

FRK 95

Diffuse reflection light scanner with background suppression

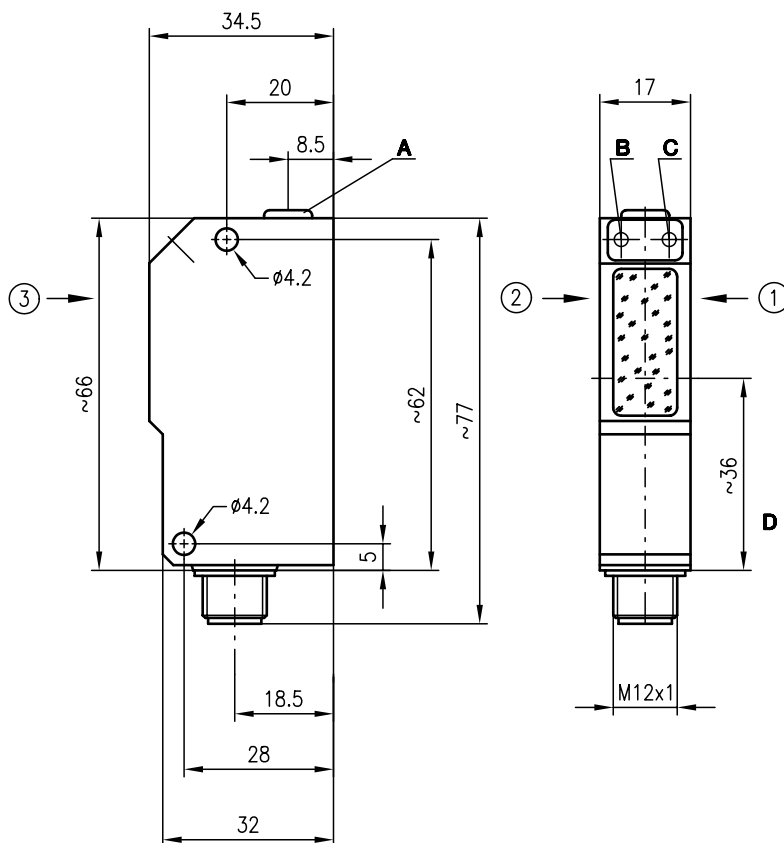


20 ... 230mm
20 ... 190mm

10 - 30 V
DC

- 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

Dimensioned drawing



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

Electrical connection



Accessories:

(available separately)

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

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

10-30V DC +	1	br / BN
● ◇	2	ws / WH
GND	3	bl / BU
○ ◇	4	sw / BK

FRK 95/22-150 L

10-30V DC + — 1 —  br / BN
●  — 2 —  ws / WH
GND — 3 —  bl / BU
○  — 4 —  sw / BK

Specifications

Optical data

Typ. scanning range limit (white 90%) ¹⁾
 Scanning range ²⁾
 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

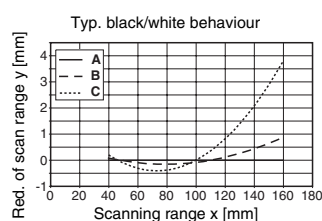
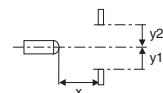
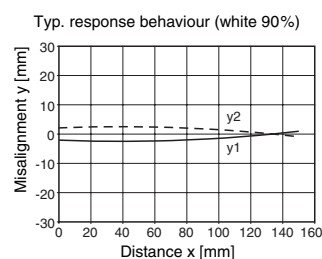
Housing diecast zinc
 Optics cover glass
 Weight 90g
 Connection type M12 connector, stainless steel, 4-pin

Environmental data

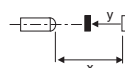
Ambient temp. (operation/storage) ³⁾ -25°C (-30°C) ... +60°C/-40°C ... +70°C
 Protective circuit ⁴⁾ 2, 3
 VDE safety class ⁵⁾ II, all-insulated
 Protection class IP 67, IP 69K ⁶⁾
 LED class 1 (acc. to EN 60825-1)
 Standards applied IEC 60947-5-2

- 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...)



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

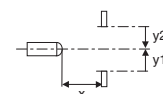
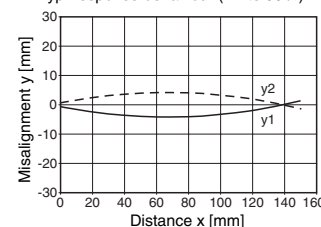
1	12	150	190
2	15	149	185
3	20	146	175

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

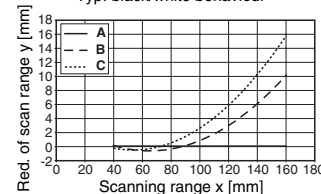
Scanning range [mm]
 Typ. scanning range limit [mm]

Diagrams (FRK 95...)

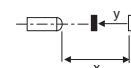
Typ. response behaviour (white 90%)



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.