LC-100-BL…

Background suppression

INSTRUCTION MANUAL

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 is closed. Please refer to the "SETTING" section for the correct setting procedure.

READY/ERROR LED (bi-colored)
The bi-colored LED turned green indicates a normal operating condition and hence the sensor is ready to function correctly (LASER ON).
The red blinking LED indicates a wrong sensor setting. In this case the emission and the green LASER ON LED are turned off.

SET PUSH BUTTON
A long pressure on the pushbutton activates the self-setting procedure.
The same external SET control of the sensor can be obtained using the REMOTE input.

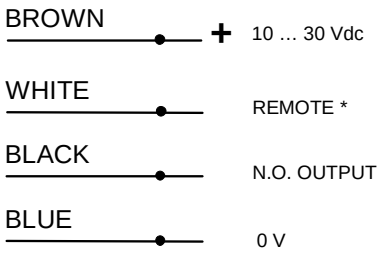
INSTALLATION

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 to ease the sensor positioning are available.
The operating distance is measured from the front surface of the sensor optics.
The M12 connector can be oriented at two different positions using the specific fastening spring and rotating the block to 180°.

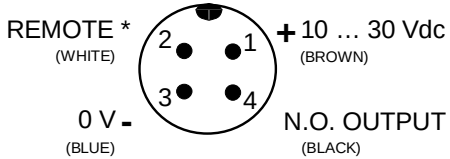
TECHNICAL DATA

Power supply	10 … 30 VDC limit values
Ripple	2 Vpp max.
Current consumption (output current excluded)	60 mA max.
Outputs	PNP or NPN; 30 VDC max. (short-circuit protection)
Output current	100 mA max.
Output saturation voltage	≤ 2 V
Response time	500 µs max.
Switching frequency	1 KHz
Indicators	OUTPUT LED (YELLOW) / LASER ON/ERROR LED (GREEN /RED)
Setting	SET push button
Data retention	EEPROM non volatile memory
Operating temperature	-10 … 55 °C
Storage temperature	-20 … 70 °C
Electrical protection	Class 2
Operating distance (typical values)	5…10 cm
Spot dimension	1.5 x 1 at 5 cm 1 x 1 at 7 cm 3 x 1.5 at 10 cm
Emission type	RED LASER 650 nm: Class 1 EN 60825-1 (1994) Class II CDRH 21 CFR PART 1040.10
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)
DARK/LIGHT selection	LIGHT mode with teach-in / automatic with fine detection
Housing material	ABS
Lens material	Window in PMMA; lens in PC
Mechanical protection	IP67
Connections	2 m cable ∅ 4 mm / M12-4 pole connector
Weight	90 g. max. cable vers. / 40 g. max. connector vers.

CONNECTIONS



M12 CONNECTOR



***** = Connect to 0 V the REMOTE wire if not used.

SETTING

TEACH-IN SETTINGS
Two different setting possibilities are available:
- *STANDARD DETECTION;* press the SET push button for 2 sec. to obtain the self-setting adjustment.
- *FINE DETECTION;* to be used only under particularly critical conditions. Only use this setting when teach-in is not sufficient.

STANDARD DETECTION

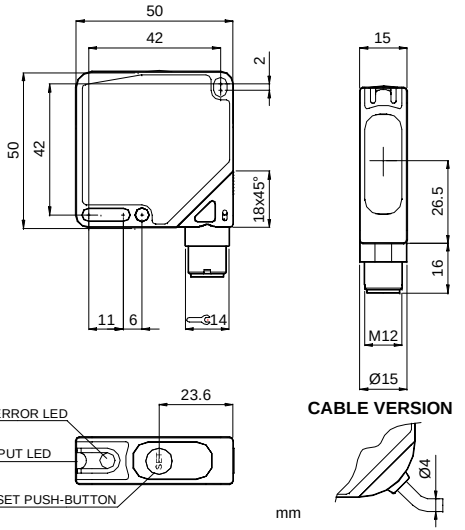
Place the background or the object to be suppressed inside the operating distance.
Press the SET push button until the output LED turns OFF and then release it. The sensor is now ready to detect all objects in the defined operating range. The LIGHT mode is automatically set.

FINE DETECTION

Place the object to detect in front of the sensor at the desired distance.
Without moving the object, press the SET push button and keep it pressed until the output LED begins to blink. Release the button.
Place the background to be suppressed. Press the SET push button and wait unit the output LED turns OFF and release the button.

According to the points detected, the sensor selects the best operating condition and sets the LIGHT functioning mode.
To select the opposite operating mode, invert the defined detection sequence.
If the red ERROR LED blinks, the detection has failed due to insufficient contrast. Repeat the procedure from the beginning.

DIMENSIONS



DELAY FUNCTION

Press the SET push button and keep it pressed until the READY/ERROR LED turns off, blinks and turns off again; then release the SET push button.
If the delay function *is not active*, the READY/ERROR LED blinks green with 2 quick pulses.
If the delay function *is active*, the READY/ERROR LED blinks green with 4 quick pulses.
Press and immediately release the SET push button in order to change the function status. The new function status is indicated by the READY/ERROR LED as described before. The delay function adds 20 ms to the duration of the sensor's ON pulse.

REMOTE FUNCTION

The REMOTE wire connected to + VDC is equal to pressing the SET push button. The *keyboard block* is activated if at the sensor powering the REMOTE wire is connected + VDC, and thus the SET pushbutton is no longer active. To deactivate the *keyboard block*, the sensor has to be turned off and then turned on with the REMOTE wire not connected to 0V.

CONFORMITY

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