

## LSR 2

## Miniature throughbeam photoelectric sensor

2024/03/04 50112212

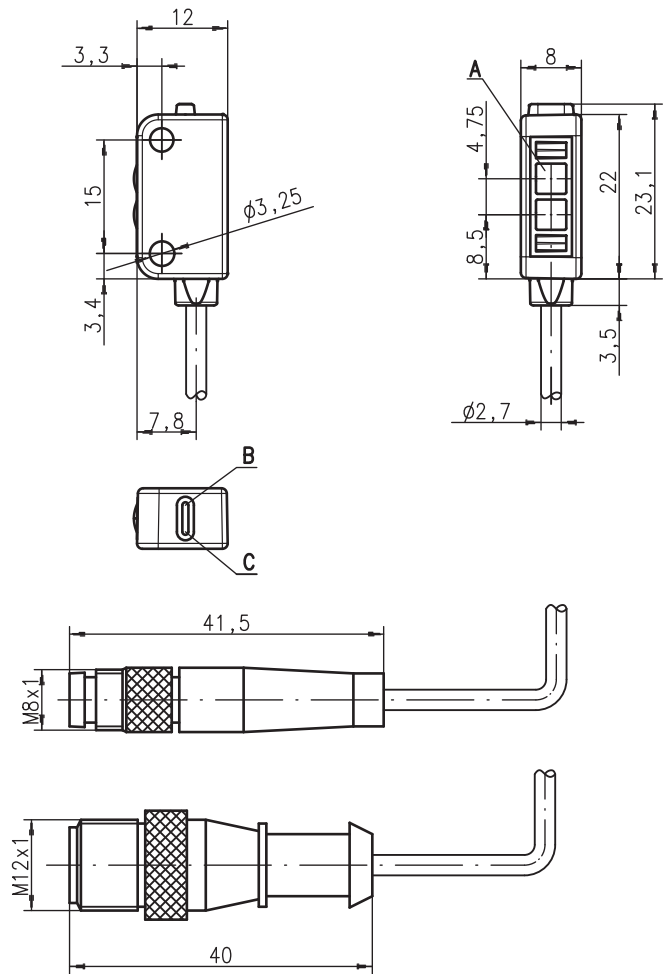


Figure can vary

0 ... 2m

- Miniature throughbeam photoelectric sensor with visible red light
- Homogeneous, highly visible light spot by means of pin-point LED
- Universal connection options
- Miniature construction with temperature-stable plastic housing with protection class IP 67 and 2 inlaid metal fastening sleeves for secure mounting
- Activation input (option)

## Dimensioned drawings



- A Transmitter  
B Yellow indicator diode  
C Green indicator diode

All dimensions in millimeters

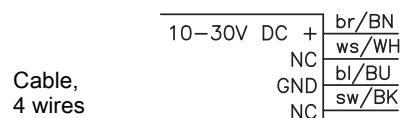
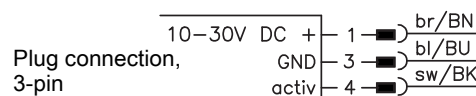
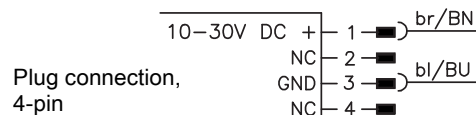
## Accessories:

(available separately)

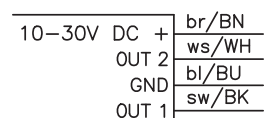
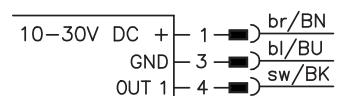
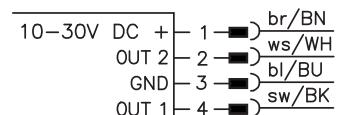
- Mounting device BT 002 M.5 (50112206)
- Cable with M8 or M12 connector (K-D ...)

## Electrical connection

## Transmitter



## Receiver



### Technical data

#### Optical data

Typ. operating range limit <sup>1)</sup>	0 ... 2m
Operating range <sup>2)</sup>	0 ... 1.6m
Light source <sup>3)</sup>	LED (modulated light)
Wavelength	640nm (visible red light)

#### Timing

Switching frequency	385Hz
Response time	1.3ms
Repeatability	175µs
Delay before start-up	≤ 120ms

#### Electrical data

Operating voltage $U_B$ <sup>4)</sup>	10 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 10% of $U_B$
Open-circuit current	≤ 20mA
Switching output	.../42 .../42D .../4
Output configuration	OUT1 (pin 4): PNP light switching OUT2 (pin 2): NPN light switching OUT1 (Pin 4): PNP dark switching OUT2 (Pin 2): NPN dark switching OUT1 (pin 4): PNP light switching bipolar transistor with open collector, leakage current (OFF): PNP=10µA, NPN=10µA, saturation voltage (ON, at 50mA): PNP=2V, NPN=2V max. 50mA (per output and total) $C \leq 2.2\mu F$
Output current	
Load	

#### Indicators

Green LED in continuous light	ready
Green LED, flashing	output overloaded
Yellow LED in continuous light	light path free
Yellow LED, flashing	light path free, no performance reserve

#### Mechanical data

Housing	plastic (TPE)
Optics cover	plastic (PC)
Attachment	by means of 2 brass sleeves integrated in the housing
Weight	with 2m cable: 50g with 150mm cable and connector: 20g
Connection type	2m cable, PVC, 4-wire, core cross section 4x0.14mm <sup>2</sup> , 150mm cable with M8/M12 connector, 4-pin

#### Environmental data

Ambient temp. (operation/storage)	-20°C ... +55°C/-30°C ... +75°C
Protective circuit <sup>5)</sup>	1, 2, 3, 4
VDE safety class	III
Protection class	IP 67
LED class	1 (acc. to EN 60825-1)
Standards applied	IEC 60947-5-2
Certifications	cURus (Recognized Component Mark for Canada and USA)

#### Options

Activation input activ (only LSSR 2.8, 150-S8.3)	
Transmitter active/not active	≥ 8V/≤ 2V
Activation/disable delay	≤ 1ms

- 1) Typ. operating range limit: max. attainable range without performance reserve
- 2) Operating range: recommended range with performance reserve
- 3) Average life expectancy 100,000h at an ambient temperature of 25°C
- 4) For UL applications: for use in class 2 circuits according to NEC only
- 5) 1=overload protection, 2=polarity reversal protection, 3=short circuit protection for all transistor outputs, 4=transient protection max. ± 50V

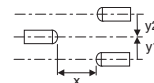
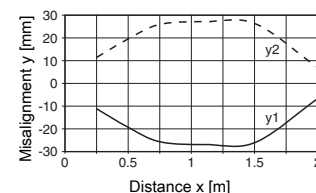
### Tables

0	1.6	2
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	Operating range [m]
	Typ. scanning range limit [m]

### Diagrams

Typ. response behavior



### NOTES

	<p><b>Operate in accordance with intended use!</b></p> <p>⚠ This product is not a safety sensor and is not intended as personnel protection.</p> <p>⚠ The product may only be put into operation by competent persons.</p> <p>⚠ Only use the product in accordance with the intended use.</p>
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A light axis consists of a transmitter and a receiver with the following designations:

LSR	= Complete light axis
LSSR	= Transmitter
LSER	= Receiver

## LSR 2

## Miniature throughbeam photoelectric sensor

## Part number code

L	S	S	R	2	/	4	2	D					,	1	5	0	-	S	1	2
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## Operating principle

<b>HRTR</b>	Miniature light scanners with background suppression, red light
<b>PRK</b>	Miniature retro-reflective photoelectric sensor with polarization filter
<b>LSSR</b>	Miniature throughbeam photoelectric sensor, red-light transmitter
<b>LSER</b>	Miniature throughbeam photoelectric sensor, red-light receiver

## Series

<b>2</b>	2 Series
<b>2.8</b>	With activation input

## Switching output

<b>/42</b>	Bipolar transistor output open collector, OUT 1 (pin 4): PNP, OUT 2 (pin 2): NPN
<b>/4</b>	Bipolar transistor output open collector, OUT 1 (pin 4): PNP, OUT 2 (pin 2): does not exist

## Switching output function

<b>N/A</b>	OUT 1 and OUT 2 both light switching
<b>D</b>	OUT 1 and OUT 2 both dark switching

## Scanning range (only with operating principle HRTR)

<b>-15F</b>	Scanning range limit set to 15mm
<b>-30F</b>	Scanning range limit set to 30mm
<b>-50F</b>	Scanning range limit set to 50mm

## Electrical connection

<b>N/A</b>	Cable, PVC, standard length 2000mm, 4-wire
<b>,150-S8</b>	Cable, PVC, length 150mm with M8 connector, 4-pin, axial
<b>,150-S8.3</b>	Cable, PVC, length 150mm with M8 connector, 3-pin, axial
<b>,150-S12</b>	Cable, PVC, length 150mm with M12 connector, 4-pin, axial

## Order guide

The sensors listed here are preferred types; current information at [www.leuze.com](http://www.leuze.com)

## Order code                      Part No.

## Transmitter

LSSR 2	50112127
LSSR 2, 150-S8	50112128
LSSR 2.8, 150-S8.3	50116172
LSSR 2, 150-S12	50112129

## receiver

LSER 2/42	50112130
LSER 2/42, 150-S8	50112131
LSER 2/4, 150-S8.3	50116173
LSER 2/42, 150-S12	50112132
LSER 2/42D	50112133
LSER 2/42D, 150-S8	50112134
LSER 2/42D, 150-S12	50112135