

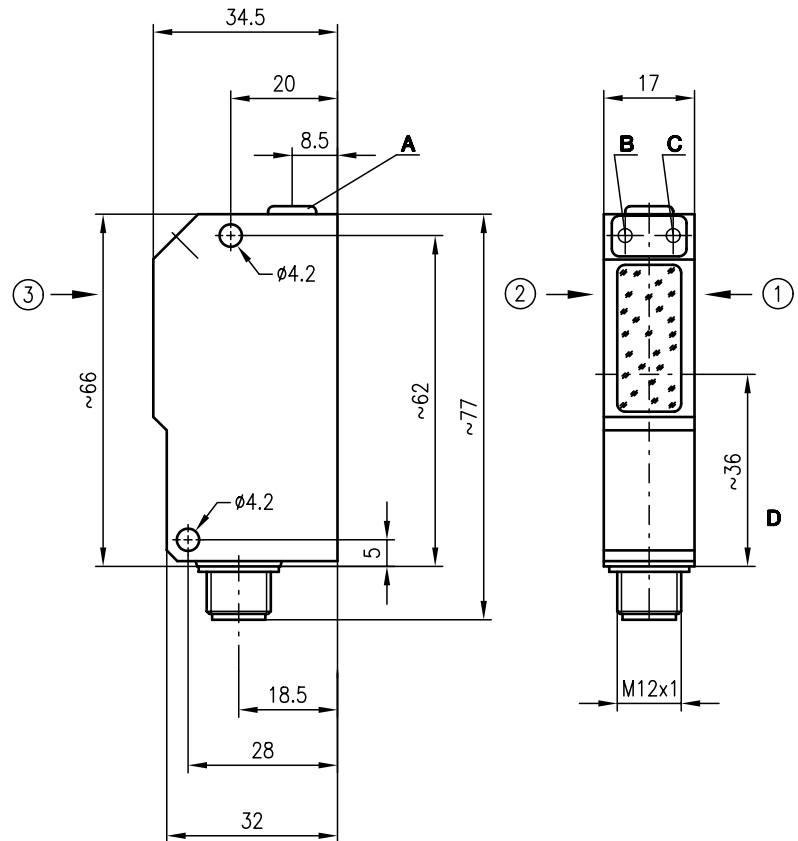


FRK 95

Diffuse reflection light scanner with background suppression



Dimensioned drawing



- A Scanning range adjustment
  - B Switching indicator yellow
  - C Operation indicator green
- Preferred entry direction for objects ① + ② + ③



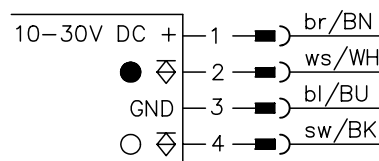
20 ... 230 mm  
20 ... 190 mm



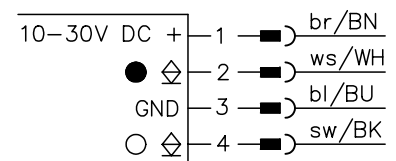
- Scanner with adjustable background suppression in visible red light or infrared light
- Very good black/white performance, exact adjustment via multiturn potentiometer
- High switching frequency for detection of fast events
- Complementary switching outputs for light/dark switching or as a control function

Electrical connection

FRK 95/44-150 L  
FRKR 95/44-150 L



FRK 95/22-150 L



Accessories:

(available separately)

- Mounting systems (BT 95, UMS 1)
- M12 connectors (KD ...)

We reserve the right to make changes • 95\_d02e.fm



### Specifications

#### Optical data

Typ. scanning range limit (white 90%) <sup>1)</sup>  
 Scanning range <sup>2)</sup>  
 Adjustment range  
 Light beam characteristic  
 Light source  
 Wavelength

#### FRK 95/...-150 L

**Infrared light**  
 20 ... 230mm  
 see tables  
 40 ... 230mm  
 divergent  
 LED (modulated light)  
 880nm

#### FRKR 95/44-150 L

**Red light**  
 20 ... 190mm  
 see tables  
 40 ... 190mm  
 focussed at 110mm  
 LED (modulated light)  
 660nm

#### Timing

Switching frequency 1000Hz  
 Response time 0.5ms  
 Delay before start-up ≤ 100ms

#### Electrical data

Operating voltage  $U_B$  10 ... 30VDC (incl. residual ripple)  
 Residual ripple ≤ 15% of  $U_B$   
 Bias current ≤ 35mA  
 Switching output  
 .../44-...  
 .../22-...  
 Function characteristics  
 Signal voltage high/low  
 Output current  
 2 PNP transistor outputs, complementary  
 2 NPN transistor outputs, complementary  
 light/dark switching  
 $\geq (U_B - 2V) \leq 2V$   
 max. 100mA

#### Indicators

LED green ready  
 LED yellow reflection

#### Mechanical data

Housing diecast zinc  
 Optics cover glass  
 Weight 90g  
 Connection type M12 connector, stainless steel, 4-pin

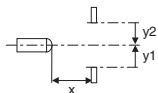
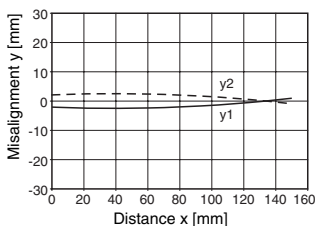
#### Environmental data

Ambient temp. (operation/storage)<sup>3)</sup> -25°C (-30°C) ... +60°C/-40°C ... +70°C  
 Protective circuit <sup>4)</sup> 2, 3  
 VDE safety class <sup>5)</sup> II, all-insulated  
 Protection class IP 67, IP 69K <sup>6)</sup>  
 LED class 1 (acc. to EN 60825-1)  
 Standards applied IEC 60947-5-2

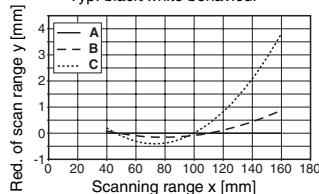
- 1) Typ. scanning range limit: max. attainable range without performance reserve
- 2) Scanning range: recommended range with performance reserve
- 3) -30°C with operating voltage continuously applied
- 4) 2=polarity reversal protection, 3=short-circuit protection for all outputs
- 5) Rating voltage 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

### Diagrams (FRKR 95...)

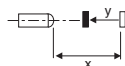
Typ. response behaviour (white 90%)



Typ. black/white behaviour



A white 90%  
 B grey 18%  
 C black 6%



### Order guide

With PNP switching outputs, infrared light  
 With PNP switching outputs, red light  
 With NPN switching outputs, infrared light

#### Designation

FRK 95/44-150 L  
 FRKR 95/44-150 L  
 FRK 95/22-150 L

#### Part No.

500 19925  
 500 25610  
 500 22794

### Tables

FRK 95

1	12	150	230
2	15	143	200
3	20	136	170

FRKR 95

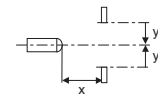
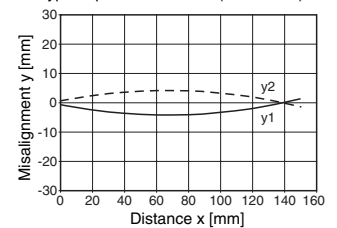
1	12	150	190
2	15	149	185
3	20	146	175

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

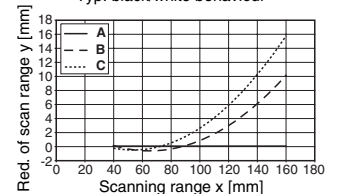
Scanning range [mm]  
 Typ. scanning range limit [mm]

### Diagrams (FRK 95...)

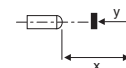
Typ. response behaviour (white 90%)



Typ. black/white behaviour



A white 90%  
 B grey 18%  
 C black 6%



### 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.
- The diffuse reflection light scanner using visible red light is also available with integrated AS-i chip for direct connection to the AS-i system.