FM855-E1-G Specifications

Version：Draft3

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Technical Specifications

Parameters	Value
Technical principle	Active stereo
Illumination	1 x infrared laser 1 x infrared floodlight 1 x RGB floodlight
Latency of image acquisition[1]	135 ms
Frame rate[2] @ resolution （Depth）	16 fps @ 1280 x 960 23 fps @ 640 x 480 23 fps @ 320 x 240
Frame rate[2] @ resolution @ image format （RGB）	17 fps @ 1600 x 1200 @ CSI_BAYER10GRBG 40 fps @ 2560 x 1920 @ CSI_BAYER10GRBG
RGB-D synchronization & 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.

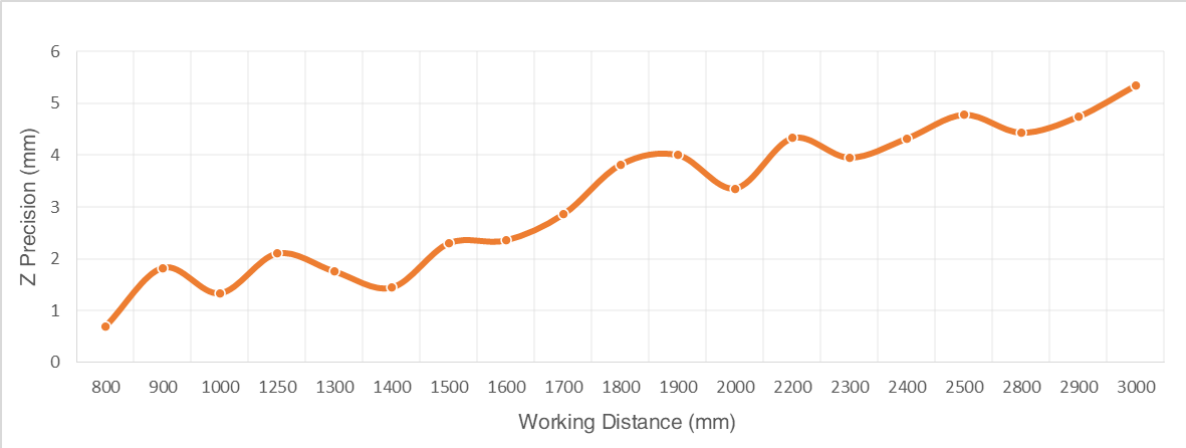
Measurement Performance

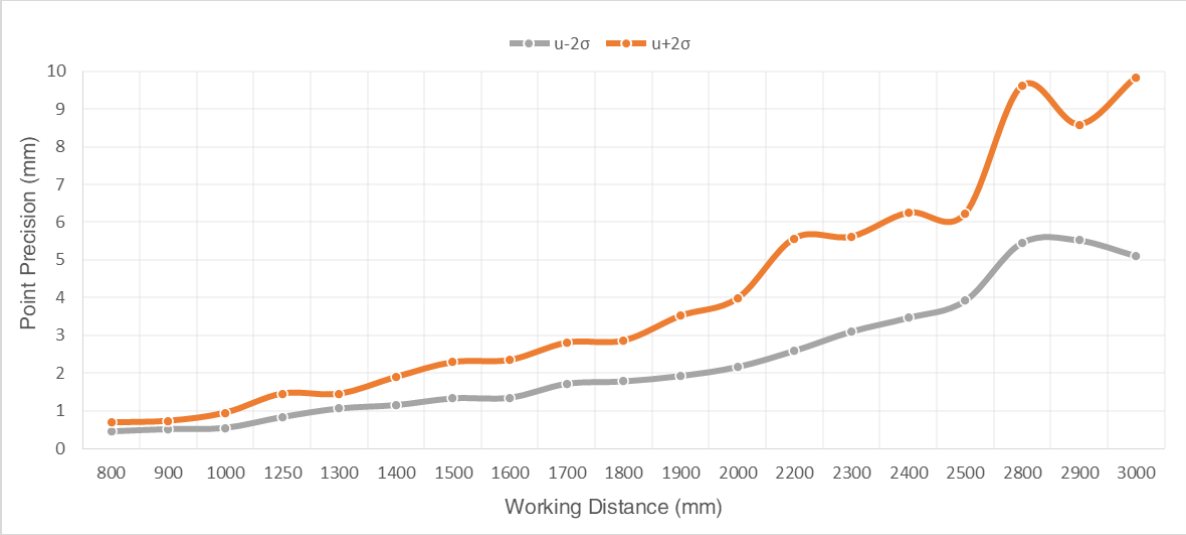
Measurement Range & FoV

Parameters	Value
Measurement range	800 mm ~ 3000 mm (change with SGBM parameters)
Near field of view	840 mm x 700 mm @ 800 mm (H/V ≈ 55°/47°)
Far field of view	3410 mm x 2615 mm @ 3000 mm (H/V ≈ 59°/47°)

Line Charts

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





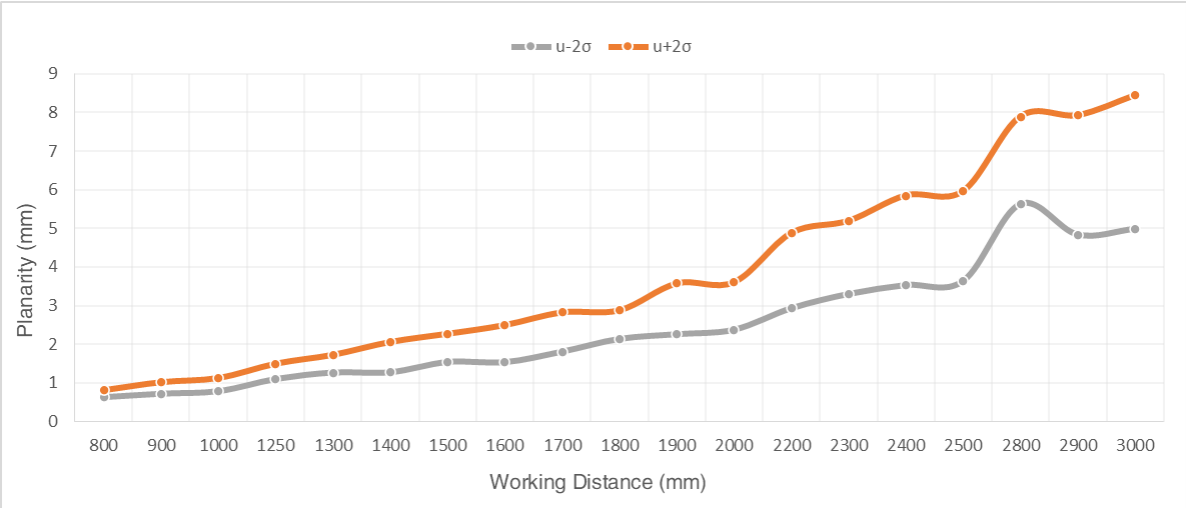


Figure 2~4 Line charts of measurement performance

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-G. 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	650 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 ±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 W Continuous mode: < 11 W
Housing material	Aluminum alloy
Ingress protection	IP65
Thermal dissipation	Passive
Temperature	Operating: -10 ℃ ~ 50 ℃ Storage: -20 ℃ ~ 55 ℃

Power & Trigger Connector

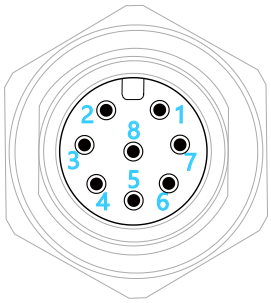


Figure 5 Pinout of the power & trigger connector

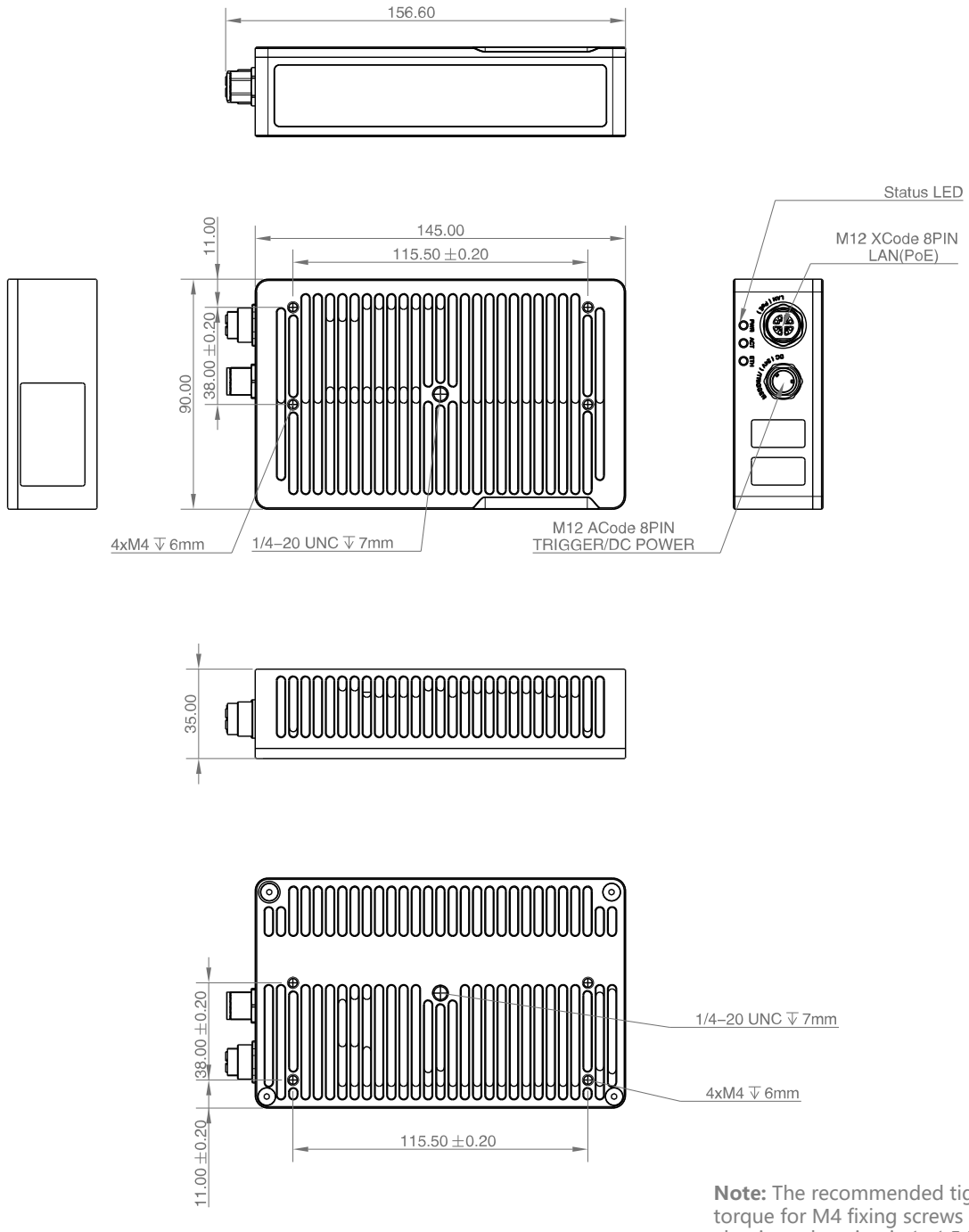
Pin No.	Name	Description
1	TRIG_OUT 1	Trigger output signal 1 [rising-edge]
2	P_24V	Power (camera, DC 24V ±10%)
3	P_GND	GND (camera)
4	TRIG_POWER	Power (trigger circuit, DC 11.4V ~ 25.2V)
5	TRIG_GND	GND (trigger circuit)
6	TRIG_IN 2	Trigger input signal 2 [falling-edge]
7	TRIG_IN 1	Trigger input signal 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 10kΩ). For details about hardware connection, see PercipioDC documentation.

Figure 6 Rising-edge trigger circuit (left) and falling-edge trigger circuit (right) schematic diagrams

Mechanical Dimensions



Note: The recommended tightening torque for M4 fixing screws on the aluminum housing is 1~1.5 N·m.

Figure 7 FM855-E1-G Mechanical dimensions (unit: mm)

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