PRK49C MOSFET Retro-reflective photoelectric sensors with polarization filter

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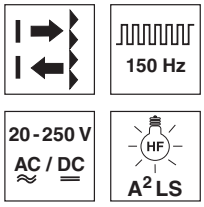
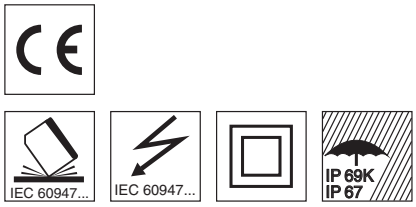


- Polarized retro-reflective photoelectric sensor with large operating range and high performance reserve in visible red light
- Reliable detection of glossy objects and objects shrink-wrapped in foil
- Variants available without polarization filter with infrared light
- Robust plastic housing, degree of protection IP 67 and IP 69K for industrial application
- All-mains design 20 … 250VAC/DC with MOSFET semiconductor switching 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:
- 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

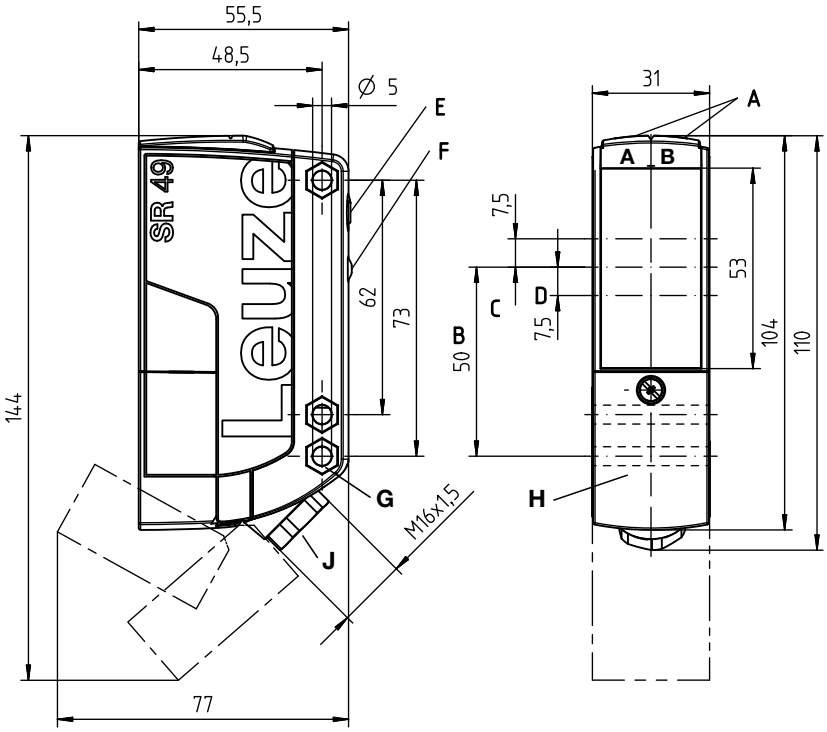


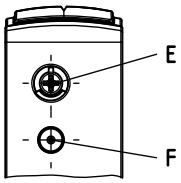
Accessories:

(available separately)

- Mounting systems (BTU 460, BT 96, BT 96.1, BT 450.1-96)
- Reflectors/reflective tapes

Dimensioned drawing

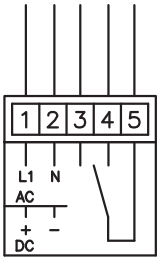




A_A	Green indicator diode
A_B	Yellow indicator diode
B	Optical axis
C	Receiver
D	Transmitter
E	Sensitivity adjustment
F	Teach button for light/dark switching / time module activation
G	Countersinking for SK nut M5, 4.2 deep
H	Connection compartment with spring terminals
J	Cable entry with M16x1.5 screw fitting for Ø5 … 10mm

Electrical connection

DC/AC



Pin 3 = nc (not connected)

Wire color of connecting cable

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

Specifications

Optical data	PRK49C…	RK49C…
Typ. op. range limit (TK(S) 100x100) [1]	30m	
Operating range [2]	see tables	
Light spot diameter	approx. 130mm at 6m	
Light source	LED (modulated light)	
Wavelength	630nm (visible red light)	880nm (infrared light)
Polarization filter	yes	no
Timing		
Switching frequency	150Hz	
Response time	3.3ms	
Delay before start-up	≤ 300ms	
Electrical data		
Operating voltage U_B	20 … 250VAC, 50/60Hz 20 … 250VDC	
Power consumption	≤ 1.5VA	
Switching output [3]	MOSFET semiconductor switching output (NO)	
Function	NO contact	
MOSFET switching voltage	250VAC/DC	
MOSFET switching current	250VAC, 0.4A/30VDC, 0.4A	
MOSFET switching power	100VA, cosφ=1	
Sensitivity	adjustable	
Indicators		
Green LED	ready	
Yellow LED	light path free	
Yellow LED, flashing	light path free, no performance reserve	
Mechanical data		
Housing	polycarbonate	
Optics cover	plastic	
Weight	150g	
Connection type	spring terminals, max. wire cross section 1.5mm² cable 2000mm, 5 x 0.5mm²	
Environmental data		
Ambient temp. (operation/storage)	-40°C … +60°C/-40°C … +70°C	
Protective circuit [4]	1, 4	
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 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, 4=interference blanking
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

	Reflectors		Operating range
1	TK(S)	100x100	0.3 … 24m
2	MTK(S)	50x50	0.3 … 15m
3	TK(S)	30x50	0.3 … 12m
4	TK(S)	20x40	0.3 … 8m
5	TK(S)	82	0.3 … 15m
6	Tape 4	50x50	0.3 … 4m

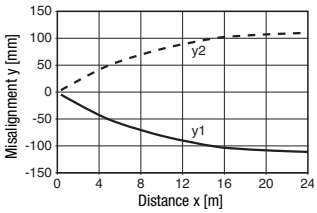
1	0.1							24	30
2	0.1						15	18	
3	0.1					12	15		
4	0.1			8	10				
5	0.1						15	18	
6	0.1		4	5					

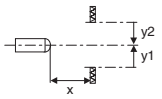
Operating range [m]
Typ. operating range limit [m]

Diagrams

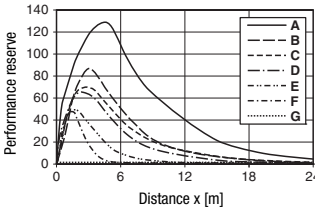
(only **P**RK49C…)

Typ. response behavior (TKS 100x100)





Typ. performance reserve



A TK 100x100
B TK 82.AT
C MTKS 50x50.1
D TKS 40x60
E TKS 20x40
F Tape 4 50x50
G Switching point

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.

PRK49C MOSFET Retro-reflective photoelectric sensors with polarization filter

Part number code

P	R	K	4	9	C	I	.	U	C	D	1	/	M	4	-	T	B

Operating principle

RK	Retro-reflective photoelectric sensor
PRK	Retro-reflective photoelectric sensors with polarization filter

Series

49C	49C series

Light type

I	Infrared light
free	Red light

Operating voltage

UC	20 … 250VAC/DC (all-mains design)

Equipment

D	Depolarizing media
H	Optics heating

Setting

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

Switching output

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 MOSFET semiconductor output	Designation	Part no.
Terminal compartment with spring terminals (5 x 1.5mm^2)		
Red light, polarization filter	PRK49C.UC/M4-TB	50127425
Red light, polarization filter, optics heating	PRK49C.UCH/M4-TB	50130469
Red light, polarization filter, potentiometer, teach button	PRK49C.UC1/M4-TB	50127423
Cable, cable length 2m		
Red light, polarization filter, potentiometer, teach button	PRK49C.UC1/M4	50127424

Teach procedure for sensor

Note

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

Light/dark switching

Setting the switching behavior of the MOSFET 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 5**: **normally open contact (NO)** **OFF** = **dark switching** = output between **pin 4** and **pin 5**: **normally closed contact (NC)**

Activation/deactivation of the time module

Setting a dropout delay for the MOSFET 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 MOSFET output **OFF** = **time module active** = **dropout delay** for the MOSFET output: **500 ms** [1)] 1) Additional models on request

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