



TM461-E2 Specifications

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Introduction

Percipio TM461-E2 3D camera, adopting the technology of indirect Time of Flight (iToF) to measure distance, is suitable for such applications as people counting, obstacle detection & navigation, security monitoring, object dimensioning and so on.

The documentation introduces the detailed technical specifications of TM461-E2 3D cameras. For more specifications of Percipio's other products, please go to [Product Specifications — PercipioDC documentation](#).



Figure 1 TM461-E2 3D camera

Technical Specifications

Parameters	Value
Technical principle	indirect Time of Flight (iToF)
Illumination	1 x infrared laser ($\lambda = 940 \text{ nm}$)
Frame rate ¹ @ resolution (Depth)	Supported resolution: 640 x 480, 320 x 240, 160 x 120 Supported depth quality and corresponding frame rate: HIGH (7 fps), MEDIUM (15 fps), BASIC (30 fps)
Frame rate ¹ @ resolution @ image format (RGB)	29 fps @ 1920 x 1080 @ JPEG 13 fps @ 1920 x 1080 @ YUYV 29 fps @ 1280 x 720 @ YUYV 29 fps @ 640 x 360 @ YUYV
RGB-D alignment	√
Output data	Depth, RGB, IR, point cloud images
ToF channel	10 channels. At most 10 TM461-E2 cameras with different channels are allowed to run simultaneously at the same scene.

[1] 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

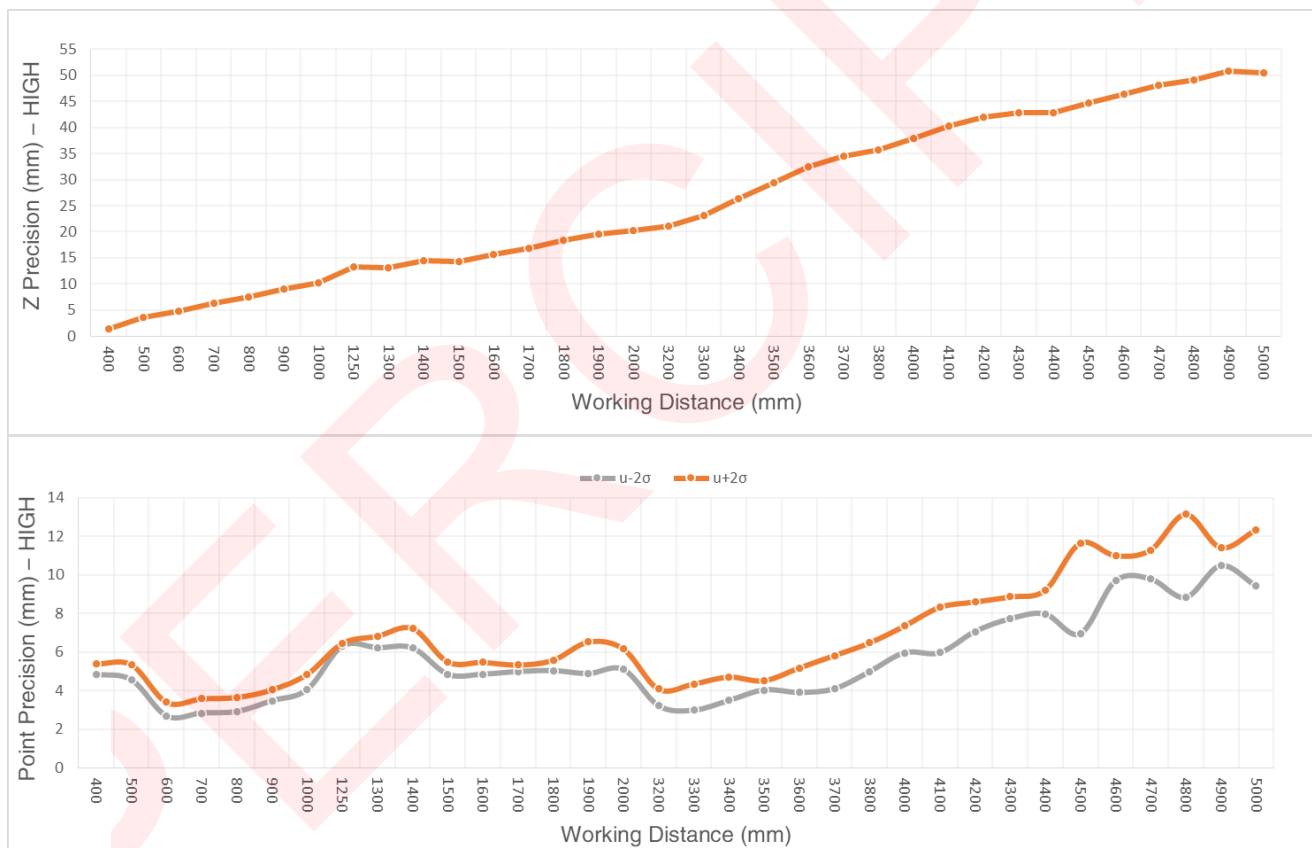
TM461-E2 measurement performance is related to its setting of ToF channel. The camera has a consistent measurement performance when the ToF channel is either 0 to 4 or 5 to 9.

- Channel 0 ~ 4
- Channel 5 ~ 9

Channel 0 ~ 4

Parameters	Value
Working distance	100 mm ~ 10000 mm
Field of view	5225 mm x 3840 mm @ 4100 mm (H/V \approx 65°/50°)

Note: When the camera works on the channel 0 ~ 4, the max working distance of up to 10 meters can be achieved only when the depth quality is set to HIGH,.





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.

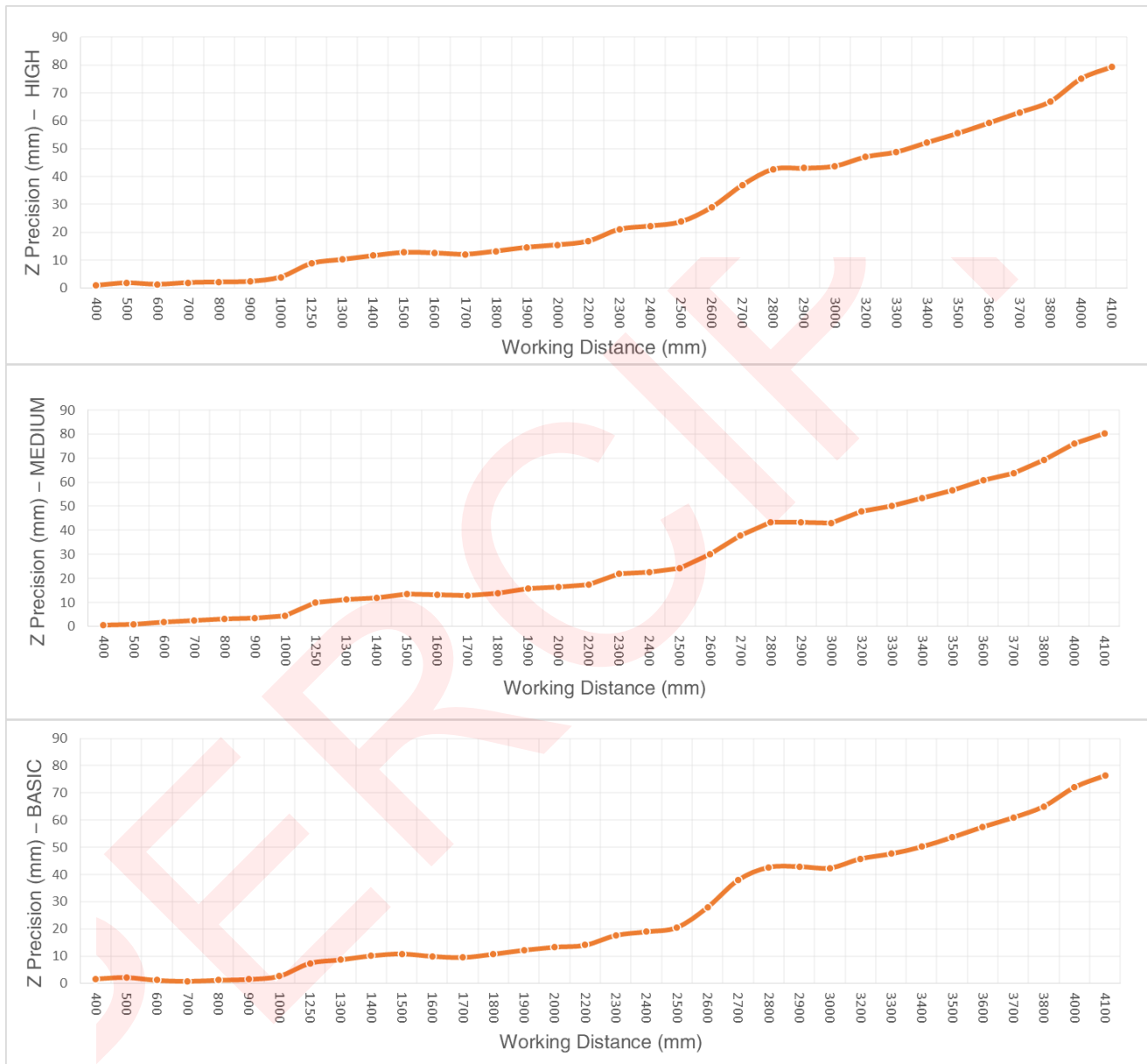
The line chart shows the distribution of planarity at different working distances.

Note: The line charts above show the measurement performance of TM461-E2 whose depth quality is set to HIGH.

Channel 5 ~ 9

Parameters	Value
Working distance	100 mm ~ 4100 mm
Field of view	5225 mm x 3840 mm @ 4100 mm (H/V \approx 65°/50°)

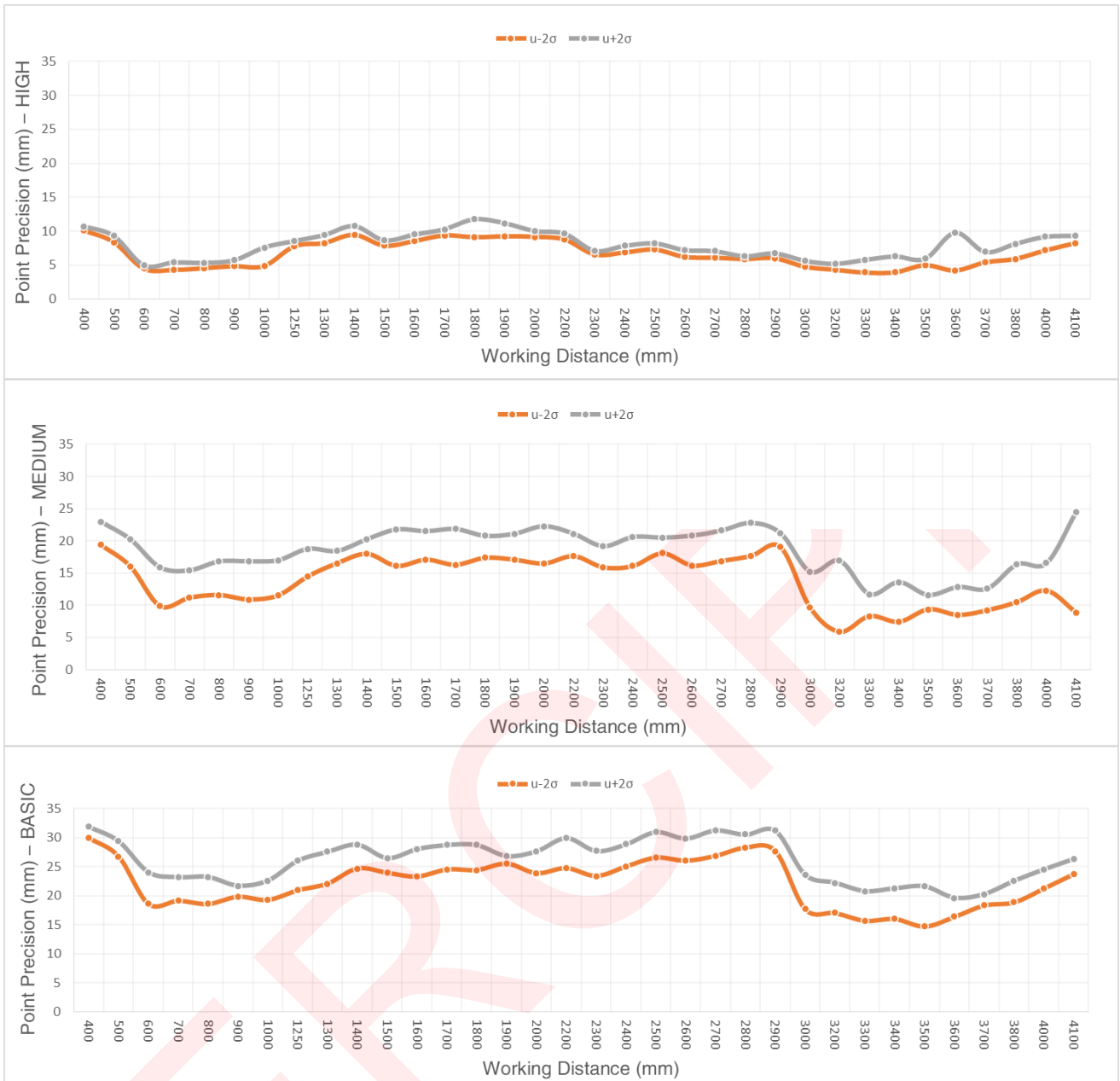
Z precision



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

The charts above show the Z precision at different working distances when the depth quality is set to HIGH, MEDIUM, BASIC respectively.

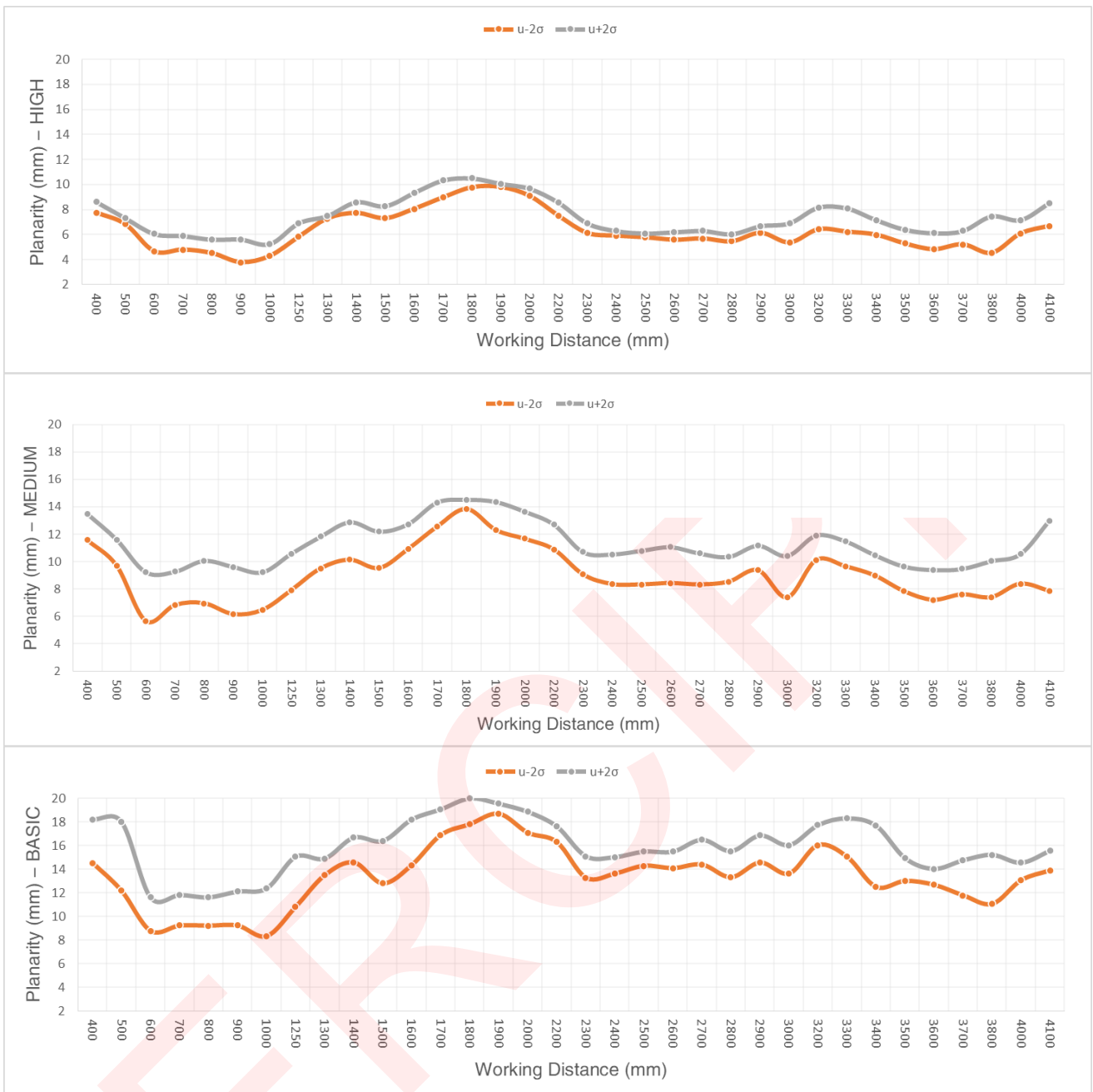
Point Precision



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

The charts above show the distribution of point precision at different working distances when the depth quality is set to HIGH, MEDIUM, BASIC respectively.

Planarity



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

The charts above show the distribution of planarity at different working distances when the depth quality is set to HIGH, MEDIUM, BASIC respectively.

Software Specifications

Parameters	Value
OS	Linux/Windows/ROS/Android
SDK	Percipio Camport SDK; Supported programming language: C, C++, C#, Python, Java See PercipioDC documentation for more SDK tutorials.
ToF features	Depth Quality ToF Channel Filter Threshold ToF Modulation Threshold For the settings of ToF features, see API Guide .

Hardware Specifications

Parameters	Value
L x H x W (excluding interfaces)	96.4 mm x 67.5 mm x 35.8 mm
Weight	315 g
Power connector	6-pin push-pull self-locking aviation plug (male) See Power Connector for its pinout.
Data connector	RJ45 Gigabit Ethernet
Power supply	DC 24V 3A IEEE802.3 af/at PoE
Power consumption	Average: 8.5 W Max: 12.0 W
Housing material	Aluminum alloy
Ingress protection	IP50
Thermal dissipation	Passive
Temperature	Operating: 0 °C ~ 45 °C Storage: -10 °C ~ 55 °C

Power Connector

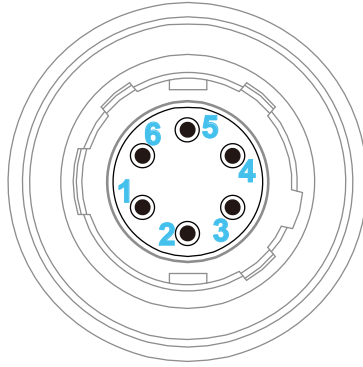


Figure 2 Pinout of the power connector

Pin No.	Name	Description	Cable Color
1	P_24V	DC 24V power (camera)	Red
2	NC	Reserved	Yellow
3	NC	Reserved	Blue
4	NC	Reserved	Green
5	NC	Reserved	White
6	P_GND	GND (camera)	Black

Note: The cable color is subject to change without notice. Please refer to the cable you obtain.

Mechanical Dimensions

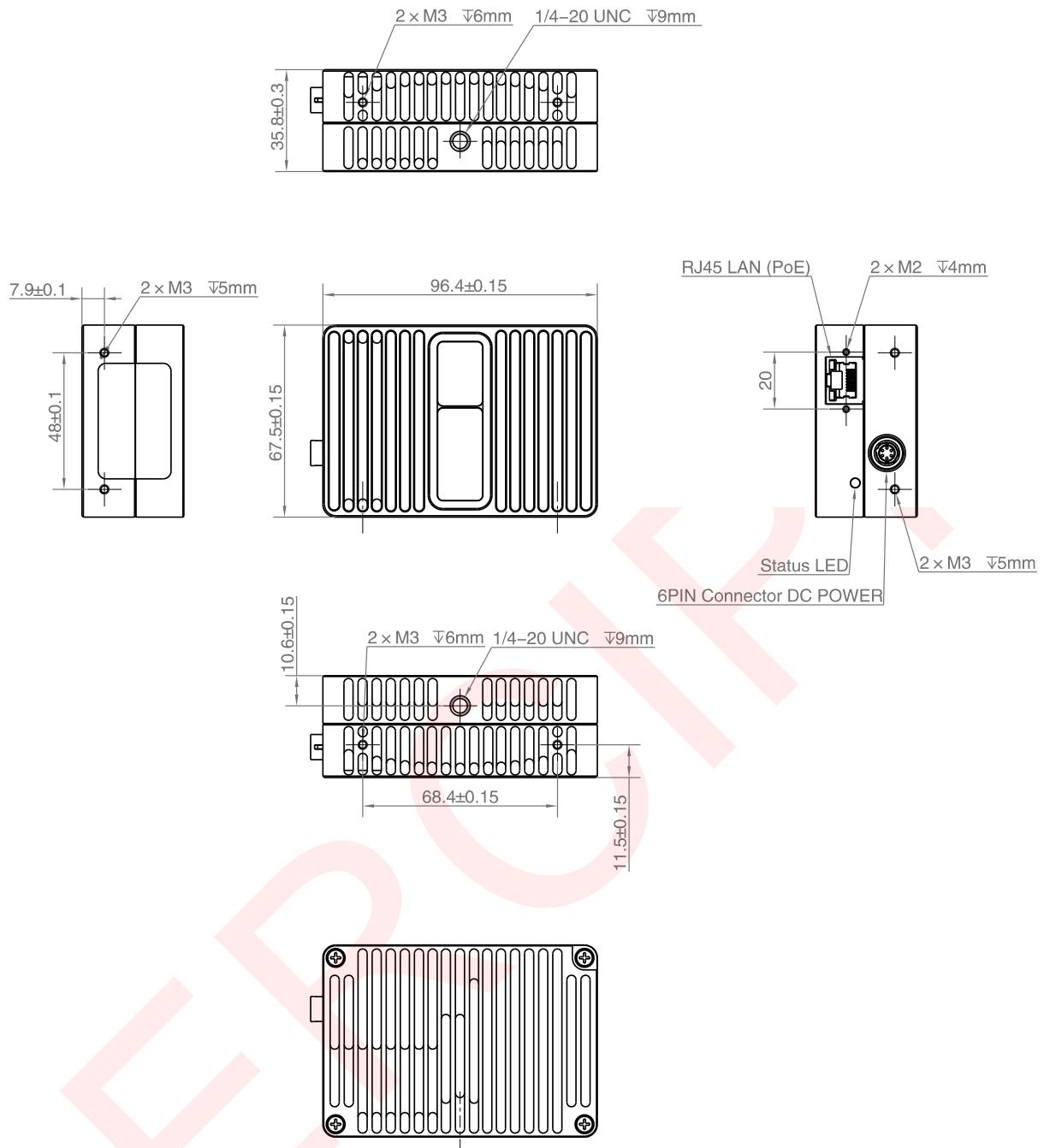


Figure 3 TM461-E2 Mechanical dimensions (unit: mm)

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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.

Make 3D Machine Vision Everywhere

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