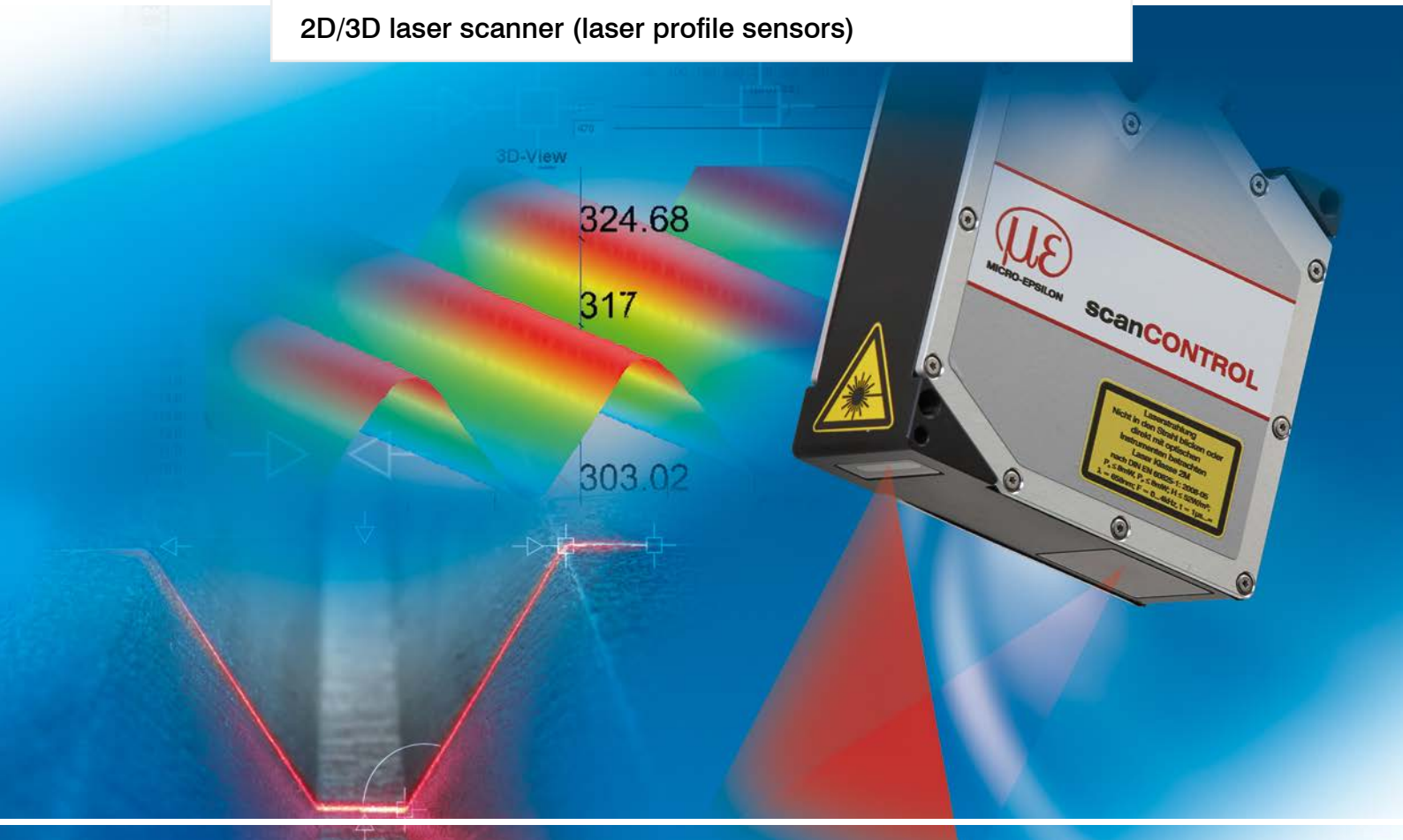




# More Precision.

## **scanCONTROL**

2D/3D laser scanner (laser profile sensors)





### Compact design with integrated controller

scanCONTROL 2700/2710 combines technology and performance in a single device, providing the dual benefits of an integrated controller and compact dimensions.

### Extended measuring ranges for large targets

Extended measuring ranges are available for larger objects. Using software, the user can switch over from the standard range to the extended range. To document the measuring ranges, each sensor is equipped with a traceable calibration certificate.

### Protective cover plate for harsh environments

A protective cover plate is available for harsh industrial environments. This plate can be equipped with an air purge. The cover plate is attached to the base of the sensor and has a protective window, through which the laser beam passes through.

- z-axis measuring range up to 300mm
- x-axis measuring range up to 148mm
- Profile frequency up to 2,000Hz
- Measuring rate up to 1,280,000 points per second
- z-axis reference resolution <math><4\mu\text{m}</math>
- Resolution x-axis up to 640 points

### scanCONTROL 2700

The scanCONTROL 2700 sensors are the most economic sensors for static and dynamic applications. The sensor provides a profile frequency of 100Hz and up to 64,000 measuring points per second.

### scanCONTROL 2750

The scanCONTROL 2750 sensors offer everything you need for advanced high speed 3D applications. Up to 1,280,000 points per second with a profile frequency of up to 2,000Hz are possible using these sensors.

### scanCONTROL 2710

The SMART series scanCONTROL 2710 offers a Plug & Play solution with integrated controller for simple measurement tasks. The sensor design is identical to the 2700 and 2750 series.

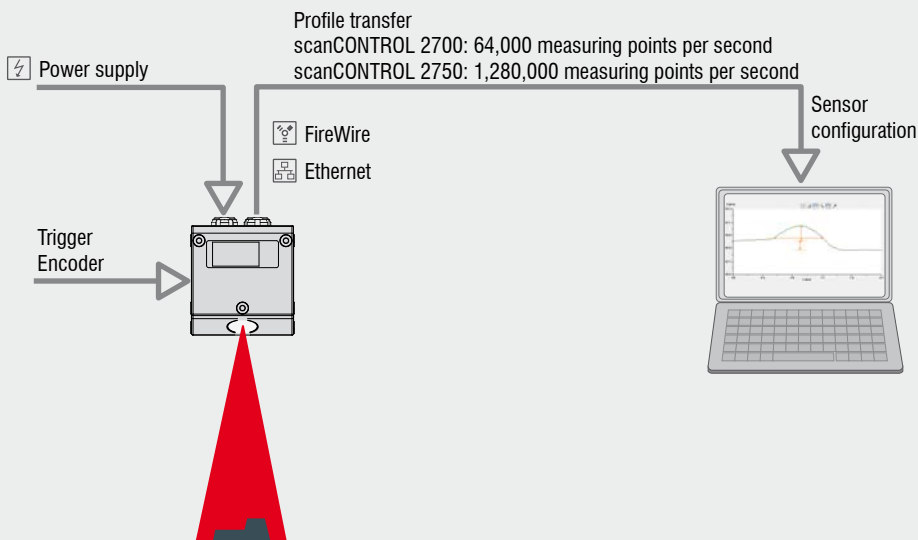
### COMPACT and HIGHSPEED: Calibrated profile data

The scanCONTROL 2700 and 2750 models are used for the transfer of calibrated profile data for external profile analysis, for example in a PC. The sensor can be configured via a FireWire or Ethernet interface. The profile information is also transferred via this same interface. Details of the software interface can be found in the „Integrating scanCONTROL in application software“ chapter.

The programmable RS422 port can be used as a trigger or encoder input.

COMPACT	HIGHSPEED
scanCONTROL 2700-25	scanCONTROL 2750-25
scanCONTROL 2700-50	scanCONTROL 2750-50
scanCONTROL 2700-100	scanCONTROL 2750-100

Scope of delivery:  
 Sensor, power supply cable 4.5m, RS422 connector, Demo-CD, SDK, sensor protocol, assembly instruction



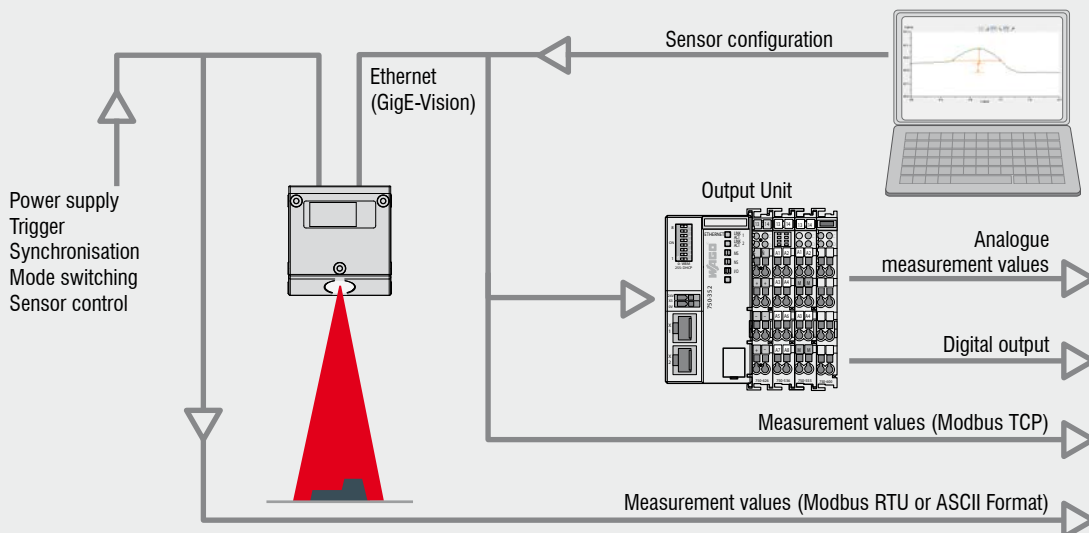
### SMART: Profile analysis

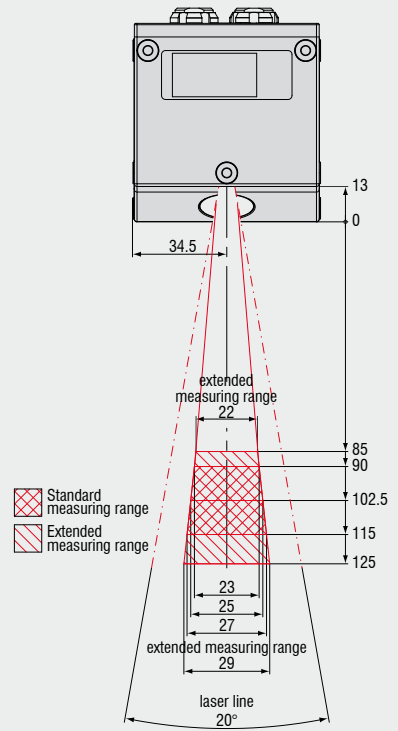
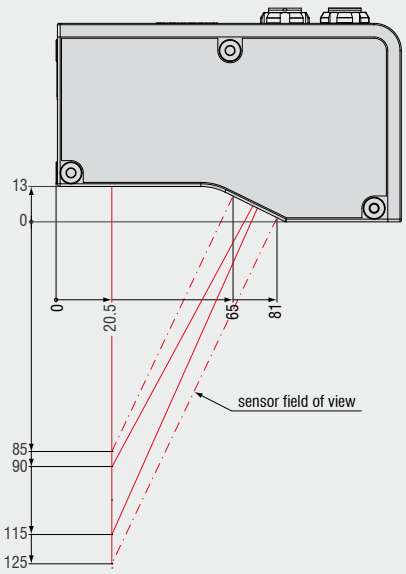
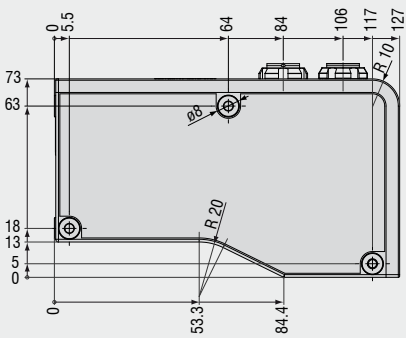
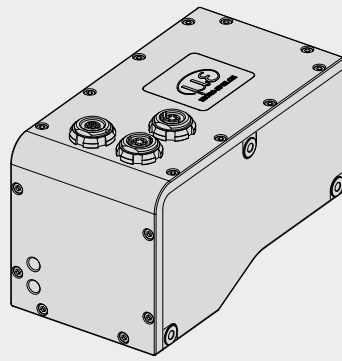
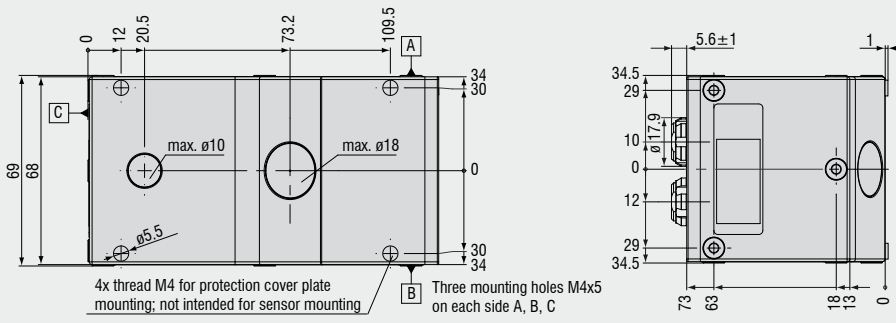
The SMART series scanCONTROL 2710 offers a Plug & Play solution within the integrated controller for simple measurement tasks such as step, angle, seam and groove inspection.

The sensor is programmed via a PC using the scanCONTROL Configuration Tools. This setup is stored inside the integrated controller. The sensor can run in the standalone mode without a PC. In addition to the measurement output via RS422, switch outputs and analogue measuring values are available via the external output unit. The RS422 can be programmed as a serial interface (measurement value output) or as a trigger input.

SMART
scanCONTROL 2710-25
scanCONTROL 2710-50
scanCONTROL 2710-100

Scope of delivery:  
 Sensor, power supply cable 4.5m, RS422 connector, sensor protocol, CD Configuration Tools, assembly instruction





Model		scanCONTROL	COMPACT 2700-25	HIGHSPEED 2750-25	SMART 2710-25
z-axis (height)	Standard measuring range 25mm	Start of measuring range		90mm	
		Midrange		102.5mm	
		End of measuring range		115mm	
	Extended measuring range 40mm	Start of measuring range		85mm	
		End of measuring range		125mm	
	Linearity <sup>1)</sup>	±0.2% FSO (3sigma)		±50µm	
	Resolution	0.04% FSO		10µm	
Reference resolution <sup>2)3)</sup>			4µm		
x-axis (width)	Standard measuring range	Start of measuring range		23mm	
		Midrange		25mm	
		End of measuring range		27mm	
	Extended measuring range	Start of measuring range		22mm	
		End of measuring range		29mm	
Resolution x-axis			640 points/profile		
Profile frequency		100Hz	2,000Hz	100Hz	
Measurement rate		64,000 points/sec	1,28 mio points/sec	-	
<b>Interfaces profile data</b>	FireWire	■	■	■	
	Ethernet	■	■	■	
	RS422 <sup>4)</sup>	■	■	■	
	Trigger <sup>4)</sup>	■	■	■	
	Counter (encoder) <sup>4)</sup>	■	■		
<b>Signal output SMART</b>	RS422 (Modbus, ASCII) <sup>4)</sup>			■	
	Ethernet (Modbus)			■	
	Analogue <sup>5)</sup>			■	
	Switching signal <sup>5)</sup>			■	
Display (LED)		1x laser, 1x power/error/status			
Protection class		IP 64			
Operating temperature		0°C up to 50°C			
Storage temperature		-20°C up to 70°C			
Cable length		up to 20m			
	Ethernet with Switch FireWire with HUB	up to 50m			
Weight		appr. 700g			
Galvanic isolation		Only at RS422, no isolation of 24V-supply, internal circuit and FireWire bus. If isolation necessary, external 24V-DC-DC-converter required			
Vibration		2g / 20 ... 500Hz			
Shock		15g / 6ms			
Supply		8-30 VDC, 500mA			
Light source		Semiconductor laser 658nm			
Aperture angle laser line		20°			
Laser power	standard	10mW (class 2M)			
	optional	20mW (class 3B)			
Laser off		via software (standard) / via external contact (optional)			
Permissible ambient light (fluorescent light) <sup>2)</sup>		10,000lx			

<sup>1)</sup> Standard measuring range

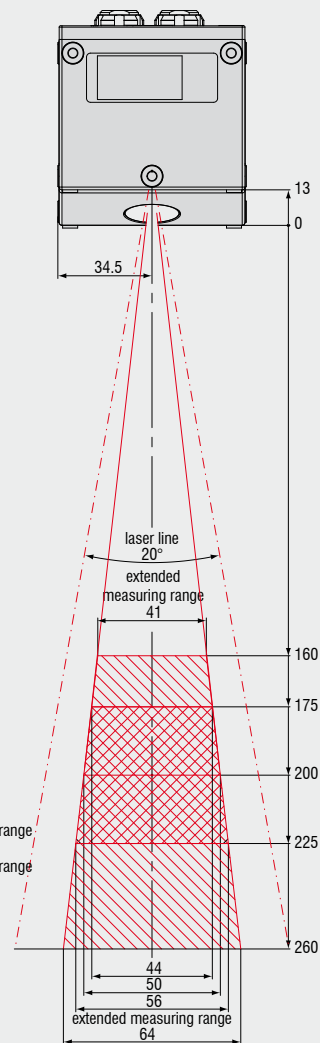
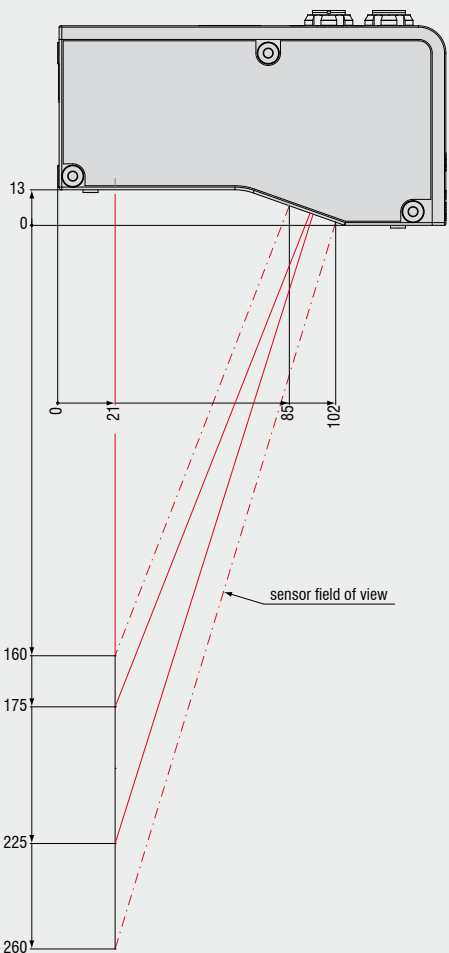
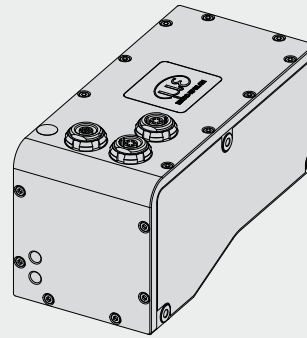
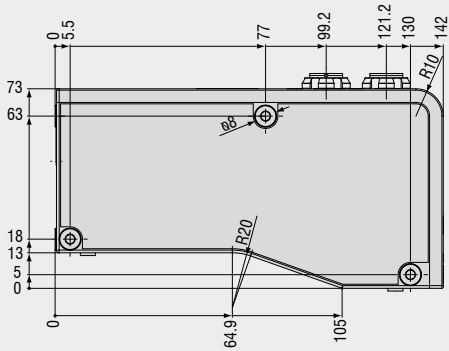
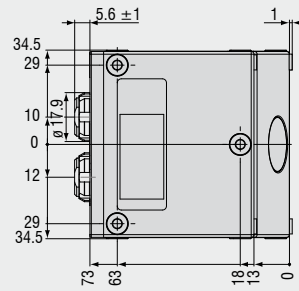
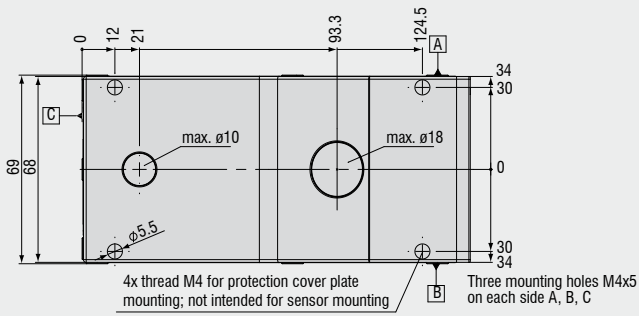
<sup>2)</sup> Measuring object: Micro-Epsilon standard object (metallic, diffusely reflecting material)

<sup>3)</sup> According to a one-time averaging across the measuring field (640 points)

<sup>4)</sup> Programmable as serial interface or synchronisation input or encoder input

<sup>5)</sup> Only with Output Unit

FSO = Full scale output



Model		scanCONTROL	COMPACT 2700-50	HIGHSPEED 2750-50	SMART 2710-50
z-axis (height)	Standard measuring range 50mm	Start of measuring range		175mm	
		Midrange		200mm	
		End of measuring range		225mm	
	Extended measuring range 100mm	Start of measuring range		160mm	
		End of measuring range		260mm	
	Linearity <sup>1)</sup>	±0.2% FSO (3sigma)		±100µm	
	Resolution	0.04% FSO		20µm	
Reference resolution <sup>2)3)</sup>			10µm		
x-axis (width)	Standard measuring range	Start of measuring range		44mm	
		Midrange		50mm	
		End of measuring range		56mm	
	Extended measuring range	Start of measuring range		41mm	
		End of measuring range		64mm	
Resolution x-axis			640 points/profile		
Profile frequency		100Hz	2,000Hz	100Hz	
Measurement rate		64,000 points/sec	1,28 mio points/sec	-	
<b>Interfaces profile data</b>	FireWire	■	■	■	
	Ethernet	■	■	■	
	RS422 <sup>4)</sup>	■	■	■	
	Trigger <sup>4)</sup>	■	■	■	
	Counter (encoder) <sup>4)</sup>	■	■		
<b>Signal output SMART</b>	RS422 (Modbus, ASCII) <sup>4)</sup>			■	
	Ethernet (Modbus)			■	
	Analogue <sup>5)</sup>			■	
	Switching signal <sup>5)</sup>			■	
Display (LED)		1x laser, 1x power/error/status			
Protection class		IP 64			
Operating temperature		0°C up to 50°C			
Storage temperature		-20°C up to 70°C			
Cable length		up to 20m			
	Ethernet with Switch FireWire with HUB	up to 50m			
Weight		appr. 800g			
Galvanic isolation		Only at RS422, no isolation of 24V-supply, internal circuit and FireWire bus. If isolation necessary, external 24V-DC-DC-converter required			
Vibration		2g / 20 ... 500Hz			
Shock		15g / 6ms			
Supply		8-30 VDC, 500mA			
Light source		Semiconductor laser 658nm			
Aperture angle laser line		20°			
Laser power	standard	10mW (class 2M)			
	optional	20mW (class 3B)			
Laser off		via software (standard) / via external contact (optional)			
Permissible ambient light (fluorescent light) <sup>2)</sup>		10,000lx			

<sup>1)</sup> Standard measuring range

<sup>2)</sup> Measuring object: Micro-Epsilon standard object (metallic, diffusely reflecting material)

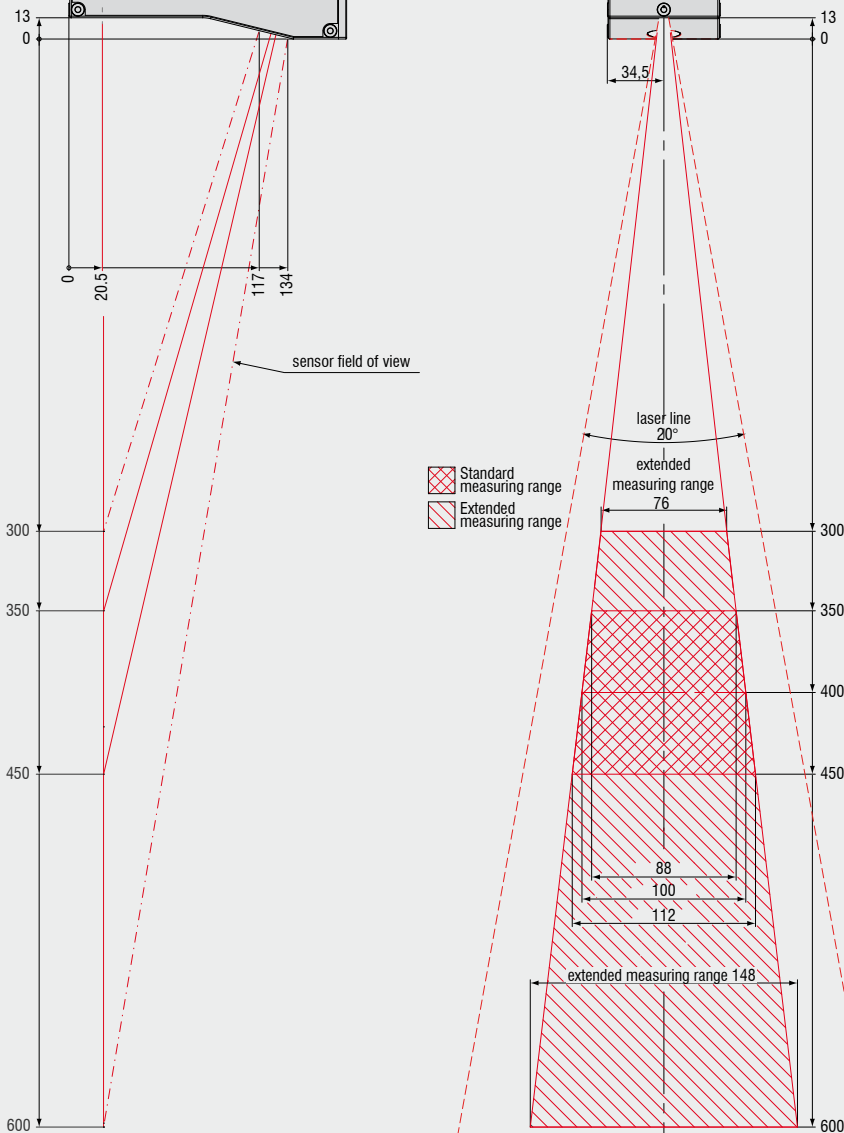
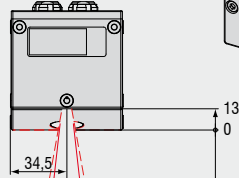
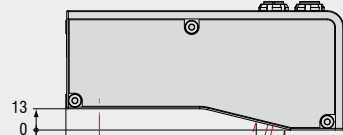
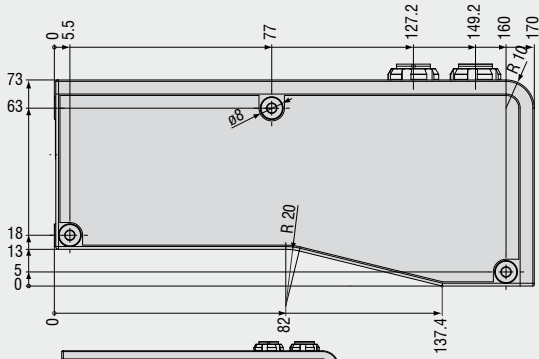
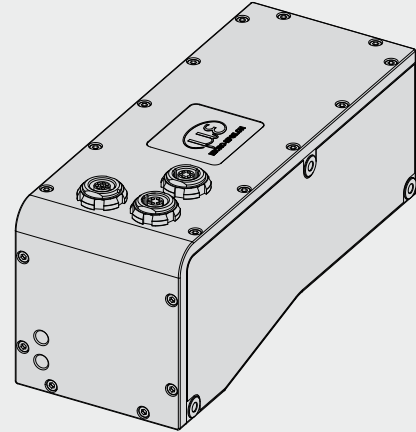
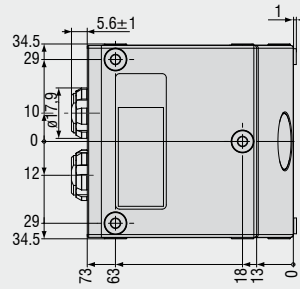
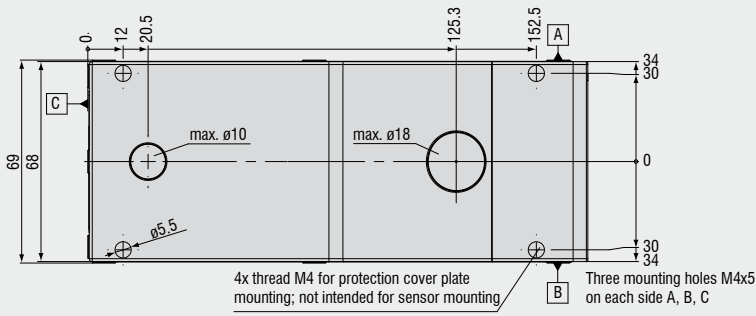
<sup>3)</sup> According to a one-time averaging across the measuring field (640 points)

<sup>4)</sup> Programmable as serial interface or synchronisation input or encoder input

<sup>5)</sup> Only with Output Unit

FSO = Full scale output

scanCONTROL 2700-100 / 2750-100 / 2710-100





Model		scanCONTROL	COMPACT 2700-100	HIGHSPEED 2750-100	SMART 2710-100
z-axis (height)	Standard measuring range 100mm	Start of measuring range		350mm	
		Midrange		400mm	
		End of measuring range		450mm	
	Extended measuring range 300mm	Start of measuring range		300mm	
		End of measuring range		600mm	
	Linearity <sup>1)</sup>	±0.2% FSO (3sigma)		±200µm	
	Resolution	0.04% FSO		40µm	
Reference resolution <sup>2)3)</sup>			15µm		
x-axis (width)	Standard measuring range	Start of measuring range		88mm	
		Midrange		100mm	
		End of measuring range		112mm	
	Extended measuring range	Start of measuring range		76mm	
		End of measuring range		148mm	
Resolution x-axis			640 points/profile		
Profile frequency		100Hz	2,000Hz	100Hz	
Measurement rate		64,000 points/sec	1,28 mio points/sec	-	
<b>Interfaces profile data</b>	FireWire	■	■	■	
	Ethernet	■	■	■	
	RS422 <sup>4)</sup>	■	■	■	
	Trigger <sup>4)</sup>	■	■	■	
	Counter (encoder) <sup>4)</sup>	■	■		
<b>Signal output SMART</b>	RS422 (Modbus, ASCII) <sup>4)</sup>			■	
	Ethernet (Modbus)			■	
	Analogue <sup>5)</sup>			■	
	Switching signal <sup>5)</sup>			■	
Display (LED)		1x laser, 1x power/error/status			
Protection class		IP 64			
Operating temperature		0°C up to 50°C			
Storage temperature		-20°C up to 70°C			
Cable length		up to 20m			
	Ethernet with Switch FireWire with HUB	up to 50m			
Weight		appr. 850g			
Galvanic isolation		Only at RS422, no isolation of 24V-supply, internal circuit and FireWire bus. If isolation necessary, external 24V-DC-DC-converter required			
Vibration		2g / 20 ... 500Hz			
Shock		15g / 6ms			
Supply		8-30 VDC, 500mA			
Light source		Semiconductor laser 658nm			
Aperture angle laser line		20°			
Laser power	standard	10mW (class 2M)			
	optional	20mW (class 3B)			
Laser off		via software (standard) / via external contact (optional)			
Permissible ambient light (fluorescent light) <sup>2)</sup>		10,000lx			

<sup>1)</sup> Standard measuring range

<sup>2)</sup> Measuring object: Micro-Epsilon standard object (metallic, diffusely reflecting material)

<sup>3)</sup> According to a one-time averaging across the measuring field (640 points)

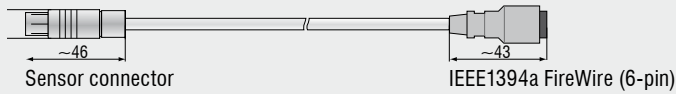
<sup>4)</sup> Programmable as serial interface or synchronisation input or encoder input

<sup>5)</sup> Only with Output Unit

FSO = Full scale output

## Connecting cables for power supply and interfaces

### FireWire connecting cable



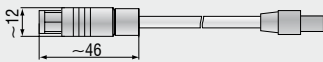
### FireWire connecting cables

Part. No.	Model	Description
2901391	SC2700-1,8	FireWire connecting cable 1.8m
2901392	SC2700-4,5	FireWire connecting cable 4.5m
2901393	SC2700-10	FireWire connecting cable 10m
2901394	SC2700-15	FireWire connecting cable 15m
2901395	SC2700-20	FireWire connecting cable 20m

### FireWire connecting cables, permanent flex

Part. No.	Model	Description
2901400	SCR2700-4,5	FireWire connecting cable 4.5m
2901401	SCR2700-10	FireWire connecting cable 10m
2901402	SCR2700-15	FireWire connecting cable 15m
2901434	SCR2700-20	FireWire connecting cable 20m

### Ethernet connecting cable RJ45



Sensor connector

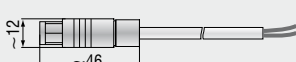
### Ethernet connecting cables, qualified for drag chain use

Part. No.	Model	Description
2901512	SC2700-2/ET	Ethernet connecting cable 2m
2901513	SC2700-5/ET	Ethernet connecting cable 5m
2901514	SC2700-10/ET	Ethernet connecting cable 10m
2901515	SC2700-15/ET	Ethernet connecting cable 15m
2901516	SC2700-20/ET	Ethernet connecting cable 20m
2901640	SC2700-35/ET	Ethernet connecting cable 35m

### Ethernet connecting cables, qualified for robotic use

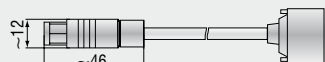
Part. No.	Model	Description
2901542	SCR2700-2/ET	Ethernet connecting cable 2m
2901543	SCR2700-5/ET	Ethernet connecting cable 5m
2901544	SCR2700-10/ET	Ethernet connecting cable 10m
2901545	SCR2700-15/ET	Ethernet connecting cable 15m
2901546	SCR2700-20/ET	Ethernet connecting cable 20m
2901702	SCR2700-35/ET	Ethernet connecting cable 35m

### External power supply cable



Sensor connector

### RS422 interface cable



Sensor connector

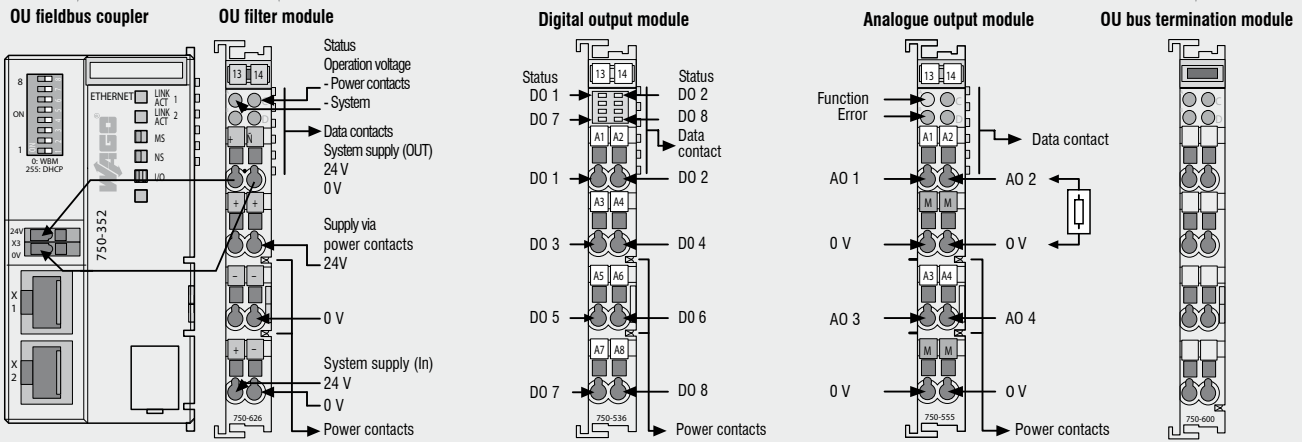
### Other cables

Part. No.	Model	Description
2901407	PC2700-4,5	Power supply cable, 4.5m
2901406	SC2700-4,5/RS422	RS422 interface cable 4.5m
2901581	SC2700-0,5/SYNC	Synchronisation cable for two scanCONTROL 2700 sensors

### Accessories

Part. No.	Model	Description
0254026	Suitcase	Transport suitcase for scanCONTROL 2700 series
2420062	PS2020	Power supply, 24V/2.5A

Output Unit



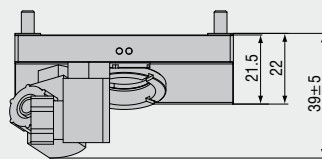
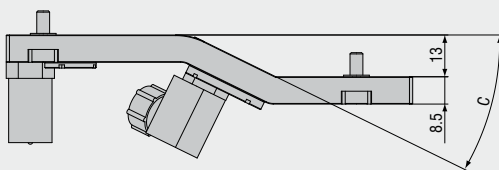
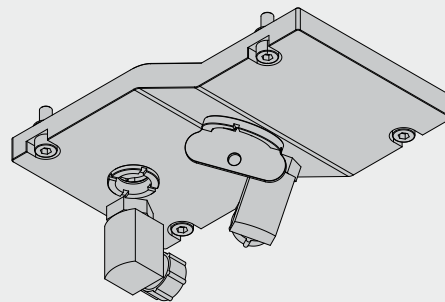
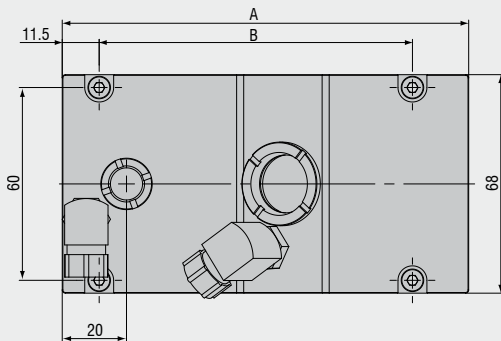
Part. No. Model

- 6414073 Output Unit Basic/ET: Fieldbus coupler with filter module and bus termination
- 0325126 OU-AnalogueOut 2-Channel/0-10V
- 0325127 OU-AnalogueOut 2-Channel/0-20mA
- 0325128 OU-AnalogueOut 2-Channel/4-20mA
- 0325129 OU-AnalogueOut 2-Channel/±10V
- 0325132 OU-AnalogueOut 4-Channel/0-20mA
- 0325133 OU-AnalogueOut 4-Channel/4-20mA
- 0325135 OU-AnalogueOut 4-Channel/0-10V
- 0325116 OU-AnalogueOut 4-Channel/±10V
- 0325122 OU-DigitalOut 4-Channel/DC24V/0.5A/positive switching
- 0325123 OU-DigitalOut 4-Channel/DC24V/0.5A/negative switching
- 0325124 OU-DigitalOut 4-Channel/DC5V/20mA/positive switching
- 0325125 OU-DigitalOut 4-Channel/DC24V/0.5A/positive switching
- 0325115 OU-DigitalOut 8-Channel/DC24V/0.5A/negative switching
- 0325131 OU-DigitalOut 8-Channel/DC24V/0.5A/positive switching

**Digital output modules:**  
 24V positive switching  
 24V negative switching  
 5V positive switching

**Analogue output modules:**  
 ±10V  
 0-10V  
 0-20mA  
 4-20mA

Protective shield, fixed on the sensor (with or without air supply)



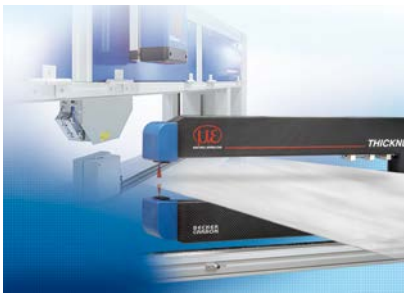
	A	B	C
PS-LLT2700-25	126.5	97.5	26.14°
PS-LLT2700-50	141.5	112.5	19.5°
PS-LLT2700-100	169.5	140.5	13.78°

- | Part. No. | Model              | Description                                |
|-----------|--------------------|--|
| 2105029   | PS-LLT2700-25      | protective shield, mounted                 |
| 2105028   | PS-LLT2700-25/AIR  | protective shield with air supply, mounted |
| 2105027   | PS-LLT2700-50      | protective shield, mounted                 |
| 2105026   | PS-LLT2700-50/AIR  | protective shield with air supply, mounted |
| 2105025   | PS-LLT2700-100     | protective shield, mounted                 |
| 2105024   | PS-LLT2700-100/AIR | protective shield with air supply, mounted |

## High performance sensors made by Micro-Epsilon



Sensors and systems for displacement and position



Measurement and inspection systems for quality assurance



Sensors and measurement devices for non-contact temperature measurement



Optical micrometers, fibre optic sensors and fibre optics



2D/3D profile sensors (laser scanner)



Colour recognition sensors, LED analyzers and colour online spectrometer



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