Quality Setting Function on the Focus3D

Quality - Affects the quality of the scan and the scanning time at constant scan resolutions. It allows the user to balance the needs of quality and speed with one simple slider. Moving the slider up reduces the noise in the scan data and thus increases the scan quality which results in an increased scanning time. Moving the slider down reduces the scanning time and increases the efficiency of your scan project. The Quality slider sets quality levels either via diverse measurement rates or by applying additional noise compression.

The Quality setting does not have anything to do with the filters and will not disable any filters by changing the quality slider. Our definition of “quality” relates to the noise in the distance measurement. Ranging noise has two very apparent effects:

1. The thickness of the scan point cloud on a flat object. The higher the ranging noise is, the thicker the scan point cloud will be.
2. The effective number of scan points on far distance objects. The higher the ranging noise is, the less scan points will remain. Therefore ranging noise is also a limiting factor for the effective range of the scanner.

The major contributor to the ranging noise is the sensor electronics, where the incoming signal is evaluated to determine the distance. Every electronics shows small fluctuations in its signal processing behavior, and then adds a varying amount of unwanted signal to the incoming signal. If this unwanted addition is relatively small in comparison to the incoming signal, the ranging noise will be low. If it is relatively large, the ranging noise increases. Therefore ranging noise is small on strong signals, and can get large on weak signals.

One way to increase the signal strength is to increase the observation time. The longer we observe the incoming laser light, the more energy we get, and the stronger the signal will be. The quality factors 1x through 4x are just different expressions for the observation time: 1x has the smallest observation time of 1 µs per scan point, and 4x has 8 µs per scan point.

See Also

- Quality or Resolution Setting Changes and its Affect on Accuracy for the Focus3D or Photon
- Visually Check the Registration Quality in SCENE
- Firmware and Installation Instructions for the Focus3D X 30/130/330
- Enhancing Scan Data Quality Using the SCENE Noise Compression Feature

Keywords:

quality, setting, resolution, touch, screen, modify, change