



## RT 412

## Energetic diffuse reflection light scanners



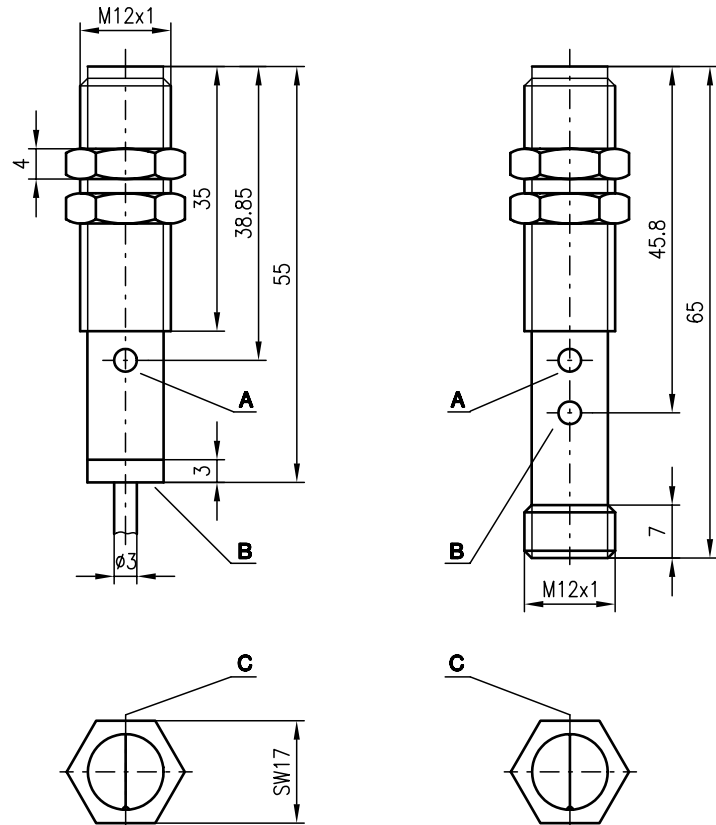
### Dimensioned drawing



0 ... 400mm



- Energetic diffuse reflection light scanners using visible red light
- Slim and short cylindrical metal housing M12x1
- High switching frequency for detection of fast events
- Light/dark switching via control line



- A** Sensitivity adjustment
- B** Indicator diode
- C** Optical axis

### Electrical connection

RT 412M/P-200-S12

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

RT 412M/P-200

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



### Accessories:

(available separately)

- M12 connectors (KD ...)
- Ready-made cables (KB ...)

## Specifications

### Optical data

Typ. scanning range limit (white 90%) <sup>1)</sup>	0 ... 400mm
Scanning range <sup>2)</sup>	see tables
Adjustment range	50 ... 400mm
Light source	LED (modulated light)
Wavelength	660nm (visible red light, polarised)

### Timing

Switching frequency	700Hz
Response time	0.7ms
Delay before start-up	≤ 25ms

### Electrical data

Operating voltage $U_B$	10 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 10% of $U_B$
Bias current	≤ 20mA
Switching output	PNP transistor output
Function characteristics <sup>3)</sup>	light/dark switching via control line
Signal voltage high/low	≥ ( $U_B - 3V$ ) / ≤ 3V
Output current	max. 200mA
Sensitivity	adjustable

### Indicators

LED yellow	switching state
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### Mechanical data

Housing	nickel-faced brass
Optics cover	plastic
Weight	18g
Connection type	M12 connector 4-pin, cable 2m, 4x0.14 mm <sup>2</sup>

### Environmental data

Ambient temp. (operation/storage)	-25°C ... +55°C / -40°C ... +70°C
Protective circuit <sup>4)</sup>	2, 3
VDE safety class	III
Protection class	IP 67
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) Light switching for control line (ws/WH): not connected or connected to  $U_B$   
Dark switching for control line (ws/WH): connected to GND
- 4) 2=polarity reversal protection, 3=short-circuit protection for all outputs

## Order guide

	Designation	Part No.
With M12 connector	RT 412M/P-200-S12	500 81409
With cable connection	RT 412M/P-200	500 81410

## Tables

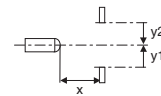
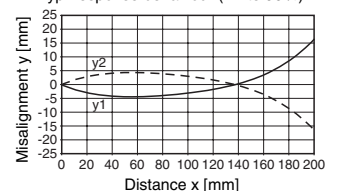
1	0	200	400
2	2	100	200
3	5	70	140

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

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

## Diagrams

Typ. response behaviour (white 90%)



## Remarks

- With the set scanning range, a tolerance of the upper and lower scanning range limit is possible depending on the reflection properties of the material surface.
- Models with NPN transistor output on request.