



More Precision

scanCONTROL 8500 / 8200

High-performance laser scanners – more precise, more compact, more intelligent

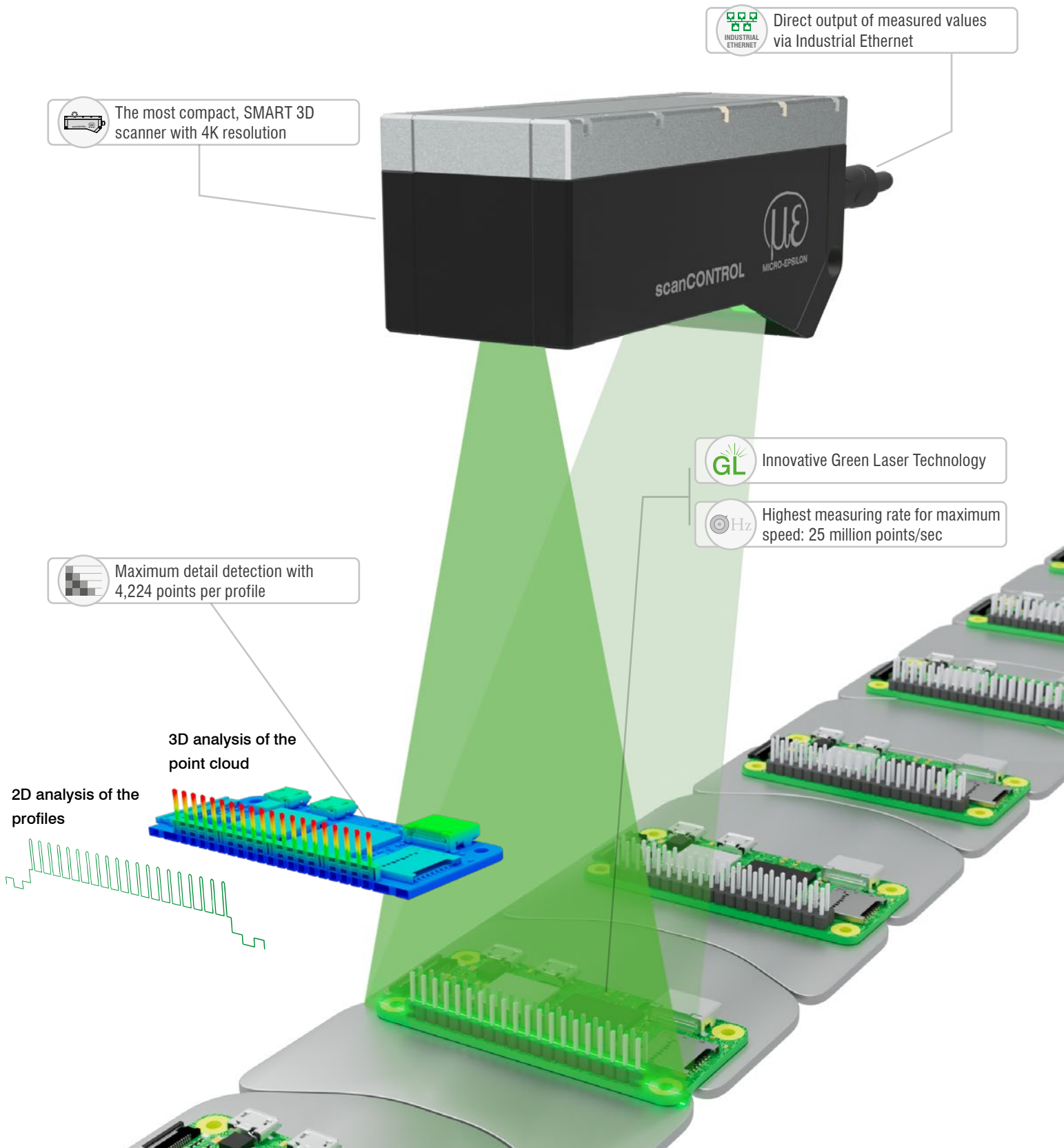


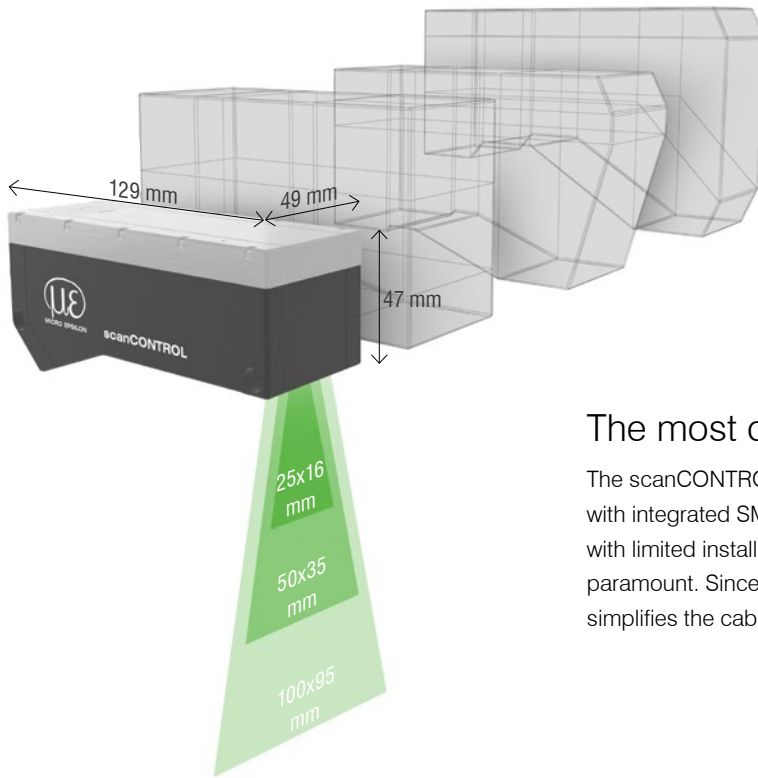
Next generation – high performance laser scanners with 4K resolution

scanCONTROL 8500

The new scanCONTROL 8500 laser scanners set new standards in industrial 3D measurement technology. For the first time, complete 3D data processing is performed directly in the sensor head in addition to 2D evaluation. The calculated measurement values are transmitted directly to a controller via Industrial Ethernet. Alternatively, calibrated 3D point clouds can be exported for further processing.

The series offers 4,224 measurement points per profile and can process up to 25 million points per second - ideal for high measuring rates. With a point cloud resolution of 8,448 x 4,224 pixels, even the smallest details are detected with the highest precision, which significantly improves process stability.





3 measuring ranges – identical sensor design

The most compact scanner in its class.

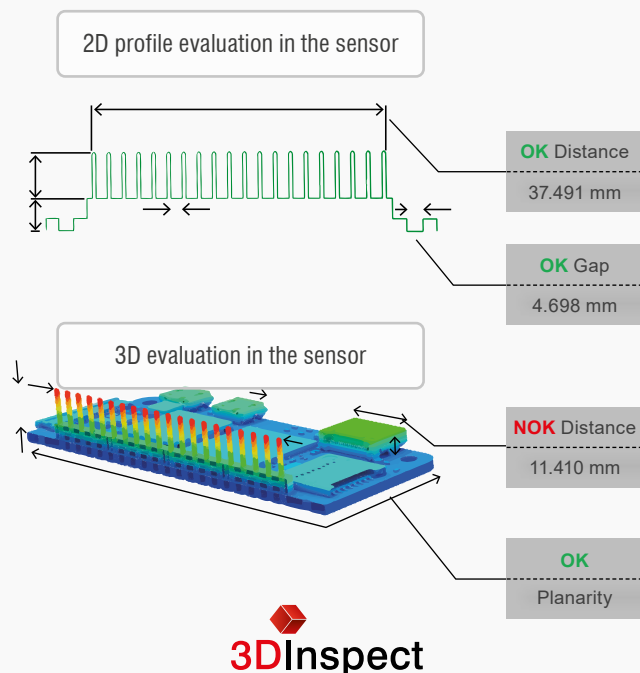
The scanCONTROL 8500 is the most compact 4K laser scanner with integrated SMART 3D evaluation. It is ideal for applications with limited installation space where precision and speed are paramount. Since no external computer unit is required, this simplifies the cabling and mechanical integration.

Measurement results or calibrated point clouds – your decision.

The scanCONTROL 8x00 models are used as standalone SMART 3D scanners or as 3D data sources.

Integrated analysis in the scanner

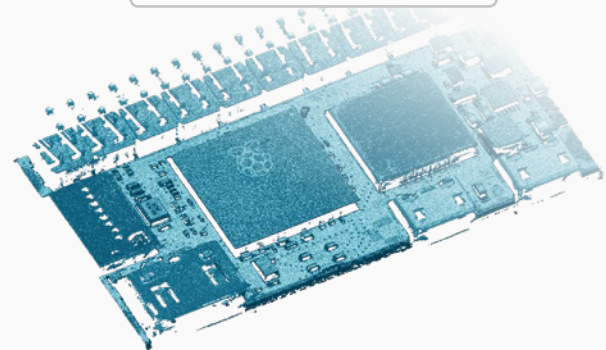
The measuring programs, for example, for gap, angle, or height, are configured using the 3DInspect software and saved directly in the sensor. With the automation interface, the scanners operate independently and can be integrated directly into a control system.



Calibrated point clouds for external analysis

Alternatively, the sensors can output calibrated profile data or point clouds. These are processed further on an external computer using the customer's image processing or analysis software.

External evaluation of the point clouds



COGNEX® VisionPro **HALCON**
a product of MVTec

Linux LabVIEW C/C++ python™

Reliable signal, low noise, maximum precision

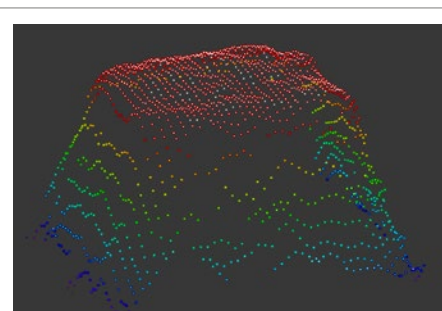
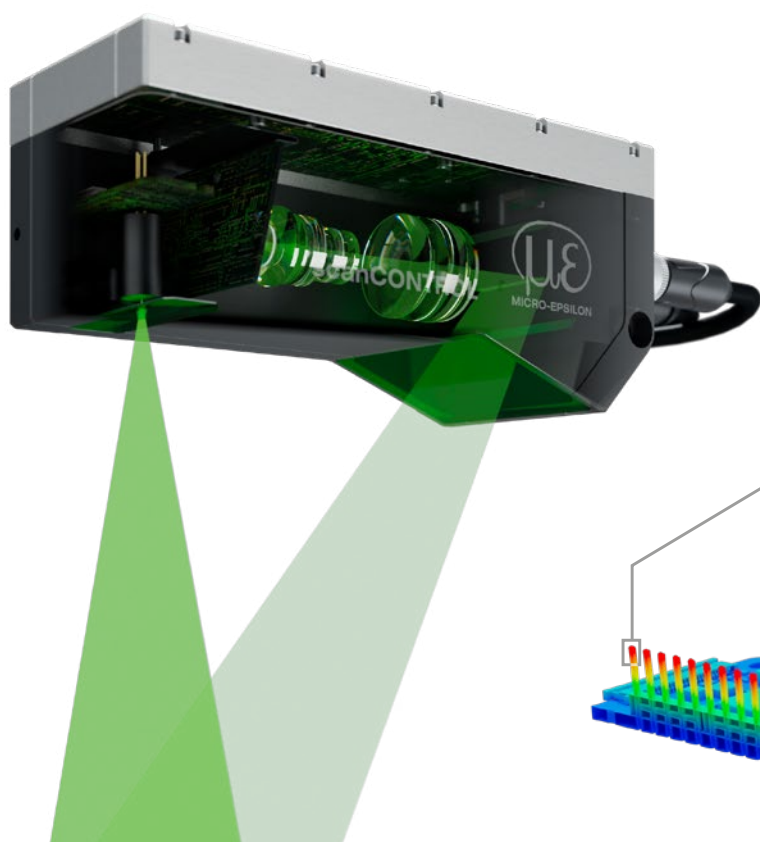
scanCONTROL 8x00

4K sensor matrix for maximum resolution and dynamic range

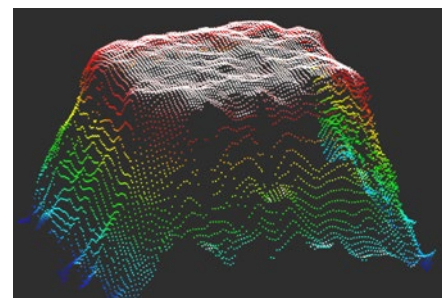
The new high-performance 4K matrix with extended dynamic range redefines precision. It detects even the finest details at the highest resolution while delivering impressive speed, even on strongly varying surfaces or under changing lighting conditions. This sensor matrix enables ultra-fast, high-resolution measurement processes and sets new standards for modern industrial applications.

New lens system for maximum light output

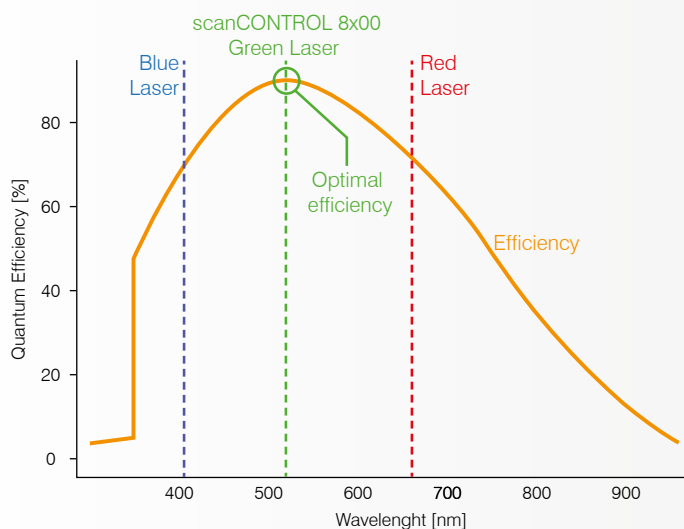
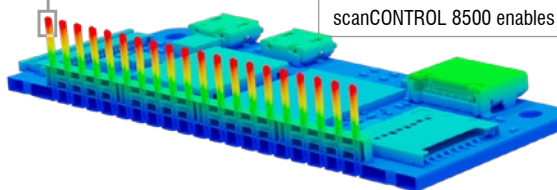
The new high-performance lens system sets new standards in laser scanner technology. Through maximum light output and perfectly matched optical components, the scanners deliver their full potential even on challenging surfaces. The result is consistently reliable measurements and optimal performance in every application.



Conventional scanners



scanCONTROL 8500 enables ultra-sharp scans



The Green Laser Technology

Reliable signal, low noise, maximum precision.

The scanCONTROL 8x00 sensors use innovative Green Laser Technology (520 nm), which operates near the range where the sensor achieves its highest quantum efficiency. This ensures extremely stable measurement signals with minimal noise, even on shiny metals, printed circuit boards, or organic surfaces.

The green laser enables shorter exposure times, greater repeatability, and significantly expands the range of possible applications, which is a key advantage over scanner solutions using red or blue lasers.

3DInspect – the powerful software for scanCONTROL

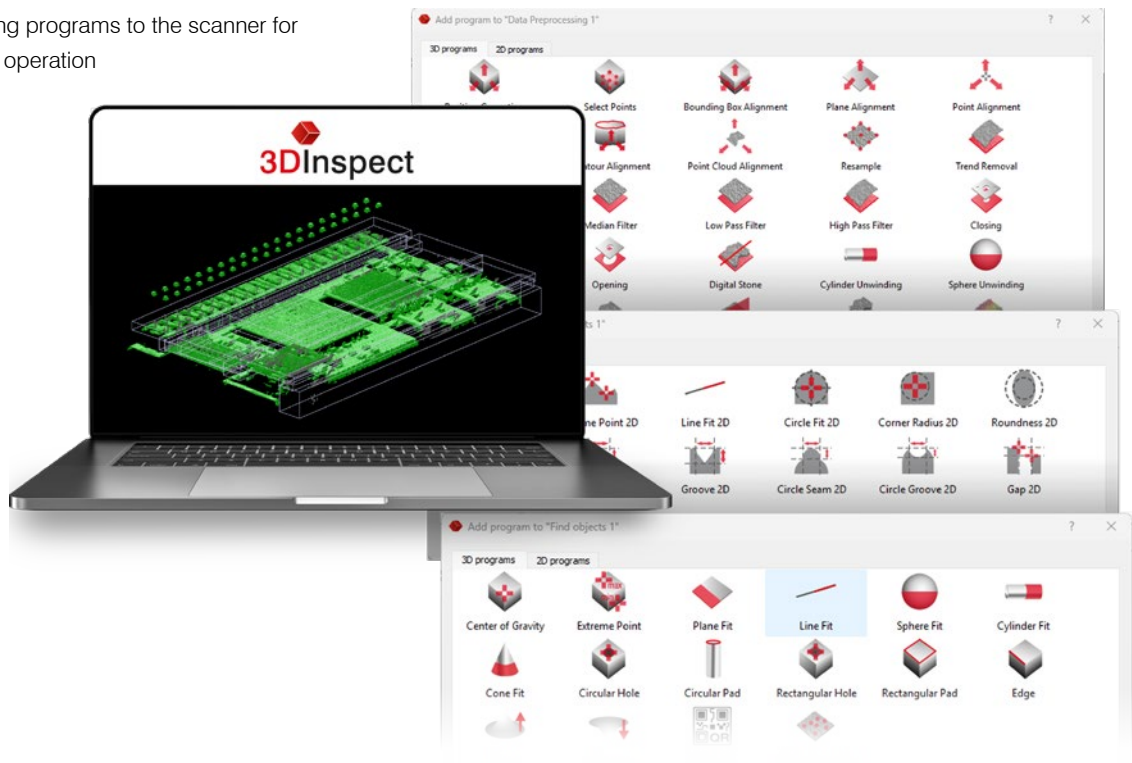


Easy sensor configuration

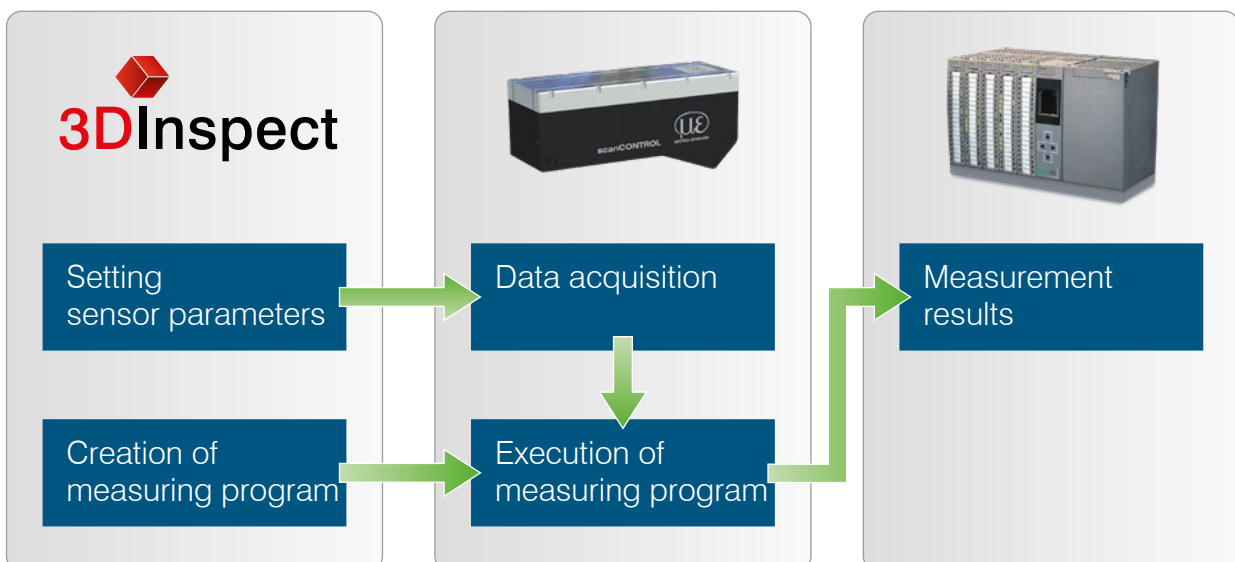
- Alignment and filtering of the point cloud
- Intuitive detection and selection of relevant areas
- Valid3D: real 3D point clouds instead of 2.5D analysis

Powerful software for autonomous SMART operation

- More than 80 measuring programs for calculating the desired measurement values
- Combination of several programs for complex measurement tasks
- Transferring measuring programs to the scanner for autonomous SMART operation

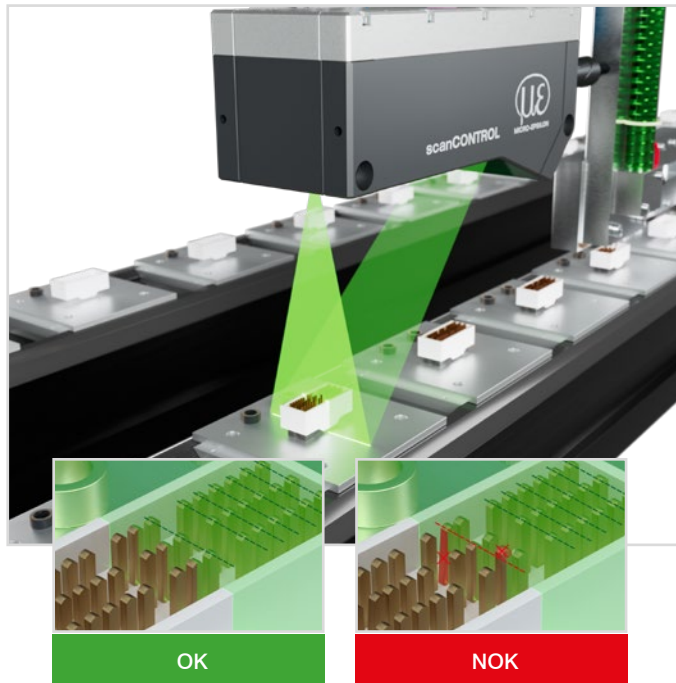


Easy SMART evaluation using 3DInspect



Precise real-time 3D scans for maximum process reliability in numerous industries

3D laser scanners from Micro-Epsilon capture surfaces, geometries, and height differences with extremely high precision, even during rapid movements. As a result, they outperform conventional image processing technologies and ensure maximum process reliability in challenging industrial applications.

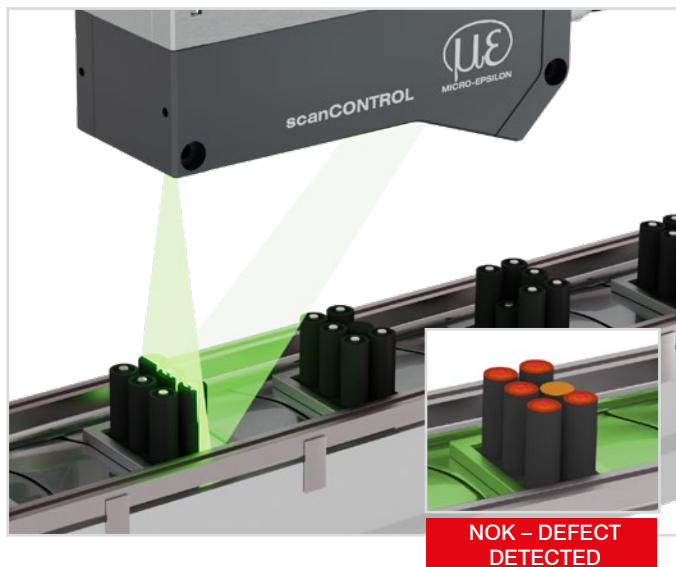
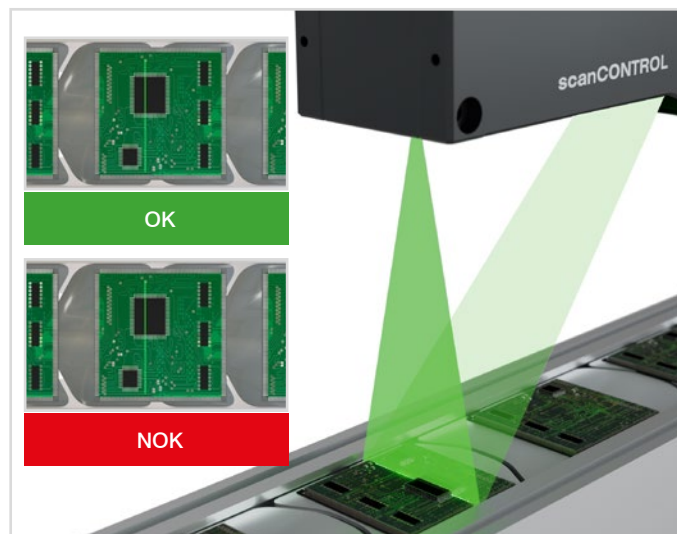


Pin inspection on connectors

In the automated production of cable harnesses and connectors, the precise positioning and completeness of the pins are critical quality factors. Even slightly bent, missing, or misaligned pins can cause contact issues and system failures. The scanCONTROL sensors scan the connector surface and generate a highly accurate height or profile image of the entire pin row. The number, position, and flatness of the pins are reliably checked: quickly, consistently, and with high resolution. The inspection is fully integrated into the production process without interrupting the flow of materials.

Presence detection and flatness inspection on PCBs

To ensure reliable assembly and further processing of printed circuit boards, it is essential to verify the presence and flatness of the components. Minor height deviations can cause soldering defects, contact issues, or mechanical stress. Their exceptionally high z-resolution enables scanCONTROL sensors to detect even the smallest differences in height. This allows for the precise measurement of presence, height profiles, and coplanarity, even in very small structures. The measurement programs are executed on the scanner, and the results are transmitted directly to the PLC.



Precise 3D geometric inspection of cylindrical battery cells

In the production of cylindrical cells, precise positioning and alignment of the individual cells are critical to quality and safety. Cells that are installed at an angle or positioned too low or too high carry the risk of short circuits, poor electrical contact, or mechanical damage during the rest of the manufacturing process. The scanCONTROL 8500 sensors capture the cell geometry in high resolution and verify both the correct alignment and the exact installation height of each individual cell. This ensures that all cell tops fall within the production tolerances.

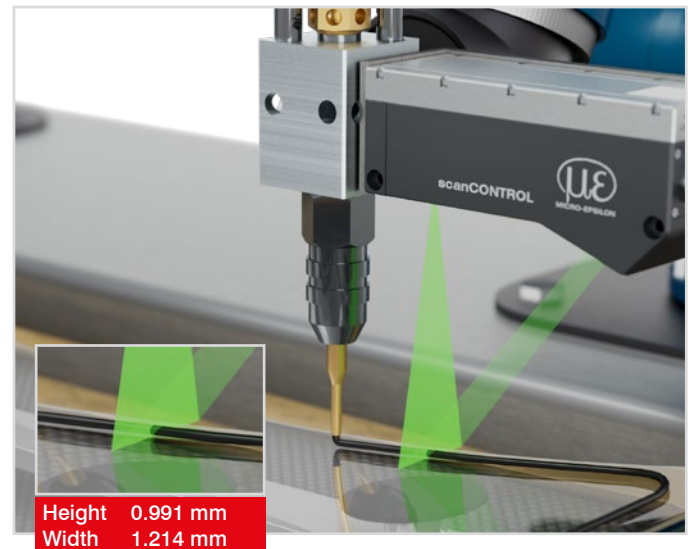


Inspection of the mesh structure of stents

Quality control for stents demands the highest standards of precision and reliability. Even the smallest defects in the mesh can compromise the implant's function and safety. The scanCONTROL 8500 sensors enable high-resolution inline inspection directly within the manufacturing process. They detect the intricate mesh structure, defects, geometric deviations, deformations, and surface irregularities. Defective stents are detected early and removed before they enter downstream processes.

Inline inspection of adhesive beads

In modern manufacturing processes, particularly in the automotive, packaging and electronics industries, the application of adhesives is a critical factor in quality. The scanCONTROL 8500 laser scanners are used for precise monitoring of the adhesive application. The compact scanners are mounted in a fixed position or directly on the robot and measure the height, width, and position of the bead. This allows for immediate quality control and enhances process reliability.



Optimum cooling for high ambient temperatures

All scanCONTROL 8x00 models can be equipped with additional heat sinks. Options include passive heat sinks, active heat sinks with fans, or the connection to the customer's own cooling solutions. This means the sensors can be used reliably even in challenging production environments such as in steel manufacturing or welding applications.



Automatic weld seam inspection

The scanCONTROL scanners are used in the welding process to continuously monitor the weld seam in real time. The sensor detects the seam geometry and generates a height or cross-sectional profile. The results are immediately fed back to the process control system, enabling corrections to be made during the process or defective welds to be detected early on.

Innovative laser scanner with 4K resolution

scanCONTROL 8500

Model		LLT8500-25	LLT8500-50	LLT8500-100
Measuring range (z-axis)	Start of measuring range	74.5 mm	80 mm	110 mm
	Mid of measuring range	82.5 mm	97 mm	157 mm
	End of measuring range	90.5 mm	115 mm	205 mm
	Height of measuring range	16 mm	35 mm	95 mm
Linearity (z-axis) ^[1] ^[2]		0.005 %	0.005%	0.005%
Measuring range (x-axis)	Start of measuring range	24.2 mm	46.2 mm	84 mm
	Mid of measuring range	25 mm	50 mm	100 mm
	End of measuring range	25.8 mm	53 mm	115 mm
Resolution (x-axis)		6 μ m	12 μ m	24 μ m
Profile frequency		4,224 points/profile		
Interfaces	Ethernet GigE Vision	Output of measurement values Sensor control		
	Digital inputs	Trigger Encoder Mode switching		
	Differential inputs/outputs (I/O; Sync)	Trigger Encoder Switch output Synchronization		
Output of measurement values		Ethernet (UDP / Modbus TCP); PROFINET; EtherCAT; EtherNet/IP; switch signal		
Control and indicator elements		3x color LEDs for laser, data and error, 2x fieldbus		
Light source	Green laser	≤ 20 mW	≤ 20 mW	≤ 20 mW
		Standard: Laser class 2M, semiconductor laser 520 nm		
Laser switch-off		via software and hardware switch-off		
Aperture angle of laser line		24 °	29 °	42°
Protection class (DIN EN 60529)		IP67 ^[3]		
Vibration (DIN EN 60068-2-6)		2g / 20 ... 500 Hz		
Shock (DIN EN 60068-2-27)		15g / 6 ms		
Temperature range	Storage	-20 ... +70 °C		
	Operation	0 ... +45 °C ^[4]		
Weight		approx. 560 g / 720 g (with passive cooling unit)		
Supply voltage		11 ... 30 VDC, nominal value 24 V, 15 W Power over Ethernet (PoE) available		

The technical specifications provided are preliminary (subject to change).

^[1] Based on the measuring range; measuring object: Micro-Epsilon standard object

^[2] According to a one-time averaging across the measuring field (4,224 points)

^[3] When an optional active cooling unit is installed, the IP rating is reduced to IP40.

^[4] Applies when using a passive cooling solution. Without a cooling unit and thermal connection, the operating temperature is reduced to 0 ... +35 °C

Innovative laser scanner

scanCONTROL 8200

Model		LLT8200-25	LLT8200-50	LLT8200-100
Measuring range (z-axis)	Start of measuring range	74.5 mm	80 mm	110 mm
	Mid of measuring range	82.5 mm	97 mm	157 mm
	End of measuring range	90.5 mm	115 mm	205 mm
	Height of measuring range	16 mm	35 mm	95 mm
Linearity (z-axis) ^[1] ^[2]		0.005%	0.005%	0.005%
Measuring range (x-axis)	Start of measuring range	24.2 mm	46.2 mm	84 mm
	Mid of measuring range	25 mm	50 mm	100 mm
	End of measuring range	25.8 mm	53 mm	115 mm
Resolution (x-axis)		12 μ m	24 μ m	48 μ m
Profile frequency		2,112 points/profile		
Interfaces	Ethernet GigE Vision	Output of measurement values Sensor control		
	Digital inputs	Trigger Encoder Mode switching		
	Differential inputs/outputs (I/O; Sync)	Trigger Encoder Switch output Synchronization		
Output of measurement values		Ethernet (UDP / Modbus TCP); switch signal; PROFINET; EtherCAT; EtherNet/IP		
Control and indicator elements		3x color LEDs for laser, data and error		
Light source	Green laser	≤ 20 mW	≤ 20 mW	≤ 20 mW
		Standard: Laser class 2M, semiconductor laser 520 nm		
		Option: Laser class 3R, semiconductor laser 520 nm		
Laser switch-off		via software and hardware switch-off		
Aperture angle of laser line		24 °	29 °	42°
Protection class (DIN EN 60529)		IP67 ^[3]		
Vibration (DIN EN 60068-2-6)		2g / 20 ... 500 Hz		
Shock (DIN EN 60068-2-27)		15g / 6 ms		
Temperature range	Storage	-20 ... +70 °C		
	Operation	0 ... +45 °C ^[4]		
Weight		approx. 560 g / 720 g (with passive cooling unit)		
Supply voltage		11 ... 30 VDC, nominal value 24 V, 15 W Power over Ethernet (PoE) available		

The technical specifications provided are preliminary (subject to change).

^[1] Based on the measuring range; measuring object: Micro-Epsilon standard object

^[2] According to a one-time averaging across the measuring field (2,112 points)

^[3] When an optional active cooling unit is installed, the IP rating is reduced to IP40.

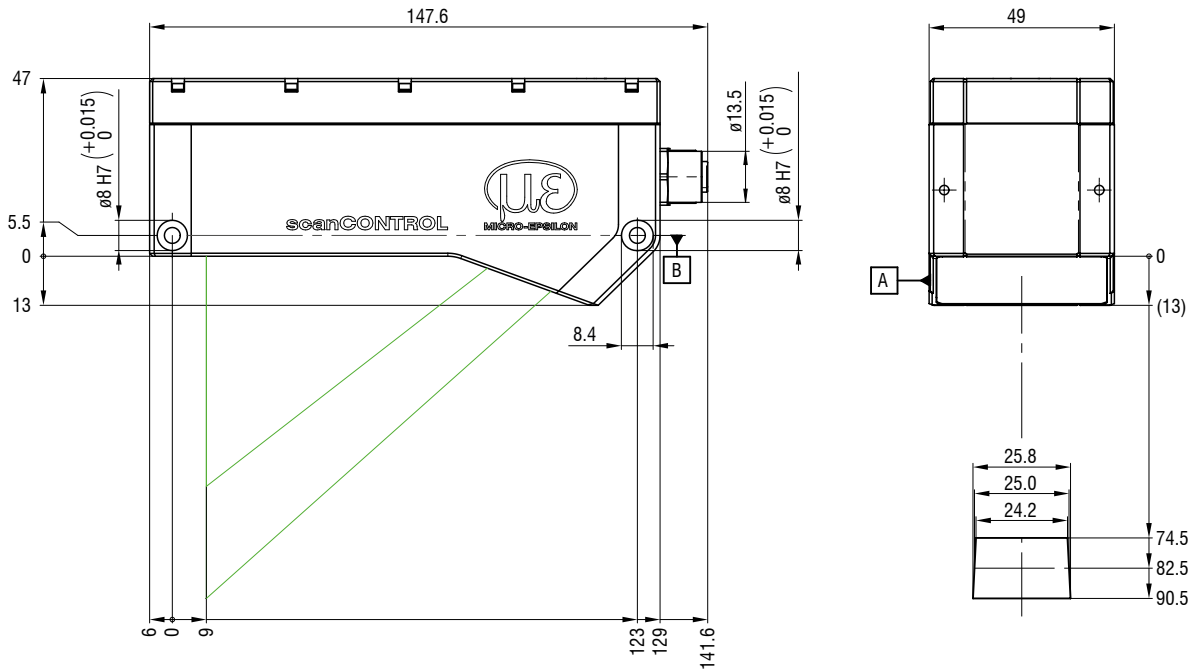
^[4] Applies when using a passive cooling solution. Without a cooling unit and thermal connection, the operating temperature is reduced to 0 ... +35 °C

Dimensions and measuring ranges

scanCONTROL 8x00

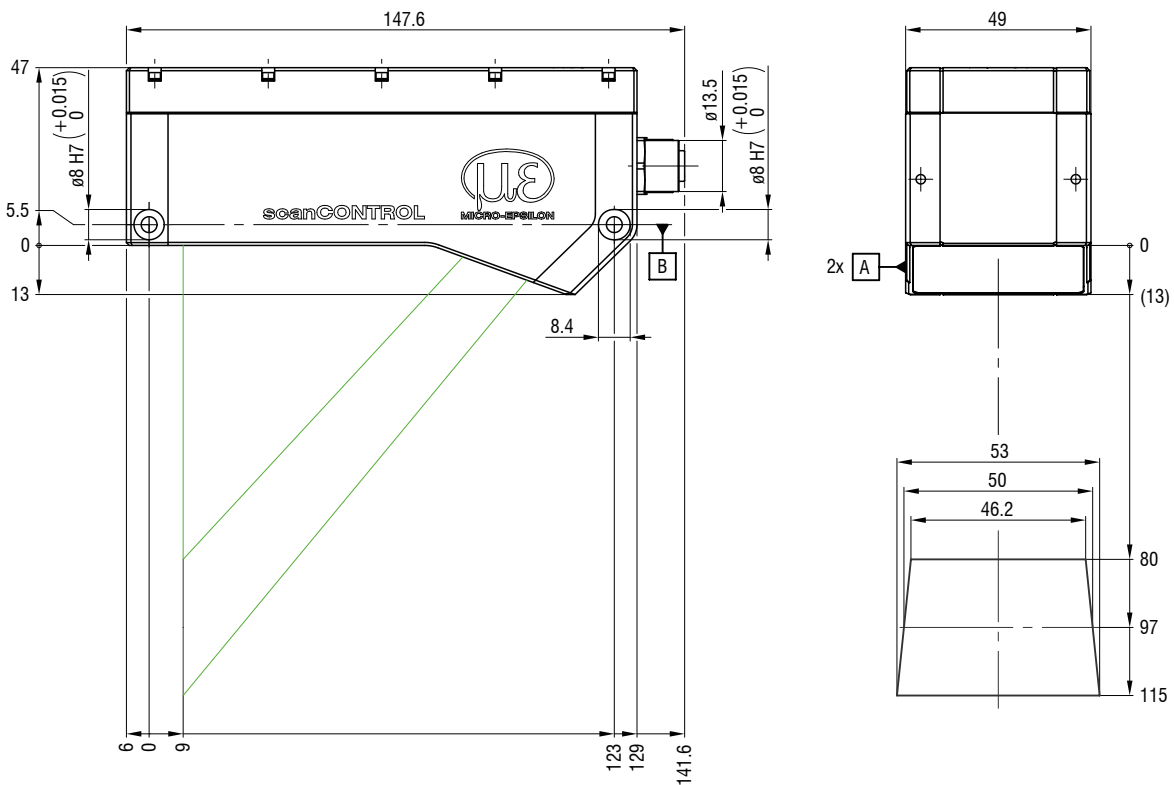
LLT 8200/8500-25

Green laser



LLT 8200/8500-50

Green laser



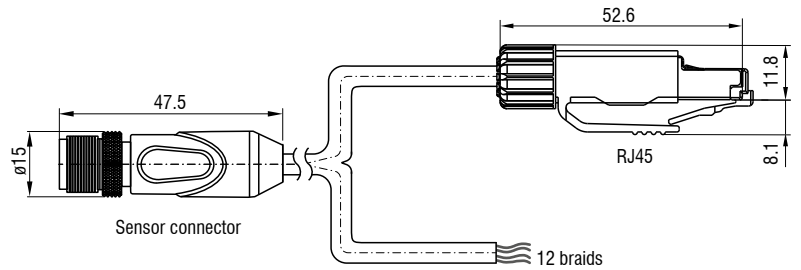
Accessories

Connection cables for LLT8200 / LLT8500

Multifunction cable PCR8500-x/OE-RJ45

Power supply cable suitable for drag chains and robots, digital I/Os, sync, and Industrial Ethernet

Cable length in meters: 2 / 5 / 10 / 15 / 25 / 35



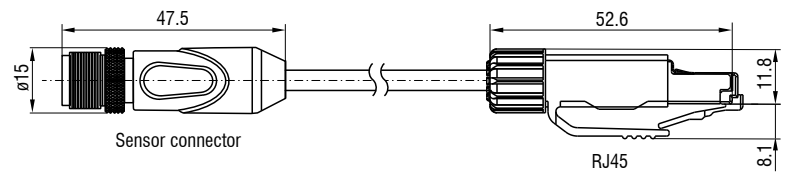
Art. no.	Model
29011601	PCR8500-2/OE-RJ45
29011602	PCR8500-5/OE-RJ45
29011603	PCR8500-10/OE-RJ45

Art. no.	Model
29011604	PCR8500-15/OE-RJ45
29011606	PCR8500-25/OE-RJ45
29011607	PCR8500-35/OE-RJ45

Ethernet connection cable SCR8500X-x

Cable for parameter setting, value and profile transmission; suitable for drag chains and robots

Cable length in meters: 2 / 5 / 10 / 15 / 25 / 35

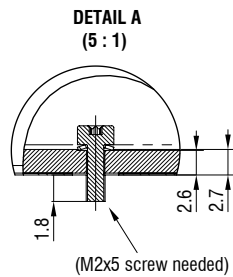


Art. no.	Model
29011647	SCR8500X-2
29011648	SCR8500X-5
29011649	SCR8500X-10

Art. no.	Model
29011650	SCR8500X-15
29011652	SCR8500X-25
29011653	SCR8500X-35

Passive cooling unit

for LLT8x00



(Take into account the additional height caused by the thermal pad.)

