moviSCAN 3D

High Speed Profile Scan Cameras

Machine Vision Automation

104 million
3D points /sec

- ☑ **World's Fastest 3D Cameras**
- ☑ **Integrated Laser Control**
- ☑ **Flexible Triggering**
- ☑ **Industrial I/O**
- ☑ **Multiple Senor AIOs**

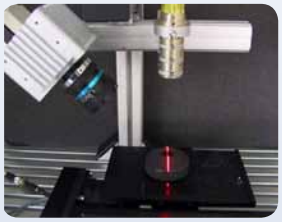
GiGE VISION™ GEN<i>CAM™ CAMERA Link™

moviMED
custom imaging solutions

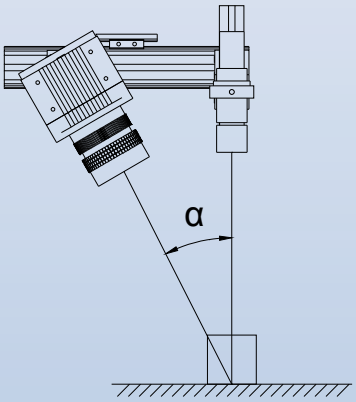
The World's Fastest 3D Camera. Period.

Measurement Principle

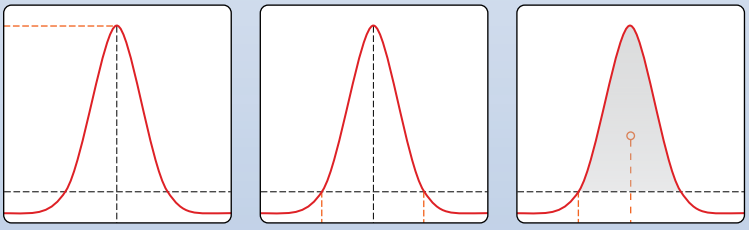
The moviSCAN 3D sensor acquires intensity, height and width profiles, by means of laser triangulation using a sheet-of-light technique. A laser line is projected onto the surface of the object. The resulting sensor image is evaluated by the camera and converted into dimensional height information (X-dimension, Y-dimension and Z-height). By scanning the laser line over the object, a complete height image of the object can be acquired.



Uncompromised Speed and Flexibilty



A state-of-the-art parallel hardware architecture allows the camera to pre-process all 3D data before sending it to a PC. For maximum flexibility, the user can choose between three main algorithms and numerous scan settings.

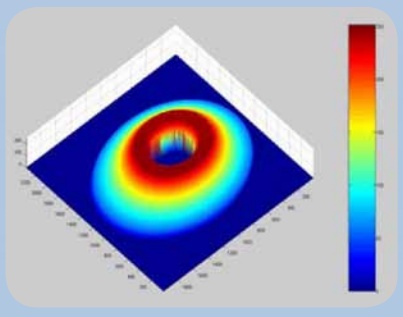


Maximum Intensity | Threshold | Center of Gravity

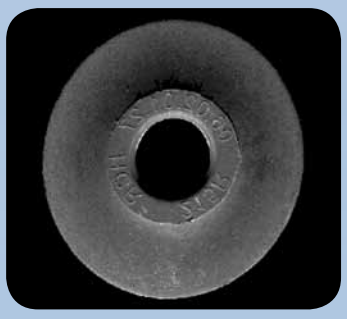
The selected profile algorithm does not impact the scan speed of the camera in any way, allowing the camera to scan even the most challenging surfaces at full speed.

Multiple Sensor-AOIs and Multiple Feature Output

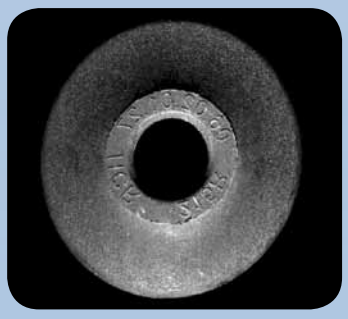
The moviSCAN 3D sensor is capable of delivering position data as well as additional features without sacrificing profile speed. Up to eight simultaneous areas of interest (AOIs) can be defined for dividing the sensor into separate sub windows.



Height Image

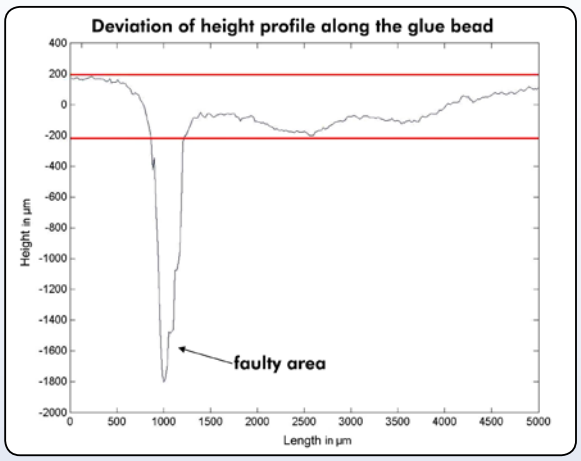


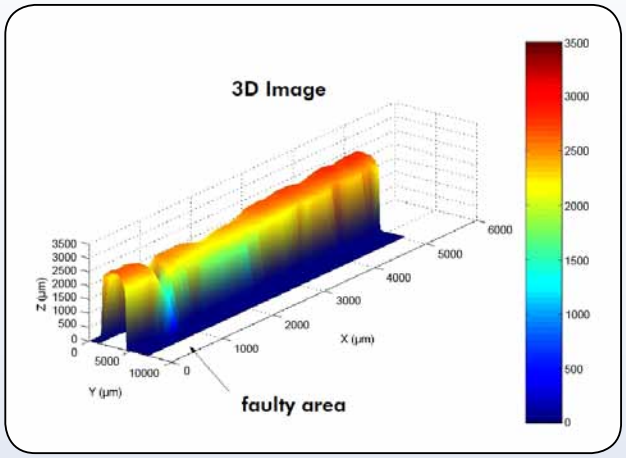
Light Scatter Image



Intensity Image

Example: Glue Bead Inspection





Additional Features

Easy Integration in Machine Vision Systems

The moviSCAN 3D cameras use either a standard CameraLink or Gigabit-Ethernet interface facilitating ease of integration. Once the camera is configured it boots up using the predefined settings without any camera specific programming. The C4 series comes with a built-in illumination controller, allowing the control of laser power and modulation.

Flexible Trigger Interface

All 3D sensors come with a configurable trigger interface. The I/O lines are opto-isolated and compatible with TTL as well as industrial 24VDC signal levels. The quadrature encoder interface with programmable counter and direction allows for precise profile triggering, even during changing scan velocities.

HDR Technology

Our C4-1280 model has a new CMOS sensor with extended dynamic range (HDR) allowing it to scan difficult surfaces.

Optional Accessories

The moviSCAN 3D sensors are available in different configurations; including a board only version for high volume OEM applications, a compact sensor with industrial housing, a Scheimpflug adapter, screw terminal connector and SDK.

Industrial Housing

Scheimpflug adapter

Manufactured in Germany
by Automation Technology

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Model	C3-1280	C3-2350	C4-1280	C4-2350
Sensor Specifications				
Pixels	1280 (H) x 1024 (V)	2352 (H) x 1728 (V)	1280 (H) x 1024 (V)	2352 (H) x 1728 (V)
Pixel Size	12µm x 12µm	7µm x 7µm	14µm x 14µm	7µm x 7µm
Dynamic Range	59dB	59dB	90dB with High Dynamic Range 3D (HDR-3D)	59dB
Digitization	10Bit	10Bit	10Bit	10Bit
Shutter	Global snap shot shutter (interleaved and sequential) and rolling shutter	Rolling shutter	Global Shutter with multiple Slopes and Non-Destructive Readout	Rolling Shutter
Sensitivity	10700 LSB/(µJ cm2) @ 550nm	17000 LSB/(µJ cm2) @ 610nm	20000 LSB/(µJ cm2) @ 680nm	17000 LSB/(µJ cm2) @ 610nm
Sensor Algorithm	Image, Profile-MAX, Profile-TRSH, Profile-COG		Image, Profile-MAX, Profile-TRSH, Profile-COG, user specific (Peak)	
Length of profile in 3D-mode	1280 pixels	2352 pixels	48 - 1280 pixels per profile	2352 pixels
Typical profile speed depending on number of sensor rows. Height resolution can be increased by using Profile-TRSH (1/2 pixel) or Profile-COG-(1/16 pixel) without loss of speed	Sensor rows: 1024, 256, 128, 32, 16 Profile speed (Hz): 450, 1800, 3600, 14400, 28800	Sensor rows: 1728, 864, 108, 27, 14 Profile speed (Hz): 190, 380, 3045, 12180, 23500	Sensor rows: 1024, 256, 128, 32, 16, 7 Profile speed (Hz) with 1280 pixels: 500, 2000, 4000, 16000, 32000, 73000 Profile speed (Hz) with 128 pixels: 5000, 20000, 40000, 160000, 320000, 730000	Sensor rows: 1728, 864, 108, 27, 14 Profile speed (Hz): 190, 380, 3045, 12180, 23500
Max. Frame Rate for image (full frame)	61fps with 40Mhz CameraLink™ – clock (2 tap mode) / 91fPs with 60Mhz CameraLink™ – clock (2 tap mode)		500 fps (internal memory)	190 fps (internal memory)
Max. Number of Sensor-AOI's	8	4 or 8 depending on Firmware Revision	4	4 or 8 (depending on Firmware Revision)
Smart Camera Features			Dedicated CPU for custom image processing 1 Gb Image Memory, 256 Mb Processor Instruction & Data Memory	
Interface Specifications				
Digital I/O's and external synchronisation signals (MDR14 connector)	2 opto -coupled inputs, 2 opto-coupled outputs Inputs can be configured as image and profile trigger, RS422 Resolver interface with signals A,/A,B,/B, tick divider and direction evaluation			
Video output	CameraLink™(Base)		GigE Vision with GenICam protocol	
Illumination Interface (5-pin M9 connector)	Simple on/off control of laser		200mA direct laser drive to control output level and modulation	
Power Requirements				
Power Supply	7 - 24V		10 - 24V	
Power Consumption	< 3W	3.5 W	< 10W	
Mechanical Specifications				
Lens Mount	C-Mount / F-Mount			
Size	72mm x 72mm x 57.4mm (C-Mount) / 86.4mm (F-Mount)		68mm x 68mm x 59mm (C-Mount) / 88mm (F-Mount)	68mm x 68mm x 64,50mm (C-Mount) / 93,50mm (F-Mount)
Mass (without optics)	330g (C-Mount) / 400g (F-Mount)		340g (C-Mount) / 410g (F-Mount)	350g (C-Mount) / 420g (F-Mount)
Housing Mount	4 x M3 on each side			
Environmental Specifications				
Operating Temperature	0°C to +50°C (non condensing)			
Storage Temperature	-30°C to +70°C (non condensing)			
General				
PC Requirements	CameraLink™ board with base connector		Gigabit Ethernet	
Operating systems	Windows 98, WIN NT, 2000, XP		Windows XP, Vista, WIN NT, 2000, Linux (on request)	
Software environment	Configuration tool C3-Explorer C3Lib-API with source code (C++) Compatible with standard image processing libs, e.g. CVB, HALCON, MIL, IFC, SAPERA, MULTICAM, NI-IMAQ, LABVIEW, MATLAB etc		Configuration tool CX-Explorer, GenICam API, Compatible with any GigE vision compliant image processing library, e.g. CVB, NI-IMAQ, MIL	

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