LSRL 8

Laser throughbeam photoelectric sensors

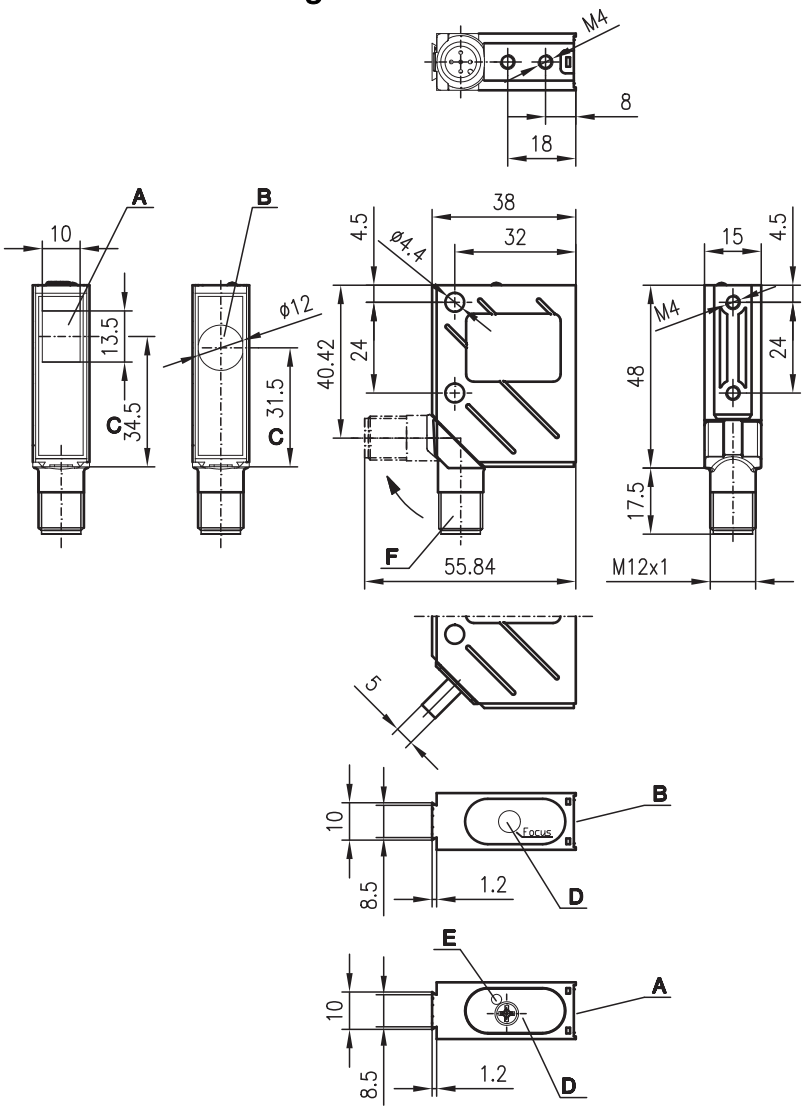
2024/06/14 50126807-01

100m

IP 69K
IP 67

- Red light laser, laser class 2
- A²LS - Active Ambient Light Suppression
- Adjustable focus
- M12 turning connector or cable connection
- Activation input

Dimensioned drawing



A Receiver
B Transmitter
C Optical axis
D Operational control
E Yellow LED
F Turning connector, turnable 90°

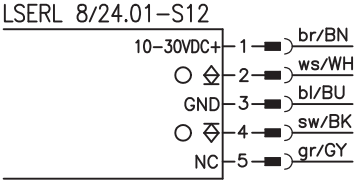
Accessories:

(available separately)

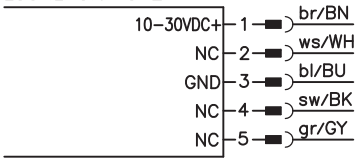
- M12 connectors (KD …)
- Ready-made cables (K-D …)
- Mounting systems
- Diaphragms
- Control guard

Electrical connection

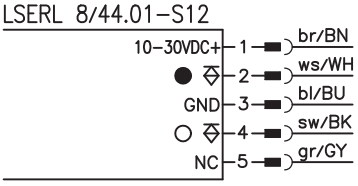
LSERL 8/24.01-S12



LSSRL 8.9-S12



LSERL 8/44.01-S12



Technical data

Optical data

Typ. operating range limit [1]		100 m
Operating range [2]		60 m
Light spot diameter		≥ 0.1 mm adjustable (see diagrams)
Focus adjustment range		140 mm … ∞ (see diagrams)
Beam divergence		≥ 0.5 mrad
Light source		Laser
Laser class		2 in acc. with IEC 60825-1:2014 / EN 60825-1:2014+A11:2021
Wavelength		655 nm (visible red light, polarized)
Max. output power (peak)		3 mW
Impulse duration		≤ 8 µs

Time behavior

Switching frequency		2800 Hz
Response time		0.18 ms
Readiness delay		≤ 100 ms

Electrical data

Operating voltage U_B [3]		10 … 30 V DC
Residual ripple		≤ 15 % of U_B
Open-circuit current		≤ 35 mA
Switching output	…/24…	1 PNP and 1 NPN transistor output, light switching
	…/44…	2 PNP transistor outputs, antivalent
Signal voltage high/low		≥ (U_B-2V)/≤ 2V
Output current		Max. 100 mA
Sensitivity		Adjustable with 270° potentiometer

Indicators

Yellow LED receiver	Light path free
Yellow LED receiver, flashing	Light path free, no function reserve

Mechanical data

Housing	Metal
Optics cover	Glass
Weight (plug/cable)	70 g/140 g
Connection type	M12 connector, 5-pin, turnable or Cable: 2000 mm, 5x0.25 mm²

Environmental data

Ambient temp. (operation/storage)	-10 °C … +40 °C/-40 °C … +70 °C
Protective circuit [4]	2, 3
VDE protection class [5]	II, all-insulated
Degree of protection [6]	IP 67, IP 69K [7]
Standards applied	IEC 60947-5-2
Certifications	UL 508, C22.2 No.14-13 [3] [8]

Additional functions

Activation input active

Transmitter active/not active	U_B/0 V or not connected

1) Typ. operating range limit: max. attainable range without function reserve with focus = ∞
2) Operating range: recommended range with function reserve with focus = 2 m
3) For UL applications: use is permitted exclusively in Class 2 circuits according to NEC
4) 2=polarity reversal protection, 3=short circuit protection for all outputs
5) Rating voltage 250 V AC
6) In end position of the turning connector (turning connector engaged)
7) IP 69K test acc. to DIN 40050 part 9 simulated, high pressure cleaning conditions without the use of additives, acids and bases are not part of the test
8) These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.5A min, in the field installation, or equivalent (categories: CYJV/CYJV7 or PVVA/PVVA7)

Order guide

	Designation	Part no.
With M12 connector		
Transmitter and receiver	LSRL 8/24.91-S12	
Transmitter	LSSRL 8.9-S12	50036358
Receiver	LSERL 8/24.01-S12	50036359
With M12 connector		
Receiver	LSERL 8/44.01-S12	50126801

Tables

Without diaphragm:

0	60	100

With pin diaphragm in front of receiver [1]:

0	8	10

With slit diaphragm in front of receiver [1]:

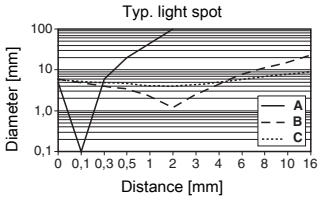
0	16	20

Operating range [m] *
Typ. operating range limit [m] **

* with focus adjustment = 2 m
** with focus adjustment = ∞

1) Smallest object over the entire operating range with
Pin diaphragm: Ø=0.7 mm,
Slit diaphragm: Ø=1.0 mm

Diagrams



A Focus at 0.125 m
B Focus at 2 m
C Focus at 16 m

Notes

NOTES

Observe intended use!
- This product is not a safety sensor and is not intended as personnel protection.
- The product may only be put into operation by competent persons.
- Only use the product in accordance with its intended use.

Laser safety notices

ATTENTION, LASER RADIATION – CLASS 2 LASER PRODUCT

Do not stare into beam!

The device satisfies the requirements of IEC 60825-1:2014 / EN 60825-1:2014+A11:2021 safety regulations for a product of **laser class 2** and complies with 21 CFR 1040.10 except for conformance with IEC 60825-1 Ed. 3., as described in Laser Notice No. 56, dated May 8, 2019.

- Never look directly into the laser beam or in the direction of reflected laser beams!
  If you look into the beam path over a longer time period, there is a risk of injury to the retina.
- Do not point the laser beam of the device at persons!
- Interrupt the laser beam using a non-transparent, non-reflective object if the laser beam is accidentally directed towards a person.
- When mounting and aligning the device, avoid reflections of the laser beam off reflective surfaces!
- CAUTION! Use of controls or adjustments or performance of procedures other than specified herein may result in hazardous light exposure.
- Observe the applicable statutory and local laser protection regulations.
- The device must not be tampered with and must not be changed in any way.
  There are no user-serviceable parts inside the device.
  CAUTION! Opening the device may result in hazardous radiation exposure!
  Repairs must only be performed by Leuze electronic GmbH + Co. KG.

NOTE

Affix laser information and warning signs!

Laser warning and laser information signs are affixed to the device (see ①). In addition, self-adhesive laser warning and information signs (stick-on labels) are supplied in several languages (see ②).

- Affix the laser information sheet to the device in the language appropriate for the place of use.
  When using the device in the US, use the stick-on label with the "Complies with 21 CFR 1040.10" notice.
- Affix the laser information and warning signs near the device if no signs are attached to the device (e.g., because the device is too small) or if the attached laser information and warning signs are concealed due to the installation position.
  Affix the laser information and warning signs so that they are legible without exposing the reader to the laser radiation of the device or other optical radiation.

①

A Laser aperture
B Laser warning sign

②