Manufacturing Metrology Team – Instrument Data Sheet

Sidio Nub3D fringe projection system

Purpose

- Optical 3D measurement of surface form

Working principle

- The Sidio Nub3D system is used to scan objects from different views and re-create the 3D point cloud of the scene from the perspective of an integrated camera. Registration of the different views is carried out automatically with photogrammetry targets that can be attached to the object or the rotary table. Unlike traditional laser triangulation scanners, this instrument uses full frame image capture via use of phase shifting spatial profiles (fringes) to determine the depth information of every pixel in the image. The instrument can be used on objects of up to (550×390×200) mm in volume and on multiple materials, with the condition that they produce sufficient diffuse reflection.

Advantages

- Fast measurement of large areas
- Flexibility of instrument configuration
- Multi-materials measurement

Limitations

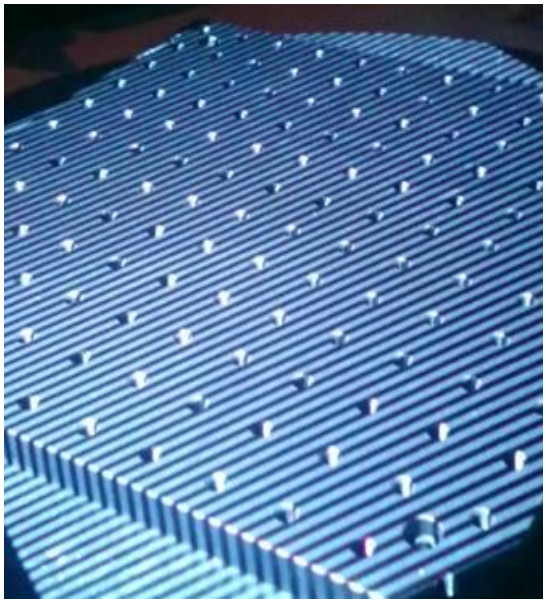
- Limited to macro form measurement
- Difficult to measure highly reflective surface

Related research focus

- Post-process measurement feedback for AM artefacts
- Additional applications involving materials including:
  - Ti6Al4V (AM grade)
  - Nylon 12 (AM grade)
  - Anodised aluminium
  - Asphalt
  - Human bone
  - Human skin

Instrument specifications				
Measurement volume type	Volume 1	Volume 2	Volume 3	Volume 4
Volume	(120×80×60) mm	(200×150×90) mm	(340×260×200) mm	(550×390×240) mm
Optics	28 mm	20 mm	20 mm	20 mm
Accuracy	0.011 mm	0.015 mm	0.023 mm	0.038 mm
Precision (1σ)	0.006 mm	0.007 mm	0.011 mm	0.019 mm
Point spacing	0.075 mm	0.75 mm	0.25 mm	0.375 mm
Working distance	330 mm	330 mm	700 mm	1200 mm
Measurement points (per photo)	1,400,000	1,400,000	1,400,000	1,400,000

Measurement examples

	
Archaeological measurement	**Calibrated pattern**

For contract measurement enquiries, please contact:

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