

Mech-Eye UHP-140 Industrial 3D Camera with Micron-Level Accuracy

For inspection & measurement in the
automotive industry

- Robust Anti-Reflection Performance
- Advanced Image Fusion Algorithm



Specification

Optimal Scanning Range (mm) : 300 ± 20

Near FOV (mm) : 135×90 @ 0.28 m

Far FOV (mm) : 150×100 @ 0.32 m

Resolution: 2048×1536

Megapixels (MP) : 3

*Point Repeatability Z (σ) : $2.6 \mu\text{m}$ @ 0.3 m

**Region Repeatability Z (σ) : $0.09 \mu\text{m}$ @ 0.3 m

***VDI/VDE Accuracy: 0.03 mm @ 0.3 m

Typical Capture Time (s) : 0.6 - 0.9

Image Sensor: Sony CMOS for High-end Machine Vision

Dimensions (mm) : $260 \times 65 \times 142$

Weight (kg) : 1.9

Operating Temperature ($^{\circ}\text{C}$) : 0 - 45

Communication Interface: Ethernet

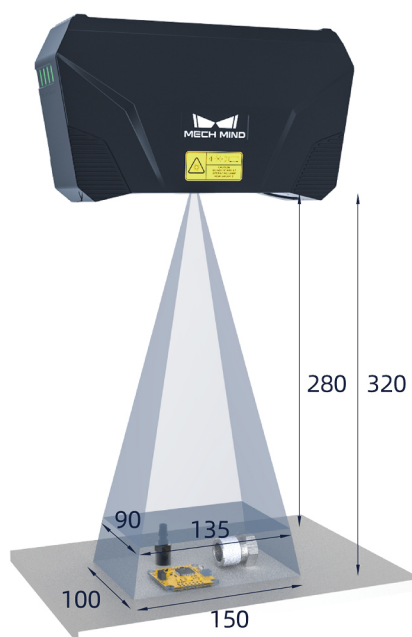
Power Supply: 24V DC

Safety and EMC: CE/FCC/VCCI

Protection Class: IP65

Cooling: Passive

Field of View (mm)



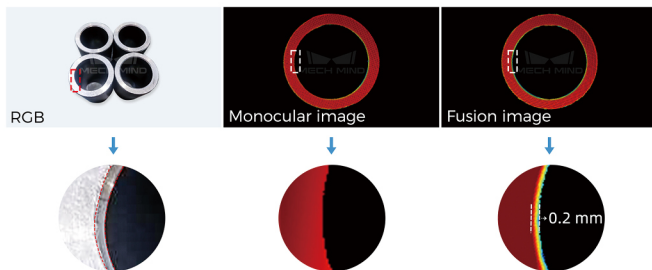
*The standard deviation of the single point Z value for 100 measurements. The measurement target is a ceramic plate.

**The standard deviation of the difference of the average Z value in two local regions for 100 measurements. The measurement target is a ceramic plate.

***Refer to VDI/VDE2634 Part II.

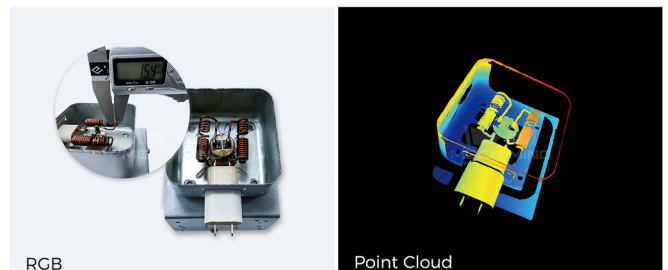
Advanced Image Fusion and 3D Reconstruction Algorithms

Mech-Eye UHP-140, coupled with the advanced image fusion and anti-reflection 3D reconstruction algorithms, can effectively reduce blind spots and generate complete, detail-rich, and accurate point cloud data for reflective and complex-shaped parts with tiny details.



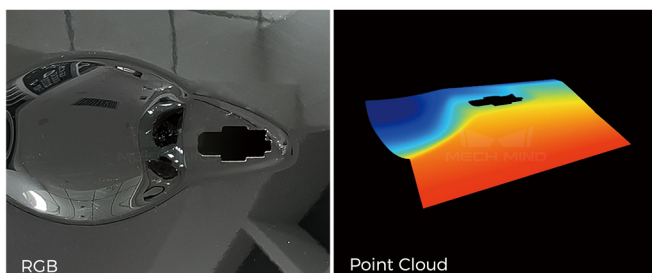
Round positioning hole with chamfer

Mech-Eye UHP-140 @ 0.3 m, point cloud rendered by height



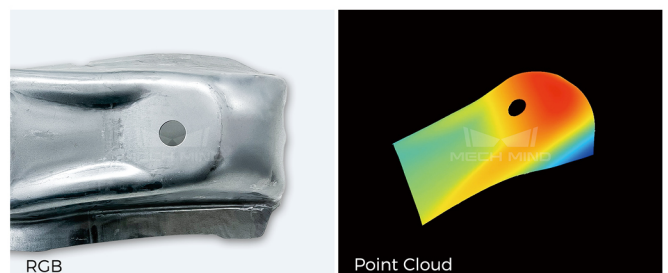
Reflective enameled copper wire with a diameter of about 1.5 mm

Mech-Eye UHP-140 @ 0.3 m, point cloud rendered by height



High brightness dented lacquered auto door; the handle position is easy to scatter light

Mech-Eye UHP-140 @ 0.3 m, point cloud rendered by height



Reflective dented sheet metal part

Mech-Eye UHP-140 @ 0.3 m, point cloud rendered by height

Implemented Application

A Large Automotive OEM – Vision-Guided Subframe Measurement

Background

The customer is a large international automotive OEM. On the subframe assembly line of the customer's welding workshop, it's necessary to measure the key parameters of each assembly feature (mainly including various types of bore diameter, position, flatness, coaxiality, and other form tolerances), which is vital to avoid assembly errors and ensure precise assembly.

Core Advantages

- ▶ Mech-Eye UHP-140 industrial 3D camera, featuring ultra-high precision, can generate high-quality point cloud data for features of the subframes with strong reflection on the surface.
- ▶ With the advanced intelligent measurement algorithm, Mech-Eye UHP-140 can handle a variety of feature types, such as common round holes, threaded holes, studs, waist-shaped holes, etc., with high measurement accuracy.
- ▶ Multi-camera and multi-robot collaboration to flexibly handle different positions of features and quickly complete the measurement tasks of various large parts.
- ▶ The measurement data can be managed and organized, supporting custom filtering history and outputting measurement reports.

