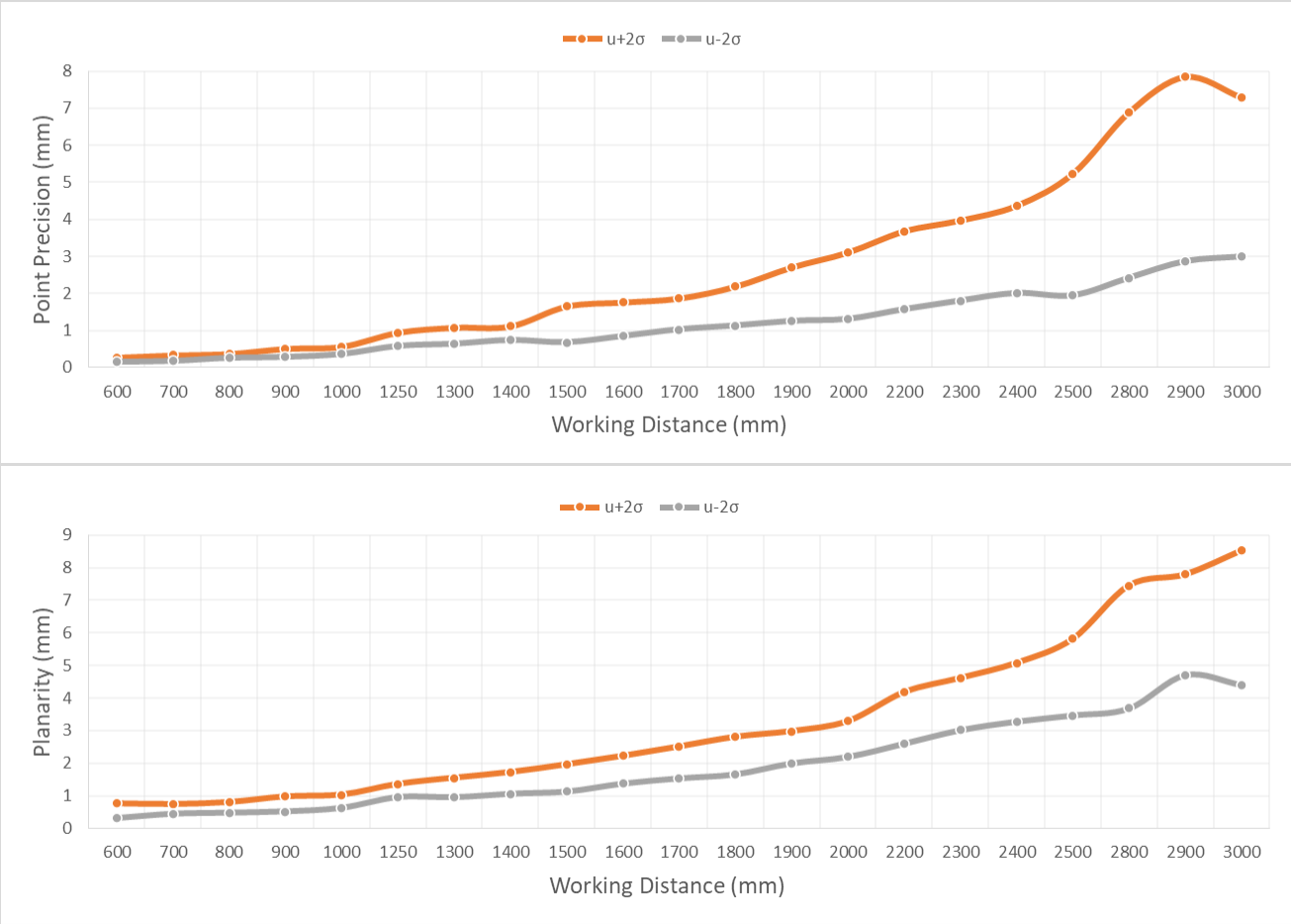
Planarity: the dispersion of all pixel points in the central ROI relative to the desired plane.

The line chart shows the distribution of planarity at different working distances.

PS801-E1 Measurement Performance

Parameters	Value
Recommended working distance	600 mm ~ 3000 mm
Max working distance	500 mm ~ 3000 mm
Near field of view	500 mm x 440 mm @ 500 mm (H/V ≈ 53°/46°)
Far field of view	3445 mm x 2590 mm @ 3000 mm (H/V ≈ 59°/46°)





Z precision: the average deviation between the Z measured value and ground truth.

The line chart shows the Z precision at different working distances.

Point precision: the time-domain dispersion of all pixel points in the central ROI.

The line chart shows the distribution of point precision at different working distances.

Planarity: the dispersion of all pixel points in the central ROI relative to the desired plane.

The line chart shows the distribution of planarity at different working distances.

Software Specifications

Parameters	Value
OS	Linux/Windows/ROS
SDK	Percipio Camport SDK; Supported programming language: C, C++, C#, Python See PercipioDC documentation for more SDK tutorials.

Hardware Specifications

Parameters	Value
Dimension (excluding interfaces)	176.5 mm x 57.0 mm x 63.9 mm
Weight	894 g
Data connector	M12 A-Code, 8-pin, female connector Gigabit Ethernet
Power & trigger connector	M12 A-Code, 8-pin, male connector See Power & Trigger Connector for its pinout.
Power supply	DC 24V ±10%; PoE (IEEE802.3 af/at)
Hardware trigger	2 trigger input/output; Input/Output 1: rising-edge trigger Input/Output 2: falling-edge trigger
Power consumption	Idle mode: 4.5 W Trigger mode: 6.6 W Continuous mode: 10.5 W
Housing material	Aluminum alloy
Ingress protection	IP67
Thermal dissipation	Passive
Temperature	Operating: 0 ℃ ~ 45 ℃ Storage：-10 ℃ ~ 55 ℃
Eye Safety	Class 1 (EN 60825-1:2014)

Power & Trigger Connector

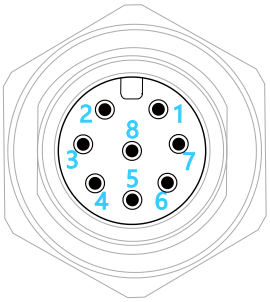


Figure 2 Pinout of the power & trigger connector

Pin No.	Name	Description	Wire Color
1	TRIG_OUT1	Trigger output signal 1 [rising-edge]	White
2	P_24V	Power (camera, DC 24V ±10%)	Brown
3	P_GND	GND (camera)	Green
4	TRIG_POWER	Power (trigger circuit, DC 12V~24V)	Yellow
5	TRIG_GND	GND (trigger circuit)	Grey
6	TRIG_IN 2	Trigger input signal 2 [falling-edge]	Pink
7	TRIG_IN 1	Trigger input signal 1 [rising-edge]	Blue
8	TRIG_OUT 2	Trigger output signal 2 [falling-edge]	Red

Note: The "Wire Color" is subject to change without notice. Please refer to the "Pin No.", which corresponds one-to-one with the interface pins of the power & trigger connector.

Trigger Circuit Schematic Diagram

The camera supports the rising-edge trigger and falling-edge trigger, and the trigger circuit schematic diagrams are shown as follows (The resistance at point A is 10kΩ). For details about hardware connection, see PercipioDC documentation.

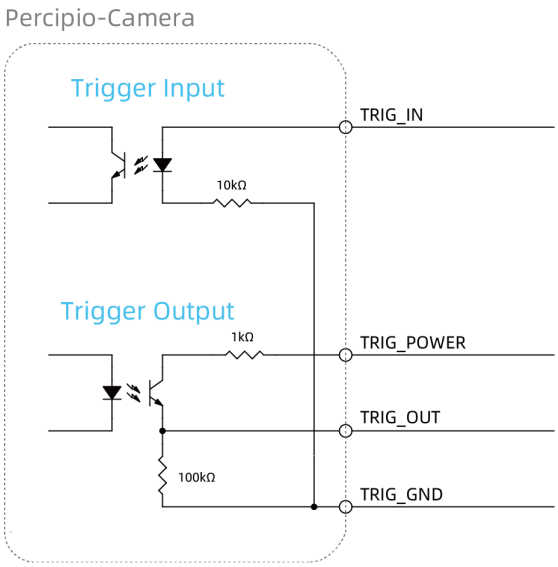


Figure 3 Trigger circuit schematic diagram (rising-edge)

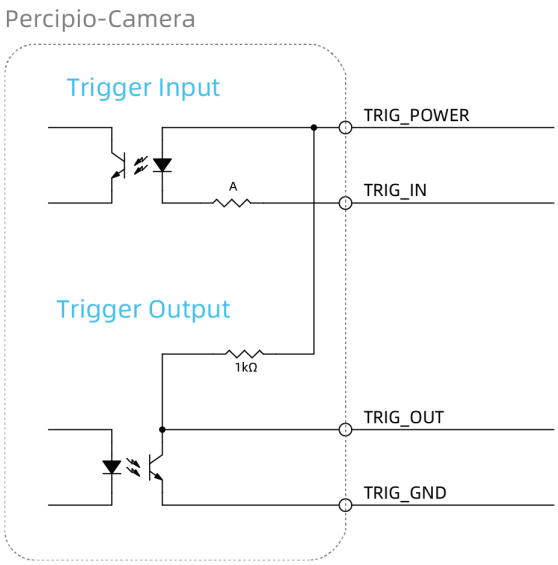


Figure 4 Trigger circuit schematic diagram (falling-edge)

Mechanical Dimensions

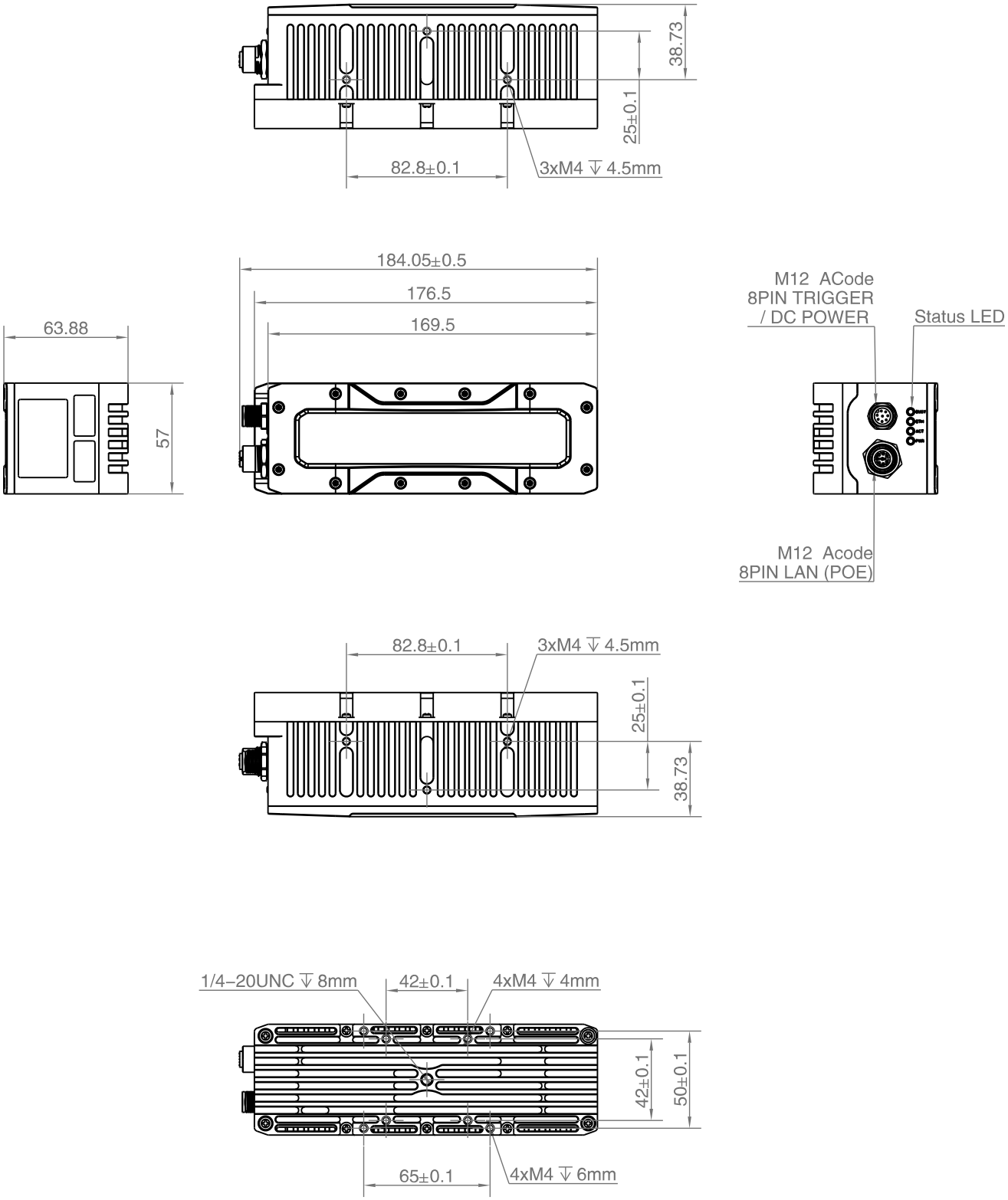


Figure 5 Mechanical dimensions of PS801 series cameras (unit: mm)

Percipio.XYZ is an industry leading provider of 3D cameras. We provide a broad range of 3D camera products to meet requirements from various applications, such as industrial, automotive, inspection, logistics, medical, education, security and commercial etc. We will continue to develop and optimize our product roadmap to support more 3D vision applications.

Percipio is an independent vendor of 3D machine vision solutions. We provide products and services to system integration customers rather than end users. This marketing strategy allows us to serve multiple sectors and segments, and also means that our success will be based on our customer's success. Together with our customer's industry specific expertise, we can support end users with implementing machine intelligence, which will improve productivity and/or reduce cost.

Make 3D Machine Vision Everywhere

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