



LS 78

Throughbeam photoelectric sensors



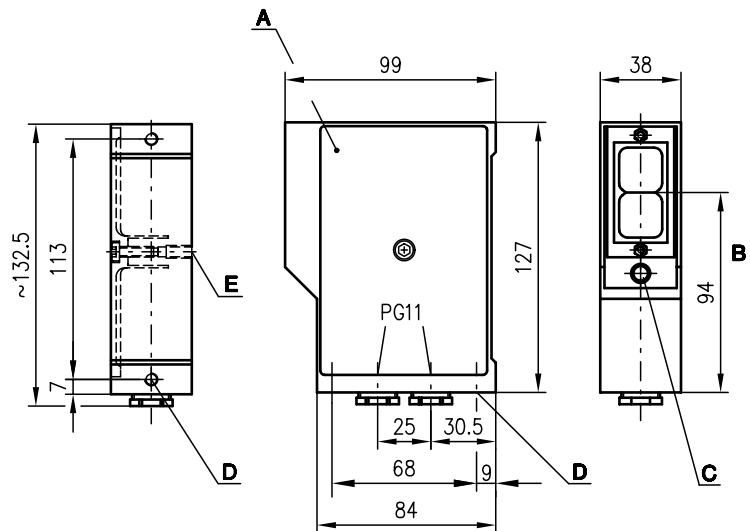
Dimensioned drawing



180m



- Voltage range from 12 ... 30VDC with NPN, PNP and/or relay outputs
- Light/dark switching
- Universal connection via terminals
- Additional plug-in time module
- Integrated optics heating



- A Removable lid • cheese head screw DIN 6912 M5x16 (machined)
- B Optical axis
- C Indicator diodes
- D Device fixture M6x9
- E Device fixture M6x12

Electrical connection



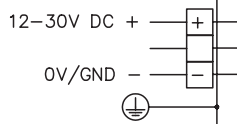
Accessories:

(available separately)

- Mounting systems (BT 16, UMS 78)
- Fastening adapter BT 08
- Diaphragm BL 04
- Time module transient pulses ZK 7810
- Time module slow operation/release ZK 7820
- Alignment aid ARH 2

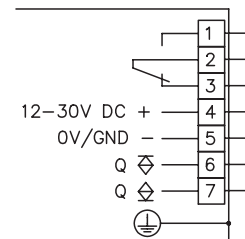
Transmitter

LS 78/2 SE



Receiver

LS 78/24 RE



Specifications

Optical data

| | |
|--|-----------------------|
| Typ. operating range limit ¹⁾ | 180m |
| Operating range ²⁾ | 120m |
| Light source | LED (modulated light) |
| Wavelength | 880nm |

Timing

| | |
|----------------------------|--|
| Sensor switching frequency | 100Hz (PNP/NPN) 20Hz (relay) |
| Sensor response time | 5 ms (PNP/NPN) approx. 25ms (relay) |
| Delay before start-up | ≤ 200ms |

Electrical data

| | |
|--------------------------|--|
| Operating voltage U_B | 12 ... 30VDC |
| Power consumption | approx. 600mW (PNP/NPN) approx. 3.5VA (relay) |
| Residual ripple | ≤ 15% of U_B |
| Bias current | ≤ 70mA (PNP/NPN) max. 120mA (relay) |
| Switching output | PNP/NPN transistor output or relay |
| Function characteristics | Light/dark switching through sliding switch |
| Signal voltage high/low | $\geq (U_B - 2V) / \leq 2V$ (PNP/NPN) |
| Output current | max. 100mA (PNP/NPN) |
| Switching voltage, relay | max. 240VAC with resistive load |
| Switching current, relay | max. 2.5AAC with resistive load |

Indicators

| | |
|-----------|------------------------|
| LED red | light path interrupted |
| LED green | light path free |

Mechanical data

| | |
|-----------------|---------------------------------|
| Housing | diecast aluminium |
| Weight | transmitter 600g, receiver 600g |
| Optics | glass lens |
| Connection type | screw terminals |

Environmental data

| | |
|---|-----------------------------------|
| Ambient temp. (operation/storage) ³⁾ | -20°C ... +60°C / -30°C ... +70°C |
| Protective circuit ⁴⁾ | 1, 2, 3 |
| VDE safety class | I, all-insulated |
| Protection class | IP 65 |
| LED class | 1 (acc. to EN 60825-1) |
| Standards applied | IEC 60947-5-2 |

Options

| | |
|------------------------------|--|
| De-humidifying system | to prevent condensation on the optics due to temperature changes |
|------------------------------|--|

- 1) Typ. operating range limit: max. attainable range without performance reserve
 2) Operating range: recommended range with performance reserve
 3) -30°C with operating voltage continuously applied
 4) 1=transient protection, 2=polarity reversal protection, 3=short circuit protection

Order guide

| | Designation | Part No. |
|--------------------------|-------------|-----------|
| Transmitter and receiver | LS 78/24 R | |
| Transmitter | LS 78/2 SE | 500 00229 |
| Receiver | LS 78/24 RE | 500 06684 |

Tables

Diagrams

Remarks

The standard devices are expandable through plug-in time modules:

- Time module ZK 7810 (transient pulses), slow operation and pulse length adjustable from 0.1s ... 5s.
- Time module ZK 7820 (slow operation and release), slow operation and release separately adjustable from 0.2s ... 10s.

See figure for adjustment:

