

# More Precision

scanCONTROL 30x0-430 / -600 // High performance laser scanner



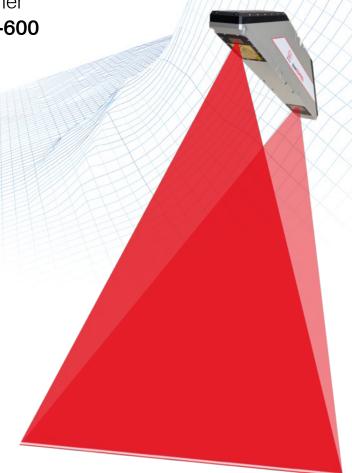
High performance laser scanner scanCONTROL 30x0-430 / -600

Precise profile measurements for industrial measurement tasks

Resolution x-axis 2,048 points

Profile frequency 10,000 Hz

Large measuring range up to 760 mm



#### Wide portfolio of measuring ranges

Laser profile scanners from Micro-Epsilon are among the highest performing profile sensors with respect to accuracy and measuring rate. In addition, all common measuring ranges from 10 up to 600 mm are available in the current portfolio. The different measuring ranges enable on the one hand the precise detection of the finest details, and on the other hand, the measurement of large objects at a large offset distance. Today, a laser profile scanner with a large measuring range is able to cover as much as several sensors of older generations together used to.

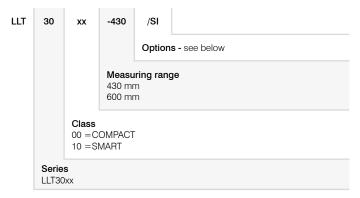
#### Fast and precise 2D/3D profile measurements

The new LLT30x0 laser profile scanners provide calibrated profile data with up to 9.6 million points per second. Thanks to their high accuracy, high profile frequency and versatility, these powerful scanners are suitable for demanding measurement tasks. They measure and evaluate, e.g., angles, steps, gaps, distances and circles with high precision. These sensors also offer predefined operating modes that enable optimal results for various applications.

#### Innovative exposure control to master difficult surfaces

On inhomogeneous or dark surfaces, the HDR (High Dynamic Range) data acquisition mode and the improved auto exposure optimizes the measurement results. In HDR mode, the rows of the sensor matrix are exposed differently but at the same time which avoids time offsets between the recordings. This is how moving objects can be detected reliably. The areas for auto exposure can be selected individually.

#### Article designation



#### Laser options

/SI	Hardware switch-off of the laser line
/3R	Increased laser power (class 3R) e.g., for dark surfaces

#### Cable outlet options

/PT	Cable directly out of the sensor ("Pigtail") Available lengths: 0.3 / 0.6 / 1.00 m
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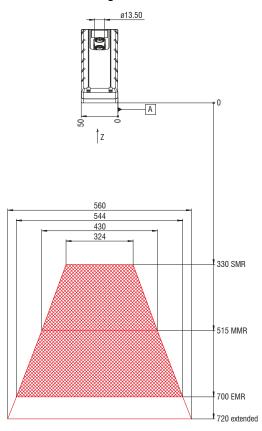
Measuring range		Model		LLT 30x0-430	LLT 30x0-600	
Measuring range			Start of measuring range	330 mm	530 mm	
Find of measuring range	z-axis		Mid of measuring range	515 mm	770 mm	
Profile frequency   Find and implementation and i		Measuring range	End of measuring range	700 mm	1010 mm	
Profile frequency   Find and implementation and i			Height of measuring range	370 mm	480 mm	
Professional processor   Figure   Fig		Extended	Start of measuring range	330 mm	450 mm	
Measuring range		measuring range	End of measuring range	720 mm	720 mm 1050 mm	
Measuring range   Start of measuring range   324 mm   456 mm   600		1. 1. 1. 1. 1. 1. 1. 1.		12 <i>µ</i> m	15 <i>µ</i> m	
Measuring range Mid of measuring range 544 mm 762 mm 762 mm 140 mm 762 mm 160 mm 178 mm 160 mm 178 m		Line linearity 1727		±0.0032 %	±0.0031 %	
Materials         End of measuring range         544 mm         762 mm           Extended measuring range         324 mm         408 mm           Resolution         2,048 points/profile           Profile frequency         up to 10,000 Hz           Interfaces         Ethernet GigE Vision         Output of measurement values Sensor control Profile data transmission           Interfaces         Digital inputs         Encoder (counter) Trigger Synchronization           RS422 (half-duplex) **         Cutput of measurement values Sensor control Trigger Synchronization           RS422 (half-duplex) **         Ethernet (UDP, Modbus TOP), RS422 (ASCI) Modbus RTU) analog **, switch signal 4*           Control and indicator elements         3 x color LEDs for laser, data and erro           Ethernet (UDP, Modbus TOP), RS422 (ASCI) Modbus RTU)         Standard: laser class 18*           Light source         Standard: laser class 2M, semiconductor laser 660 nm           Light source         Standard: laser class 2M, semiconductor laser 660 nm           Aperture angle of laser line         60*           Permissible ambient light         (Non No. Modes 24*)           Protection class (Din En 60059)         IPP6 (when connected)           Vibration (DIN EN 60068-2-6)         15 g / 6 ms           Shock (DIN EN 60068-2-6)         15 g / 6 ms           Shock (DIN EN 6			Start of measuring range	324 mm	456 mm	
Extended measuring range Resolution  Profile frequency  Up to 10,000 Hz  Up to 10,000 Hz  Ethernet GigE Vision  Profile frequency  Ethernet GigE Vision  Digital inputs  RS422 (half-duplex) **  PRS422 (half-duplex) **  Cutput of measurement values  RS422 (half-duplex) **  PRS422 (half-duplex) **  Cutput of measurement values  RS422 (half-duplex) **  Ethernet (UDP / Moodbus TCP) RS422 (ASCII / Modbus RTU) analog **, switch signal **  PROFINET **, EtherCAT **		Measuring range	Mid of measuring range	430 mm	600 mm	
Extended measuring range Resolution  Profile frequency  Up to 10,000 Hz  Up to 10,000 Hz  Ethernet GigE Vision  Profile frequency  Ethernet GigE Vision  Digital inputs  RS422 (half-duplex) **  PRS422 (half-duplex) **  Cutput of measurement values  RS422 (half-duplex) **  PRS422 (half-duplex) **  Cutput of measurement values  RS422 (half-duplex) **  Ethernet (UDP / Moodbus TCP) RS422 (ASCII / Modbus RTU) analog **, switch signal **  PROFINET **, EtherCAT **	(is		End of measuring range	544 mm	762 mm	
Resolution  Profile frequency  Profile frequency  Ethernet GigE Vision  Profile frequency  Ethernet GigE Vision  Profile data transmission  Modes witching Encoder (counter) Trigger  Output of measurement values  RS422 (half-duplex) 31  RS422 (half-duplex) 32  Ethernet (UDP / Modebus TCP); RS422 (ASCII / Modbus RTU) analog **; switch signal 4* PROFINET **; EtherNet/IP 9*  Control and indicator elements  Laser  Light source  Laser  Laser switch-off  Aperture angle of laser line  Permissible ambient light (fluorescent light) 10  Protection class (DIN EN 60068-2-27)  Storage  Temperature range  Operation  Veight  Storage  Temperature range  Operation  Veight  Supply voltage  11 30 VDC, normal values 2, 28 Power over Ethernet (PoE)	×-a		Start of measuring range	324 mm	408 mm	
Profile frequency  Ethernet GigE Vision  Digital inputs  Interfaces  Digital inputs  RS422 (half-duplex) <sup>10</sup> RS422 (half-duplex) <sup>10</sup> Profile data transmission  Modes witching Encoder (counter) Trigger Synchronization  Trigger Synchronization  Sensor control Trigger Synchronization		Extended measuring range	End of measuring range	560 mm	788 mm	
Ethernet GigE Vision  Coutput of measurement values Sensor control Profile data transmission  Mode switching Encoder (counter) Trigger  Dutput of measurement values RS422 (half-duplex) <sup>10</sup> RS422 (half-duplex) <sup>21</sup> Coutput of measurement values RS422 (half-duplex) <sup>22</sup> Ethernet (UDP / Modbus TCP), RS422 (ASCII / Modbus RTU) analog <sup>22</sup> , switch signal <sup>31</sup> PROFINET <sup>32</sup> , EtherNetUP <sup>32</sup> Control and indicator elements  As color LEDs for laser, data and error  ≤ 26 mW  Standard: laser class 2M, semiconductor laser 660 nm  Laser switch-off  Aperture angle of laser line  Permissible ambient light (fluorescent light) <sup>3</sup> Protection class (DIN EN 60529)  Vibration (DIN EN 60068-2-27)  Shock (DIN EN 60068-2-6)  Temperature range Operation  Weight  Supply voltage  Ethernet (UDP / Modbus TCP)  And Results (RS422 (ASCII / Modbus RTU) analog <sup>32</sup> , switch signal <sup>4</sup> PROFINET <sup>32</sup> , EtherNetUP <sup>33</sup> Scolor LEDs for laser, data and error  ≤ 26 mW  Standard: laser class 2M, semiconductor laser 660 nm  via software, hardware switch-off with /SI option  4 option: laser class 3R, semiconductor laser 660 nm  via software, hardware switch-off with /SI option  4 option: laser class 3R, semiconductor laser 660 nm  via software, hardware switch-off with /SI option  4 option: laser class 2M, semiconductor laser 660 nm  Via software, hardware switch-off with /SI option  4 option: laser class 2M, semiconductor laser 660 nm  Via software, hardware switch-off with /SI option  5 to 100 mW  Frotection class (DIN EN 6008-2-27)  2 g / 20 500 lk  Frotection class (DIN EN 6008-2-27)  2 g / 20 500 lk  Frotection class (DIN EN 6008-2-27)  2 g / 20 500 lk  Frotection class (DIN EN 6008-2-27)  3 to 3 d class 2 (Mithout cable)  11 30 VDC, nominal value 24 V, 500 mA, IEEE 802 3at class 2, Power over Ethernet (PoE)		Resolution		2,048 poi	nts/profile	
Ethernet GigE Vision  Coutput of measurement values Sensor control Profile data transmission  Mode switching Encoder (counter) Trigger  Dutput of measurement values RS422 (half-duplex) <sup>10</sup> RS422 (half-duplex) <sup>21</sup> Coutput of measurement values RS422 (half-duplex) <sup>22</sup> Ethernet (UDP / Modbus TCP), RS422 (ASCII / Modbus RTU) analog <sup>22</sup> , switch signal <sup>31</sup> PROFINET <sup>32</sup> , EtherNetUP <sup>32</sup> Control and indicator elements  As color LEDs for laser, data and error  ≤ 26 mW  Standard: laser class 2M, semiconductor laser 660 nm  Laser switch-off  Aperture angle of laser line  Permissible ambient light (fluorescent light) <sup>3</sup> Protection class (DIN EN 60529)  Vibration (DIN EN 60068-2-27)  Shock (DIN EN 60068-2-6)  Temperature range Operation  Weight  Supply voltage  Ethernet (UDP / Modbus TCP)  And Results (RS422 (ASCII / Modbus RTU) analog <sup>32</sup> , switch signal <sup>4</sup> PROFINET <sup>32</sup> , EtherNetUP <sup>33</sup> Scolor LEDs for laser, data and error  ≤ 26 mW  Standard: laser class 2M, semiconductor laser 660 nm  via software, hardware switch-off with /SI option  4 option: laser class 3R, semiconductor laser 660 nm  via software, hardware switch-off with /SI option  4 option: laser class 3R, semiconductor laser 660 nm  via software, hardware switch-off with /SI option  4 option: laser class 2M, semiconductor laser 660 nm  Via software, hardware switch-off with /SI option  4 option: laser class 2M, semiconductor laser 660 nm  Via software, hardware switch-off with /SI option  5 to 100 mW  Frotection class (DIN EN 6008-2-27)  2 g / 20 500 lk  Frotection class (DIN EN 6008-2-27)  2 g / 20 500 lk  Frotection class (DIN EN 6008-2-27)  2 g / 20 500 lk  Frotection class (DIN EN 6008-2-27)  3 to 3 d class 2 (Mithout cable)  11 30 VDC, nominal value 24 V, 500 mA, IEEE 802 3at class 2, Power over Ethernet (PoE)		Profile frequency		up to 10	000 Hz	
Ethernet GigE Vision Profile data transmission Profile data transmission Mode switching Encoder (counter) Trigger  RS422 (half-duplex) a RS422 (half-duple		. reme mequality		up to 10,000 HZ		
Interfaces  Digital inputs  RS422 (half-duplex) 30  Cutput of measurement values  Sensor control Trigger Synchronization  Synchronization  Ethemet (UDP / Moders CP): RS422 (ASCII / Modbus RTU) analog 9°, switch signal 9° PROFINET 9°, EtherCAT 30°, EtherNet/IP 9°  Standard: laser class 2M, semiconductor laser 660 nm  Laser  Light source  Laser  Laser Switch-off  Aperture angle of laser line  Permissible ambient light (fluorescent light) 10  Protection class (DIN EN 60529)  RYD			Ethernet GigE Vision	Sensor	Sensor control	
RS422 (half-duplex) <sup>3)</sup> RS422 (half-duplex) <sup>3)</sup> RS422 (half-duplex) <sup>3)</sup> RS422 (half-duplex) <sup>3)</sup> Coutput of measurement values  Control and indicator elements  Sax color LEDs for laser, data and error  Sax color LEDs for laser laser data and error  Sax color LEDs for laser laser data and error  Sax color LEDs for laser las			Digital inputs	Mode switching		
RS422 (half-duplex) <sup>30</sup> RS422 (half-duplex) <sup>30</sup> Ethernet (UDP / Modbus CPP); RS422 (ASCII / Modbus RTU) analog <sup>61</sup> ; switch signal <sup>40</sup> switch signal <sup>40</sup> switch signal <sup>40</sup> ; switch		lilleriaces		Trigger		
Output of measurement values  PROFINET ®; EtherCAT ®; EtherNet/IP ®  Control and indicator elements  Sax color LEDs for laser, data and error  ≤ 26 mW  Standard: laser class 2M, semiconductor laser 660 nm  Laser  Light source  Laser witch-off  Aperture angle of laser line  Permissible ambient light (fluorescent light) 10  Protection class (DIN EN 60529)  Vibration (DIN EN 60068-2-27)  Shock (DIN EN 60068-2-6)  Temperature range  Operation  Operation  Supply voltage  As color LEDs for laser, data and error  ≤ 26 mW  Standard: laser class 2M, semiconductor laser 660 nm  Via software, hardware switch-off with /SI option  60 °  Protection class (DIN EN 60068-20)  IP67 (when connected)  15 g / 6 ms  -20 +70 °C  Weight  2630 g (without cable)  Supply voltage			RS422 (half-duplex) 3)	Sensor Trig	Sensor control Trigger	
PROFINET ®; EtherCAT ®; EtherNet/IP ®  3x color LEDs for laser, data and error  ≤ 26 mW  Standard: laser class 2M, semiconductor laser 660 nm  Laser Light source  Laser switch-off via software, hardware switch-off with /SI option  Aperture angle of laser line  Permissible ambient light (fluorescent light) ®  Frotection class (DIN EN 60529)  Vibration (DIN EN 60068-2-27)  Shock (DIN EN 60068-2-6)  Temperature range  Operation  Aperture angle of laser line  Storage  Operation  Storage  Operation  Supply voltage  11 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)				:		
Standard: laser class 2M, semiconductor laser 660 nm  Laser witch-off  Caser witch-off  Aperture angle of laser line  Permissible ambient light  Protection class (DIN EN 60529)  Vibration (DIN EN 60068-2-27)  Shock (DIN EN 60068-2-6)  Temperature range  Operation  Storage  Operation  Storage  Operation  Operation  Supply voltage  Supply voltage  Storage  Storage  11 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)						
Light source  Laser  Laser switch-off  Laser switch-off  Aperture angle of laser line  Permissible ambient light (fluorescent light)¹¹ (fluorescent light)¹ (fluorescent light)¹¹ (fluorescent light)²¹ (fluorescent light)² (fluorescent light)²¹ (fluorescent light)² (fluorescent light)²				3x color LEDs for laser, data and error		
Light source    Source   Laser   Section						
Light source  Claser switch-off Via software, hardware switch-off with /Sl option  Aperture angle of laser line  Aperture angle of laser line  Permissible ambient light (fluorescent light) ¹¹ 5,000 lx  Protection class (DIN EN 60529)  Vibration (DIN EN 60068-2-27)  Shock (DIN EN 60068-2-6)  Temperature range  Operation  Operation  Storage  Operation  11 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)			Laser	Standard: laser class 2M, semiconductor laser 660 nm		
Laser switch-off Aperture angle of laser line  60 °  Permissible ambient light (fluorescent light) ')  Frotection class (DIN EN 60529)  Vibration (DIN EN 60068-2-27)  Shock (DIN EN 60068-2-27)  Storage  Temperature range  Operation  Storage  Operation  11 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)		Light source		≤ 100 mW		
Aperture angle of laser line  Permissible ambient light (fluorescent light) 1)  Protection class (DIN EN 60529)  Vibration (DIN EN 60068-2-27)  Shock (DIN EN 60068-2-6)  Temperature range  Operation  Operation  Storage  11 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)				Option: laser class 3R, semiconductor laser 660 nm		
Permissible ambient light (fluorescent light) 1) 5,000 lx  Protection class (DIN EN 60529) IP67 (when connected)  Vibration (DIN EN 60068-2-27) 2 g / 20 500 Hz  Shock (DIN EN 60068-2-6) 15 g / 6 ms  Storage -20 +70 °C  Temperature range Operation 0 +45 °C  Weight 2630 g (without cable)  Supply voltage 11 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)			Laser switch-off	via software, hardware switch-off with /SI option		
Protection class (DIN EN 60529)         IP67 (when connected)           Vibration (DIN EN 60068-2-27)         2 g / 20 500 Hz           Shock (DIN EN 60068-2-6)         15 g / 6 ms           Temperature range         -20 +70 °C           Operation         0 +45 °C           Weight         2630 g (without cable)           Supply voltage         11 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)		Aperture angle of laser line		60	60 °	
Vibration (DIN EN 60068-2-27)         2 g / 20 500 Hz           Shock (DIN EN 60068-2-6)         15 g / 6 ms           Temperature range         -20 +70 °C           Weight         0 +45 °C           Weight Voltage         2630 g (without cable)           Supply voltage         11 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)		Permissible ambient light (fluorescent light) 1)		5,00	5,000 lx	
Shock (DIN EN 60068-2-6)           Temperature range           Operation           Veight         2630 g (without cable)           Supply voltage         11 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)		Protection class (DIN EN 60529)		IP67 (when connected)		
Storage -20 +70 °C  Operation 0 +45 °C  Weight 2630 g (without cable)  Supply voltage 11 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)		Vibration (DIN EN 60068-2-27)		2 g / 20 .	2 g / 20 500 Hz	
Temperature range  Operation  0 +45 °C  Weight  2630 g (without cable)  Supply voltage  11 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)		,		15 g / 6 ms		
Operation 0 +45 °C  Weight 2630 g (without cable)  Supply voltage 11 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)		Temperature range	_			
Supply voltage  11 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)			Operation			
Supply voltage IEEE 802.3af class 2, Power over Ethernet (PoE)		Supply voltage		, , , , , , , , , , , , , , , , , , ,		
Connections sockets, cable outlets on top (/PT)						
				sockets, cable outlets on top (/PT)		

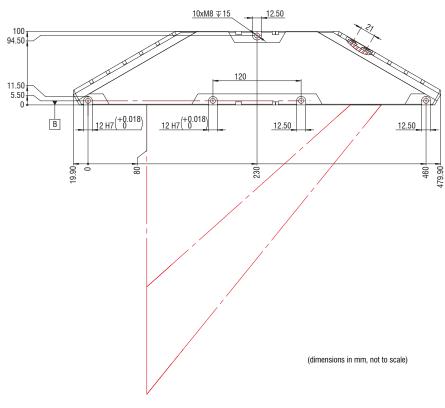
Based on the measuring range; measuring object: Micro-Epsilon standard object
According to a one-time averaging over the measuring field (2,048 points)
RS422 interface, programmable either as serial interface or as input for triggering/synchronization
Only with 2D/3D Output Unit
Only with 2D/3D Gateway

### Technical drawings

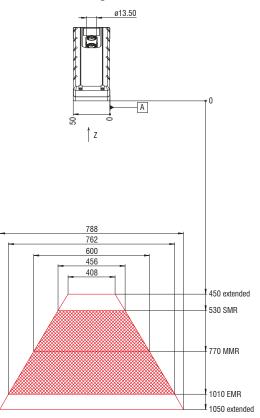
## scanCONTROL 30x0-430 / -600

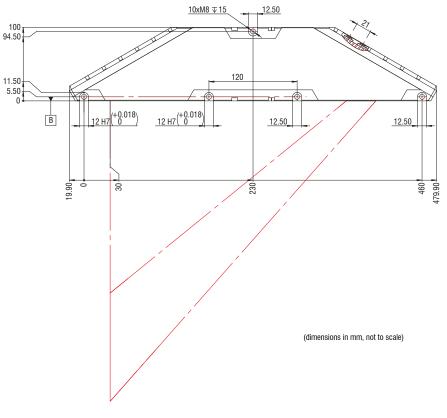
#### Dimensional drawing scanCONTROL 30xx-430





#### Dimensional drawing scanCONTROL 30xx-600







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