# L46C Red-light throughbeam photoelectric sensor with alignment display

150m

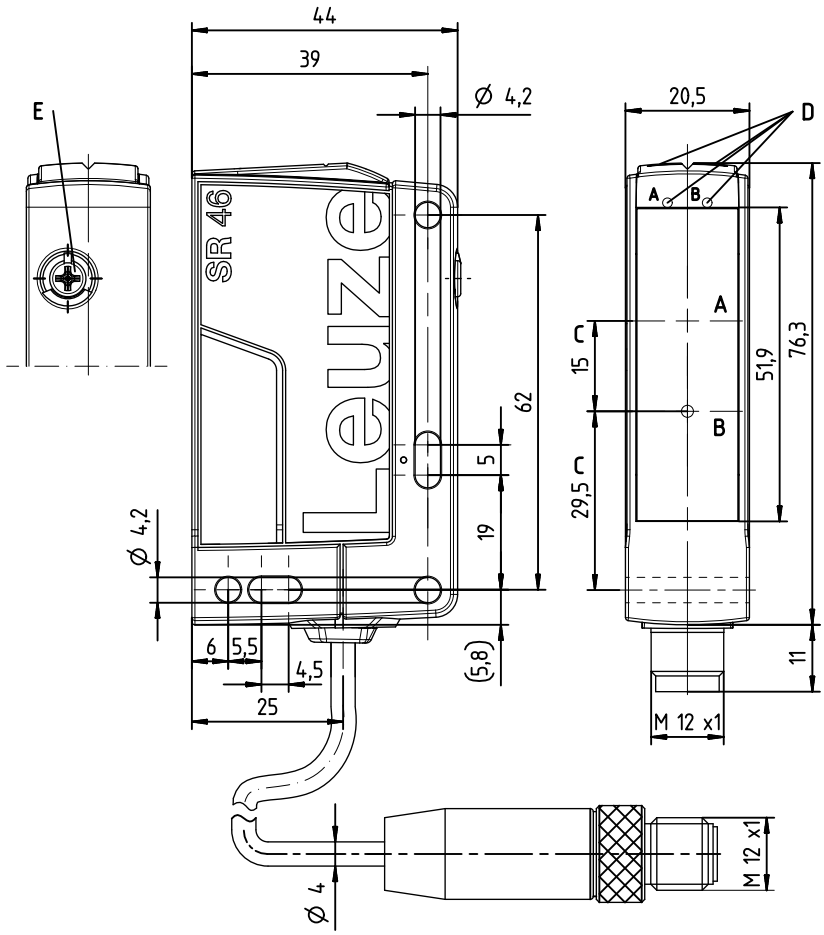
- Throughbeam photoelectric sensor with large operating range and high function reserve in red light version
- Sensitivity adjustment and delay before start-up for optimal adaptation to the application
- Time-saving, exact alignment and function check through additional, highly visible display on front side
- Warning output for sustained availability (prefailure message)
- Activation input for sensor test
- 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)

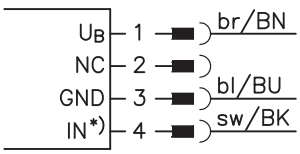
## Dimensioned drawing



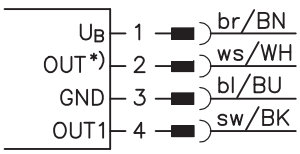

**A** Transmitter (LS) / Receiver (LE)
**B** Yellow indicator diode Transmitter: active/not active
Receiver: signal/no signal
**C** Optical axis
**$D_A$** Green indicator diode
**$D_B$** Yellow indicator diode
**E** Sensitivity adjustment (only on receiver)

## Electrical connection

Transmitter, 4-pin connector



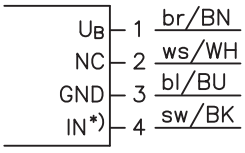

Receiver, 4-pin connector



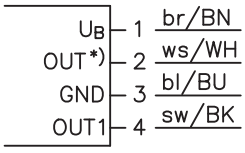

Selection pin 2/4

| *) | OUT | IN |
|---|---|---|
| | OUT 2 | Active |
| | Warn | NC |
| | NC | |

Transmitter, cable




Receiver, cable

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# Specifications

## Optical data

| | | |
|---|---|---|
| Typ. operating range limit [1] | | 0 … 150m |
| Operating range [2] | | 0.5 … 120m |
| Operating range adjustment | | 225° potentiometer (LE46C.1… only) |
| Light source [3] | | LED (modulated light) |
| Wavelength | | 630nm (visible red light) |

## Timing

| | | |
|---|---|---|
| Switching frequency | | 500Hz |
| Response time | | 1ms |
| Delay before start-up | | ≤ 300ms |

## Electrical data

**With transistor switching outputs**

| | | |
|---|---|---|
| Operating voltage $U_B$ [4] | | 10 … 30VDC (incl. residual ripple) |
| Residual ripple | | ≤ 15% of $U_B$ |
| Open-circuit current | | ≤ 20mA |
| Switching outputs/functions [5] | /4P | 2 PNP switching outputs, antivalent |
| | /4X | 1 PNP switching output, light switching |
| | /PX | 1 PNP switching output, dark switching |
| | /2N | 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 0.21mm² |

## Environmental data

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

## Options

| | |
|---|---|
| **Warning output** | PNP transistor, counting principle |
| Signal voltage high/low | ≥ ($U_B$-2V)/≤ 2V |
| Output current | max. 100mA |
| **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)

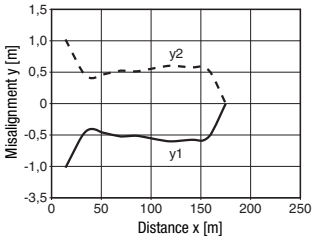
# Tables

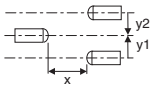
| 0 | 0.5 | 120 | 150 |
|---|---|---|---|

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

# Diagrams

Typ. response behavior




# 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

## L46C Red-light throughbeam photoelectric sensor with alignment display

## Part number code

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | S | 4 | 6 | C | | . | 8 | | | | - | 2 | 0 | 0 | - | M | 1 | 2 |
| L | E | 4 | 6 | C | | . | 1 | / | 4 | P | - | 2 | 0 | 0 | - | M | 1 | 2 |

**Operating principle**

| | |
|---|---|
| **LS** | Throughbeam photoelectric sensor, transmitter |
| **LE** | Throughbeam photoelectric sensor, receiver |

**Series**

| | |
|---|---|
| **46C** | 46C series |

**Light type**

| | |
|---|---|
| **Free** | Red light |
| **I** | Infrared light |

**Equipment**

| | |
|---|---|
| **1** | Sensitivity adjustment via potentiometer on receiver |
| **8** | Activation input on transmitter (active high, connector pin 4/black cable wire) |

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

| | |
|---|---|
| **2** | NPN, light switching |
| **N** | NPN, dark switching |
| **4** | PNP, light switching |
| **P** | PNP, dark switching |

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

| | |
|---|---|
| **X** | Not assigned |
| **2** | NPN, light switching |
| **N** | NPN, dark switching |
| **4** | PNP, light switching |
| **P** | PNP, dark switching |
| **W** | Warning output, PNP light switching |

**Connection technology**

| | |
|---|---|
| **M12** | M12 conector, 4-pin |
| **200-M12** | Cable 200 mm with M12 connector, 4-pin |
| **Free** | Cable 2000 mm |

## Order guide

The sensors listed here are preferred types; current information at www.leuze.com.

| | Red-light throughbeam photoelectric sensor with alignment display | Designation | Part no. |
|---|---|---|---|
| TRANSMITTER | **With M12 connector, 4-pin** | | |
| | Standard | LS46C-M12 | 50127042 |
| | With activation input | LS46C.8-M12 | 50127045 |
| | **Cable 0.2m with M12 connector, 4-pin** | | |
| | Standard | LS46C-200-M12 | 50127044 |
| | **Cable 2m** | | |
| | Standard | LS46C | 50127043 |
| RECEIVER | **With M12 connector, 4-pin** | | |
| | OUT1: PNP light switching; OUT2: PNP dark switching | LE46C/4P-M12 | 50127033 |
| | OUT1: PNP light switching; OUT2: warning output PNP active high | LE46C/4W-M12 | 50127038 |
| | OUT1: PNP light switching; OUT2: PNP dark switching; sensitivity adjustment | LE46C.1/4P-M12 | 50127037 |
| | OUT1: NPN light switching; OUT2: NPN dark switching | LE46C/2N-M12 | 50127036 |
| | **Cable 0.2m with M12 connector, 4-pin** | | |
| | OUT1: PNP light switching; OUT2: PNP dark switching | LE46C/4P-200-M12 | 50127035 |
| | OUT1: PNP dark switching; OUT2: no contact [1)] | LE46C/PX-200-M12 | 50127039 |
| | **Cable 2m** | | |
| | OUT1: PNP light switching; OUT2: PNP dark switching | LE46C/4P | 50127034 |

1) Direct connection to AS-i coupling modules possible

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