

PLB520-L/M/S

3D Camera

EN



Sensor Intelligence.

- Australia**
Phone +61 3 9457 0600
1800 33 48 02 - tollfree
E-Mail sales@sick.com.au
- Belgium/Luxembourg**
Phone +32 (0)2 466 55 66
E-Mail info@sick.be
- Brasil**
Phone +55 11 3215-4900
E-Mail marketing@sick.com.br
- Canada**
Phone +1 905 771 14 44
E-Mail information@sick.com
- Česká republika**
Phone +420 2 57 91 18 50
E-Mail sick@sick.cz
- China**
Phone +86 4000 121 000
E-Mail info.china@sick.net.cn
Phone +852-2153 6300
E-Mail ghk@sick.com.hk
- Danmark**
Phone +45 45 82 64 00
E-Mail sick@sick.dk
- Deutschland**
Phone +49 211 5301-301
E-Mail info@sick.de
- España**
Phone +34 93 480 31 00
E-Mail info@sick.es
- France**
Phone +33 1 64 62 35 00
E-Mail info@sick.fr
- Great Britain**
Phone +44 (0)1727 831121
E-Mail info@sick.co.uk
- India**
Phone +91-22-4033 8333
E-Mail info@sick-india.com
- Israel**
Phone +972-4-6881000
E-Mail info@sick-sensors.com
- Italia**
Phone +39 02 27 43 41
E-Mail info@sick.it
- Japan**
Phone +81 (0)3 5309 2112
E-Mail support@sick.jp
- Magyarország**
Phone +36 1 371 2680
E-Mail office@sick.hu
- Nederland**
Phone +31 (0)30 229 25 44
E-Mail info@sick.nl
- Norge**
Phone +47 67 81 50 00
E-Mail sick@sick.no
- Österreich**
Phone +43 (0)22 36 62 28 8-0
E-Mail office@sick.at
- Polska**
Phone +48 22 837 40 50
E-Mail info@sick.pl
- România**
Phone +40 356 171 120
E-Mail office@sick.ro
- Russia**
Phone +7-495-775-05-30
E-Mail info@sick.ru
- Schweiz**
Phone +41 41 619 29 39
E-Mail contact@sick.ch
- Singapore**
Phone +65 6744 3732
E-Mail sales.gsg@sick.com
- Slovenija**
Phone +386 (0)1 47 69 990
E-Mail office@sick.si
- South Africa**
Phone +27 11 472 3733
E-Mail info@sick.co.za
- South Korea**
Phone +82 2 786 6321/4
E-Mail info@sickkorea.net
- Suomi**
Phone +358-9-25 15 800
E-Mail sick@sick.fi
- Sverige**
Phone +46 10 110 10 00
E-Mail info@sick.se
- Taiwan**
Phone +886-2-2375-6288
E-Mail sales@sick.com.tw
- Türkiye**
Phone +90 (216) 528 50 00
E-Mail info@sick.com.tr
- United Arab Emirates**
Phone +971 (0) 4 8865 878
E-Mail info@sick.ae
- USA/México**
Phone +1(952) 941-6780
1 800 325-7425 - tollfree
E-Mail info@sickusa.com

More representatives and agencies at www.sick.com

1 Safety

- ▶ Read the entire Quickstart before using the device.
- ▶ Connection, assembly, and settings must be performed by competent technicians.
- ▶ Do not use the device in areas with risk for explosion.
- ▶ Safe operation has a dependency on the LED class of the device (see **F**). Carefully study the LED safety section **A** and the safety instructions in the PLB Operating Instructions.

2 Product Specification

The PLB520 system comprises an X36 3D camera and PLB software. The 3D camera acquires a precise image of a bin's contents. The software uses the image to calculate a 3D point cloud. Geometrical shapes are identified in the point cloud and combined to form 3D objects. The system is factory calibrated, and the image data is represented in millimetres in a coordinate system relative to the 3D camera. To achieve accurate positioning results in world or robot coordinates, the measurements must be aligned to that coordinate system.

The X36 3D camera is designed to be used in industrial environments and is protected by a IP54 housing. It has a built-in (LED) light source.

The X36 3D camera serves as a data streamer, from which the image data is transferred through a Gigabit Ethernet connection to a PC. The camera is configured, started and stopped by the PLB application running on the PC.

The ISM Radio Frequency Classification in Group 1, Class A (EN55011)

Warning: Class A equipment is intended to be used in an industrial environment.

3 Connections

The 3D camera is connected to a 24 V DC power supply, and to a PC running Windows 10 equipped with a Gigabit Ethernet network board.

- ▶ The power supply is connected to the Power connector (M12 connector).
- ▶ The Gigabit Ethernet board in the PC is connected to the Gigabit Ethernet connector, either directly or through an Ethernet switch.

4 System Requirements

- ▶ PC Recommended: Windows 10, at least 8 GB memory, Gigabit Ethernet network card supporting jumbo frames.
- ▶ Ethernet cable Up to 70 m using CAT 6 cables.

5 Installation

- ▶ Ensure that all LED safety requirements for the appropriate LED Risk Group are fulfilled (see **A** and PLB Operating Instructions).
- ▶ Ensure that the camera is unpowered during the installation process.

- ▶ Install a Gigabit Ethernet card **a** and the software on the PC **f**.
- ▶ Mount the 3D camera in respect to the defined volume-of-view **d**.
- ▶ Connect the Gigabit Ethernet connector on the 3D camera to a dedicated Gigabit network switch **e**, or directly to the Gigabit network connector on the PC using a Gigabit Ethernet cable **c**.
- ▶ Connect an unpowered 24 V DC power supply **b** to the Power connector on the 3D camera using a Power cable **a**.
- ▶ Switch on the power supply.

For detailed installation instructions, see the Operating Instructions that can be found at: visionsupport.sick.com

6 Service and Maintenance

- The X36 3D camera contains no user serviceable parts inside. The warranty of the device will be void if opened. The device must not be opened by other parties than SICK.
- ▶ Check screw connections and connectors at regular intervals.
- ▶ Clean the housing with a soft cloth, dry or dampened with a mild water diluted cleaning agent without powder additives.
- ▶ If the system is aligned to a world or robot coordinate system, re-alignment may be necessary if the operating temperature is changed significantly.

In case of unit failure, please contact SICK or a SICK representative that delivered the unit for further instructions.

7 Support

For more information about the PLB520 system, please refer to the PLB Operating Instructions.
For support issues, please visit the online support on: visionsupport.sick.com.
More product information is also available on: www.sick.com

A LED Safety

The X36 3D camera is classified to belong to Risk Group 1 in the blue light hazard according to IEC/TR 62471-2:2009 or DIN EN 62471 amendment 1:2010. It is not possible to entirely rule out temporary, disorienting optical effects on the human eye (e.g., dazzle, flash blindness, afterimages, impairment of color vision, photosensitive epilepsy at flash frequencies of between 1 Hz and 160 Hz, depending on the configuration), particularly in conditions of dim lighting. No safety precautions are required.

CAUTION: The accessible beam from the illumination unit does not represent a risk due to the normal restrictions imposed by human behavior.

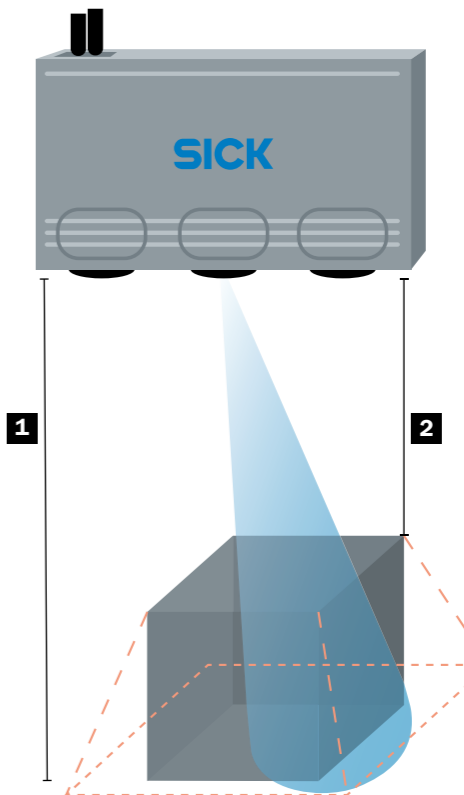
CAUTION: Optical radiation: LED risk group 1, visible radiation, 400 nm to 780 nm
The LEDs may pose a danger to the eyes in the event of incorrect use.
▶ Do not look into the light source intentionally.
▶ Do not open the housing. Opening the housing will not switch off the light source. Opening the housing may increase the level of risk.
▶ Comply with the current national regulations on photobiological security of lamps and lamp systems.

If the product is operated in conjunction with external illumination systems, the risks described here may be exceeded. This must be taken into consideration by users on a case-by-case basis.

D Volume of view (VOV)

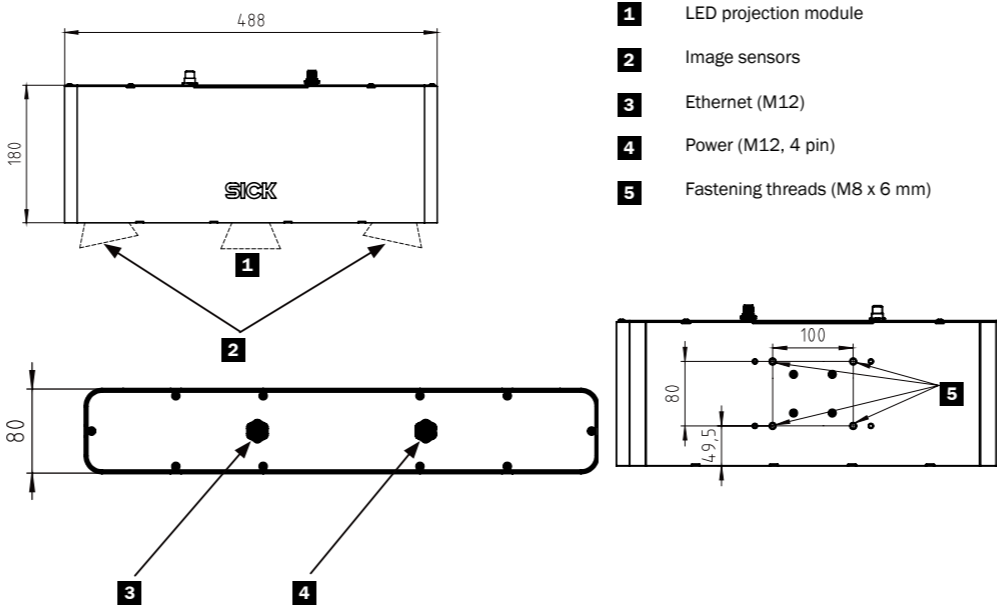
PLB520	L/M/S
Min. distance	1900/1650/950 mm
Max. distance	2900/2050/1150 mm
Image area ¹⁾	
- at min. distance	1300x1200/800x600/400x300 mm
- at max. distance	1800x1800/947x780/520x480 mm
Typical resolution (x, y, z) ²⁾	1 ... 1,7/ 0,7 ... 0,8/ 0,4 ... 0,5 mm
Minimum part size	(approx.) >50x50x50 mm/ (approx.) >30x30x30 mm/ (approx.) >15x15x15 mm
Predefined Volume of View ³⁾	1300x1200x1000 mm/ 800x600x400 mm/ 400x300x200 mm

- ¹⁾ Length x Width.
- ²⁾ The resolution depends on the object distance from the camera.
- ³⁾ With default camera settings. Length x Width x Height



- 1** Maximum distance
- 2** Minimum distance

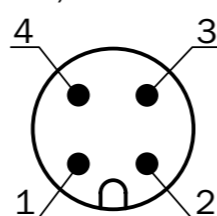
B Dimensional Drawing



- 1** LED projection module
- 2** Image sensors
- 3** Ethernet (M12)
- 4** Power (M12, 4 pin)
- 5** Fastening threads (M8 x 6 mm)

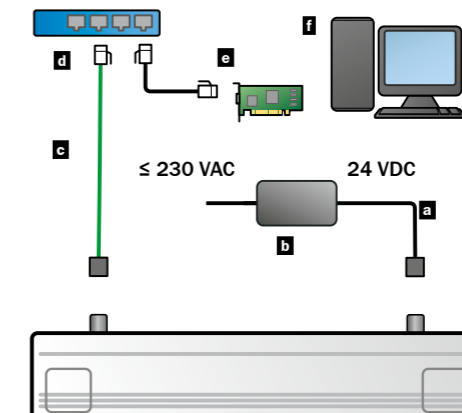
C Connections

POWER I/O CONNECTOR



Pin	Signal	Remark
1	Power	Power supply (24 VDC, 5A)
2	N.C	
3	GND	Ground
4	N.C	

E Connecting Devices



G Accessories

Accessories	Part.No.
Power cable, M12 to flying leads, 10 m a	2095730
Power supply, 24 V DC, 10 A b	6032863
Gigabit Ethernet cable, M12 to RJ45, 10 m c	6049730
Gigabit Ethernet board d	-
Gigabit network switch e	-
PC with installed software from SICK Support Portal (PLB, µEye, Ensenso SDK) f	-
Alignment aid for PLB	2084680

F Technical Data

PLB520	
Type	L/M/S
Part number	1098446/1098448/1098450
Part Localization Time (typical)	3 ... 10 s
Interfaces	Gigabit Ethernet
Host platform	PC, Windows 10
Image trig	Ethernet trig
Supply voltage	24 VDC ± 20%
Current consumption	5 A
House Dimensions (L x H x D)	480 x 180 x 80 mm
Weight	2,5 kg
Enclosure rating	IP 54
Shock load ¹⁾	80 g/1.9 ms, 25 g/6 ms IEC60068-2-27
Vibration load ¹⁾	30-500 Hz/10 g IEC-60068-2-6
LED class	Risk group 1
LED wavelength	465 nm
Imager	CMOS
Operating temperature	0 ... +40 °C
Storage temperature	-30 ... +70 °C