# 2D/3D Profile Sensor

MLWL144   LASER

Part Number

- **Increased resistance to extraneous light and high speed**
- **Optimized profile quality thanks to HDR function**
- **Precise measuring range resolution X (> 2000 measuring points)**
- **Up to 12 million measuring points per second**

2D/3D Profile Sensors project a laser line onto the object to be detected and generate an accurate, linearized height profile with an internal camera which is set up at a triangulation angle. Thanks to its uniform, open interface, the weCat3D series can be incorporated by means of the DLL program library or the GigE Vision standard without an additional control unit. Alternatively, wenglor offers its own software packages for implementing your application.
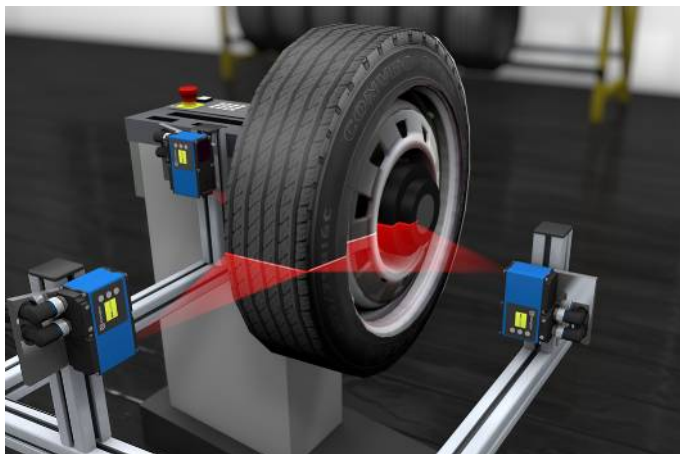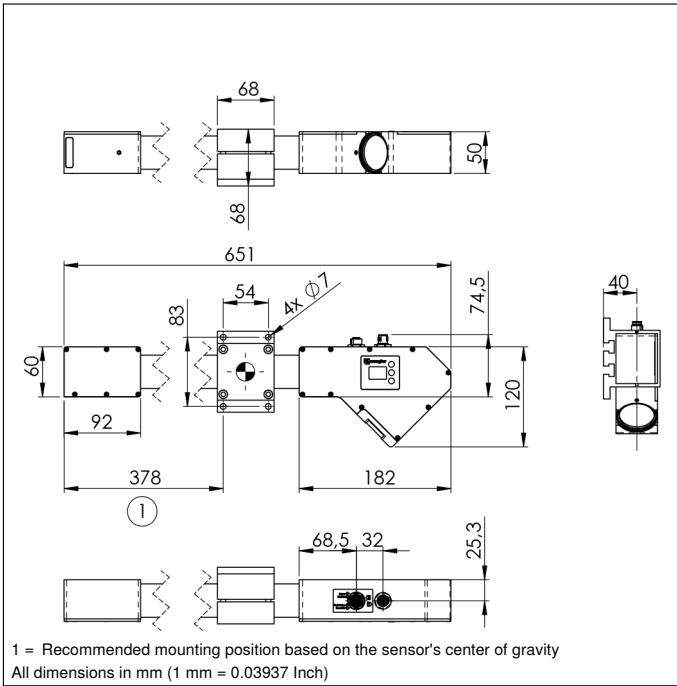

Technical Data

Optical Data	
Working range Z	390...910 mm
Measuring range Z	520 mm
Measuring range X	285...455 mm
Linearity Deviation	130 μm
Resolution Z	17,8...43 μm
Resolution X	151...238 μm
Light Source	Laser (red)
Wavelength	660 nm
Laser Class (EN 60825-1)	3R
Max. Ambient Light	5000 Lux
Electrical Data	
Supply Voltage	18...30 V DC
Current Consumption (Ub = 24 V)	300 mA
Measuring Rate	175...6000 /s
Subsampling	350...6000 /s
Temperature Range	0...45 °C
Storage temperature	-20...70 °C
Inputs/Outputs	4
Switching Output Voltage Drop	< 1,5 V
Switching Output/Switching Current	100 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Interface	Ethernet TCP/IP
Baud Rate	100/1000 Mbit/s
Protection Class	III
FDA Accession Number	1710275-000
Mechanical Data	
Housing Material	Aluminum
Degree of Protection	IP67
Connection	M12 × 1; 12-pin
Type of Connection Ethernet	M12 × 1; 8-pin, X-cod.
Optic Cover	Glass
Weight	2330 g
Web server	yes

Configurable as PNP/NPN/Push-Pull	●	
Switchable to NC/NO	●	
Connection Diagram No.	**1022**	**1034**
Control Panel No.	**X2**	**A22**
Suitable Connection Equipment No.	**50**	**87**

Display brightness may decrease with age. This does not result in any impairment of the sensor function.

Complementary Products

Control Unit
Cooling Unit ZLWK003
Protective Screen Retainer ZLWS003
Software
Switch EHSS001

1 = Recommended mounting position based on the sensor's center of gravity
All dimensions in mm (1 mm = 0.03937 Inch)

Ctrl. Panel

20 = Enter Button
22 = UP Button
23 = Down Button
4a = User LED
60 = Display
68 = Supply Voltage Indicator
78 = Module status
85 = Link/Act LED

1022

1	Bi_DA +
2	Bi_DA −
3	Bi_DB +
4	Bi_DB −
5	Bi_DD +
6	Bi_DD −
7	Bi_DC −
8	Bi_DC +

1034

ENCODER RS 422 (TTL)

1	+
3	E/A1
4	E/A2
5	E/A3
6	E/A4
7	En A
8	En Ā
9	En B
10	En B̄
11	En 0
12	En 0̄
2	−

Legend

+	Supply Voltage +	PT	Platinum measuring resistor	EN_AR5422	Encoder A/Ā (TTL)
−	Supply Voltage 0 V	nc	not connected	EN_BR5422	Encoder B/B̄ (TTL)
~	Supply Voltage (AC Voltage)	U	Test Input	EN_A	Encoder A
A	Switching Output (NO)	Ū	Test Input inverted	EN_B	Encoder B
Ā	Switching Output (NC)	W	Trigger Input	A_MIN	Digital output MIN
V	Contamination/Error Output (NO)	W−	Ground for the Trigger Input	A_MAX	Digital output MAX
V̄	Contamination/Error Output (NC)	O	Analog Output	A_OK	Digital output OK
E	Input (analog or digital)	O−	Ground for the Analog Output	SY In	Synchronization In
T	Teach Input	BZ	Block Discharge	SY OUT	Synchronization OUT
Z	Time Delay (activation)	A_MV	Valve Output	0_LT	Brightness output
S	Shielding	a	Valve Control Output +	M	Maintenance
RxD	Interface Receive Path	b	Valve Control Output 0 V	rsv	reserved
TxD	Interface Send Path	SY	Synchronization		Wire Colors according to IEC 60757
RDY	Ready	SY−	Ground for the Synchronization	BK	Black
GND	Ground	E+	Receiver-Line	BN	Brown
CL	Clock	S+	Emitter-Line	RD	Red
E/A	Output/Input programmable	⏚	Grounding	OG	Orange
⊗ IO-Link		SnR	Switching Distance Reduction	YE	Yellow
PoE	Power over Ethernet	Rx+/−	Ethernet Receive Path	GN	Green
IN	Safety Input	Tx+/−	Ethernet Send Path	BU	Blue
OSSD	Safety Output	Bus	Interfaces-Bus A(+)/B(−)	VT	Violet
Signal	Signal Output	La	Emitted Light disengageable	GY	Grey
Bi_D+/−	Ethernet Gigabit bidirect. data line (A-D)	Mag	Magnet activation	WH	White
EN_0R5422	Encoder 0-pulse 0-0̄ (TTL)	RES	Input confirmation	PK	Pink
		EDM	Contactor Monitoring	GNYE	Green/Yellow

Measuring field X, Z

MLWL1x4

Z = Working distance
X = Measuring Range