

The Metric Calibration Tool

SAL3D Tools

The **AQSENSE SAL3D Metric Calibration Tool** provides a straightforward, easy procedure for obtaining true XYZ metric coordinates from 2.5D rangemap data coming from any standard laser triangulation system.

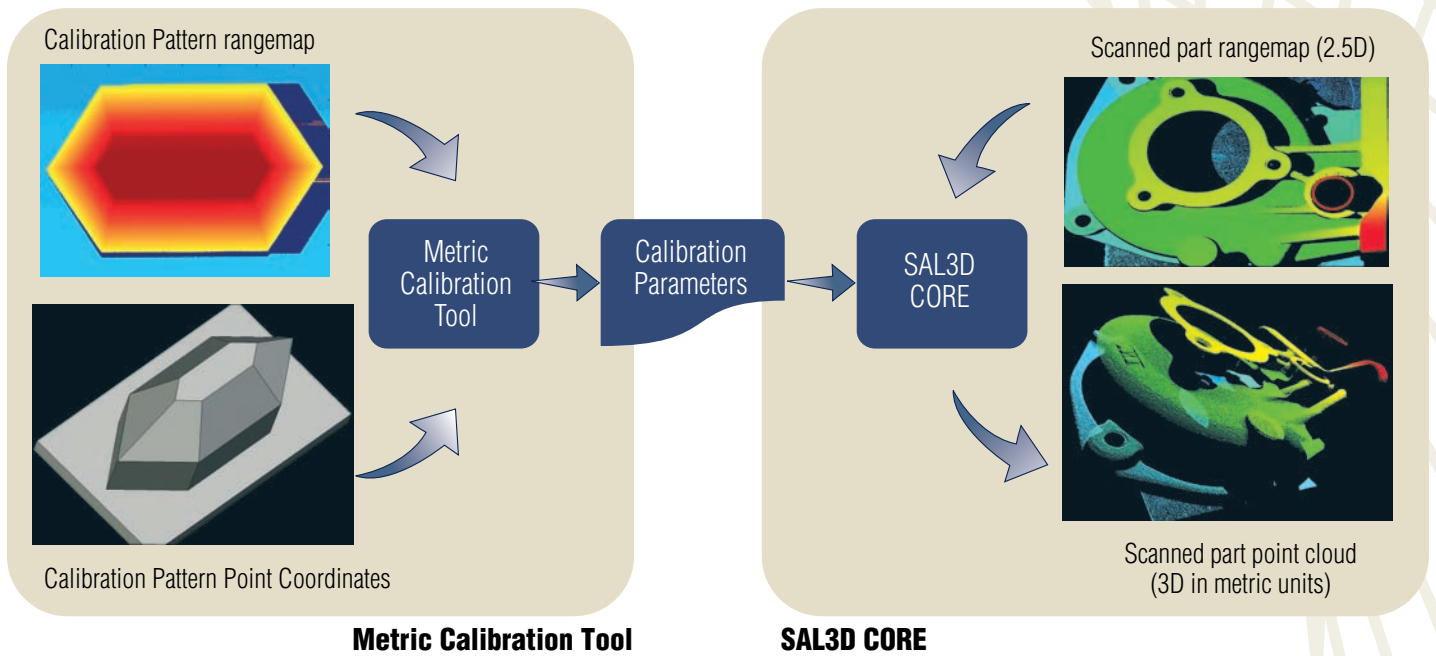
Features:

- Extremely easy to use
- Use of our specific calibration pattern design
- Very Accurate conversion 2.5D -> 3D
- Totally removes perspective distortion effects (1)
- Average theoretical 3D error: $1e-7 \mu\text{m}$ (2)
- Average real 3D error: $50 \mu\text{m}$ (3)

1 Perspective introduces object's size distortion with the distance to the camera. This tool does not correct lens distortion, such as radial distortion.

2 Evaluated with synthetic data. Only the mathematical method is evaluated here

3 Real situation, using AQSENSE Peak Detector Tool, at 30° camera-laser angle, F.O.V. = 130mm. Sensor noise, laser speckle, depth of focus, etc... influence this result.



Just 3 Easy Steps

- 1- Obtain a good rangemap by scanning the calibration pattern
- 2- Specify the calibration pattern point coordinates, according to the design
- 3- The calibration parameters are obtained

Metric Calibration Sample Code

```
sal3d::RangeMap::MetricConfig metricConfig =
    sal3d::Metric::calibrate (patternRangeMap);
```