



FM855-E1 Specifications

Date: 2024.11.19 Version: V2.3

Copyright ©2024 Percipio Technology Limited, All Rights Reserved.

Introduction

Percipio FM855-E1 3D camera features high frame rates and anti-sunlight capabilities. The camera is suitable for indoor and outdoor applications such as object recognition, classification, and positioning.

The documentation introduces the detailed technical specifications of FM855-E1 3D cameras. For more specifications of Percipio's other products, please go to [Product Specifications — PercipioDC documentation](#).



Figure 1 FM855-E1 3D camera

Technical Specifications

| Parameters | Value |
|--|--|
| Technical principle | Active stereo |
| Illumination | 1 x infrared laser |
| Latency of image acquisition ¹ | 147 ms |
| Frame rate ² @ resolution (Depth) | 15 fps @ 1280 x 960 19 fps @ 640 x 480 19 fps @ 320 x 240 |
| Frame rate ² @ resolution @ image format (RGB) | 6 fps @ 2560 x 1920 @ CSI BAYER12GBRG 4 fps @ 2560 x 1920 @ YUYV 8 fps @ 1920 x 1440 @ YUYV 16 fps @ 1280 x 960 @ YUYV 25 fps @ 640 x 480 @ YUYV |
| RGB-D alignment | √ |
| Output data | Depth, RGB, IR, point cloud images |

[1] **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.

[2] **Frame rate of depth/RGB images:** The number of depth/RGB images received by the host computer per 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, reaching up to a maximum of 24 fps.

Measurement Performance

Measurement Range & FoV

| Parameters | Value |
|--------------------|---|
| Measurement range | 800 mm ~ 3000 mm (change with SGBM parameters) |
| Near field of view | 850 mm x 710 mm @ 800 mm (H/V \approx 56°/48°) |
| Far field of view | 3465 mm x 2670 mm @ 3000 mm (H/V \approx 60°/48°) |

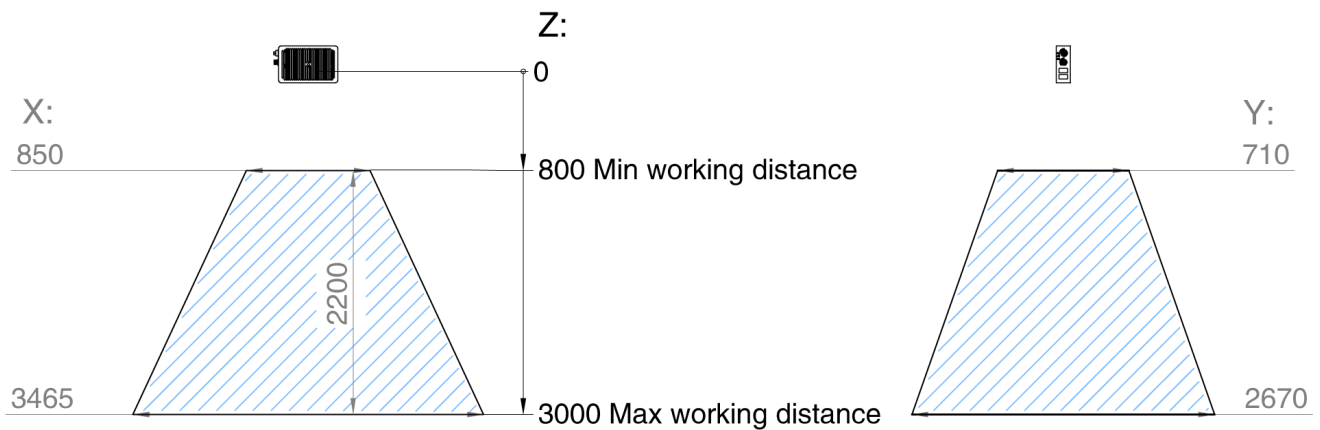
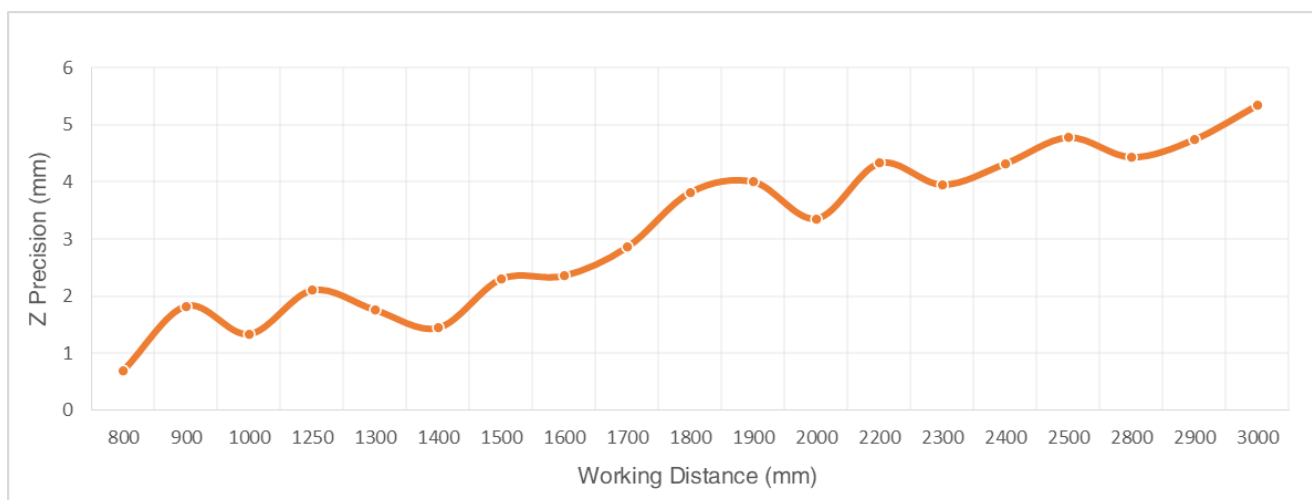


Figure 2 FoV (unit: mm)

Line Charts

The line charts below display the measurement performance metrics of FM855-E1, including z precision, point precision and planarity. The data was measured using default SGBM parameter settings. Adjusting the SGBM parameters may enhance measurement performance.



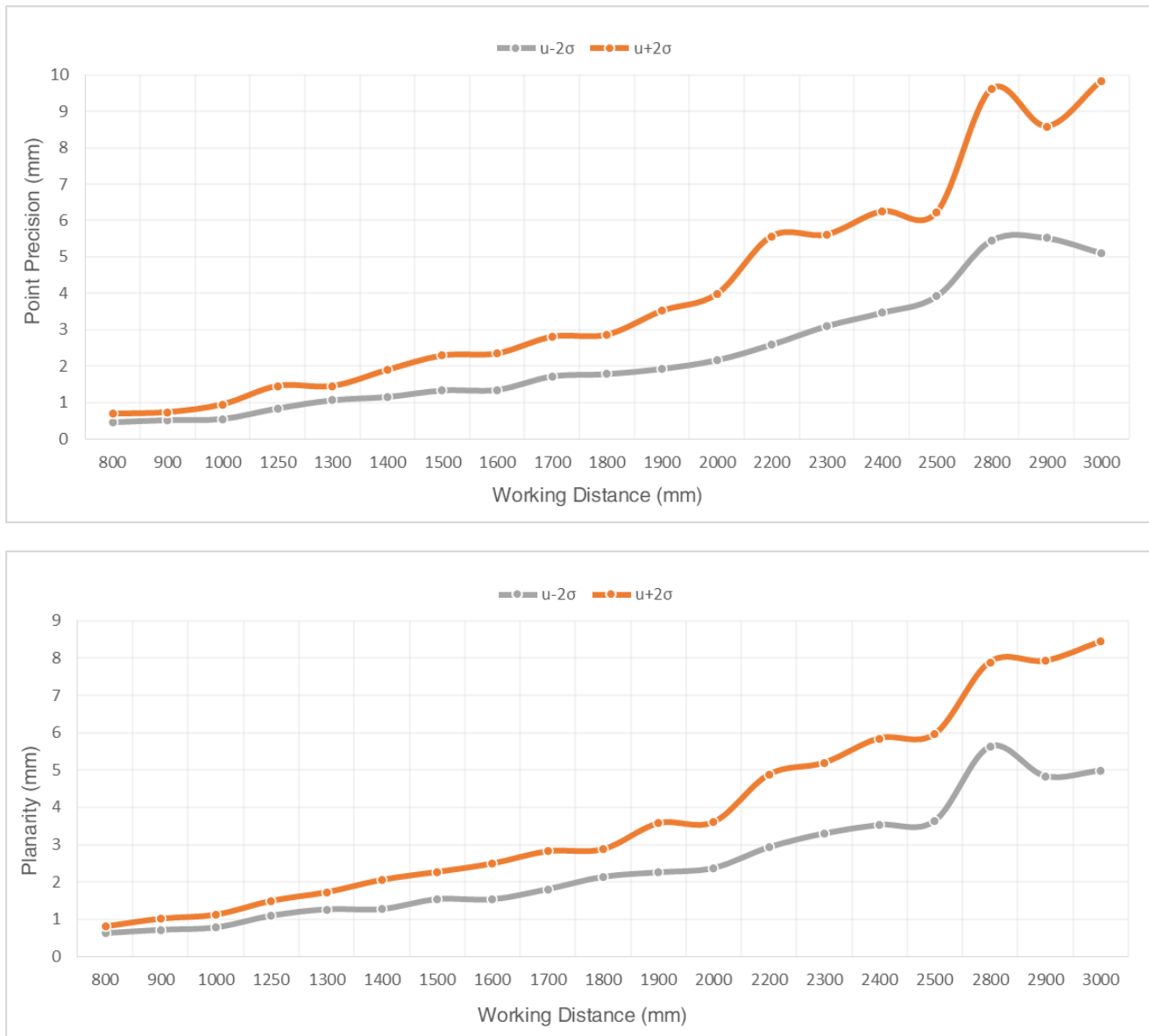


Figure 3-5 Line charts of measurement performance

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

The line chart illustrates the Z-axis precision at different working distances.

Point precision: Refers to the time-domain dispersion of all pixel points within the central ROI (Region of Interest).

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

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

The line chart illustrates the planarity distribution 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. |
| SGBM parameters | The parameters will influence the measurement performance of FM855-E1. For the settings of SGBM parameters, see API Guide . |

Hardware Specifications

| Parameters | Value |
|----------------------------------|--|
| Dimension (excluding interfaces) | 145 mm x 35 mm x 90 mm |
| Weight | 620 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 | Idle mode: 5 W Continuous mode: 9 W |
| Housing material | Aluminum alloy |
| Ingress protection | IP65 |
| Thermal dissipation | Passive |
| Temperature | Operating: -10 °C ~ 50 °C Storage: -20 °C ~ 55 °C |

Power & Trigger Connector

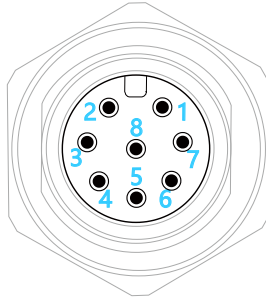


Figure 6 Pinout of the power & trigger connector

| Pin No. | Name | Description |
|---------|------------|--|
| 1 | TRIG_OUT 1 | Trigger output signal 1 [rising-edge] |
| 2 | P_24V | Power (camera, DC 24V \pm 10%) |
| 3 | P_GND | GND (camera) |
| 4 | TRIG_POWER | Power (trigger circuit, DC 12V ~ 24V) |
| 5 | TRIG_GND | GND (trigger circuit) |
| 6 | TRIG_IN 2 | Trigger input signal 2 [falling-edge] |
| 7 | TRIG_IN 1 | Trigger input signal 1 [rising-edge] |
| 8 | TRIG_OUT 2 | Trigger output signal 2 [falling-edge] |

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 10k Ω). For details about hardware connection, see [PercipioDC documentation](#).

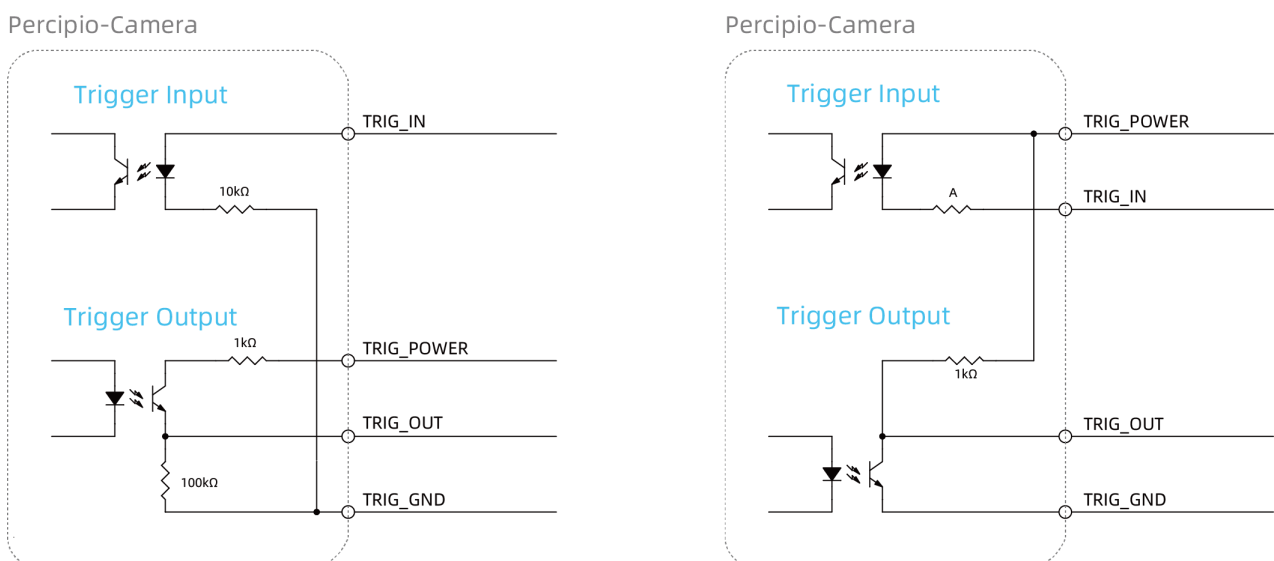


Figure 7 Rising-edge trigger circuit (left) and falling-edge trigger circuit (right) schematic diagrams

Mechanical Dimensions

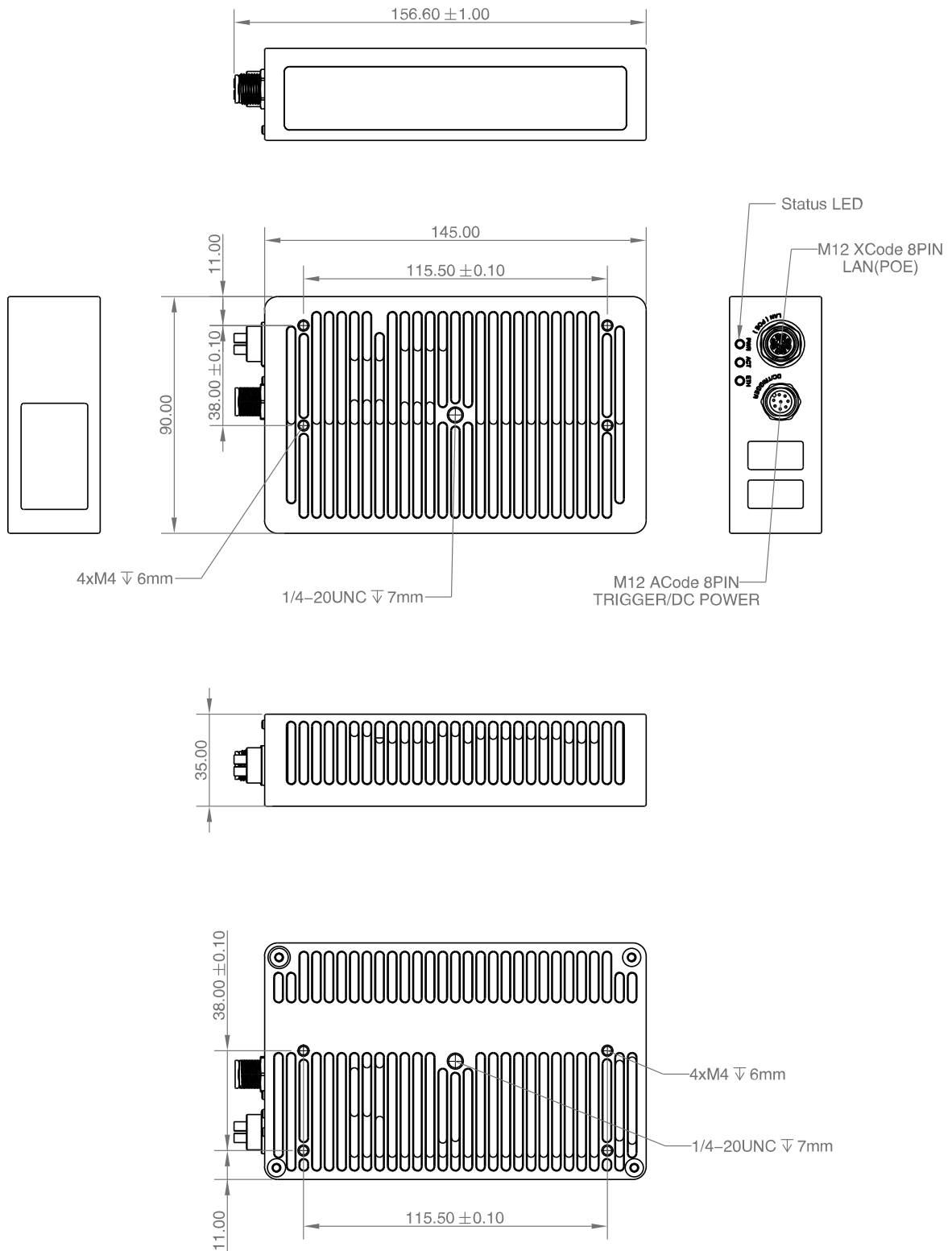


Figure 8 FM855-E1 Mechanical dimensions (unit: mm)

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

Contact Us

Purchase : info@percipio.xyz
Technical : support@percipio.xyz
Website : www.percipio.xyz
Documentation : doc.percipio.xyz/cam/latest/

Statement

* Data mentioned in this document is subject to change without notice.
* The data mentioned in this document may vary due to environmental factors and other reasons. Percipio does not assume any consequences arising therefrom.



YouTube