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

For inspection & measurement in the automotive industry

• Robust Anti-Reflection Performance
• Advanced Image Stitching Algorithm

MTBF (Mean Time Between Failures): **≥ 40,000 hours**

Specifications

Recommended working distance : 300 ± 20 mm

Near FOV: 135 × 90 mm @ 0.28 m

Far FOV: 150 × 100 mm @ 0.32 m

Resolution: 2048 × 1536

Megapixels: 3.0 MP

Point Z-value repeatability (σ)[1] : 2.6 µm @ 0.3 m

Regional Z-value repeatability (σ)[2] : 0.09 µm @ 0.3 m

Measurement accuracy (VDI/VDE)[3] : 0.03 mm @ 0.3 m

Typical capture time: 0.6–0.9 s

Image sensor: Sony CMOS for high-end machine vision

Dimensions: 260 × 65 × 142 mm

Weight: 1.9 kg

Operating temperature: 0–45˚C

Communication interface: Gigabit Ethernet

Input: 24 V DC, 3.75 A

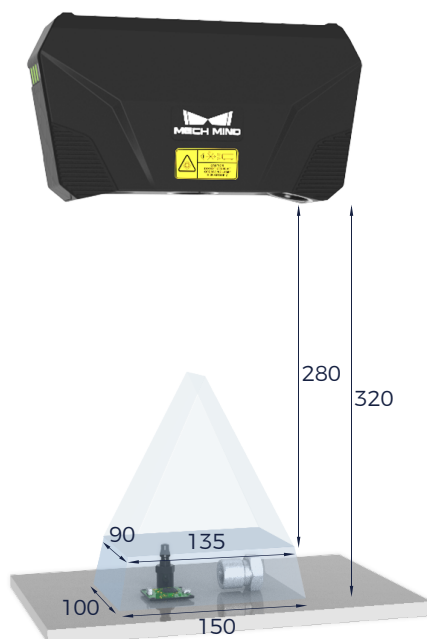Safety and EMC: CE/FCC/VCCI/KC/ISED/NRTL

IP rating: IP65

Cooling: Passive

Light source: Blue LED (459 nm,RG2)

MTBF (Mean Time Between Failures) : ≥ 40,000 hours

Field of View (mm)

280

320

90

135

100

150


# Advanced Image Stitching and 3D Reconstruction Algorithms

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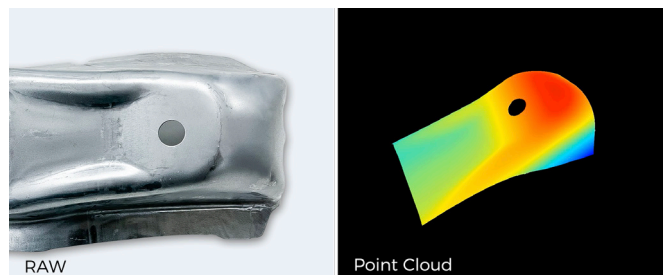

RAW Monocular image Fusion image
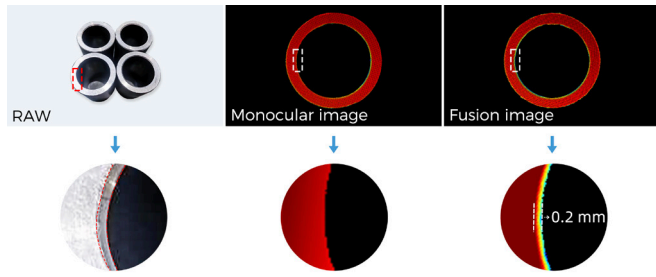
Round positioning hole with chamfer
Mech-Eye UHP-140 @ 0.3 m, point cloud rendered by height
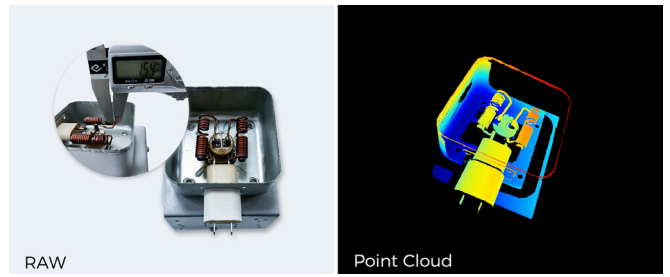
RAW Point Cloud

Reflective enameled copper wire with a diameter of about 1.5 mm
Mech-Eye UHP-140 @ 0.3 m, point cloud rendered by height
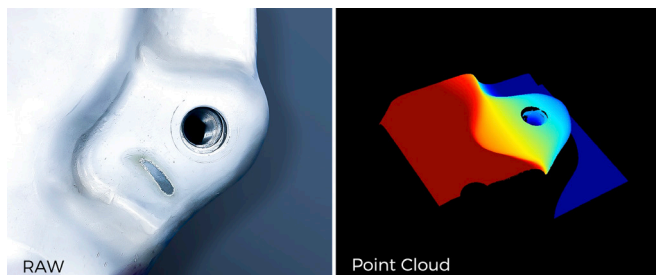
RAW Point Cloud

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

RAW Point Cloud

Reflective dented sheet metal part
Mech-Eye UHP-140 @ 0.3 m, point cloud rendered by height

Application
Large Automotive OEM — Subframe Inline 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 diameter, position, flatness, and other form tolerances), which is vital to avoid assembly errors and ensure precise assembly.

Highlights

▶ Mech-Eye UHP-140 industrial 3D camera, featuring ultra-high precision, can generate high-quality point cloud data of features on 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, 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 history filtering and outputting measurement reports.