

# 2D/3D Profile Sensor

**MLWL171**

**LASER**

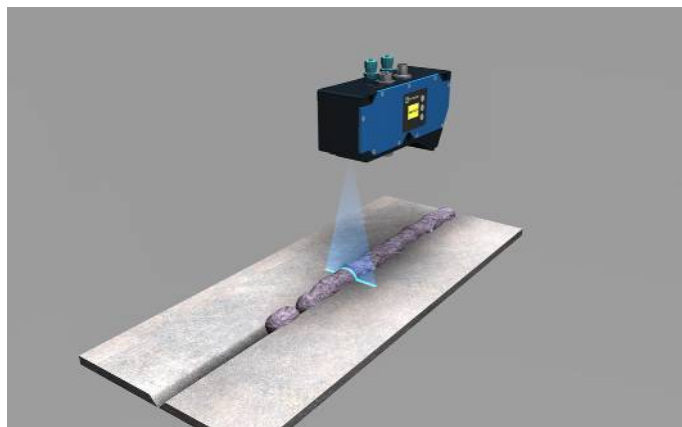
Part Number

weCat3D



- Blue light for applications on metal, organic or semi-transparent materials
- 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.



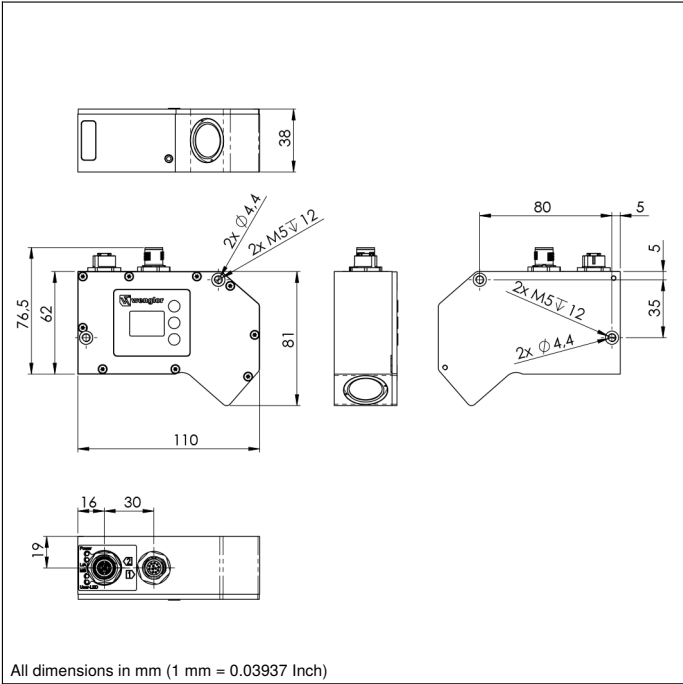
## Technical Data

| Optical Data                       |                                     |
|------------------------------------|-------------------------------------|
| Working range Z                    | 70...130 mm                         |
| Measuring range Z                  | 60 mm                               |
| Measuring range X                  | 30...52 mm                          |
| Linearity Deviation                | 15 µm                               |
| Resolution Z                       | 2...4,9 µm                          |
| Resolution X                       | 17...26 µm                          |
| Light Source                       | Laser (blue)                        |
| Wavelength                         | 450 nm                              |
| Service Life (T = +25 °C)          | 20000 h                             |
| Laser Class (EN 60825-1)           | 3B                                  |
| Max. Ambient Light                 | 5000 Lux                            |
| Electrical Data                    |                                     |
| Supply Voltage                     | 18...30 V DC                        |
| Current Consumption (Ub = 24 V)    | 1000 mA                             |
| Measuring Rate                     | 175...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               | 1710272-000                         |
| 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                             | 480 g                               |
| Web server                         | yes                                 |
| Configurable as PNP/NPN/Push-Pull  | <input checked="" type="checkbox"/> |
| Switchable to NC/NO                | <input checked="" type="checkbox"/> |
| Connection Diagram No.             | <b>1022</b> <b>1023</b>             |
| Control Panel No.                  | <b>X2</b> <b>A22</b>                |
| Suitable Connection Equipment No.  | <b>50</b> <b>87</b>                 |
| Suitable Mounting Technology No.   | <b>343</b>                          |

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

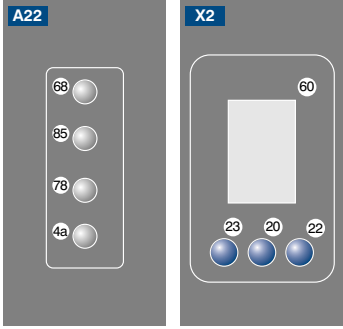
## Complementary Products

|                                    |
|------------------------------------|
| Control Unit                       |
| Cooling Unit ZLWK001               |
| Protective Screen Retainer ZLWS001 |
| Software                           |
| Switch ZAC45FN01                   |

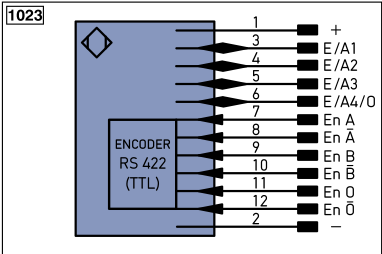
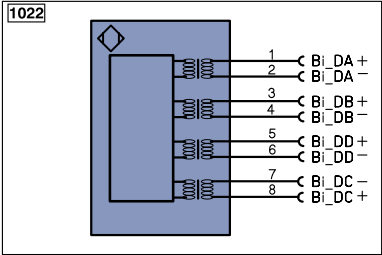


All dimensions in mm (1 mm = 0.03937 Inch)

### 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



### Legend

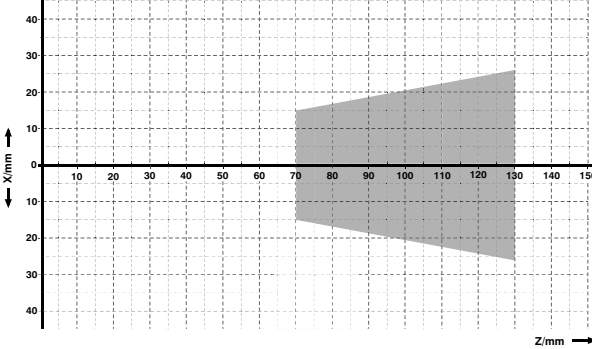
|   |   |                                   |
|---|---|-----------------------------------|
| <b>+</b> Supply Voltage +                                 | <b>PT</b> Platinum measuring resistor   | <b>ENa</b> Encoder A              |
| <b>-</b> Supply Voltage 0 V                               | <b>nc</b> not connected                 | <b>ENb</b> Encoder B              |
| <b>~</b> Supply Voltage (AC Voltage)                      | <b>U</b> Test Input                     | <b>AMIN</b> Digital output MIN    |
| <b>A</b> Switching Output (NO)                            | <b>U</b> Test Input inverted            | <b>AMAX</b> Digital output MAX    |
| <b>Ā</b> Switching Output (NC)                            | <b>W</b> Trigger Input                  | <b>AOK</b> Digital output OK      |
| <b>V</b> Contamination/Error Output (NO)                  | <b>O</b> Analog Output                  | <b>SY In</b> Synchronization In   |
| <b>Ṽ</b> Contamination/Error Output (NC)                  | <b>O-</b> Ground for the Analog Output  | <b>SY OUT</b> Synchronization OUT |
| <b>E</b> Input (analog or digital)                        | <b>BZ</b> Block Discharge               | <b>LI</b> Brightness output       |
| <b>T</b> Teach Input                                      | <b>AWV</b> Valve Output                 | <b>M</b> Maintenance              |
| <b>Z</b> Time Delay (activation)                          | <b>a</b> Valve Control Output +         | <b>rsv</b> reserved               |
| <b>S</b> Shielding  | <b>b</b> Valve Control Output 0 V       |                                   |
| <b>RxD</b> Interface Receive Path                         | <b>SY</b> Synchronization               |                                   |
| <b>TxD</b> Interface Send Path                            | <b>E+</b> Receiver-Line                 |                                   |
| <b>RDY</b> Ready  | <b>S+</b> Emitter-Line                  |                                   |
| <b>GND</b> Ground   | <b>±</b> Grounding                      |                                   |
| <b>CL</b> Clock   | <b>SnR</b> Switching Distance Reduction |                                   |
| <b>E/A</b> Output/Input programmable                      | <b>Rx+/-</b> Ethernet Receive Path      |                                   |
| <b>IO-Link</b>  | <b>Tx+/-</b> Ethernet Send Path         |                                   |
| <b>PoE</b> Power over Ethernet                            | <b>Bus</b> Interfaces-Bus A(+)/B(-)     |                                   |
| <b>IN</b> Safety Input                                    | <b>La</b> Emitted Light disengageable   |                                   |
| <b>OSSD</b> Safety Output                                 | <b>Mag</b> Magnet activation            |                                   |
| <b>Signal</b> Signal Output                               | <b>RES</b> Input confirmation           |                                   |
| <b>Bi_D+/-</b> Ethernet Gigabit bidirect. data line (A-D) | <b>EDM</b> Contactor Monitoring         |                                   |
| <b>EN0 RS422</b> Encoder 0-pulse 0-0 (TTL)                | <b>ENAR5422</b> Encoder A/A (TTL)       |                                   |
|   | <b>ENBR5422</b> Encoder B/B (TTL)       |                                   |

### Wire Colors according to DIN IEC 757

|             |              |
|-------------|--------------|
| <b>BK</b>   | Black        |
| <b>BN</b>   | Brown        |
| <b>RD</b>   | Red          |
| <b>OG</b>   | Orange       |
| <b>YE</b>   | Yellow       |
| <b>GN</b>   | Green        |
| <b>BU</b>   | Blue         |
| <b>VT</b>   | Violet       |
| <b>GY</b>   | Grey         |
| <b>WH</b>   | White        |
| <b>PK</b>   | Pink         |
| <b>GNYE</b> | Green/Yellow |

### Measuring field X, Z

#### MLWL1x1



Z = Working distance  
X = Measuring Range

