



LC-100-PL/DL/TL...

INSTRUCTION MANUAL



CLASS 1 EN 60825-1 (1994)
LASER PRODUCT

This product is not a safety sensor. It is not intended to be used to protect life or prevent bodily injury or damage from dangerous machine parts. It is a normal object detection sensor.

CONTROLS

OUTPUT LED

The yellow LED on indicates that the N.O. (normally open) output status is closed.

POWER ON LED

The green LED indicates that the sensor is operating and the laser is active.

TRIMMER

The trimmer can be used to adjust sensitivity; the operating distance increases by turning the trimmer clockwise.

WARNING: The trimmer rotation is limited to 270° by a mechanical stop.

Do not apply excessive torque when adjusting (max 40 N·m).

INSTALLATION

The sensor can be positioned by means of the three housing's holes using two screws (M4x25 or longer, 1.5 N·m maximum tightening torque) with washers. Various orientable fixing brackets are available to ease the sensor positioning. The operating distance is measured from the front surface of the sensor optics.

The M12 connector can be oriented in two different positions using the specific fastening spring and rotating the block 180°.



CONNECTIONS

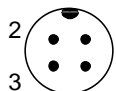
The connections are compliant with the EN 60947-5-2 standard.

LC-100-PL/DL/TL...

BROWN	1	+	10 ... 30 Vdc
WHITE	2		N.C. OUTPUT
BLACK	4		N.O. OUTPUT
BLUE	3		0 V

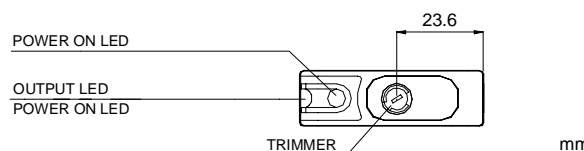
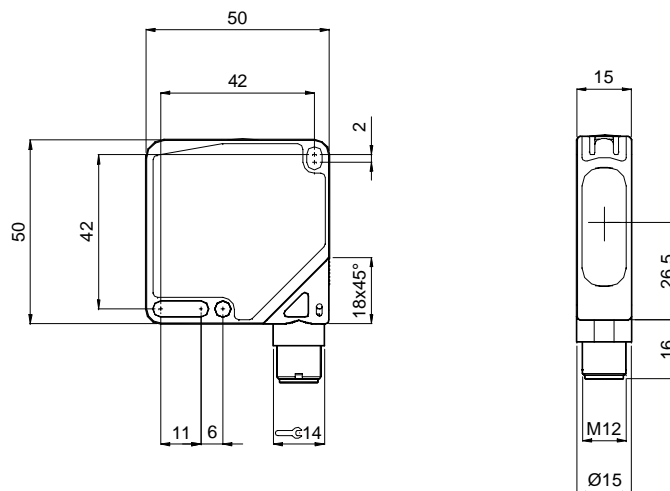
LC-100-TL... (emitter)

BROWN	1	+	10 ... 30 Vdc
WHITE	2		TEST +
BLACK	4		NOT USED
BLUE	3		0 V

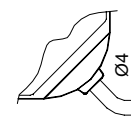


M12 CONNECTOR

DIMENSIONS



CABLE VERSION



TECHNICAL DATA

Power supply:	10 ... 30 VDC limit values
Ripple:	2 Vpp max.
Consumption (output current excluded):	35 mA max.
Outputs:	N.O. and N.C.; PNP or NPN; 30 VDC max. (short-circuit protection)
Output current:	100 mA max.
Output saturation voltage:	≤ 2 V
Response time:	250 µs (LC-100-PL.../DL...); 333 µs (LC-100-TL...)
Switching frequency:	2 kHz (LC-100-PL.../DL...); 1.5 kHz (LC-100-TL...)
Indicators:	OUTPUT LED (YELLOW) POWER ON LED (GREEN)
Setting:	Sensitivity trimmer
Operating mode:	LIGHT mode on N.O. output / DARK mode on N.C. output (LC-100-DL...) DARK mode on N.O. output / LIGHT mode on N.C. output (LC-100-PL.../TL...)
Operating temperature:	-10 ... 50 °C
Storage temperature:	-25 ... 70 °C
Electrical protection:	Class 2
Operating distance (typical values):	LC-100-PL...: 0.1...20 m on M18-RF48 LC-100-DL...: 0...50 cm LC-100-TL...: 0...60 m
Emission type:	RED LASER: Class 1 EN 60825-1 (1994) Class II CDRH 21 CFR PART 1040.10 Max. power ≤ 1 mW; Pulse = 4.2 µs (LC-100-PL.../DL...); 5 µs (LC-100-TL...); λ = 630...680 nm; Frequency = 33.5 kHz (LC-100-PL.../DL...); 10 kHz (LC-100-TL...)
Ambient light rejection:	according to EN 60947-5-2
Vibrations:	0.5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance:	11 ms (30 G) 6 shock for every axis (EN60068-2-27)
Housing material:	ABS
Lens material:	Window in PMMA, lenses in glass and polycarbonate
Mechanical protection:	IP67
Connections:	2 m Ø 4 mm cable / M12 4-pole connector
Weight:	90 g. max. cable vers. / 40 g. max. connector vers.

SETTING

Setting of LC-100-PL...

Position the sensor and reflector aligned on opposite sides.

Turn the sensitivity trimmer to the maximum.

Moving the sensor both vertically and horizontally, determine the power on and off points of the yellow LED (OUT); then mount the sensor in the middle of the points defined.

Reduce sensitivity if very small objects have to be detected. Repeat procedure by progressively reducing the sensitivity to improve alignment.

Setting of LC-100-TL...

Position the sensors aligned on opposite sides.

Turn the sensitivity trimmer to maximum. Moving the sensor both vertically and horizontally, determine the power on and off points of the yellow LED (OUT); then mount the sensor in the middle of the points defined so that the yellow LED remains off.

If necessary, reduce sensitivity if very small objects have to be detected. Repeat procedure by progressively reducing the sensitivity to improve alignment.

Setting of LC-100-DL...

Adjust the sensitivity trimmer to minimum: the yellow LED is off.

Position the target to detect in front of the sensor.

Turn the sensitivity trimmer clockwise until the yellow

LED turns ON (Target detected state, pos.A).

Remove the target, the yellow LED turns OFF.

Turn the sensitivity trimmer clockwise until the yellow LED turns ON (Background detected state, pos.B).

The trimmer reaches maximum if the background is not detected.

Turn the trimmer to the intermediate position C, between the two positions A and B.



TEST FUNCTION (LC-100-TL)

The TEST+ input can be used to inhibit the emitter and verify that the system is operating correctly.

The receiver output should switch when the test is activated while the beam is uninterrupted.

The inputs activating voltage range is 10 ... 30 VDC, with respect to 0 V input (blue wire pin3).

Connect the TEST+ input to 0V if not used.

CONFORMITY



Panasonic Electric Works Europe AG
Rudolf-Diesel-Ring 2
83607 Holzkirchen, Germany
Tel.: +49(0)8024-648-0
Fax: +49(0)8024-648-111
www.panasonic-electric-works.com
Order number: LC100PLDLTLleafV10EN
COPYRIGHT © 2007 All Right Reserved