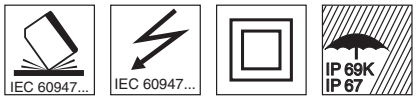
## L49C RELAIS — Throughbeam photoelectric sensors

en 02-2015/08 50128464-01


**150 m**


- Throughbeam photoelectric sensors with large operating range and high performance reserve in red light and infrared light versions
- Robust plastic housing, degree of protection IP 67 and IP 69K for universal, industrial application
- All-mains design 20 … 250VAC/DC with relay output (potential-free)
- Sensitivity adjustment and delay before start-up for optimal adaptation to the application
- Light/dark switching and time module activation via teach button for time-saving integration in existing evaluation environment:
- Time-saving, exact alignment through additional, highly visible display
- Space-saving installation thanks to front access to the connection compartment
- Extremely time-saving connection by means of spring terminals (up to 1.5mm²)
- Optics heating



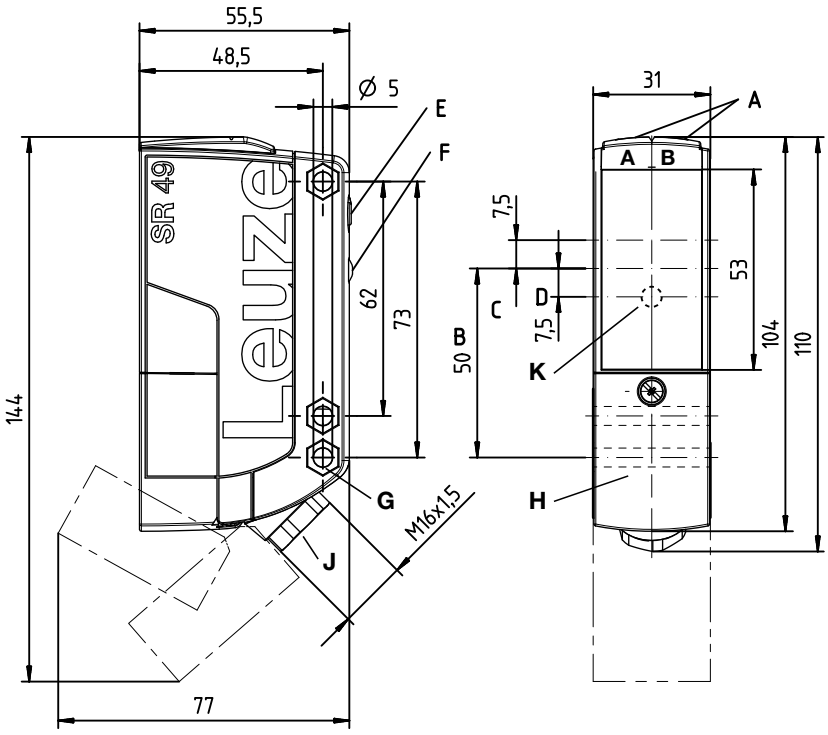

## Accessories:

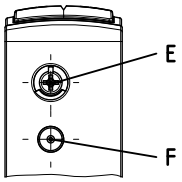
**(available separately)**

- Mounting systems (BTU 460, BT 96, BT 96.1, BT 450.1-96)
- Spark extinction
- Alignment aid SAT 5



## Dimensioned drawing



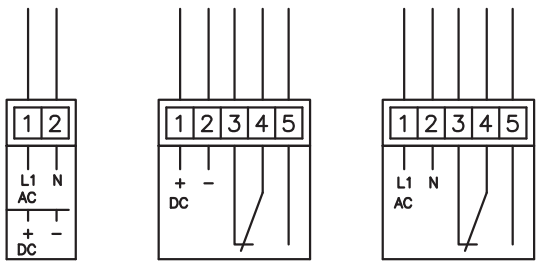




| | |
|---|---|
| $A_A$ | Green indicator diode |
| $A_B$ | Yellow indicator diode |
| B | Optical axis |
| C | Receiver |
| D | Transmitter |
| E | Sensitivity adjustment |
| F | Teach button for light/dark switching / time module activation |
| G | Countersinking for SK nut M5, 4.2 deep |
| H | Connection compartment with spring terminals |
| J | Cable entry with M16x1.5 screw fitting for Ø5 … 10mm |
| K | Yellow indicator diode<br>Transmitter: active/not active<br>Receiver: signal/no signal |

## Electrical connection

**Transmitter** **Receiver**

**DC/AC** **DC** **AC**




**Wire color of connecting cable**

| Pin | Color |
|---|---|
| 1 | BR / BN |
| 2 | BL / BU |
| 3 | WS / WH |
| 4 | GR / GY |
| 5 | SW / BK |

## Specifications

| | L49C… | L49CI… |
|---|---|---|
| **Optical data** | | |
| Typ. operating range limit [1] | 0 … 150m | |
| Operating range [2] | 0.5 … 120m | |
| Light source | LED (modulated light) | |
| Wavelength | 630nm (red light) | 860nm (infrared light) |
| **Timing** | | |
| Switching frequency | 25Hz | |
| Response time | 20ms | |
| Delay before start-up | ≤ 300ms | |
| **Electrical data** | | |
| Operating voltage $U_B$ | 20 … 250VAC, 50/60Hz<br>20 … 250VDC | |
| Power consumption | ≤ 1.5VA | |
| Switching output [3] | relay, 1 change-over contact | |
| Function | break-contact/make-contact | |
| Switching voltage, relay | 250VAC/DC | |
| Switching current, relay | 250VAC, 2.5A/30VDC, 2.5A | |
| Switching power, relay | 625VA, cosφ=1 | |
| Sensitivity | adjustable | |
| **Indicators** | | |
| Green LED | ready | |
| Yellow LED | light path free | |
| Yellow LED, flashing | light path free, no performance reserve | |
| Yellow LED (behind lens cover) | transmitter: active/not active<br>teceiver: signal/no signal | |
| Yellow LED (behind lens cover), flashing | teceiver: signal, performance reserve limited | |
| **Mechanical data** | | |
| Housing | polycarbonate | |
| Optics cover | plastic | |
| Weight | 150g | |
| Connection type | spring terminals, max. wire cross section 1.5mm$^2$<br>cable 2000mm, 3/5 x 0.5mm$^2$ | |
| **Environmental data** | | |
| Ambient temp. (operation/storage) | -40°C … +60°C/-40°C … +70°C | |
| Protective circuit [4] | 1, 2, 3 | |
| VDE safety class [5] | II, all-insulated | |
| Degree of protection | IP 67, IP 69K [6] | |
| Light source | exempt group (in acc. with EN 62471) | |
| Standards applied | IEC 60947-5-2 | |
| **Options** | | |
| **Switching function** (teach level 1) | light switching (factory setting) or dark switching | |
| **Time module** (teach level 2) | active: dropout delay 500ms<br>not active:no dropout delay (factory setting) | |
| **Optics heating** | | |
| Current consumption | approx. 70mA at 20VDC | |

1) Typ. operating range limit: max. attainable range without performance reserve
2) Operating range: recommended range with performance reserve
3) Suitable spark extinction (snubber) must be provided with inductive or capacitive loads
4) 1=transient protection, 2=polarity reversal protection, 3=short circuit protection for all outputs
5) Rating voltage 250VAC
6) 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

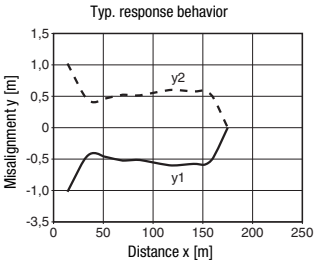
## Tables

| 0/0,5 | 120 | 150 |
|---|---|---|

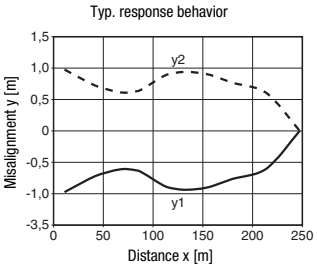
Operating range [m]
Typ. operating range limit [m]

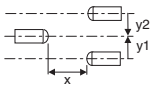
## Diagrams

**L49C… with red light**




**L49CI… with infrared light**




## 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.

## L49C RELAIS — Throughbeam photoelectric sensors

## Part number code

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Transmitter** | L | S | 4 | 9 | C | I | . | U | C | H | | | | | - | T | B |
| **Receiver** | L | E | 4 | 9 | C | I | . | U | C | H | 1 | / | T | S | - | T | B |

**Operating principle**

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

**Series**

| | |
|---|---|
| **49C** | 49C series |

**Light type**

| | |
|---|---|
| **I** | Infrared light |
| **free** | Red light |

**Operating voltage**

| | |
|---|---|
| **UC** | 20 … 250VAC/DC (all-mains design) |

**Equipment**

| | |
|---|---|
| **H** | Optics heating |

**Setting (receiver)**

| | |
|---|---|
| **1** | Potentiometer, teach button (light/dark switching, time module activation) |

**Switching output (receiver)**

| | |
|---|---|
| **TS** | Relay, normally closed contact/normally open contact (NC/NO) |
| **M4** | Low-impedance MOSFET semiconductor switching output, normally open contact (NO) |

**Connection technology**

| | |
|---|---|
| **TB** | Terminal block - terminal compartment with spring terminals (5 x 1.5mm$^2$) |
| **free** | Cable 2000mm |

## Order guide

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

| | All-mains designs with relay output | Designation | Part no. |
|---|---|---|---|
| TRANSMITTER | **Terminal compartment with spring terminals (5 x 1.5mm$^2$)** | | |
| | Red light | LS49C.UC-TB | 50127437 |
| | Infrared light | LS49CI.UC-TB | 50127439 |
| | Red light, optics heating | LS49C.UCH-TB | 50130462 |
| | Infrared light, optics heating | LS49CI.UCH-TB | 50130463 |
| | **Cable, cable length 2m** | | |
| | Red light | LS49C.UC | 50127438 |
| | Infrared light | LS49CI.UC | 50127440 |
| RECEIVER | **Terminal compartment with spring terminals (5 x 1.5mm$^2$)** | | |
| | Red light | LE49C.UC/TS-TB | 50127441 |
| | Infrared light | LE49CI.UC/TS-TB | 50127445 |
| | Red light, optics heating | LE49C.UCH/TS-TB | 50130467 |
| | Infrared light, optics heating | LE49CI.UCH/TS-TB | 50130464 |
| | **Cable, cable length 2m** | | |
| | Red light | LE49C.UC/TS | 50127442 |
| | Infrared light | LE49CI.UC/TS | 50127446 |

| Transmitter/receiver combinations [1] | | TRANSMITTER | | RECEIVER |
|---|---|---|---|---|
| Red light | Terminal connection | 50127437 | + | 50127441 |
| | Terminal connection, optics heating | 50130462 | + | 50130467 |
| | Connection cable | 50127438 | + | 50127442 |
| Infrared light | Terminal connection | 50127439 | + | 50127445 |
| | Terminal connection, optics heating | 50130463 | + | 50130464 |
| | Connection cable | 50127440 | + | 50127446 |

1) Combinations of red-light devices and infrared devices are not possible;
combinations of devices with terminal connection and devices with connection cable are possible if both devices are of the same light type

## Teach procedure for sensor

**Note**

Factory setting: **light switching,**
**time module not active**

## Light/dark switching

### Setting the switching behavior of the relay output

**Teach level 1**

**Press teach button** (2 to 7 s) until both LEDs (green/yellow) **flash synchronously**.

Release teach button – switchover is complete.

The **yellow LED** then indicates the **current setting of the switching output** for **3 s**:

**ON** = **light switching** = output between **pin 4** and **pin 3**: **normally closed contact (NC)**
output between **pin 4** and **pin 5**: **normally open contact (NO)**

**OFF** = **dark switching** = output between **pin 4** and **pin 3**: **normally open contact (NO)**
output between **pin 4** and **pin 5**: **normally closed contact (NC)**


## Activation/deactivation of the time module

### Setting a dropout delay for the relay output

**Teach level 2**

**Press teach button** (7 to 12 s) until both LEDs (green/yellow) **flash alternately**.

Release teach button – activation/deactivation is complete.

The **yellow LED** then indicates the **current setting of the dropout delay** for **3 s**:

**ON** = **time module not active** = **no dropout delay** for the relay

**OFF** = **time module active** = **dropout delay** for the relay: **500 ms** [1]

1) Additional models on request


Dropout delay: if the object is no longer present, the output switches with a time delay.