



# FM854-E1 Specifications

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## Introduction

Percipio FM854-E1 3D camera features a high frame rate and anti-sunlight capability, making it suitable for both indoor and outdoor applications such as object recognition, classification, and positioning.

The documentation provides detailed technical specifications for the FM854-E1 3D camera. For additional specifications of Percipio's other products, please refer to the [Product Specifications — PercipioDC documentation](#).



Figure 1 FM854-E1 3D camera

## Technical Specifications

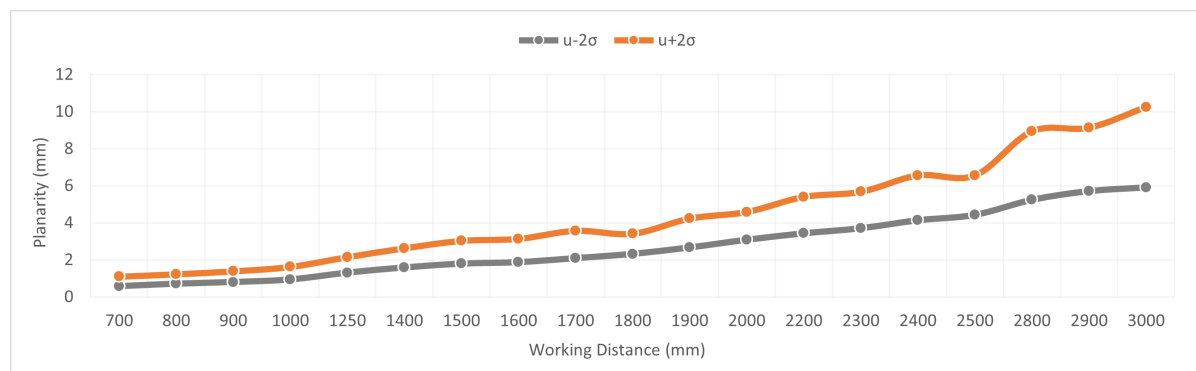
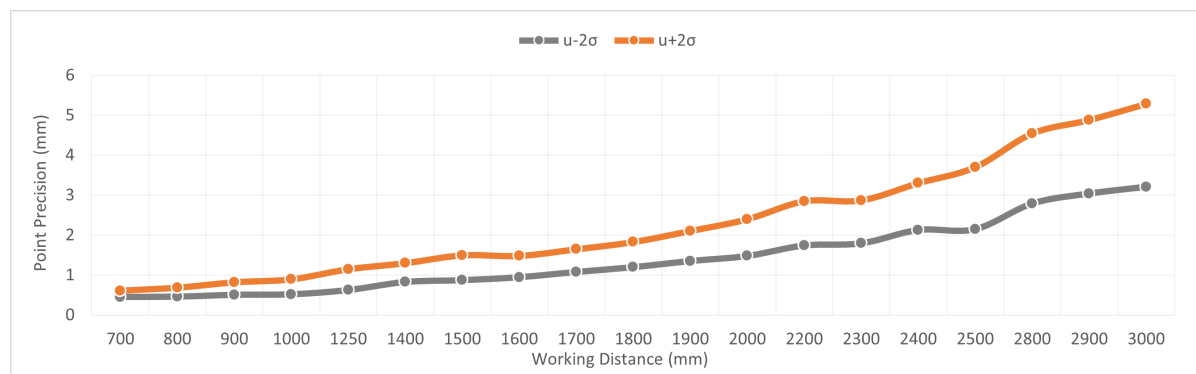
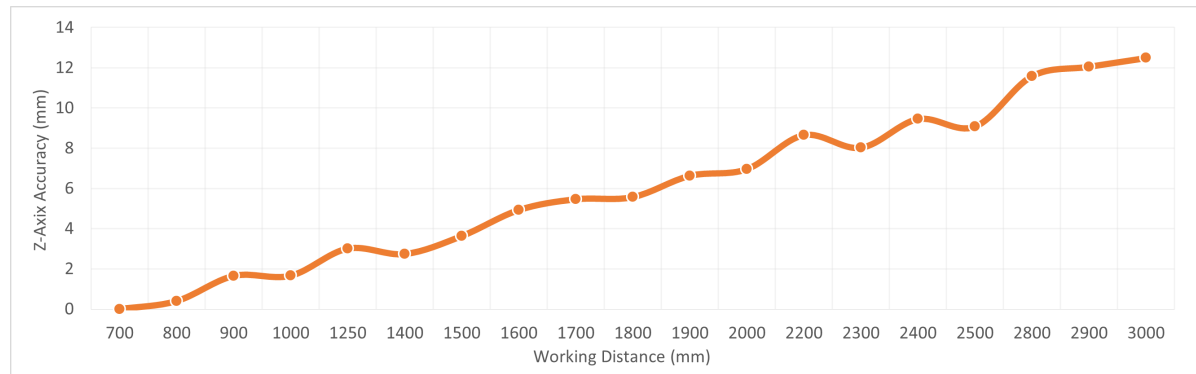
Parameters	Value
3D Sensing Technology	Active stereo
Illumination	1 x infrared laser ( $\lambda = 940 \text{ nm}$ )
Latency of image acquisition <sup>1</sup>	157 ms
Frame rate <sup>2</sup> @ resolution (Depth)	15 fps @ 1280 x 960 26 fps @ 640 x 480 26 fps @ 320 x 240
Frame rate <sup>2</sup> @ resolution @image format (Color)	4 fps @ 2560 x 1920 @ YUYV 5 fps @ 2560 x 1920 @ CSI BAYER12GBRG 8 fps @ 1920 x 1440 @ YUYV 16 fps @ 1280 x 960 @ YUYV 25 fps @ 640 x 480 @ YUYV
RGB-D alignment	√
Output data	Depth, color, grayscale, point cloud images

[1] Latency of image acquisition: the latency time between the host computer sending the software trigger signal and receiving depth images (with a resolution of 640 x 480) from the camera when the camera is working in software trigger mode.

[2] Frame rate of depth/color images: the number of depth or color images that the host computer receives every second from the camera when the camera is working in free acquisition mode with TY\_BOOL\_CMOS\_SYNC set to false.

# Measurement Performance

Parameters	Value
Working distance	700 mm ~ 3000 mm
Near field of view	760 mm x 620 mm @ 700 mm (H/V $\approx$ 56°/47°)
Far field of view	4123 mm x 3043 mm @ 3000 mm (H/V $\approx$ 60°/47°)



[1] Z-axis accuracy: the average deviation between measured distance values and true distance values in the Z-direction.

The line chart illustrates the distribution of Z-axis accuracy at different working distances.

[2] Point precision: the degree of oscillation of depth values for all pixel points in the central region of the field of view over time.

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

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

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

## Software Specifications

Parameters	Value
Host computer OS	Linux/Windows/ROS
SDK	Percipio Campport SDK; Supported programming language: C, C++, C#, Python See <a href="#">Percipio Technical documentation</a> for more SDK tutorials.

## Hardware Specifications

Parameters	Value
Dimension (excluding interfaces)	124.0 mm x 28.6 mm x 86.8 mm
Weight	414 g
Power & trigger connector	4-pin bare ware See <a href="#">Power &amp; Trigger Connector</a> for its pinout.
Data connector	M12 A-Code, 8-pin, female connector Gigabit Ethernet
Power supply	DC 24V $\pm 10\%$
Hardware trigger	Supports 1 channel of hardware trigger input/output: rising-edge trigger
Power consumption	Idle mode: 4.0 W Continuous mode: 8.2 W
Housing material	Aluminum alloy
Ingress protection	IP65
Thermal dissipation	Passive
Temperature	Operating: 0 °C ~ 45 °C Storage: -10 °C ~ 55 °C

## Power & Trigger Connector

Pin No.	Name	Description	Wire Core Color
1	P_24V	DC (24V $\pm$ 10%) power (camera) / DC trigger power (trigger circuit)	Brown
3	P_GND	GND (camera) / GND (trigger circuit)	Blue
7	TRIG_IN	Trigger input signal [rising-edge]	Orange
8	TRIG_OUT	Trigger output signal [falling-edge]	Green

Note: The color of the wire cores are subject to change. Please refer to the actual cable you receive.

## Trigger Circuit Schematic Diagram

The camera supports one channel of rising-edge hardware trigger input/output. The trigger circuit schematic diagram is shown as follows (The resistance at point A is 10k $\Omega$ ).

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

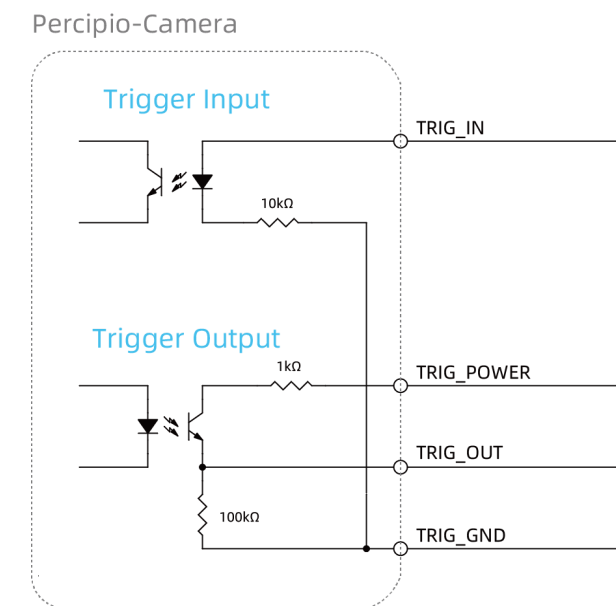


Figure 2 Trigger circuit schematic diagram (rising edge)

# Mechanical Dimensions

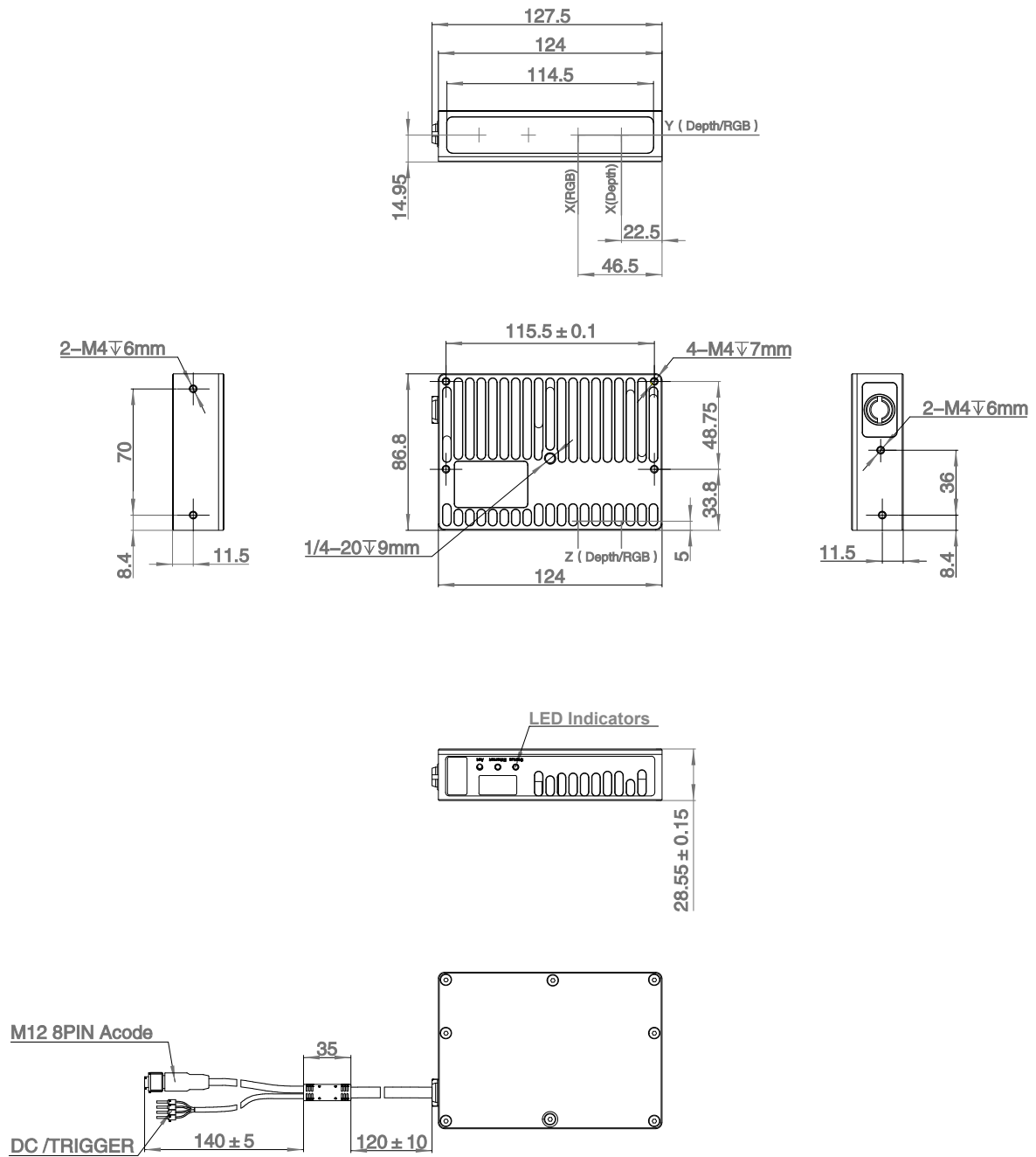


Figure 3 FM854-E1 mechanical dimensions (unit: mm)

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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.

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