

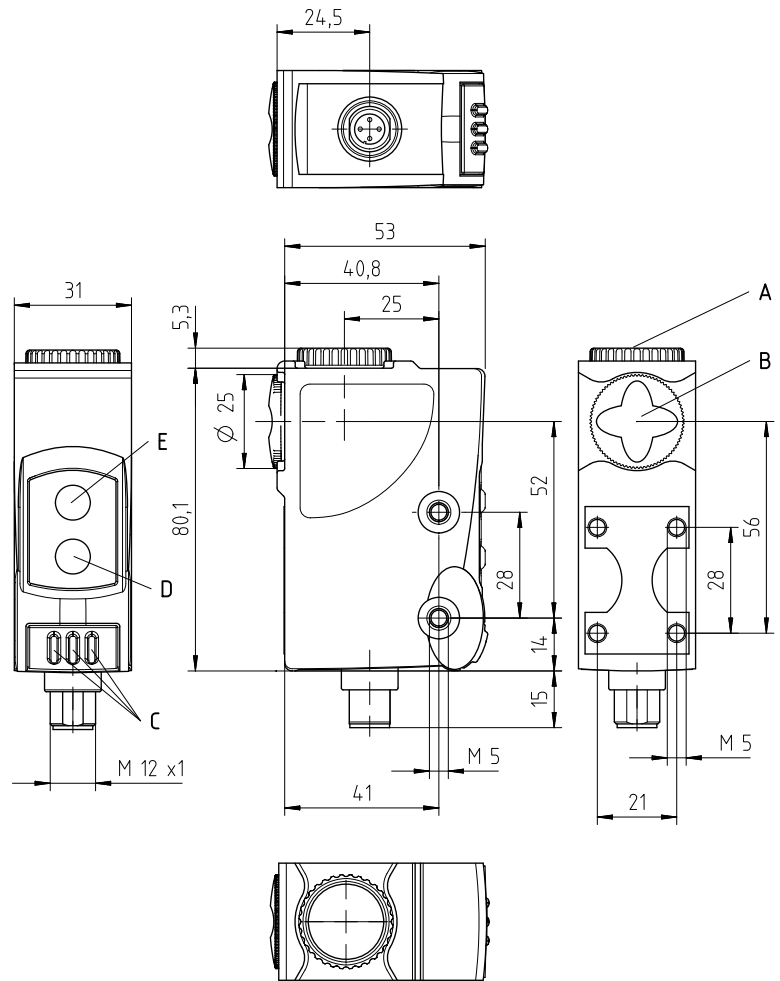
**KRT21M**

**Multicolor contrast scanner**

en 02-2015/05 50127871-01



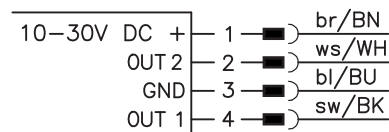
**Dimensioned drawing**



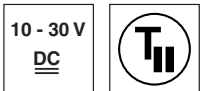
- A** Changeable optics (optical outlet on head)
- B** Dummy cable gland (optical outlet on front)
- C** Indicator LEDs
- D** Teach button BKGD
- E** Teach button MARK

**Electrical connection**

Connector, 4-pin



**9mm**



- Static teach-in
- RGB transmitter
- Response time 33µs
- Switching frequency 15kHz
- Switchable pulse stretching



**Accessories:**

(available separately)

- Cables with M12 connector (K-D ...)
- Interchangeable lens:  
Glass 9mm: OB-09.G-KRT21M (50127842)  
Glass 18mm: OB-18.G-KRT21M (50127843)

We reserve the right to make changes • DS\_KRT21M\_en\_50127871\_01.fm

## Specifications

### Optical data

Scanning range <sup>1)</sup>		9mm ± 3mm (from front edge of lens)
Light spot dimensions	in RUN-Mode	1.5mm x 5mm (at a distance of 9mm)
	in Teach-Mode	1.5mm x 5mm (at a distance of 9mm)
Optical outlet		front or head (see dimensioned drawing)
Light spot orientation		vertical (see dimensioned drawing)
Light source <sup>2)</sup>		LEDs (red, green, blue)
Wavelength		630nm, 520nm, 465nm

### Timing of the sensor

Switching frequency	15kHz
Response time	33µs
Delay before start-up	≤ 300ms
Teach process	Static 2-point

### Electrical data

Operating voltage $U_B$ <sup>3)</sup>	10 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 15% of $U_B$
Output/function	.../42... pin 4: PNP/ $U_B$ if mark detected pin 2: NPN/GND if mark detected
Signal voltage high/low	≥ ( $U_B - 2V$ ) / ≤ 2V
Output current	max. 100mA
Open-circuit current	≤ 25mA

### Indicators

Green LED continuous light	ready
Green LED off	teach event active
Green LED flashing	teaching error
Green LED quickly flashing	overload of the switching output
Yellow LED continuous light	mark detected
Orange LED continuous light	pulse stretching active

### Mechanical data

Housing	ABS
Front mount	M5, aluminum, penetration depth max. 6mm, max. tightening torque = 2Nm
Through-hole mounting	M5, aluminum, penetration depth max. 6mm, max. tightening torque = 2Nm
Optics cover	PMMA or glass
Weight	90g
Connection type	M12 connector, 4-pin

### Environmental data

Ambient temp. (operation/storage)	-10°C ... +55°C / -20°C ... +70°C
Protective circuit <sup>4)</sup>	2, 3
VDE safety class	II
Degree of protection	IP 67
Light source	exempt group (in acc. with EN 62471)
Standards applied	IEC 60947-5-2
Certifications	UL 508, C22.2 No.14-13 <sup>3) 5)</sup>

### Options

<b>Pulse stretching</b>	20ms, can be activated via keyboard
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- 1) Scanning range: recommended range with performance reserve
- 2) Average life expectancy 100,000h at an ambient temperature of 25°C
- 3) For UL applications: for use in class 2 circuits according to NEC only
- 4) 2=polarity reversal protection, 3=short circuit protection for all transistor outputs
- 5) These sensors shall be used with UL Listed Cable assemblies rated 30V, 0.5A min, in the field installation, or equivalent (categories: CYJV/CYJV7 or PVVA/PVVA7)

## Tables

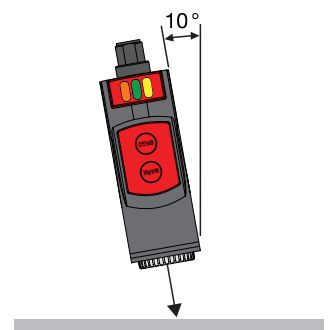
## Diagrams

## Remarks

### Operate in accordance with intended use!

- ⚠ This product is not a safety sensor and is not intended as personnel protection.
- ⚠ The product may only be put into operation by competent persons.
- ⚠ Only use the product in accordance with the intended use.

- When using an angled plug, the cable outlet is towards the optical outlet on the front
- With glossy objects, the sensor is to be fastened at an inclination of approx. 5 ... 20° relative to the object surface.



**KRT21M**

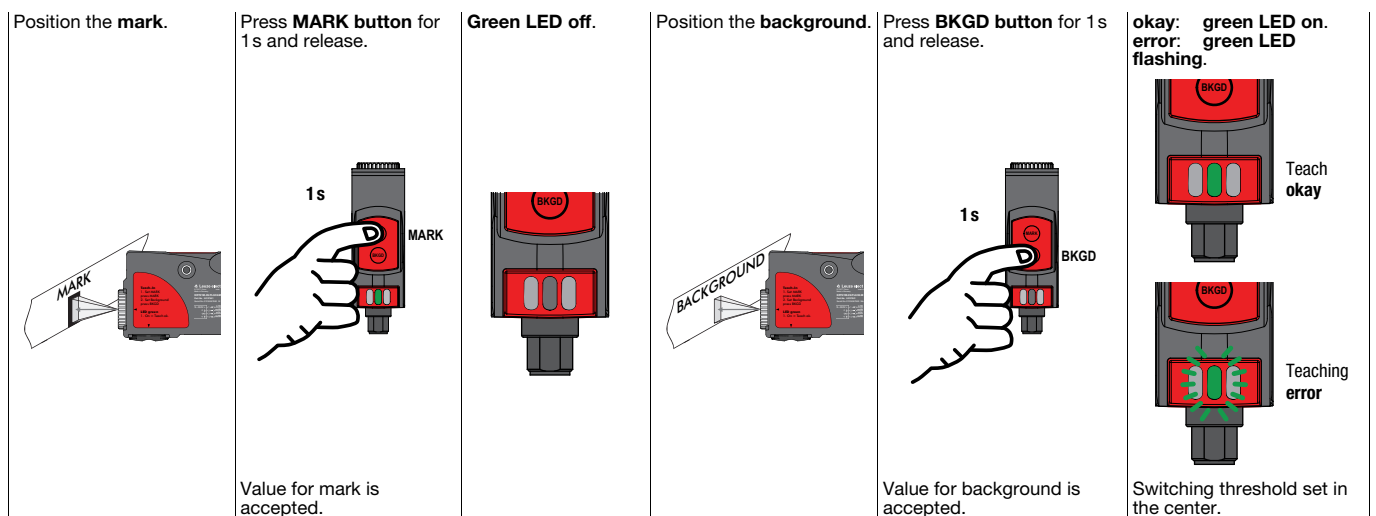
**Multicolor contrast scanner**

**Order guide**

Selection table		Order code →
<b>Equipment ↓</b>		<b>KRT21M-09.PL3/42-M12</b> Part no. 50127841
Transmitter color	RGB (red, green, blue)	●
Optical outlet	front	
	head	●
Light spot orientation	vertical	●
Output (OUT 1)	PNP transistor output	●
	NPN transistor output	
Output (OUT 2)	PNP transistor output	
	NPN transistor output	●
Teach-in method	static 2-point	●
Response time / switching frequency	33 μs / 15 kHz	●
Options	pulse stretching of 20ms can be activated by means of buttons	●

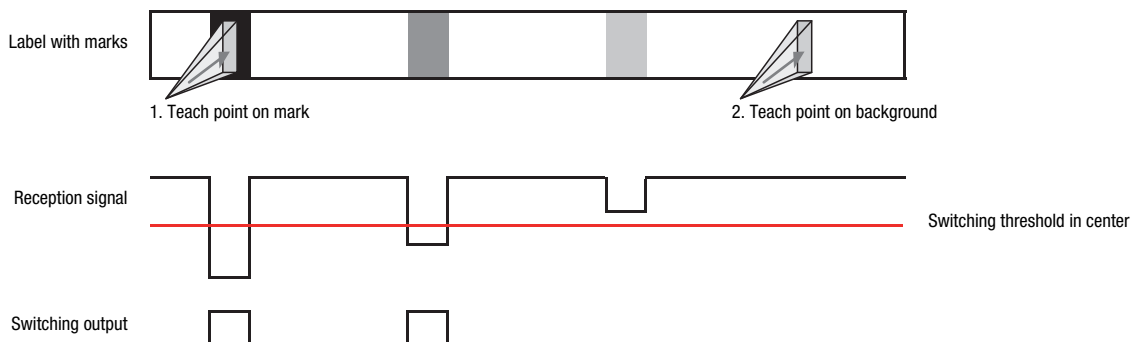
**Static 2-point teach**

Suitable for manual positioning of the marks.



**Switching threshold diagram**

Static 2-point teach



## Pulse stretching option

The pulse stretching function extends the duration of the output pulse (output active) to 20ms. This enables the detection of even very short switching pulses by the assigned control system.

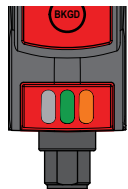
Activation of the pulse stretching function is signaled by illumination of the orange LED.

### Switching-on pulse stretching:

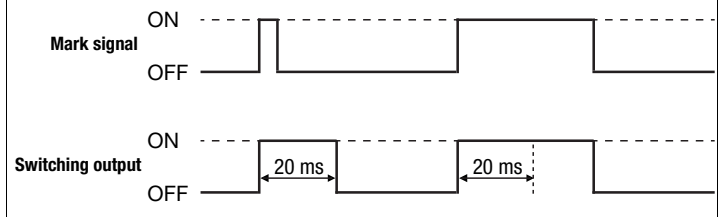
Press the MARK button and BKGD button simultaneously for 2s and then release.



Orange LED illuminates – pulse stretching active



Behavior of the switching output

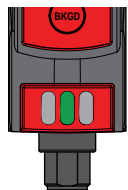


### Switching-off pulse stretching:

Press the MARK button and BKGD button simultaneously for 2s and then release.



Orange LED off – pulse stretching not active



Behavior of the switching output

