

## L46C.P

## Red-light throughbeam photoelectric sensor for parallel operation

en 01-2015/11 50130088



**120m**



- Throughbeam photoelectric sensor suitable for parallel operation with other throughbeam photoelectric sensors
- Throughbeam photoelectric sensor with large operating range and high function reserve in red light version
- Time-saving, exact alignment and function check through additional, highly visible display on front side
- Various switching output functions for universal connection to existing control environment
- Robust plastic housing in degrees of protection IP67 and IP69K

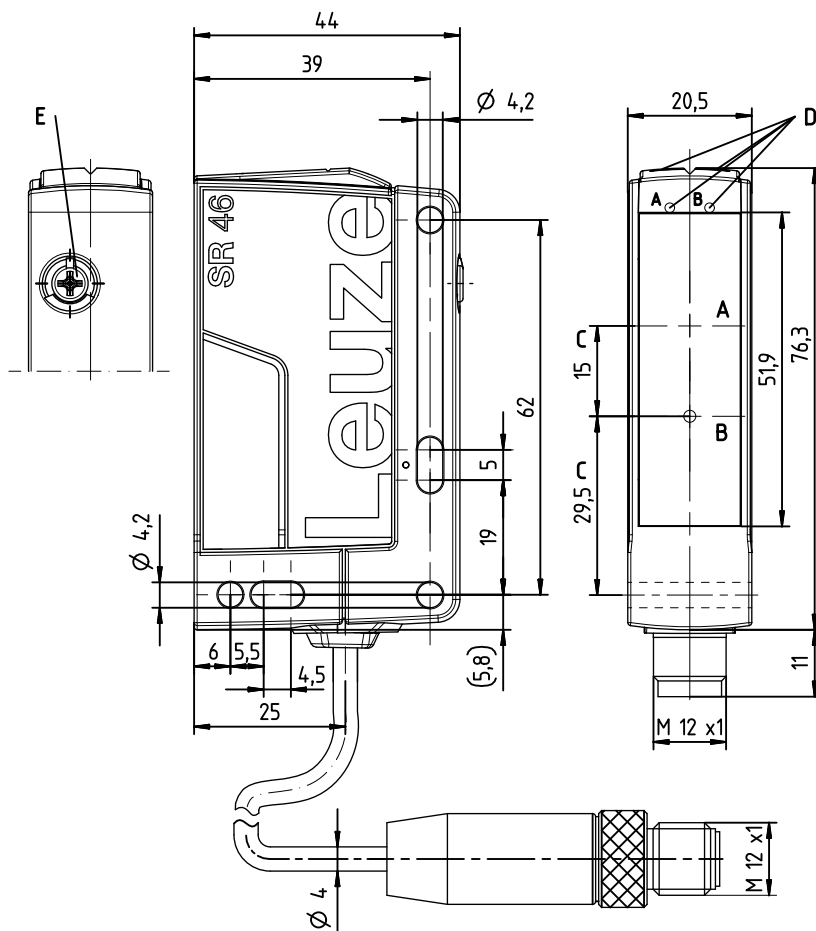


### Accessories:

(available separately)

- Mounting systems (BT 46, BTU 300M, BT 300, BTU 346)
- M12 connectors (KD ...)
- Ready-made cables (K-D ...)
- Alignment aid (SAT 5)
- Laser alignment aid (ARH 46C)

### Dimensioned drawing



- A** Transmitter (LS) / Receiver (LE)
- B** Yellow indicator diode Transmitter: active/not active  
Receiver: signal/no signal
- C** Optical axis
- D<sub>A</sub>** Green indicator diode
- D<sub>B</sub>** Yellow indicator diode
- E** Sensitivity adjustment (only receiver LE46C.1...)

### Electrical connection

Transmitter, 4-pin connector

U <sub>B</sub>	1	br / BN
NC	2	
GND	3	bl / BU
IN*)	4	sw / BK

Receiver, 4-pin connector

U <sub>B</sub>	1	br / BN
OUT*)	2	ws / WH
GND	3	bl / BU
OUT1	4	sw / BK

Transmitter, cable

U <sub>B</sub>	1	br / BN
NC	2	ws / WH
GND	3	bl / BU
IN*)	4	sw / BK

Selection pin 2/4

*)	OUT	IN
	OUT 2	Active
	Warn	NC
	NC	

We reserve the right to make changes • DS\_L46C\_P\_en\_50130088.fm

## Specifications

### Optical data

Typ. operating range limit <sup>1)</sup>	0 ... 120m
Operating range <sup>2)</sup>	0.5 ... 80m
Light source <sup>3)</sup>	LED (modulated light)
Wavelength	630nm (visible red light)

### Timing

Switching frequency	500Hz
Response time	1 ms
Readiness delay	≤ 300ms

### Electrical data

#### With transistor switching outputs

Operating voltage $U_B$ <sup>4)</sup>	10 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 15% of $U_B$
Open-circuit current	≤ 20mA
Switching outputs/functions <sup>5)</sup>	2 PNP switching outputs, antivalent 2 NPN switching outputs, antivalent
Signal voltage high/low	≥ ( $U_B - 2V$ ) / ≤ 2V
Output current	max. 100mA

### Indicators

Green LED	ready
Yellow LED	light path free
Yellow LED, flashing	light path free, no function reserve
Yellow LED (behind lens cover)	transmitter: active/not active receiver: signal/no signal
Yellow LED (behind lens cover), flashing	receiver: signal, function reserve limited

### Mechanical data

Housing	plastic
Optics cover	plastic
Weight	with M12 connector: approx. 60g with 200mm cable and M12 connector: approx. 65g with 2000mm cable: approx. 100g
Connection type	M12 connector, 4-pin cable 200mm with M12 connector, 4-pin cable 2000mm, 4 x 0.21 mm <sup>2</sup>

### Environmental data

Ambient temp. (operation/storage)	-40°C ... +60°C / -40°C ... +70°C
Protective circuit <sup>6)</sup>	1, 2, 3
VDE safety class <sup>7)</sup>	II, all-insulated
Degree of protection	IP 67, IP 69K <sup>8)</sup>
Light source	exempt group (in acc. with EN 62471)
Standards applied	IEC 60947-5-2
Certifications	UL 508, CSA C22.2 No.14-13 <sup>4)</sup> <sup>9)</sup>

### Options

#### Activation input

Transmitter active/not active	≥ 8V / ≤ 2V
Activation/disable delay	≤ 1ms
Input resistance	10KΩ ± 10%

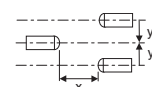
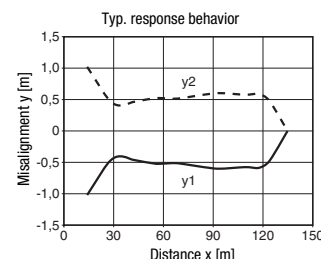
- 1) Typ. operating range limit: max. attainable range without function reserve
- 2) Operating range: recommended range with function reserve
- 3) Average life expectancy 100,000 h at an ambient temperature of 25°C
- 4) For UL applications: for use in class 2 circuits only
- 5) See part number code
- 6) 1=transient protection, 2=polarity reversal protection, 3=short circuit protection for all outputs
- 7) Rating voltage 250VAC
- 8) 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
- 9) 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)

## Tables

0	0.5	80	120
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	Operating range [m]
	Typ. operating range limit [m]

## Diagrams



## Remarks

### Operate in accordance with 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 the intended use.

- A light axis consists of a transmitter and a receiver with the following designations:

L46C... = complete light axis  
LS46C... = transmitter  
LE46C... = receiver

- **Alignment indicator:** ('B' see dimensioned drawing)  
**Yellow LED =**  
light path free - with reserve  
**Yellow LED, flashing =**  
light path free - no function reserve
- Light axes suitable for parallel operation with L46Cl... infrared through-beam photoelectric sensors
- Suitable for installation in series (in succession) with L46Cl... infrared through-beam photoelectric sensors

# L46C.P      Red-light throughbeam photoelectric sensor for parallel operation

## Part number code

L	S	4	6	C		.	8			-	M	1	2	
L	E	4	6	C		.	P	/	4	P	-	M	1	2

### Operating principle

<b>LS</b>	Throughbeam photoelectric sensor, transmitter
<b>LE</b>	Throughbeam photoelectric sensor, receiver

### Series

<b>46C</b>	46C series
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### Light type

<b>Free</b>	Red light
<b>I</b>	Infrared light

### Function/Equipment

<b>1</b>	Sensitivity adjustment via potentiometer on receiver
<b>8</b>	Activation input on transmitter (active high, connector pin 4/black cable wire)
<b>P</b>	With edge filter on receiver for parallel operation

### Pin assignment of OUT1 (connector pin 4 / black cable wire)

<b>2</b>	NPN, light switching
<b>N</b>	NPN, dark switching
<b>4</b>	PNP, light switching
<b>P</b>	PNP, dark switching

### Pin assignment of OUT2 (connector pin 2 / white cable wire)

<b>X</b>	Not assigned
<b>2</b>	NPN, light switching
<b>N</b>	NPN, dark switching
<b>4</b>	PNP, light switching
<b>P</b>	PNP, dark switching
<b>W</b>	Warning output, PNP light switching

### Connection technology

<b>M12</b>	M12 connector, 4-pin
<b>200-M12</b>	Cable 200 mm with M12 connector, 4-pin
<b>Free</b>	Cable 2000 mm

## Order guide

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

Red-light throughbeam photoelectric sensor with alignment display for parallel operation		Designation	Part no.
TRANSMITTER	<b>With M12 connector, 4-pin</b>		
	standard	LS46C-M12	50127042
	with activation input	LS46C.8-M12	50127045
	<b>Cable 0.2m with M12 connector, 4-pin</b>		
	standard	LS46C-200-M12	50127044
	<b>Cable 2m</b>		
	standard	LS46C	50127043
RECEIVER	<b>With M12 connector, 4-pin</b>		
	OUT1: PNP light switching; OUT2: PNP dark switching	LE46C.P/4P-M12	50131555
	OUT1: NPN light switching; OUT2: NPN dark switching	LE46C.P/2N-M12	50131556
	<b>Cable 0.2m with M12 connector, 4-pin</b>		
	—	—	—
	<b>Cable 2m</b>		
	—	—	—

For a complete light axis, arbitrary combinations of the transmitters and receivers listed above are possible.