

RK 78
Retro-reflective photoelectric sensors

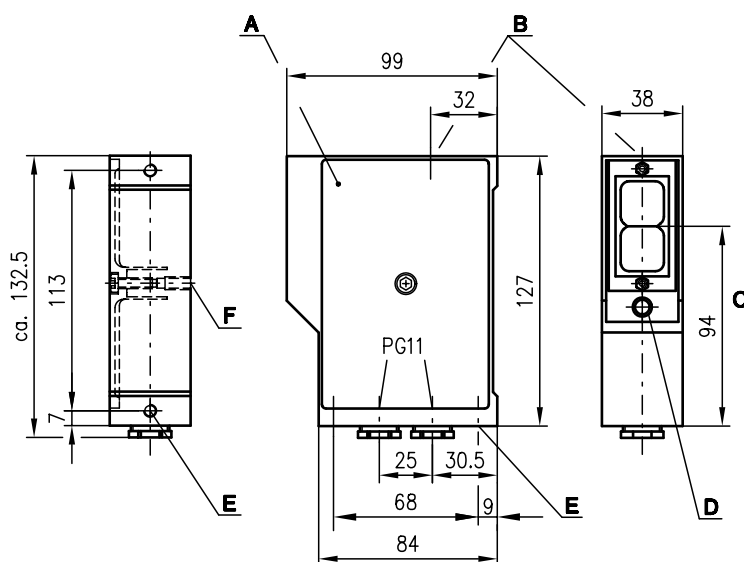
7.5m

12 - 30 V DC	115/230 V AC	24/48 V AC
-----------------	-----------------	---------------

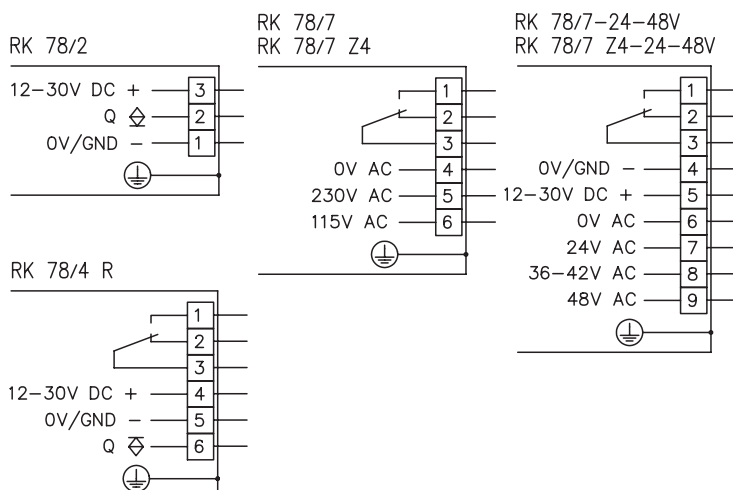
- AC voltage 115/230V, 24/48V and DC voltage 12 ... 30V
- With NPN, PNP and/or relay outputs
- Light/dark switching in each device
- Universal connection via terminals
- Devices with integrated or separate add-on time module


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 and release ZK 7820
- Alignment aid ARH 2

Dimensioned drawing


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

Electrical connection


Specifications

Optical data

Typ. operating range limit ¹⁾	7.5m
Operating range ²⁾	6m
Light source	LED (modulated light)
Wavelength	880nm

Timing

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

Electrical data

Operating voltage U_B	12 ... 30VDC, 115/230VAC, 24/48VAC
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	≥ ($U_B - 2V$) / ≤ 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
---------	------------------------

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

Selection table		Order code →					
Equipment ↓		RK 78/2 Part No. 500 00429	RK 78/4 R Part No. 500 00443	RK 78/7 Part No. 500 00448	RK 78/7-24-48 V Part No. 500 00449	RK 78/7 Z4 Part No. 500 00457	RK 78/7 Z4-24-48 V Part No. 500 00456
Housing	metal	●	●	●	●	●	●
Operating range	6m	●	●	●	●	●	●
Connection	terminals	●	●	●	●	●	●
Features							
Voltage supply	12 ... 30VDC	●	●		●		●
	115/230VAC			●		●	
	24/48VAC				●		●
Switching output	NPN	●					
	PNP		●				
	relay		●	●	●	●	●
Integrated time module						●	●
Time modules ZK 7810, ZK 7820 retrofitable		●	●	●	●		

Tables

Reflectors		Operating range
TK(S)	100x100	0 ... 6.0m
TK(S)	50x50	0 ... 5.5m
TK	82	0.5 ... 6.0m
TK	60	0 ... 2.5m
TK	45	0.5 ... 4.5m
TG	60	1.0 ... 3.5m
Tape 2	100x100	0.5 ... 2.5m

TK ... = adhesive
TKS ... = screw type
Tape 2 = adhesive

Diagrams

Remarks

Operation without relay through splitting of bridge "B" (RK 78/4 R).

The standard devices (see table) are expandable through plug-in time modules:

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

See figure for adjustment:

