

**KRTM 20B**

**Multicolor contrast scanner Standard**

en 03-2011/02 50112369

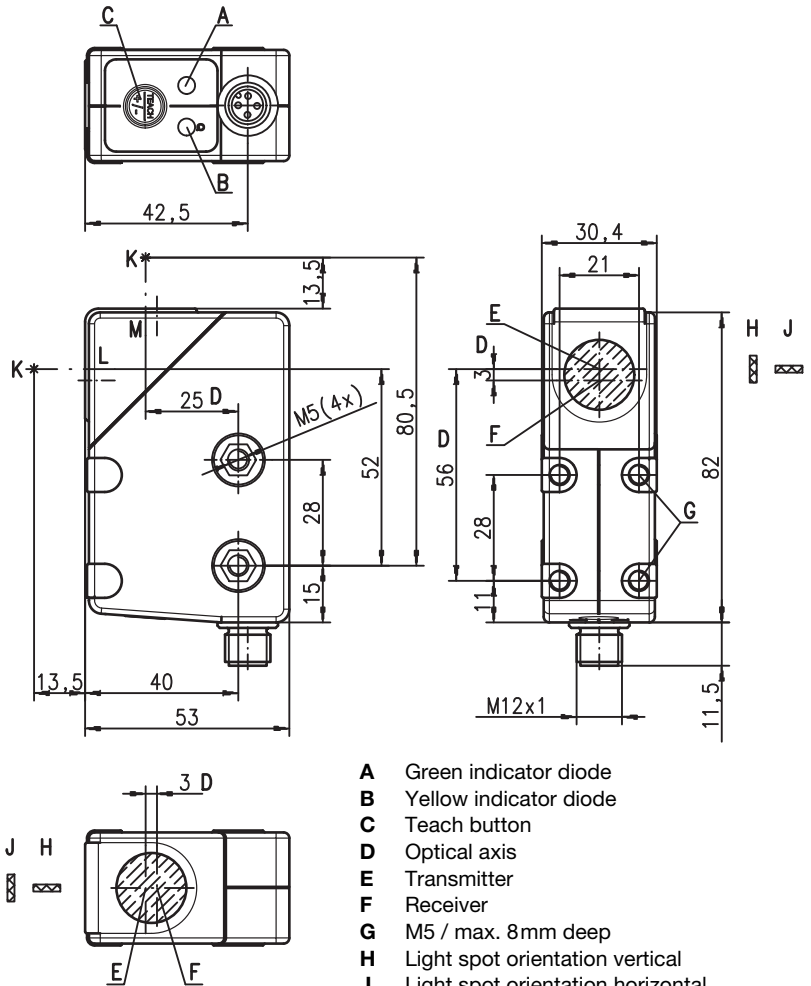


**13,5mm**



- RGB transmitter
- Static 2-point teach-in
- Level adaptation for glossy objects

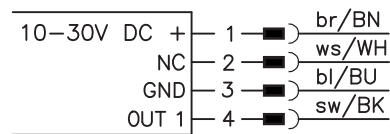
**Dimensioned drawing**



- A** Green indicator diode
- B** Yellow indicator diode
- C** Teach button
- D** Optical axis
- E** Transmitter
- F** Receiver
- G** M5 / max. 8mm deep
- H** Light spot orientation vertical
- J** Light spot orientation horizontal
- K** Focal point
- L** Front
- M** Head

**Electrical connection**

Plug connection, 4-pin



We reserve the right to make changes • DS\_KRTM\_St\_20B\_en.fm



**Accessories:**

(available separately)

- Cable with M12 connector (K-D ...)

**Specifications**

**Optical data**

Scanning range <sup>1)</sup>		13,5mm ± 3 mm (from housing front edge)
Light spot dimensions	in RUN-Mode	1.5mm x 4 mm (at a distance of 13,5mm)
	in Teach-Mode	1.5mm x 6.5mm (at a distance of 13,5mm)
Optical outlet		Front or head (see dimensioned drawing)
Light spot orientation		vertical or horizontal (see dimensioned drawing)
Light source <sup>2)</sup>		LEDs (red, green, blue)
Wavelength		640nm, 525nm, 470nm

**Timing of the sensor**

Internal switching frequency	6kHz
Internal response time	83µs
Response jitter, internal	33µs
Repeatability <sup>3)</sup>	0,33mm
Delay before start-up	≤ 300ms
Teach process	static 2-point
Teach delay	≤ 10ms

**Electrical data**

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

**Indicators**

Green LED in continuous light	ready
Green and yellow LED flashing at 3Hz	teach event active
Green and yellow LED flashing at 8Hz	teaching error
Green LED off and yellow LED flashing at 8Hz	sensor error
Yellow LED in continuous light	mark detected (dependent on the teach sequence)
Transmitter LEDs flashing at 8Hz	teaching error

**Mechanical data**

Front mount	M5, Stainless steel, (AISI 316L), penetration depth max. 5.5mm, max. tightening torque = 2Nm
Through-hole mount	M5, glass fiber reinforced, max. tightening torque = 2Nm
Optics cover	glass
Weight	50g
Connection type	M12 connector, 4-pin

**Environmental data**

Ambient temp. (operation/storage)	-30 °C ... +55 °C/-30 °C ... +70 °C
Protective circuit <sup>5)</sup>	2, 3
VDE safety class	II
Protection class	IP 67
LED class	1 (acc. to EN 62471)
Standards applied	IEC 60947-5-2
Certifications	UL 508 <sup>4)</sup>

**Options**

<b>Output pin 4</b>	
Line-teach active	2Hz at switching output
Error after line-teach	2Hz at switching output

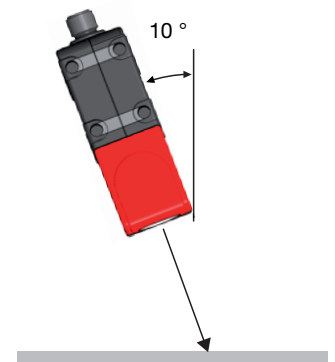
- 1) Scanning range: recommended range with performance reserve
- 2) Average life expectancy 100,000h at an ambient temperature of 25°C
- 3) At conveyor speed 1 m/s
- 4) For UL applications: for use in class 2 circuits according to NEC only
- 5) 2=polarity reversal protection, 3=short-circuit protection for all transistor outputs

**Tables**

**Diagrams**

**Remarks**

- **Approved purpose:**  
This product may only be used by qualified personnel and must only be used for the approved purpose. This sensor is not a safety sensor and is not to be used for the protection of persons..
- With glossy objects, the sensor is to be fastened at an inclination of approx. 10° relative to the object surface.



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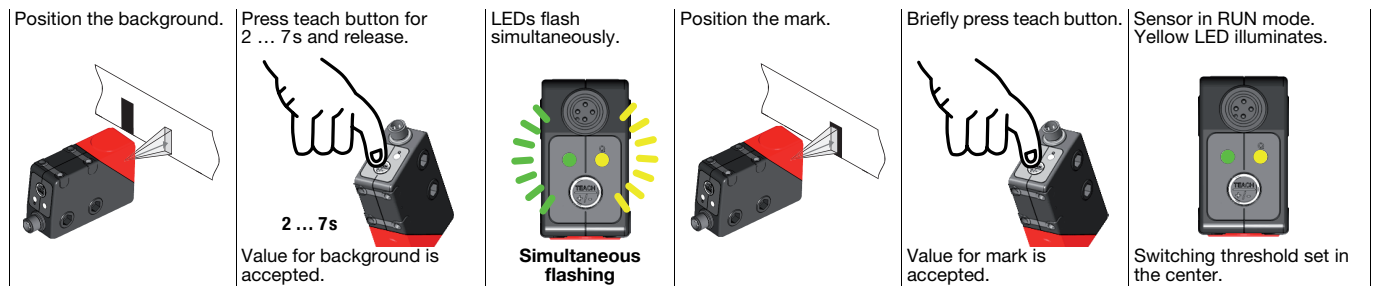
## Order guide

Selection table		Order code →			
Equipment ↓		KRTM 20B/4.4110-S12 Part No. 50112446	KRTM 20B/2.4110-S12 Part No. 50110600	KRTM 20B/4.5110-S12 Part No. 50112447	KRTM 20B/2.5110-S12 Part No. 50112445
Transmitter color	white light				
	RGB (red, green, blue)	•	•	•	•
Optical outlet	front			•	•
	head	•	•		
Light spot orientation	vertical	•	•	•	•
	horizontal				
Output (OUT 1)	PNP transistor output	•		•	
	NPN transistor output		•		•
	push-pull switching output				
	IO-Link COM2				
Input (IN)	teach input				
Teach process	static 1-point				
	static 2-point	•	•	•	•
	dynamic 2-point				
Response time / Switching frequency	50 µs / 10 kHz				
	83 µs / 6 kHz	•	•	•	•
Configuration	switching threshold adjustment with EasyTune via teach button				
	remote teach, keyboard lockout and pulse stretching via pin 2				
	teach level 1, teach-level 2 via teach button	•	•	•	•
	pulse stretching via teach button				

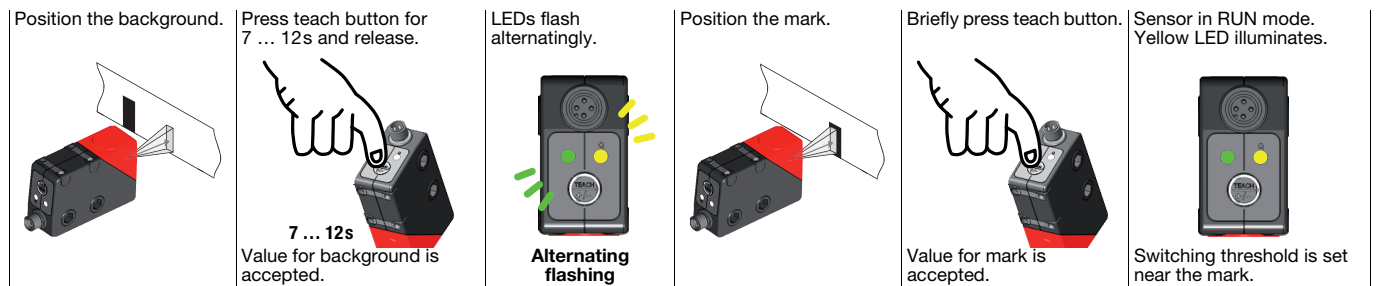
## Static 2-point teach

Suitable for manual positioning of the marks (availability dependent on sensor type).

### Switching threshold in center:



### Switching threshold near the mark:



## Switching threshold diagrams

### Static 2-point teach

