

**FRK 93**

**Diffuse reflection light scanner with background suppression**

Part No. 501 11609

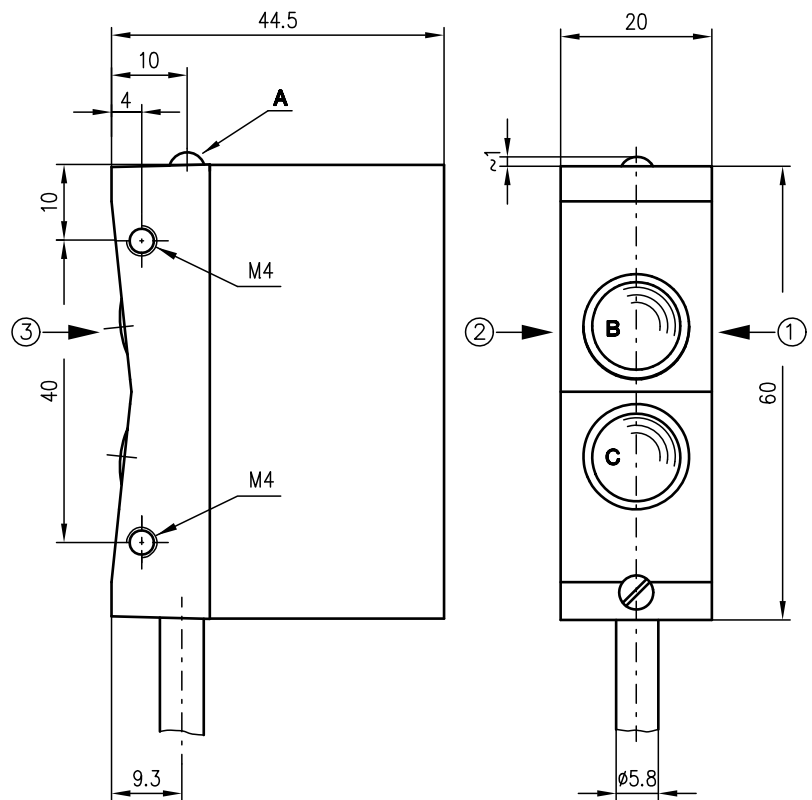


**15 ... 75m  
m**



- Scanner with foreground and background suppression due to V-shaped optics
- Infrared light
- Very good detection of dark objects
- Mounting holes for fast installation
- Connection via cable

**Dimensioned drawing**



- A** Indicator diode
  - B** Receiver
  - C** Transmitter
- Preferred entry direction for objects ① + ② + ③

**Electrical connection**

10-30V DC +	br/BN
●	ws/WH
○	sw/BK
GND	bl/BU
⊕	gnge/GNYE



**Accessories:**

- (available separately)
- Ready-made cables (KB ...)

We reserve the right to make changes • 93\_d01gb.fm

## Specifications

### Optical data

Typ. scanning range limit (white 90%) <sup>1)</sup>	15 ... 75 mm
Scanning range <sup>2)</sup>	see tables
Light source	LED (modulated light)
Wavelength	880nm (infrared)

### Timing

Switching frequency	200Hz
Response time	3.3ms

### Electrical data

Operating voltage $U_B$ <sup>3)</sup>	10 ... 35VDC (incl. residual ripple)
Residual ripple	$\leq 15\%$ of $U_B$
Power consumption	max. 2W
Switching output	PNP transistor output
Function characteristics	light/dark switching, complementary
Signal voltage high/low	$\geq (U_B - 3V) / \leq 2V$
Output current	max. 100mA

### Indicators

LED yellow on	reflection, output transistor activated
LED yellow flashing	reflection, no performance reserve

### Mechanical data

Housing	metal
Optics	glass
Weight	approx. 170g
Connection type	cable 2000mm

### Environmental data

Ambient temp. (operation/storage)	-20°C ... +60°C / -30°C ... +70°C
Safety class	I (acc. to EN 61140)
Protective circuit <sup>4)</sup>	2, 3
Protection class	IP 65 (acc. to EN 60529)
LED class	1 (acc. to EN 60825-1)
Applied standards	EN 60947-5-2, UL 508

- 1) Typ. scanning range limit: max. attainable range without performance reserve
- 2) Scanning range: recommended range with performance reserve
- 3) Observe the safety regulations and installation instructions regarding power supply and wiring; for UL applications: only for use in "Class 2" circuits acc. to NEC
- 4) 2=polarity reversal protection, 3=short-circuit protection for all outputs

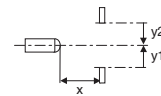
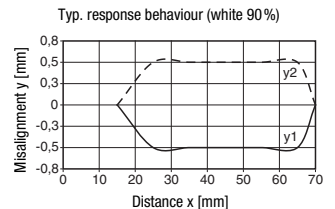
## Tables

1	15	60	75
2	22	60	65
3	25	60	60

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

<input type="checkbox"/>	Scanning range [mm]
<input type="checkbox"/>	Typ. scanning range limit [mm]

## Diagrams



## Order guide

<b>Designation</b>	<b>Part No.</b>
FRK 93/44-60	500 21132

## Remarks

**Approved purpose:**  
The diffuse reflection light scanners are optical electronic sensors for optical, contactless detection of objects.