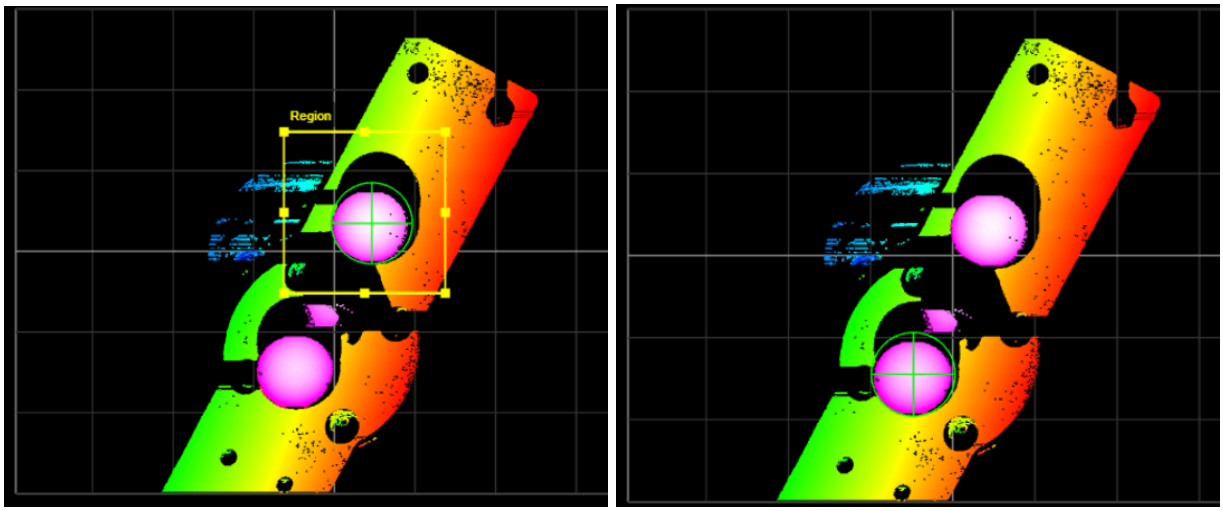
Surface Sphere Advanced

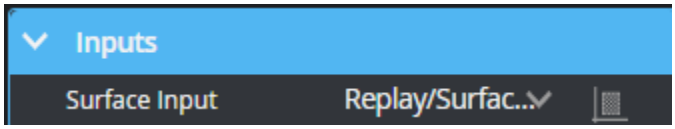
Purpose

The Sphere Advanced tool lets you compute characteristics of a scanned sphere. For example, you can use the tool to align a robot-mounted sensor to a ball-bar as shown in the images below.



Compared to the Surface Sphere tool (Surface Sphere Tool User Manual), this advanced version is more robust and is not overly dependent on the location of ROI due to a different algorithm, as shown in the above images.

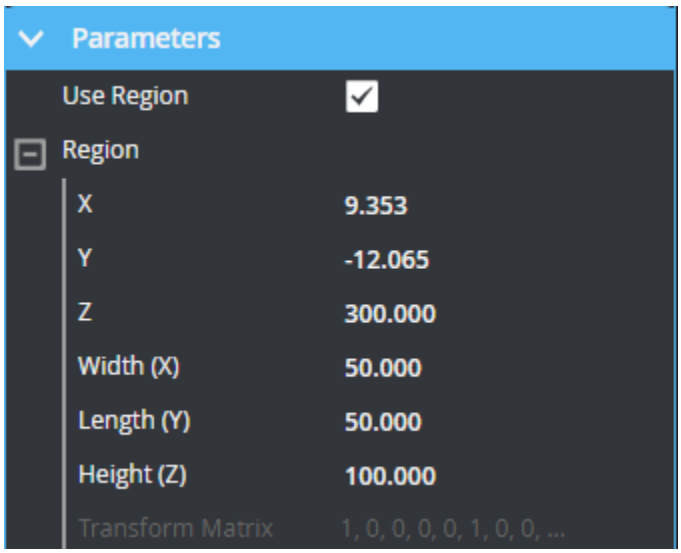
Inputs



Name	Description
Surface Input	The uniform surface data that the tool will apply measurements to.

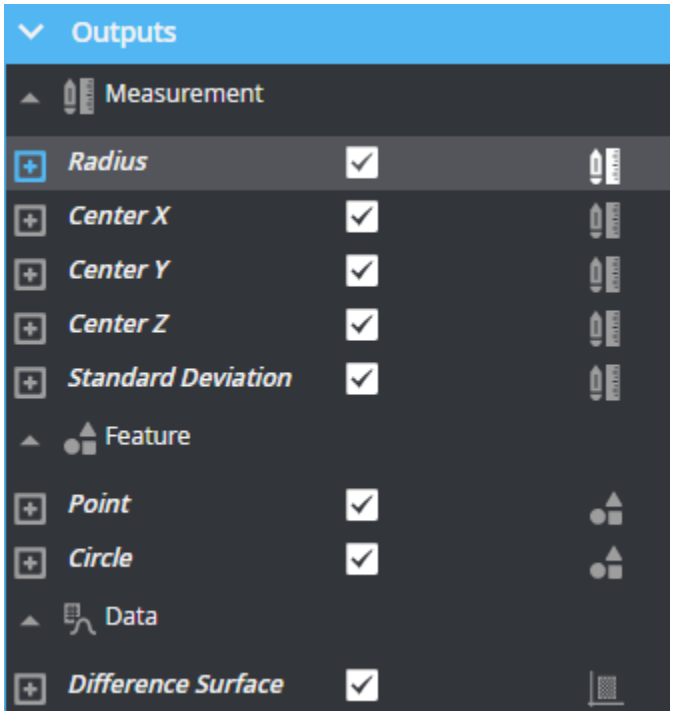
+1 604 636 1011
+1 604 516 8368
info@lmi3D.com
www.lmi3D.com
HEADQUARTERS
9200 Glenlyon Parkway
Burnaby, BC V5J 5J8
Canada

Parameters



Name	Description
Use Region	When enabled, show a Region parameter.
Region	The region to which the tool's measurements will apply.

Outputs



Type	Name	Description
Measurement	Radius	Determines the radius of the sphere.
Measurement	Center X Center Y Center Z	Determines the center of the sphere.
Measurement	Standard Deviation	Determines the error of the points compared to the computed sphere. It is defined as the square root of the variance of the distance of every point to the computed sphere.
Feature Point	Point	The center point of the sphere.
Feature Point	Circle	The circle encompassing the widest part of the fitted sphere.

Uniform Surface	Difference Surface	Shows the fit error at each point of spheres.

Major Revisions (GDK 6.1.32.12 vs. GoPxL 1.0.25.46)

- The name of this tool in Classic is “Surface Sphere Fit”, in GoPxL, we decided to rename it as “Surface Sphere Advanced”
- Removed the measurement “Processing Time” from GoPxL
- All the processed results are identical between the two versions.
- Speed performance seems to be ~20% improved based on this test case without adding any region.
    - GoPxL ~92.673ms/frame
    - Classic ~121.345ms/frame

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Canada