



## FRKR 97

## Diffuse reflection light scanner with background suppression

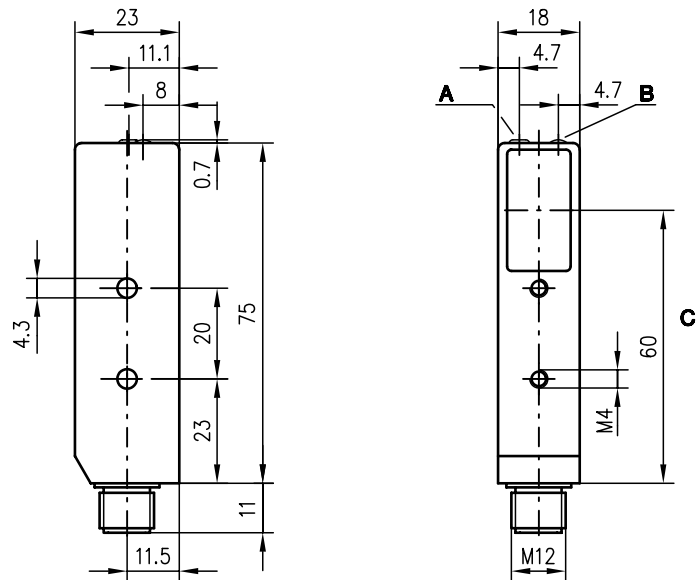


2 ... 150mm



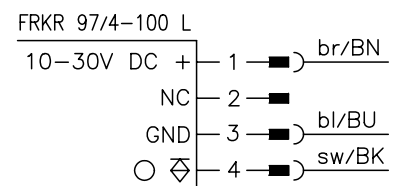
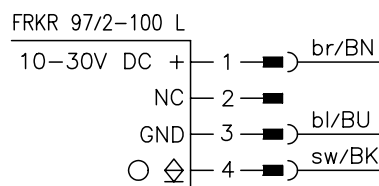
- Scanner with adjustable background suppression
- Visible red light for fast and easy alignment
- Very good black/white performance, exact adjustment via multiturn potentiometer
- Small construction with glass cover and robust metal housing for protection against environmental influences

### Dimensioned drawing



- A Scanning range adjustment
- B Indicator diode
- C Optical axis

### Electrical connection



### Accessories:

(available separately)

- Mounting systems (BT 92, UMS 1, UMS 96-95)
- M12 connectors (KD ...)
- Ready-made cables (KB ...)

We reserve the right to make changes • 97\_d01e.fm

## Specifications

### Optical data

Typ. scanning range limit (white 90%) <sup>1)</sup>	2 ... 150mm
Scanning range <sup>2)</sup>	2 ... 100mm
Adjustment range	30 ... 150mm
Light beam characteristic	focussed at 80mm
Light source	LED (modulated light)
Wavelength	660nm (visible red light)

### 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 or NPN transistor output
Function characteristics	light switching
Signal voltage high/low	≥ ( $U_B - 2V$ ) / ≤ 2V
Output current	max. 100mA

### Indicators

LED yellow	light path free
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### Mechanical data

Housing	diecast zinc
Optics cover	glass
Weight	85g
Connection type	M12 connector, 4-pin, stainless steel

### Environmental data

Ambient temp. (operation/storage)	-20°C ... +60°C / -30°C ... +70°C
Protective circuit <sup>3)</sup>	2, 3
VDE safety class <sup>4)</sup>	II, all-insulated
Protection class	IP 67
LED class	1 (acc. to EN 60825-1)
Standards applied	IEC 60947-5-2

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

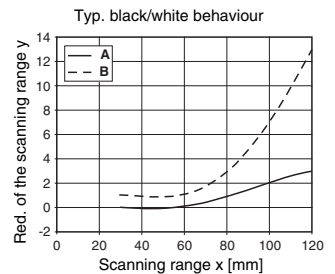
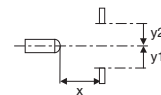
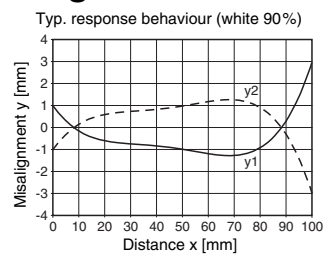
## Tables

1	2	100	150
2	4	98	135
3	9	93	120

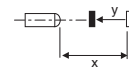
1	white 90%
2	grey 18%
3	black 6%

Scanning range [mm]
Typ. scanning range limit [mm]

## Diagrams



- A grey 18%
- B black 6%



## Order guide

	Designation	Part No.	UL
PNP transistor output	FRKR 97/4-100 L	500 29646	●
NPN transistor output	FRKR 97/2-100 L	500 29645	?

## Remarks

- With the set scanning range, a tolerance of the upper scanning range limit is possible depending on the reflection properties of the material surface.