



PS800-E1 Specifications

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Introduction

Percipio PS800-E1 3D camera, adopting innovative active stereo vision technology with core patents, achieves highly accurate 3D detection of small stationary objects. The camera is equipped with a 5-megapixel RGB sensor that provides high-definition RGB images with distinct details. It is designed for cobot applications, such as highly accurate robot recognition, positioning and grabbing.

The documentation introduces the detailed technical specifications of PS800-E1 3D cameras. For more specifications of Percipio's other products, please go to [Product Specifications — PercipioDC documentation](#).

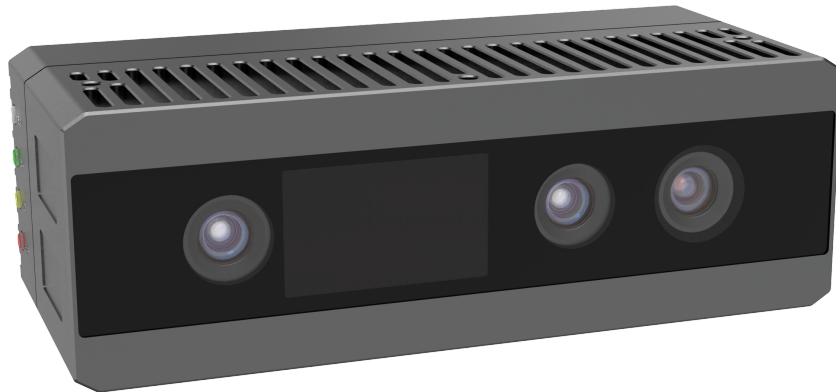


Figure 1 PS800-E1 3D camera

Technical Specifications

Parameters	Value
Technical principle	Active stereo
Illumination	1 x infrared laser 1 x infrared floodlight ¹
Latency of image acquisition ²	1781 ms
Frame rate ³ @ resolution (Depth)	0.8 fps @ 1280 x 960 0.8 fps @ 640 x 480 0.8 fps @ 320 x 240
Frame rate ³ @ resolution @ image format (RGB)	4 fps @ 2560 x 1920 @ YUYV 6 fps @ 2560 x 1920 @ CSI BAYER12GBRG 7 fps @ 1920 x 1440 @ YUYV 15 fps @ 1280 x 960 @ YUYV 15 fps @ 640 x 480 @ YUYV
RGB-D alignment	√
Output data	Depth, RGB, IR, point cloud images

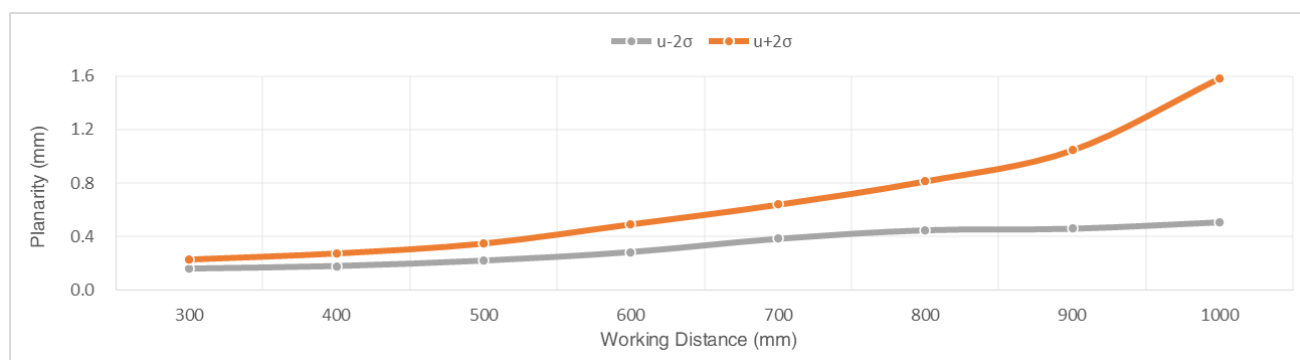
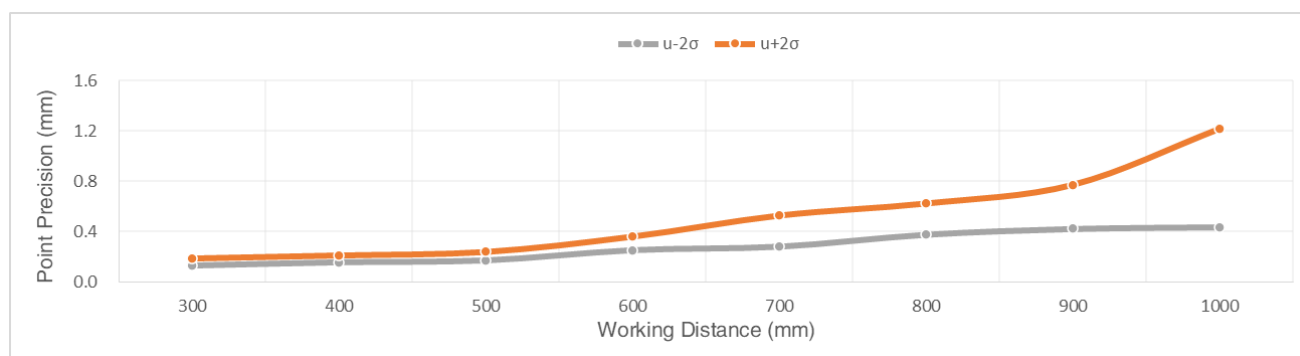
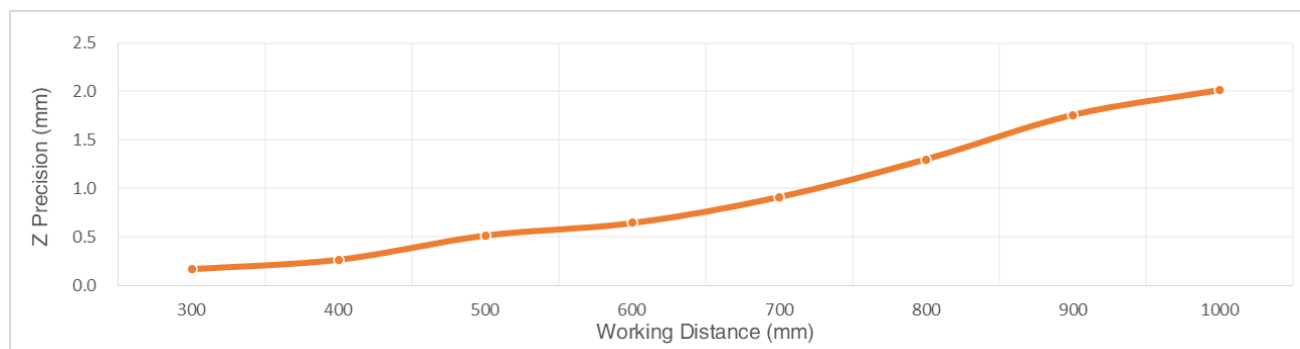
[1] Infrared floodlight: the floodlight comes with overheating protection. When the temperature gets too high, it will automatically turn off.

[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. This is when the camera is working with default SGBM parameters and exposure time.

[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 with default SGBM parameters. The frame rate of depth images will change with SGBM parameters.

Measurement Performance

Parameters	Value
Max working distance	200 mm ~ 1200 mm (change with SGBM parameters)
Recommended working distance	300 mm ~ 1000 mm (change with SGBM parameters)
Near field of view	327 mm x 268 mm @ 300 mm (H/V $\approx$ 57°/48°)
Far field of view	1190 mm x 895 mm @ 1000 mm (H/V $\approx$ 61°/48°)



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.

Note: The line charts above show the measurement performance of PS800-E1 whose SGBM parameters are set to default values. SGBM parameters can be adjusted for a better measurement performance.

Software Specifications

Parameters	Value
OS	Linux/Windows/ROS
SDK	Percipio Campport SDK; Supported programming language: C, C++, C#, Python See PercipioDC documentation for more SDK tutorials.
SGBM parameters	The parameters will influence the measurement performance of PS800-E1. For the settings of SGBM parameters, see API Guide .

Hardware Specifications

Parameters	Value
Dimension (excluding interfaces)	140.6 mm x 47.0 mm x 60.0 mm
Weight	544 g
Data connector	M12 X-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 $\pm 10\%$; 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	≤ 10.5 W
Housing material	Aluminum alloy
Ingress protection	IP65
Thermal dissipation	Passive
Temperature	Operating: 0 °C ~ 45 °C Storage: -10 °C ~ 55 °C
Eye Safety	Class 1 (EN 60825-1:2014)

Power & Trigger Connector

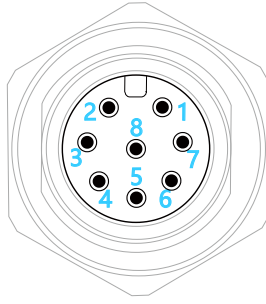


Figure 2 Pinout of the power & trigger connector

Pin No.	Name	Description	Wire Color
1	TRIG_OUT 1	Trigger output signal 1 [rising-edge]	White
2	P_24V	Power (camera, DC 24V $\pm$ 10%)	Brown
3	P_GND	GND (camera)	Green
4	TRIG_POWER	Power (trigger circuit, DC 11.4V~25.2V)	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 $10\text{k}\Omega$).

For details about hardware connection, see [PercipioDC documentation](#).

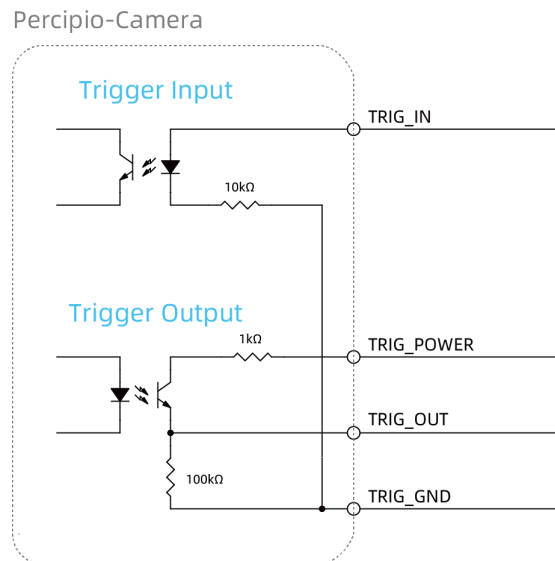


Figure 3 Trigger circuit schematic diagram (rising-edge)

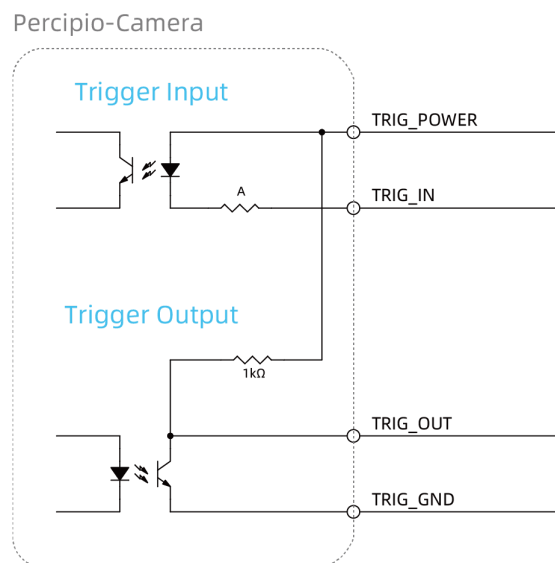


Figure 4 Trigger circuit schematic diagram (falling-edge)

Mechanical Dimensions

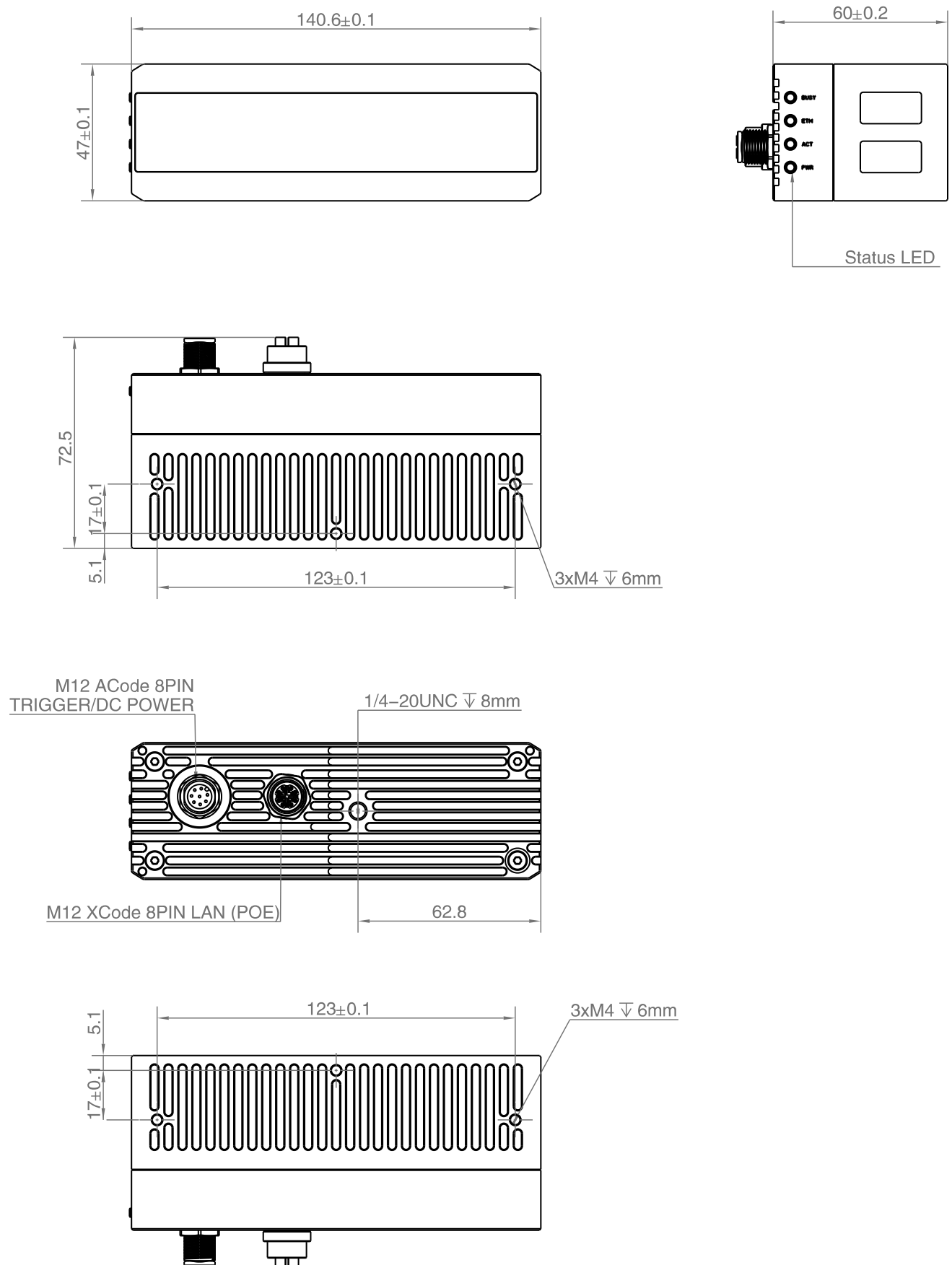


Figure 5 PS800-E1 Mechanical dimensions (unit: mm)

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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