

# 2D/3D Profile Sensor

## MLWL144

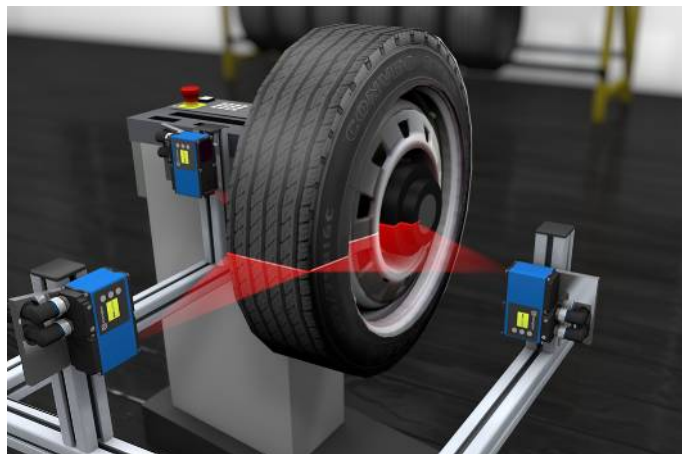
Part Number

weCat3D



- 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.

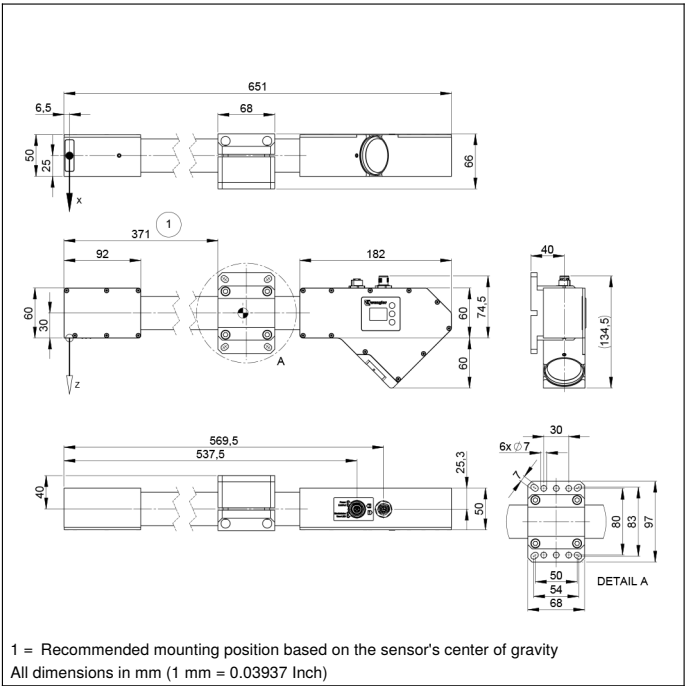


### Technical Data

| 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                         |
| Service Life (T = +25 °C)                  | 20000 h                        |
| Laser Class (EN 60825-1)                   | 3R                             |
| Environmental conditions                   |                                |
| Ambient temperature                        | 0...45 °C                      |
| Storage temperature                        | -20...70 °C                    |
| Max. Ambient Light                         | 5000 Lux                       |
| EMC                                        | DIN EN 61000-6-2;<br>61000-6-4 |
| Shock resistance per DIN IEC 68-2-27       | 30 g / 11 ms                   |
| Vibration resistance per DIN IEC 60068-2-6 | 6 g (10...55 Hz)               |
| Atmospheric humidity                       | 5...95%, non-condensing        |
| Electrical Data                            |                                |
| Supply Voltage                             | 18...30 V DC                   |
| Current Consumption (Ub = 24 V)            | 300 mA                         |
| Measuring Rate                             | 175...6000 /s                  |
| Subsampling                                | 350...6000 /s                  |
| 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, anodised             |
| Degree of Protection                       | IP67                           |
| UL Enclosure Type                          | 1                              |
| Connection                                 | M12 × 1; 12-pin                |
| Type of Connection Ethernet                | M12 × 1; 8-pin, X-cod.         |
| Optic Cover                                | Glass                          |
| Web server                                 | yes                            |
| Push-Pull                                  | ●                              |
| Connection Diagram No.                     | 1022 1034                      |
| Control Panel No.                          | X2 A22                         |
| Suitable Connection Equipment No.          | 50 87                          |

### Complementary Products

|                                    |
|------------------------------------|
| Connection cables                  |
| Control Unit                       |
| Cooling Unit ZLWK003               |
| EHSS001 Switch                     |
| Machine Vision Controller MVC      |
| Protective Screen Retainer ZLWS003 |
| Software                           |

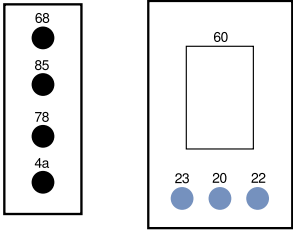


1 = Recommended mounting position based on the sensor's center of gravity  
All dimensions in mm (1 mm = 0.03937 Inch)

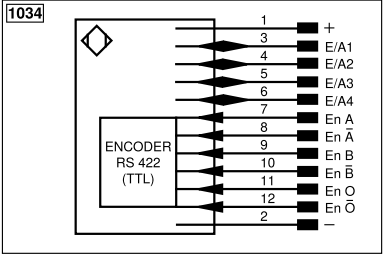
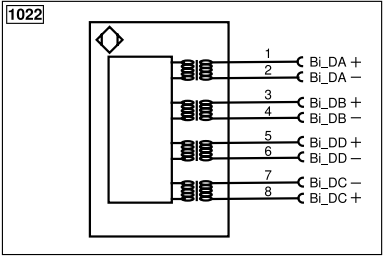
Ctrl. Panel

A22

X2

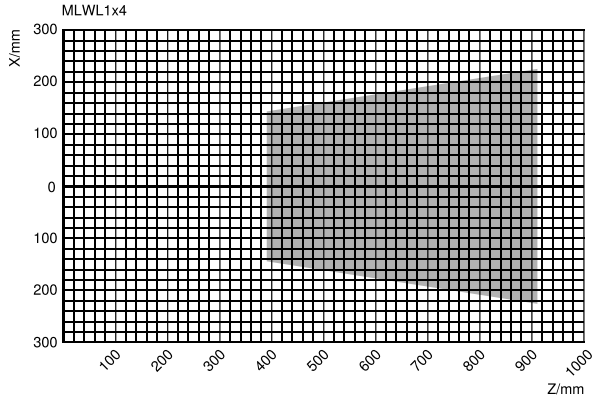


20 = Enter key  
22 = Up key  
23 = Down key  
4a = User LED  
60 = display  
68 = supply voltage indicator  
78 = Module status  
85 = Link/Act LED



| Legend    |                                            |           |                                |                                        |                     |
|-----------|--------------------------------------------|-----------|--------------------------------|----------------------------------------|---------------------|
| +         | Supply Voltage +                           | nc        | Not connected                  | ENBRS422                               | Encoder B/B (TTL)   |
| -         | Supply Voltage 0 V                         | U         | Test Input                     | ENA                                    | Encoder A           |
| ~         | Supply Voltage (AC Voltage)                | Ü         | Test Input inverted            | ENb                                    | Encoder B           |
| A         | Switching Output (NO)                      | W         | Trigger Input                  | AMIN                                   | Digital output MIN  |
| Ä         | Switching Output (NC)                      | W-        | Ground for the Trigger Input   | AMAX                                   | Digital output MAX  |
| V         | Contamination/Error Output (NO)            | O         | Analog Output                  | AOK                                    | Digital output OK   |
| V̄        | Contamination/Error Output (NC)            | O-        | Ground for the Analog Output   | SY In                                  | Synchronization In  |
| E         | Input (analog or digital)                  | BZ        | Block Discharge                | SY OUT                                 | Synchronization OUT |
| T         | Teach Input                                | Amv       | Valve Output                   | OLt                                    | Brightness output   |
| Z         | Time Delay (activation)                    | a         | Valve Control Output +         | M                                      | Maintenance         |
| S         | Shielding                                  | b         | Valve Control Output 0 V       | rsv                                    | Reserved            |
| RxD       | Interface Receive Path                     | SY        | Synchronization                | Wire Colors according to DIN IEC 60757 |                     |
| TxD       | Interface Send Path                        | SY-       | Ground for the Synchronization | BK                                     | Black               |
| RDY       | Ready                                      | E+        | Receiver-Line                  | BN                                     | Brown               |
| GND       | Ground                                     | S+        | Emitter-Line                   | RD                                     | Red                 |
| CL        | Clock                                      | ±         | Grounding                      | OG                                     | Orange              |
| E/A       | Output/Input programmable                  | SnR       | Switching Distance Reduction   | YE                                     | Yellow              |
| IO-Link   | IO-Link                                    | Rx+/-     | Ethernet Receive Path          | GN                                     | Green               |
| PoE       | Power over Ethernet                        | Tx+/-     | Ethernet Send Path             | BU                                     | Blue                |
| IN        | Safety Input                               | Bus       | Interfaces-Bus A(+)/B(-)       | VT                                     | Violet              |
| OSSD      | Safety Output                              | La        | Emitted Light disengageable    | GY                                     | Grey                |
| Signal    | Signal Output                              | Mag       | Magnet activation              | WH                                     | White               |
| BL_D+/-   | Ethernet Gigabit bidirect. data line (A-D) | RES       | Input confirmation             | PK                                     | Pink                |
| ENo RS422 | Encoder 0-pulse 0/Ü (TTL)                  | EDM       | Contact Monitoring             | GNYE                                   | Green/Yellow        |
| PT        | Platinum measuring resistor                | ENARIS422 | Encoder A/A (TTL)              |                                        |                     |

Measuring field X, Z



Z = Working distance

X = Measuring Range

