

## Z-TRAK<sup>™</sup> 3D APPS STUDIO

Software tool suite for in-line 3D measurement applications





#### **FEATURES**

- New 3D tools for defect inspection on flat, curved, or circular parts
- Thickness measurement tool
- Bead profile tool delivers critical dimension and location data
- Reflection elimination tool for improved measurements
- Preserve data integrity when working with data from multiple sensors
- Simultaneously acquire and process 3D scans and 2D images (reflectance data)
- Expanded set of fully documented reference examples and programs

# Z-Trak<sup>™</sup> 3D Apps Studio is a suite of software tools developed for in-line 3D measurement applications.

Designed to work with Teledyne DALSA's Z-Trak family of 3D laser profilers, Z-Trak 3D Apps Studio, simplifies 3D inspection and dimensional measurement tasks on the factory floor.

Capable of handling 3D scans of objects with varied surface types, sizes and geometric features, Z-Trak 3D Apps Studio is ideal for factory automation applications across a wide range of industries including electric vehicles (EV batteries, motor stators etc.), automotive, electronics, semiconductors, packaging, logistics, metal fabrication, lumber, and many more.

Z-Trak 3D Apps Studio features streamlined tools for measuring object thickness, inspecting glue-beads, weld seams, and identifying defects on flat, inclined, and curved surfaces on machined, assembled, or extruded parts. It also includes anchoring and data enhancement features like reflection elimination to ensure reliable and repeatable results under diverse operating conditions.

Teledyne's Z-Trak family of laser profilers features various multi-sensor topologies to enhance the field of view while preserving height resolution, to overcome occlusion, or to provide a 360° view of objects for inspection and measurements. Z-Trak 3D Apps Studio simultaneously acquires, processes, and analyzes 3D scans and 2D gray scale images (reflectance data) all with 3D visualization capabilities.

For easy integration and quick deployment, the Z-Trak 3D Apps Studio is accessible via Sherlock 8.30 (or higher), a field proven, no-code, graphical development environment for factory floor applications. Z-Trak 3D laser profilers include a Sherlock 8 license for in-line measurement applications.





#### **Z-TRAK 3D APPS STUDIO EXAMPLES**

# Application: PCB inspection Tasks:

- Identify parts based on the position and height data
- Read character strings from PCB silk screened text
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#### Challenges:

- Remove un-wanted reflections from sections
- Dynamic height thresholding to identify components
- Extract and read characters from the silk screen

### Application: Pipe inspection

#### Tasks:

Tasks:

Challenges:

• Inspect surfaces of extruded pipes

Application: Glue bead inspection

• Measure area/volume of the bead

• Identify dents and bumps meeting specified criteria

#### **Challenges:**

- Combine data from multiple sensors in a ring layout
- Remove un-wanted reflections from specific sections



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## • Acquire and combine 3D profiles from multiple sensors positioned at +/- 45° from the center

• Locate and correct tilt in the bead base

• Inspect profile of a bead for shape and size

• Locate and measure critical bead dimensions

## Application: Lead frame inspection

#### Tasks:

- Measure critical dimensions of microchip leads
- Identify missing or bent leads

#### Challenges:

- Minimize sensor count, while ensuring the highest resolution
- Remove/reduce effect of un-wanted reflections
- Minimize processing time







#### Z-TRAK MULTI-SENSOR TOPOLOGIES



#### **Z-EXPERT OVERVIEW**

#### **Key Features**

- Supports Teledyne DALSA's Z-Trak family of 3D profile sensors
- Concurrent acquisition and display of 3D scan data
- Built-in wizard to generate unified measurement space using multiple Z-Trak 3D sensors
- Save, load, import 3D scans in 3dr, PLY, tiff (16-bit) and CRC file format
- 3D visualization capabilities included which support 3D profiles, surface view, wireframe, and point cloud display
- Displays 3D in world units
- Seamless switching between surface and profile views
- Zooming, panning and grid display
- Pre-defined 3D view for rapid orientation and zooming
- Ability to show 2D area-scan images for setup





#### SYSTEM REQUIREMENTS:

#### Z-Trak 3D sensors:

- Z-Trak2 2K Series (firmware v. 1.20.00.0122 or higher)
- Z-Trak LP2C 4K Series (firmware v. 1.20.00.0022 or higher)
- Z-Trak LP1 1K Series

#### Software:

- Sapera LT SDK (v 9.00.00.2326 or higher)
- Sherlock8 (v8.30.00.323 or higher)

#### Host computer

- Operating system: Windows 11
- CPU: PC with Intel or AMD
- Graphics card: Nvidia GTX400 or equivalent



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