



PRK 46

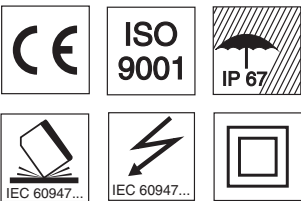
Retro-reflective photoelectric sensors with polarisation filter



0.3 ... 16m



- Wide voltage range 10 ... 30V with PNP switching output
- Polarisation filter blocks unwanted reflections
- Complementary switching outputs for optimal adaptation to the application
- Warning output - for increased availability
- Activation input for testing and interlinking

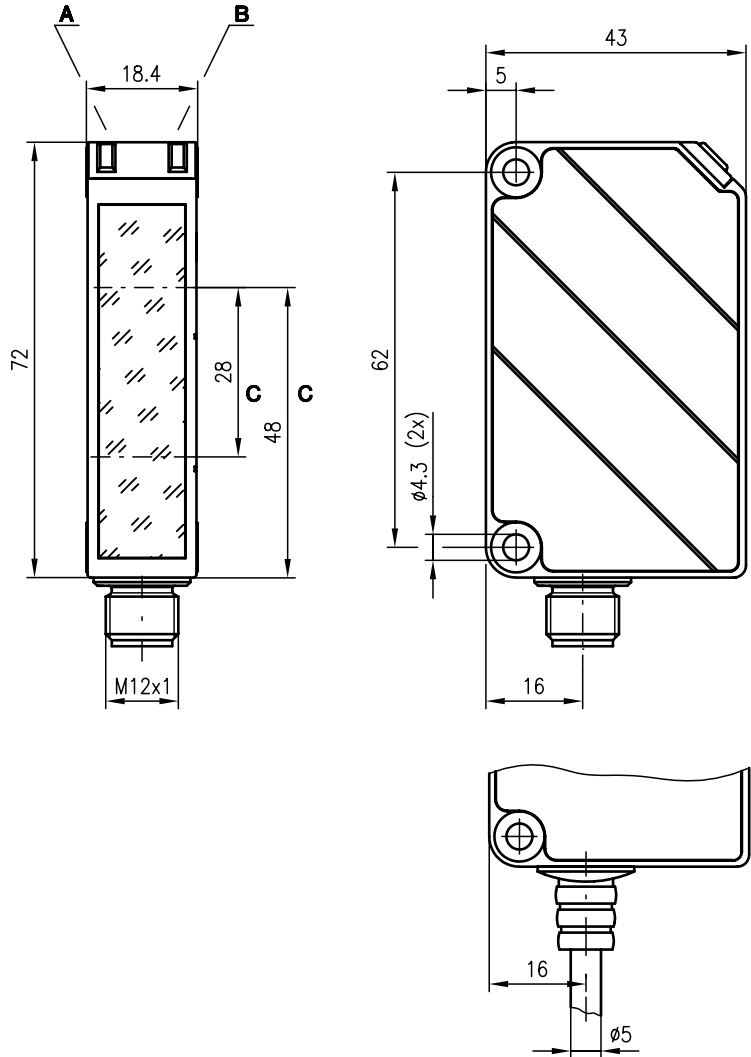


Accessories:

(available separately • see page 314)

- Mounting systems (BT 46.1, BT 46.1.5, BT 46.2)
- M12 connectors (KD ...)
- Ready-made cables (KB ...)
- Reflectors
- Reflective tapes

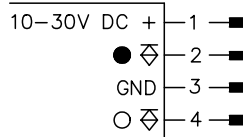
Dimensioned drawing



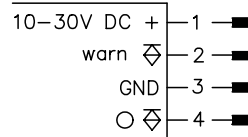
- A Indicator diode green
- B Indicator diode yellow
- C Optical axis

Electrical connection

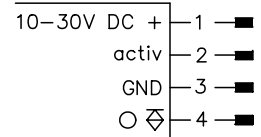
PRK 46/44-S12



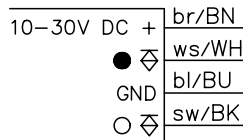
IPRK 46/4-S12



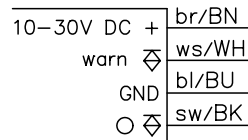
PRK 46/4.8-S12



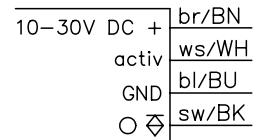
PRK 46/44,2000



IPRK 46/4,2000



PRK 46/4.8,2000



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## Specifications

### Optical data

Typ. operating range limit (TK(S) 100x100) <sup>1)</sup>	0.3 ... 16m
Operating range <sup>2)</sup>	see table
Light source	LED (modulated light)
Wavelength	660nm (visible red light, polarised)

### Timing

Switching frequency	200Hz
Response time	2.5ms
Delay before start-up	≤ 100ms

### Electrical data

Operating voltage $U_B$	10 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 15% of $U_B$
Bias current	≤ 30mA
Switching output	PNP transistor
Function characteristics	PRK 46/44(-12; 2000) PNP transistor IPRK 46..., PRK... .8... light/dark switching (complementary) light switching
Signal voltage high/low	≥ ( $U_B - 2V$ ) ≤ 2V
Output current	max. 100mA

### Indicators

LED green	ready
LED yellow	light path free
LED yellow flashing	light path free, no performance reserve

### Mechanical data

Housing	plastic
Optics cover	plastic
Weight	100g
Connection type	M12 connector, or cable, cable length: 2000mm, PVC

### Environmental data

Ambient temp. (operation/storage)	-20°C ... +55°C/-40°C ... +55°C
Protective circuit <sup>3)</sup>	2, 3
VDE safety class <sup>4)</sup>	II, all-insulated
Protection class	IP 67
Standards applied	IEC 60947-5-2

### Options

<b>Warning output autoControl</b>	PNP transistor, counting principle
Signal voltage high/low	≥ ( $U_B - 2V$ ) ≤ 2V
Output current	max. 100mA
<b>Activation input active</b>	
Transmitter active/not active	≥ 8V/≤ 2V
Activation/disable delay	≤ 1 ms/≤ 2 ms
Input resistance	10KΩ ± 10%

- 1) Typ. operating range limit: max. attainable range without performance reserve
- 2) Operating range: recommended range with performance reserve
- 3) 2=polarity reversal protection, 3=short-circuit protection for all outputs
- 4) Rating voltage 250VAC

## Order guide

	Designation	Part No.
<b>with M12 connector</b>		
complementary switching output	PRK 46/44-S12	500 81294
warning output	IPRK 46/4-S.12	500 80981
activation input	PRK 46/4.8-S12	500 60920
<b>with 2m cable</b>		
complementary switching output	PRK 46/44, 2000	500 60922
warning output	IPRK 46/4, 2000	500 60923
activation input	PRK 46/4.8, 2000	500 34080

## Tables

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

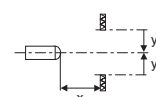
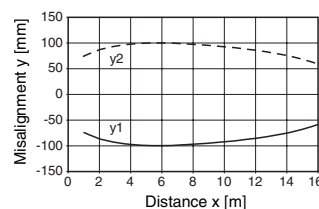
1	0.3			12	16
2	0.3			6	8
3	0.3		4		5.8
4	0.3	3		4	
5	0.3			5	6

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

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

## Diagrams

Typ. response behaviour (TK 100x100)



## Remarks



PRK 46

Retro-reflective photoelectric sensors with polarisation filter

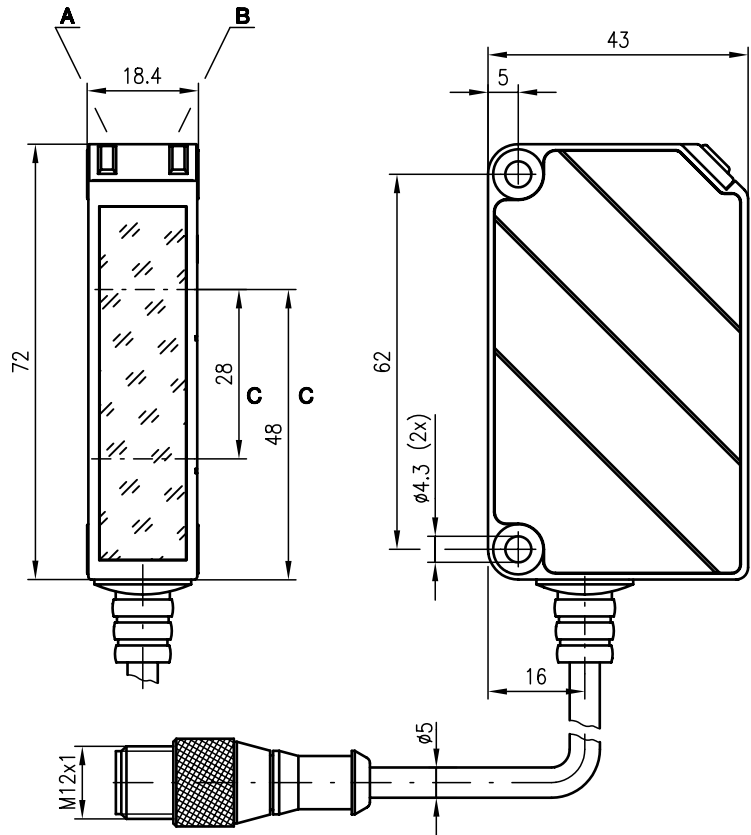


0.3 ... 16m



- Wide voltage range 10 ... 30V with PNP switching output
- Polarisation filter blocks unwanted reflections
- Complementary switching outputs for optimal adaptation to the application
- Warning output - for increased availability
- Activation input for testing and interlinking

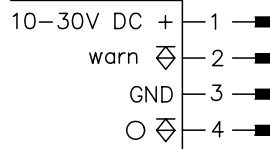
Dimensioned drawing



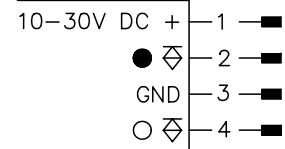
- A Indicator diode green
- B Indicator diode yellow
- C Optical axis

Electrical connection

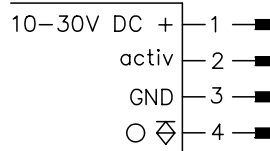
I PRK 46/4, 300-S12



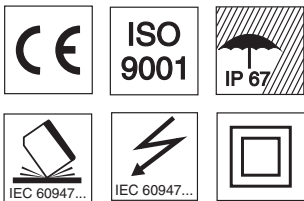
PRK 46/44, 300-S12



PRK 46/4.8, 300-S12



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Accessories:

(available separately • see page 314)

- Mounting systems (BT 46.1, BT 46.1.5, BT 46.2)
- M12 connectors (KD ...)
- Ready-made cables (KB ...)
- Reflectors
- Reflective tapes

## Specifications

### Optical data

Typ. operating range limit (TK(S) 100x100) <sup>1)</sup>	0.3 ... 16m
Operating range <sup>2)</sup>	see table
Light source	LED (modulated light)
Wavelength	660nm (visible red light, polarised)

### Timing

Switching frequency	200Hz
Response time	2.5ms
Delay before start-up	≤ 100ms

### Electrical data

Operating voltage $U_B$	10 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 15% of $U_B$
Bias current	≤ 30mA
Switching output	PNP transistor
Function characteristics	light/dark switching (complementary)
	light switching
Signal voltage high/low	≥ ( $U_B - 2V$ ) / ≤ 2V
Output current	max. 100mA

### Indicators

LED green	ready
LED yellow	light path free
LED yellow flashing	light path free, no performance reserve

### Mechanical data

Housing	plastic
Optics cover	plastic
Weight	100g
Connection type	cable with M12 connector, cable length: 300mm

### Environmental data

Ambient temp. (operation/storage)	-20°C ... +55°C / -40°C ... +55°C
Protective circuit <sup>3)</sup>	2, 3
VDE safety class <sup>4)</sup>	II, all-insulated
Protection class	IP 67
Standards applied	IEC 60947-5-2

### Options

<b>Warning output autoControl</b>	PNP transistor, counting principle
Signal voltage high/low	≥ ( $U_B - 2V$ ) / ≤ 2V
Output current	max. 100mA
<b>Activation input active</b>	
Transmitter active/not active	≥ 8V / ≤ 2V
Activation/disable delay	≤ 1ms / ≤ 2ms
Input resistance	10KΩ ± 10%

- 1) Typ. operating range limit: max. attainable range without performance reserve
- 2) Operating range: recommended range with performance reserve
- 3) 2=polarity reversal protection, 3=short-circuit protection for all outputs
- 4) Rating voltage 250VAC

## Order guide

	Designation	Part No.
complementary switching output	PRK 46/44, 300-S12	500 81319
warning output	IPRK 46/4, 300-S12	500 80980
activation input	PRK 46/4.8, 300-S12	500 60921

## Tables

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

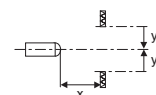
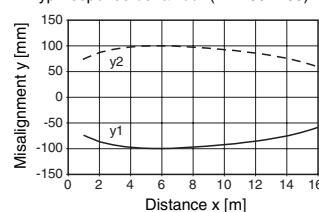
1	0.3			12	16
2	0.3			6	8
3	0.3		4		5.8
4	0.3	3		4	
5	0.3			5	6

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

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

## Diagrams

Typ. response behaviour (TK 100x100)



## Remarks



PRK 46

Retro-reflective photoelectric sensors with polarisation filter

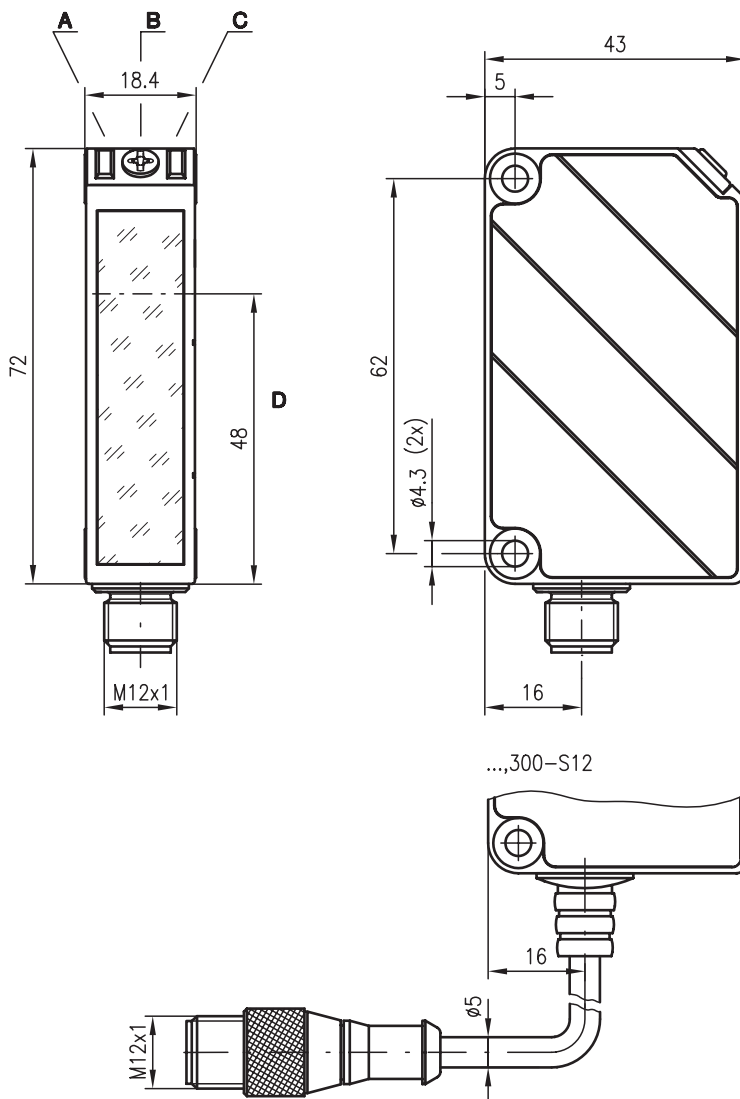


0 ... 7m



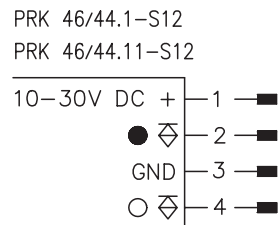
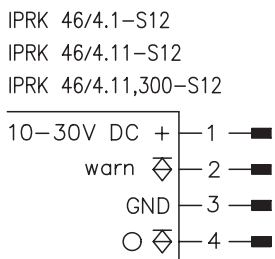
- Wide voltage range 10 ... 30V with PNP switching output
- Polarisation filter blocks unwanted reflections
- The autocollimation principle used ensures that the device functions reliably over the entire range (0 ... max.)
- Warning output - for increased availability
- Sensitivity adjustment optional

Dimensioned drawing



- A Operation indicator green
- B Sensitivity adjustment optional
- C Switching indicator yellow
- D Optical axis

Electrical connection



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Accessories:

(available separately • see page 314)

- Mounting systems (BT 46.1, BT 46.1.5, BT 46.2)
- M12 connectors (KD ...)
- Ready-made cables (KB ...)
- Reflectors
- Reflective tapes

## Specifications

### Optical data

Typ. operating range limit (TK(S) 100x100) <sup>1)</sup>	0 ... 7m
Operating range <sup>2)</sup>	see table
Light source	LED (modulated light)
Wavelength	660nm (visible red light, polarised)

### Timing

Switching frequency	200Hz
Response time	2.5ms
Delay before start-up	≤ 100ms

### Electrical data

Operating voltage $U_B$	10 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 15% of $U_B$
Bias current	≤ 30mA
Switching output	PNP transistor
Function characteristics	PRK 46 IPRK 46 light/dark switching (complementary) light switching
Signal voltage high/low	$\geq (U_B - 2V) / \leq 2V$
Output current	max. 100mA
Sensitivity	adjustable (optional)

### Indicators

LED green	ready
LED yellow	light path free
LED yellow flashing	light path free, no performance reserve

### Mechanical data

Housing	plastic
Optics cover	plastic
Weight	100g
Connection type	M12 connector, or cable with M12 connector, cable length: 300mm

### Environmental data

Ambient temp. (operation/storage)	-20°C ... +55°C / -40°C ... +55°C
Protective circuit <sup>3)</sup>	2, 3
VDE safety class <sup>4)</sup>	II, all-insulated
Protection class	IP 67
Standards applied	IEC 60947-5-2

### Options

<b>Warning output autoControl</b>	PNP transistor, counting principle
Signal voltage high/low	$\geq (U_B - 2V) / \leq 2V$
Output current	max. 100mA

- 1) Typ. operating range limit: max. attainable range without performance reserve
- 2) Operating range: recommended range with performance reserve
- 3) 2=polarity reversal protection, 3=short-circuit protection for all outputs
- 4) Rating voltage 250VAC

## Order guide

	Designation	Part No.
<b>with M12 connector</b>		
complementary switching output	PRK 46/44.11-S12	500 34452
warning output	IPRK 46/4.11-S.12	500 34453
<b>with M12 connector and sensitivity adjustment</b>		
complementary switching output	PRK 46/44.1-S12	500 60924
warning output	IPRK 46/4.1-S12	500 60925
<b>cable with M12 connector, cable length: 300mm</b>		
warning output	IPRK 46/4.11, 300-S12	500 35185

## Tables

Reflectors	Operating range
1 TK(S) 100x100	0 ... 4m
2 MTK(S) 50x50	0 ... 3.5m
3 TK(S) 30x50	0 ... 2m
4 TK(S) 20x40	0 ... 1.8m
5 Tape 2 100x100	0 ... 0.8m

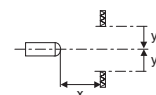
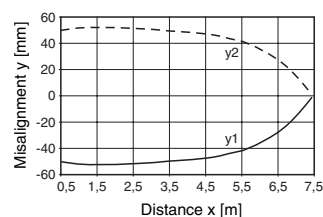
1	0	4	7
2	0	3.5	5.8
3	0	2	3
4	0	1.8	2.7
5	0	0.8	1.3

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

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

## Diagrams

Typ. response behaviour (TK 100x100)



## Remarks



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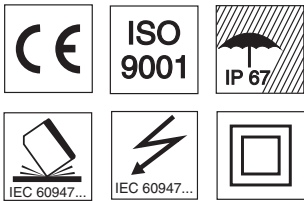
Retro-reflective photoelectric sensors with polarisation filter



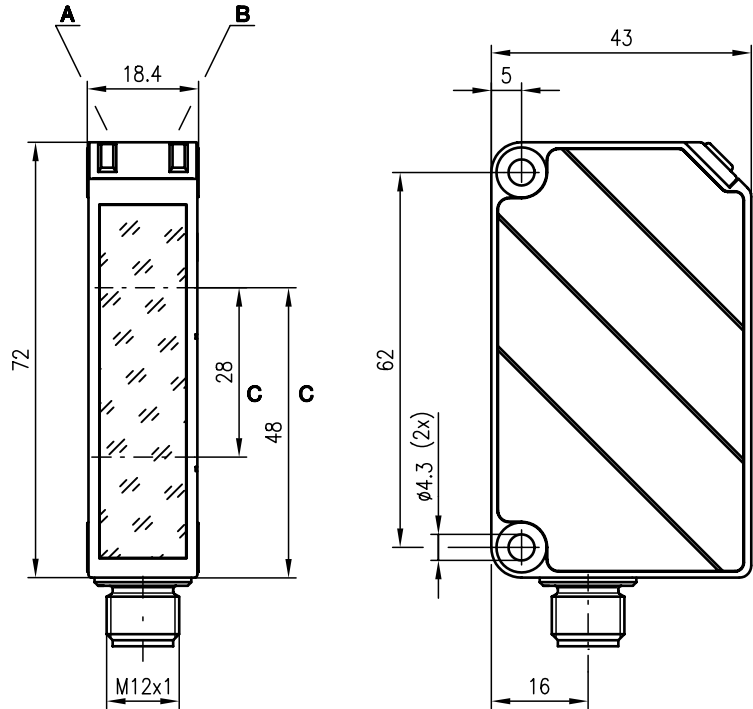
0.3 ... 16m



- Common conductor for both power and data reduces installation work
- Polarisation filter blocks unwanted reflections
- Access to all sensor functions via an AS-interface without additional wiring

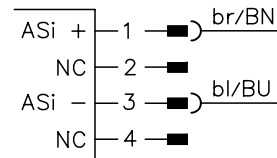


Dimensioned drawing



- A** Operation indicator green
- B** Switching indicator yellow
- C** Optical axis

Electrical connection



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Accessories:

(available separately • see page 314)

- Mounting systems (BT 46.1, BT 46.1.5, BT 46.2)
- M12 connectors (KD ...)
- Reflectors
- Reflective tapes

AS-i Accessories:

(available separately)

- Bus terminals
- AS-i ribbon cable
- Address programming device
- Coupling modules
- Intermediate cables etc.



## Specifications

### Optical data

Typ. operating range limit (TK(S) 100x100) <sup>1)</sup>	0.3 ... 16m
Operating range <sup>2)</sup>	see table
Light source	LED (modulated light)
Wavelength	660nm (visible red light, polarised)

### Timing

Sensor switching frequency	200Hz
Sensor response time	2.5ms
Delay before start-up	≤ 100ms

### Electrical data

Operating voltage U <sub>B</sub>	26.5 V ... 31.6 V (according to AS-i specification)
Bias current	≤ 35mA

### Indicators

LED green	ready
LED yellow	light path free
LED yellow flashing	light path free, no performance reserve

### Mechanical data

Housing	plastic
Optics cover	plastic
Weight	100g
Connection type	M 12 connector

### Environmental data

Ambient temp. (operation/storage)	-20°C ... +55°C/-40°C ... +55°C
Protective circuit <sup>3)</sup>	2
VDE safety class <sup>4)</sup>	II, all-insulated
Protection class	IP 67
Standards applied	IEC 60947-5-2

### AS-i data for receiver

I/O code	1
ID code	1
Address	programmed by the user in the range of 1 to 31 (default=0)
Cycle time acc. to AS-i specification	5ms
AS-i standard according to profile	S-1.1

- 1) Typ. operating range limit: max. attainable range without performance reserve
- 2) Operating range: recommended range with performance reserve
- 3) 2=polarity reversal protection
- 4) Rating voltage 250VAC

Assignment: data bits				Assignment: parameter bits			
		Programming (host level)				Programming (host level)	
D <sub>0</sub>	switching output	∅ no reflection 1 reflection	system input	*P <sub>0</sub>	NC	∅ 1	system parameter
D <sub>1</sub>	warning output autoControl	∅ active 1 not active	system input	*P <sub>1</sub>	light/dark switching	∅ dark switching 1 light switching	system parameter
D <sub>2</sub>	ready output	∅ sensor not ready 1 sensor ready	system input	*P <sub>2</sub>	NC	∅ 1	system parameter
D <sub>3</sub>	Activation input	∅ transmitter on 1 transmitter off	system output	*P <sub>3</sub>	NC	∅ 1	system parameter

\* default = 1

## Order guide

<b>Designation</b>	<b>Part No.</b>
PRK 46/A-S12	500 82126

## Tables

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

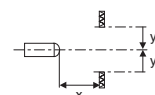
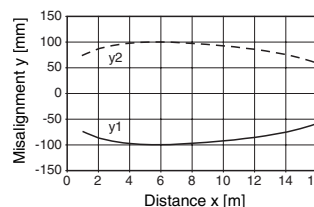
1	0.3	12	16
2	0.3	6	8
3	0.3	4	5.8
4	0.3	3	4
5	0.3	5	6

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

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

## Diagrams

Typ. response behaviour (TK 100x100)



## Remarks





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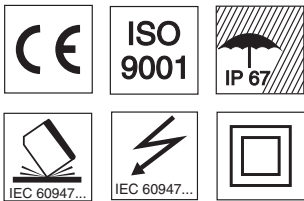
Retro-reflective photoelectric sensors with polarisation filter



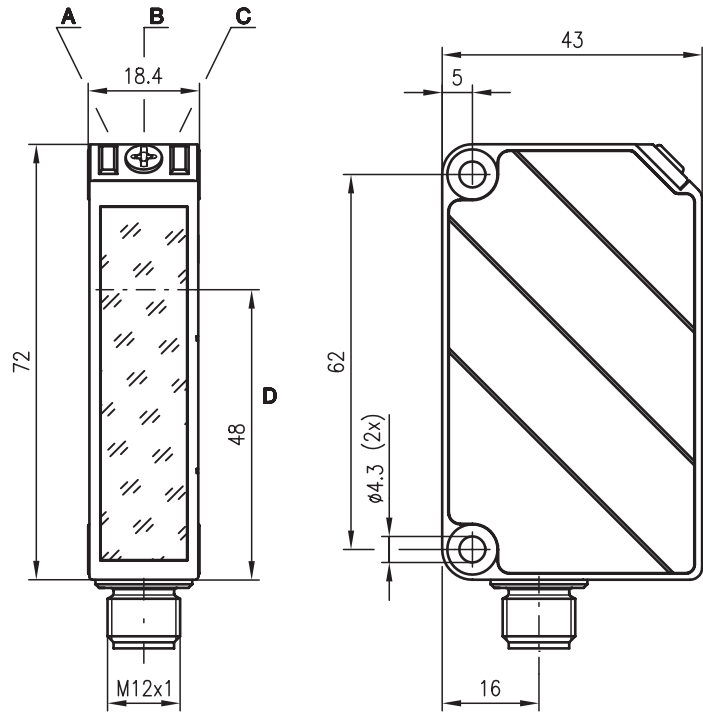
0 ... 7m



- Common conductor for both power and data reduces installation work
- Polarisation filter blocks unwanted reflections
- Access to all sensor functions via an AS-interface without additional wiring
- Sensitivity adjustment

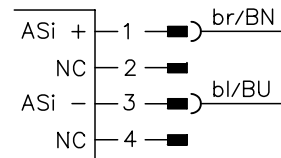


Dimensioned drawing



- A Indicator diode green
- B Sensitivity adjustment
- C Indicator diode yellow
- D Optical axis

Electrical connection



Accessories:

(available separately • see page 314)

- Mounting systems (BT 46.1, BT 46.1.5, BT 46.2)
- M12 connectors (KD ...)
- Reflectors
- Reflective tapes

AS-i Accessories:

(available separately)

- Bus terminals
- AS-i ribbon cable
- Address programming device
- Coupling modules
- Intermediate cables etc.

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## Specifications

### Optical data

Typ. operating range limit (TK(S) 100x100) <sup>1)</sup>	0 ... 7m
Operating range <sup>2)</sup>	see table
Light source	LED (modulated light)
Wavelength	660nm (visible red light, polarised)

### Timing

Sensor switching frequency	200Hz
Sensor response time	2.5ms
Delay before start-up	≤ 100ms

### Electrical data

Operating voltage U <sub>B</sub>	26.5 V ... 31.6 V (according to AS-i specification)
Bias current	≤ 35mA
Sensitivity	adjustable

### Indicators

LED green	ready
LED yellow	light path free
LED yellow flashing	light path free, no performance reserve

### Mechanical data

Housing	plastic
Optics cover	plastic
Weight	100g
Connection type	M12 connector

### Environmental data

Ambient temp. (operation/storage)	-20°C ... +55°C/-40°C ... + 55°C
Protective circuit <sup>3)</sup>	2
VDE safety class <sup>4)</sup>	II, all-insulated
Protection class	IP 67
Standards applied	IEC 60947-5-2

### AS-i data for receiver

I/O code	1
ID code	1
Address	programmed by the user in the range of 1 to 31 (default=0)
Cycle time acc. to AS-i specification	5ms
AS-i standard according to profile	S-1.1

- 1) Typ. operating range limit: max. attainable range without performance reserve
- 2) Operating range: recommended range with performance reserve
- 3) 2=polarity reversal protection
- 4) Rating voltage 250VAC

Assignment: data bits				Assignment: parameter bits			
		Programming (host level)				Programming (host level)	
D <sub>0</sub>	switching output	0 no reflection	system input	*P <sub>0</sub>	NC	0	system parameter
		1 reflection	system input			1	system parameter
D <sub>1</sub>	warning output autoControl	0 active	system input	*P <sub>1</sub>	light/dark switching	0 dark switching	system parameter
		1 not active	system input			1 light switching	system parameter
D <sub>2</sub>	ready output	0 sensor not ready	system input	*P <sub>2</sub>	NC	0	system parameter
		1 sensor ready	system input			1	system parameter
D <sub>3</sub>	activation input	0 transmitter on	system output	*P <sub>3</sub>	NC	0	system parameter
		1 transmitter off	system output			1	system parameter

\* default = 1

## Order guide

<b>Designation</b>	<b>Part No.</b>
PRK 46/A.1-S12	500 60926

## Tables

Reflectors	Operating range
1 TK(S) 100x100	0 ... 4m
2 MTK(S) 50x50	0 ... 3.5m
3 TK(S) 30x50	0 ... 2m
4 TK(S) 20x40	0 ... 1.8m
5 Tape 2 100x100	0 ... 0.8m

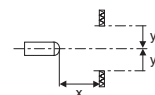
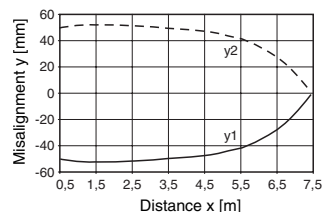
1	0	4	7
2	0	3.5	5.8
3	0	2	3
4	0	1.8	2.7
5	0	0.8	1.3

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

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

## Diagrams

Typ. response behaviour (TK 100x100)



## Remarks