

# / SPECIAL SENSORS

## RELIABLE, EVEN WHEN THINGS GET CHALLENGING

Under this heading are sensor solutions that must perform special detection tasks or which were developed for specific applications. Here you will find contrast and luminescence sensors as well as color sensors and systems for monitoring double sheets and splices as well as for overlap detection.



**Contrast sensors**

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# //CONTRAST SENSORS

## THE CONTRAST MAKES THE DIFFERENCE

This sensor type can use various light sources – such as white light, laser-generated red light or RGB light – to very precisely detect and compare contrasts and report the results to the process with minimal signal jitter. Through the automatic selection of the right transmitter colors, various color or gray value combinations can be reliably detected.

### /// KRT 3B



The contrast sensors of the KRT 3B series distinguish between grayscale values, enabling them to detect minimal contrasts. As a result, a check can be performed for the presence of text or imprints or so-called marks detected.



#### Benefits:

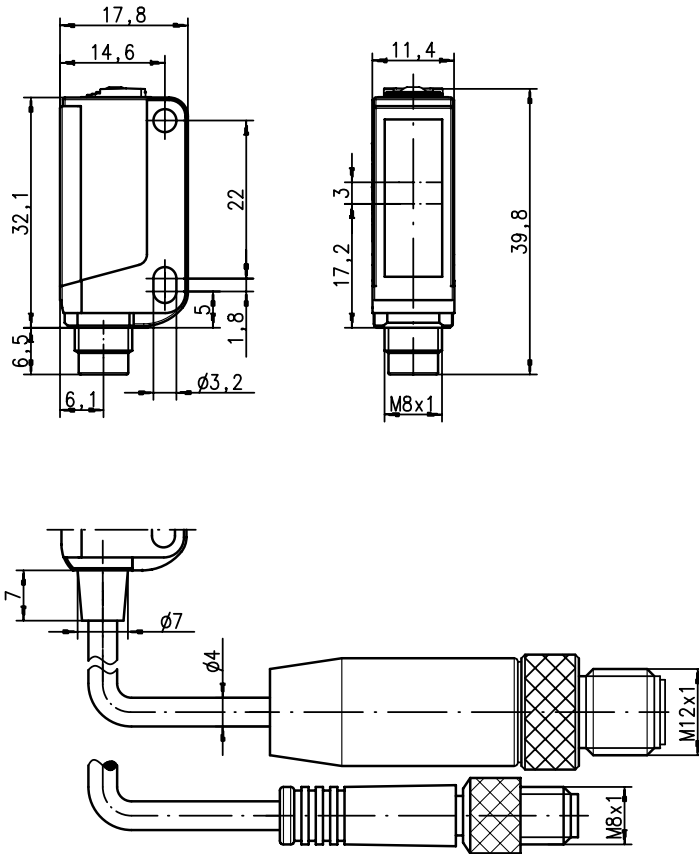
- Range 14.5 mm/ 60 mm (laser)
- Multicolor (RGB), white or laser light
- Various teach-in processes
- Switching-threshold correction via EasyTune
- Min. response time 50 µs
- Switching frequency up to 10 kHz
- Pulse stretching
- IO-Link interface



Direct access to the online product selector at [www.leuze.com/en/krt3b](http://www.leuze.com/en/krt3b)

Part no.	Part description	Operating range	Switching frequency	Light source	Digital switching output	Connection	Description
50110592	KRTL 3B/4.3111-S8	0.04 ... 0.08 m	4,000 Hz	Laser, red	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110594	KRTL 3B/4.3111,200-S12	0.04 ... 0.08 m	4,000 Hz	Laser, red	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110593	KRTL 3B/2.3111-S8	0.04 ... 0.08 m	4,000 Hz	Laser, red	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110595	KRTL 3B/2.3111,200-S12	0.04 ... 0.08 m	4,000 Hz	Laser, red	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50111321	KRTL 3B/6.3111-S8	0.04 ... 0.08 m	4,000 Hz	Laser, red	Transistor, push-pull, IO-Link/light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function
50110572	KRTW 3B/4.1110-S8	0.0125 ... 0.0165 m	6,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110576	KRTW 3B/4.1121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110580	KRTW 3B/4.1321-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50111769	KRTW 3B/4.2121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110578	KRTW 3B/4.1121,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110582	KRTW 3B/4.1321,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110573	KRTW 3B/2.1110-S8	0.0125 ... 0.0165 m	6,000 Hz	LED, white	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110577	KRTW 3B/2.1121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110581	KRTW 3B/2.1321-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110579	KRTW 3B/2.1121,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110583	KRTW 3B/2.1321,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50111319	KRTW 3B/6.1121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function
50111320	KRTW 3B/6.1321-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function
50110584	KRTM 3B/4.1121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110588	KRTM 3B/4.1221-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50111768	KRTM 3B/4.2121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110586	KRTM 3B/4.1121,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110590	KRTM 3B/4.1221,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110585	KRTM 3B/2.1121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110589	KRTM 3B/2.1221-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110587	KRTM 3B/2.1121,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110591	KRTM 3B/2.1221,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50111312	KRTM 3B/6.1121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, push-pull, IO-Link/light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function
50111313	KRTM 3B/6.1221-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, push-pull, IO-Link/light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function
50118393	KRTM 3B/6.2121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, push-pull, IO-Link/light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function

**Dimensioned drawings: KRT 3B**



KRT 3B contrast sensors

**ACCESSORIES: KRT 3B**

**Connection technology**

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50130869	KD U-M8-4W-V1-020	Connector, M8, angled, female	4-pin	2,000 mm	PVC
50130871	KD U-M8-4W-V1-050	Connector, M8, angled, female	4-pin	5,000 mm	PVC
50130848	KD U-M8-4A-V1-020	Connector, M8, axial, female	4-pin	2,000 mm	PVC
50130850	KD U-M8-4A-V1-050	Connector, M8, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

**Mounting systems**

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50105546	BT 3B	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117256	BTU 200M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117255	BTU 200M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117254	BTU 200M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

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## /// KRT 55



Wherever food, beverages, pharmaceutical products or even cosmetics are manufactured, processed and packaged, hygienic design has become a central requirement. These contrast sensors in WASH-DOWN design can withstand even more intensive cleaning and disinfection cycles. The IO-Link interface facilitates simple adaptation to complex applications.

**Benefits:**

- Stainless steel housing AISI 316L
- 13 mm range
- RGB or white light
- Various teach-in processes
- Switching-threshold correction via EasyTune
- Response time 50 µs
- Switching frequency 10 kHz
- Pulse stretching
- IO-Link interface



Direct access to the online product selector at [www.leuze.com/en/krt55](http://www.leuze.com/en/krt55)

Part no.	Part description	Operating range	Switching frequency	Light source	Digital switching output	Connection	Description
50111642	KRTW 55/4.1121-S8	0.011 ... 0.015 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110602	KRTW 55/4.1121,200-S12	0.011 ... 0.015 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50114075	KRTW 55/4.1121,5000	0.011 ... 0.015 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Cable, 5,000 mm, 4-wire	Teach input, time function
50110601	KRTW 55/2.1121-S8	0.011 ... 0.015 m	10,000 Hz	LED, white	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110603	KRTW 55/2.1121,200-S12	0.011 ... 0.015 m	10,000 Hz	LED, white	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50111641	KRTW 55/6.1121-S8	0.011 ... 0.015 m	10,000 Hz	LED, white	Transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function
50111644	KRTM 55/4.1121-S8	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110613	KRTM 55/4.1221-S8	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110611	KRTM 55/4.1121,200-S12	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110615	KRTM 55/4.1221,200-S12	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50114074	KRTM 55/4.1121,5000	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Cable, 5,000 mm, 4-wire	Teach input, time function
50110610	KRTM 55/2.1121-S8	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110614	KRTM 55/2.1221-S8	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110612	KRTM 55/2.1121,200-S12	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110616	KRTM 55/2.1221,200-S12	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50111643	KRTM 55/6.1121-S8	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function

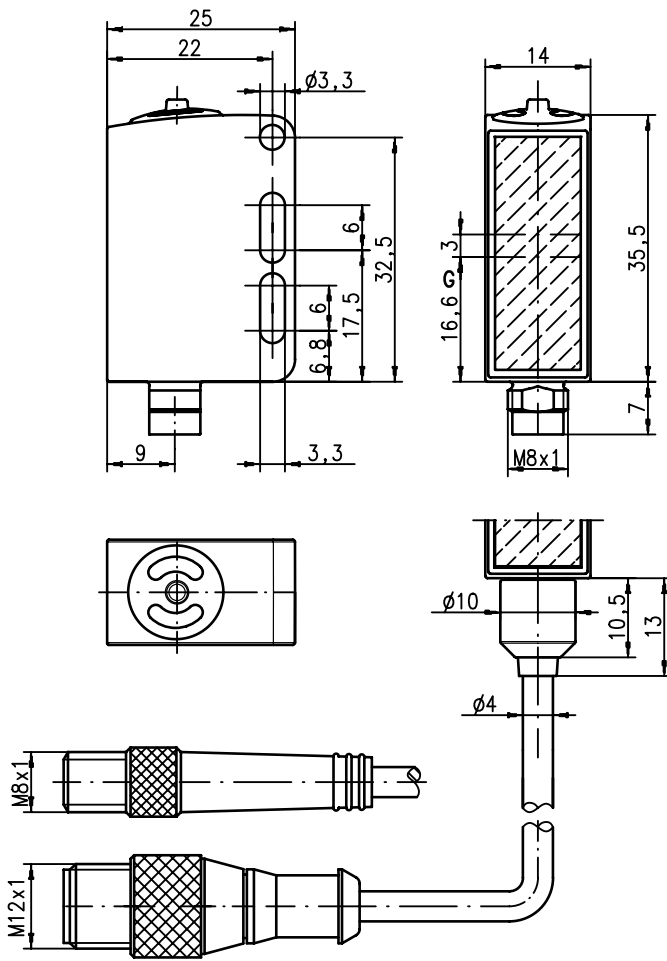
## SMARTER CUSTOMER SERVICE

International sales locations –  
Everywhere you need us.



Information on our worldwide locations and partners: [www.leuze.com/en/worldwide](http://www.leuze.com/en/worldwide)

**Dimensioned drawings: KRT 55**



KRT 55 contrast sensors

**ACCESSORIES: KRT 55**

**Connection technology**

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50130869	KD U-M8-4W-V1-020	Connector, M8, angled, female	4-pin	2,000 mm	PVC
50130871	KD U-M8-4W-V1-050	Connector, M8, angled, female	4-pin	5,000 mm	PVC
50130848	KD U-M8-4A-V1-020	Connector, M8, axial, female	4-pin	2,000 mm	PVC
50130850	KD U-M8-4A-V1-050	Connector, M8, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

**Mounting systems**

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50040269	BT 25	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

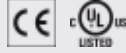
Industrial image processing

Accessories

## /// KRT 20



With jitter times < 7  $\mu$ s, with precise, round and small light spots, with memory bank administration and freely programmable interface, with perfect temperature compensation, these devices in a robust metal housing can handle even the fastest processes.

**Benefits:**

- Metal housing with interchangeable lenses
- 12/20 mm and 50 mm range
- Very high resolution
- Response time: 10 ms
- Switching frequency 50 kHz
- Switching and analog output
- Temperature compensation
- Pulse stretching
- Switching-threshold changeover
- Freely programmable
- Rectangular or round light-spot profile



Direct access to the online product selector at [www.leuze.com/en/krt20](http://www.leuze.com/en/krt20)

Part no.	Part description	Operating range	Switching frequency	Light source	Digital switching output	Analog switching output	Connection	Description
50116177	KRTM 20M/P-50-6320-S12	0.045 ... 0.055 m	50,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible		Connector, M12, 5-pin	Autocollimation, synchronization input, time function
50035674	KRTM 20M/V-20-0001-S12	0.018 ... 0.022 m	16,000 Hz	LED, RGB	Transistor, PNP, light switching	Current	Connector, M12, 5-pin	Autocollimation, crop mark system
50041007	KRTM 20M/V-20-0004-S12	0.018 ... 0.022 m	16,000 Hz	LED, RGB	Transistor, PNP, light switching	Current	Connector, M12, 5-pin	Autocollimation, time function, crop mark system
50113438	KRTM 20M/C-20-6526-S12	0.018 ... 0.022 m	50,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Current	Connector, M12, 5-pin	Autocollimation, time function
50114202	KRTM 20M/P-20-3320-S12	0.018 ... 0.022 m	50,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible		Connector, M12, 5-pin	Autocollimation, synchronization input, time function
50113435	KRTM 20M/P-20-6320-S12	0.018 ... 0.022 m	50,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible		Connector, M12, 5-pin	Autocollimation, synchronization input, time function
50113437	KRTM 20M/C-20-6626-S12	0.018 ... 0.022 m	50,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Current	Connector, M12, 5-pin	Autocollimation, time function
50114201	KRTM 20M/N-20-3320-S12	0.018 ... 0.022 m	50,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible		Connector, M12, 5-pin	Autocollimation, synchronization input, time function
50113436	KRTM 20M/N-20-6320-S12	0.018 ... 0.022 m	50,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible		Connector, M12, 5-pin	Autocollimation, time function
50116474	KRTM 20M/P-12-6420-S12	0.011 ... 0.013 m	50,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible		Connector, M12, 5-pin	Autocollimation, synchronization input, time function

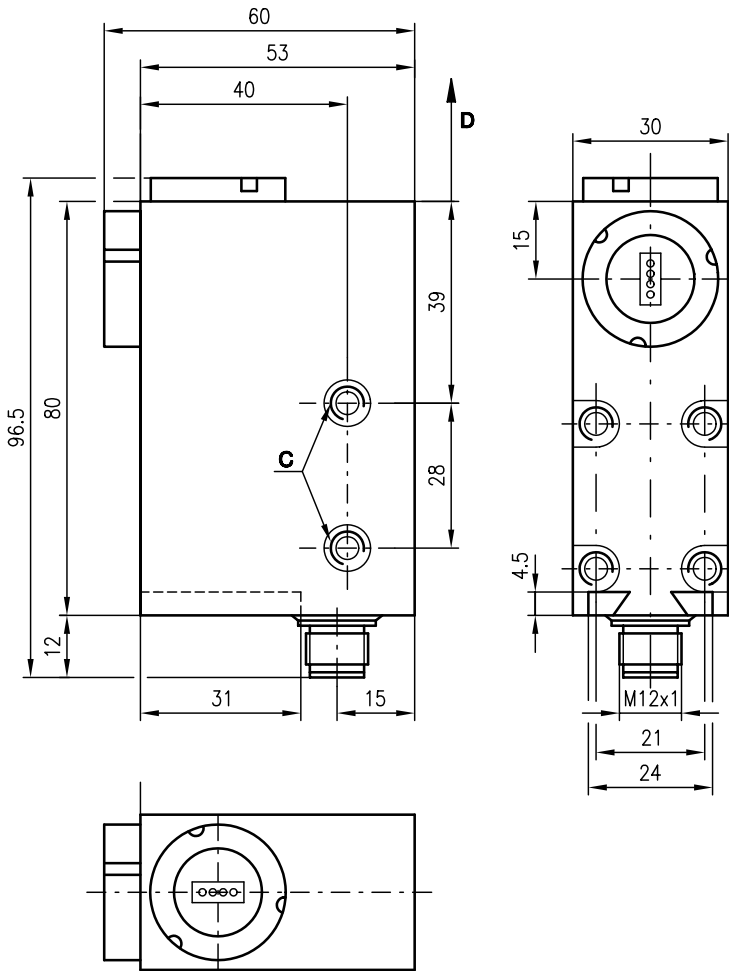
Other scanning ranges of 12  $\pm$  1 mm, 20  $\pm$  2 mm or 50  $\pm$  5 mm are possible by changing the lens

## SMARTER APPLICATION KNOW-HOW



Take a look at our product clips: [www.leuze.com/en/product-clips](http://www.leuze.com/en/product-clips)

**Dimensioned drawings: KRT 20**



KRT 20 contrast sensors

**ACCESSORIES: KRT 20**

**Connection technology**

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104568	K-D M12W-5P-2m-PUR	Connector, M12, angled, female	5-pin	2,000 mm	PUR
50104762	K-D M12W-5P-5m-PUR	Connector, M12, angled, female	5-pin	5,000 mm	PUR
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC
50104567	K-D M12A-5P-2m-PUR	Connector, M12, axial, female	5-pin	2,000 mm	PUR
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC

Further connection cables can be found on our website

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## /// KRT 21



With a response time of 33  $\mu$ s, RGB transmitter, interchangeable lenses and other fundamental equipment details, any contrast marks are reliably detected. The simple adjustment to mark and background makes for uncomplicated commissioning.

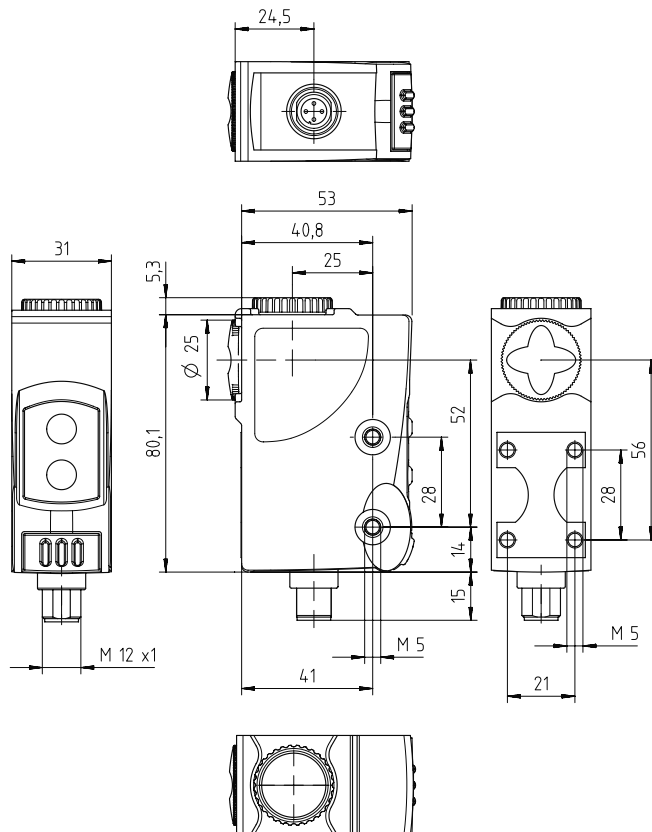
**Benefits:**

- 9 mm or 18 mm range
- Interchangeable lenses made of glass and plastic
- Multicolor (RGB) transmitter
- Static teach-in
- Response time 33  $\mu$ s
- Switching frequency 15 kHz
- Pulse stretching



Direct access to the online product selector at [www.leuze.com/en/krt21](http://www.leuze.com/en/krt21)

Part no.	Part description	Operating range	Switching frequency	Light source	Digital switching output	Connection	Description
50127841	KRT21M-09.PL3/42-M12	0.006 ... 0.012 m	15,000 Hz	LED, RGB	Transistor, PNP, switching signal on mark	Connector, M12, 4-pin	Pulse stretching

**Dimensioned drawings: KRT 21**

KRT 21 contrast sensors

**ACCESSORIES: KRT 21****Connection technology**

## Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130658	KD U-M12-4A-P1-100	Connector, M12, axial, female	4-pin	10,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website



# //LUMINESCENCE SENSORS

## I SEE WHAT YOU DON'T SEE

This sensor detects both visible as well as invisible luminescent markings. It sends the result as switching output or analog value and is used primarily for sorting and inspection tasks in areas in which other detection methods fail to supply reliable results or where the markings should not or must not be visible.

### /// LRT 8



With various light spot profiles, filters, transmitter variants and accessories, this compact design includes everything needed for detecting luminescent objects.



**Benefits:**

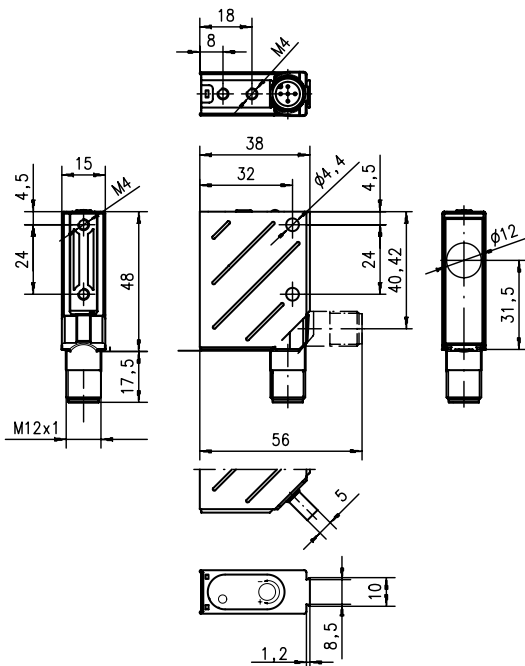
- Ranges up to 200 mm
- Very compact metal construction
- Switching frequency 1.5 kHz
- Sensitivity adjustment via potentiometer
- Turnable M12 connector
- Filter variants



Direct access to the online product selector at [www.leuze.com/en/lrt8](http://www.leuze.com/en/lrt8)

Part no.	Part description	Operating range	Light source	Switching frequency	Switching output 1	Switching output 2	Description
50109343	LRT 8/24.04-100-S12	0 ... 0.22 m	LED, UV	1,500 Hz	Transistor, PNP, light switching	Transistor, NPN, light switching	Detection of white paper, detection of any kind of luminescence
50124694	LRT 8/44.04-100-S12	0 ... 0.22 m	LED, UV	1,500 Hz	Transistor, PNP, light switching	Transistor, PNP, dark switching	Detection of white paper, detection of any kind of luminescence
50041840	LRT 8/24.04-50-S12	0 ... 0.15 m	LED, UV	1,500 Hz	Transistor, PNP, light switching	Transistor, NPN, light switching	Detection of any kind of luminescence, detection of white paper
50119033	LRT 8/24.10-150-S12	0 ... 0.5 m	LED, blue	1,500 Hz	Transistor, PNP, light switching	Transistor, NPN, light switching	Detection of red marks on wood
50119032	LRT 8/24.14-150-S12	0 ... 0.4 m	LED, UV	1,500 Hz	Transistor, PNP, light switching	Transistor, NPN, light switching	Detection of any kind of luminescence, detection of white paper
50124693	LRT 8/44.14-150-S12	0 ... 0.4 m	LED, UV	1,500 Hz	Transistor, PNP, light switching	Transistor, PNP, dark switching	Detection of white paper, detection of any kind of luminescence
50125896	LRT 8/44.18-150-S12	0 ... 0.3 m	LED, UV	1,500 Hz	Transistor, PNP, light switching	Transistor, PNP, dark switching	Detection of white paper
50116732	LRT 8/24.16-80-S12	0 ... 0.1 m	LED, UV	1,500 Hz	Transistor, PNP, light switching	Transistor, NPN, light switching	Detection of yellow print marks

### Dimensioned drawings: LRT 8



LRT 8 luminescence sensors

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

## ACCESSORIES: LRT 8

### Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104567	K-D M12A-5P-2m-PUR	Connector, M12, axial, female	5-pin	2,000 mm	PUR
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC
50104559	K-D M12A-5P-10m-PVC	Connector, M12, axial, female	5-pin	10,000 mm	PVC

Further connection cables can be found on our website

### Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50036195	BT 8	Angle, L-shape	Screw type	Through-hole mounting	Metal
50118543	BT 300M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel, V2A


Further mounting brackets can be found on our website

Rod mounts


Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117253	BTU 300M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117252	BTU 300M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117251	BTU 300M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website


## SMARTER PRODUCT USABILITY



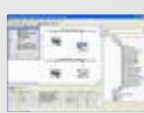
**BCL 500*i* / BCL 300*i***  
Powerful bar code reader with integrated fieldbus networking capability and code reconstruction technology




**BPS 34**  
Bar code positioning system with PROFIBUS interface for complex requirements



**AMS 300*i***  
High-precision optical laser distance sensor AMS 300i with unique selection of integrated fieldbus interfaces
















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Measuring light curtain with integrated fieldbus interfaces and evaluation unit

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# //COLOR SENSORS

## ALWAYS GOOD WHEN THINGS GET COLORFUL

This sensor type detects colors and compares them to a stored reference value. They are the right solution whenever the color of an object or marking can serve as a sorting or inspection criteria. Depending on the configuration and specified tolerance values of the system, the result is output as a switching signal.

### /// CRT 20B



Thanks to extensive configuration options and 1 or 4 color channels with individually adjustable color tolerance, this series can be used for fast processes with short response times.



#### Benefits:

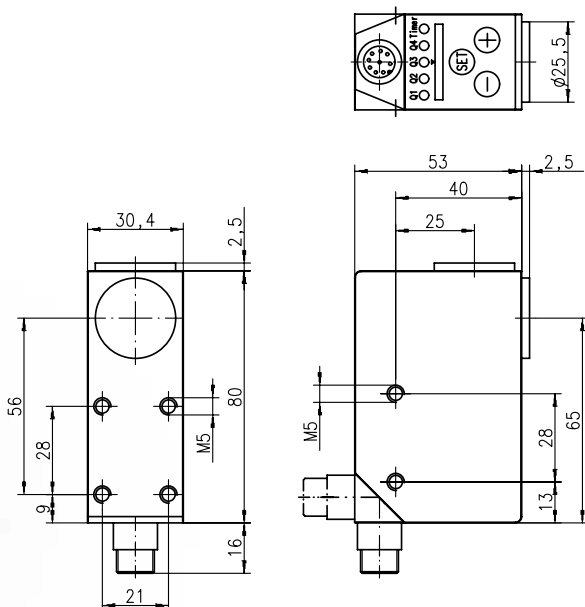
- 12.5 mm or 60 mm range
- Very robust metal construction
- Simple teach-in of up to four reference colors
- Sensitivity adjustment following teach-in
- Color tolerance separately adjustable per color channel
- Switching frequency up to 6 kHz
- Extensive configuration options
- Turnable M12 connector



Direct access to the online product selector at [www.leuze.com/en/crt20b](http://www.leuze.com/en/crt20b)

Part no.	Part description	Operating range	Switching frequency	Light source	Switching outputs	Connection	Description
50109595	CRT 20B M/N-60-001-S12	0.051 ... 0.069 m	6,000 Hz	LED, RGB	1x, transistor, NPN, light/dark reversible	Connector, M12, 5-pin	Detection of one color, autocollimation, teach input
50109597	CRT 20B M/P-60-001-S12	0.051 ... 0.069 m	6,000 Hz	LED, RGB	1x, transistor, PNP, light/dark reversible	Connector, M12, 5-pin	Detection of one color, autocollimation, teach input
50109599	CRT 20B M/N-60-004-S12	0.051 ... 0.069 m	3,500 Hz	LED, RGB	4x, transistor, NPN, light/dark reversible	Connector, M12, 8-pin	Detection of four colors, autocollimation, teach input
50109601	CRT 20B M/P-60-004-S12	0.051 ... 0.069 m	3,500 Hz	LED, RGB	4x, transistor, PNP, light/dark reversible	Connector, M12, 8-pin	Detection of four colors, autocollimation, teach input
50109594	CRT 20B M/N-12-001-S12	0.0095 ... 0.0155 m	6,000 Hz	LED, RGB	1x, transistor, NPN, light/dark reversible	Connector, M12, 5-pin	Detection of one color, autocollimation, teach input
50109596	CRT 20B M/P-12-001-S12	0.0095 ... 0.0155 m	6,000 Hz	LED, RGB	1x, transistor, PNP, light/dark reversible	Connector, M12, 5-pin	Detection of one color, autocollimation, teach input
50109598	CRT 20B M/N-12-004-S12	0.0095 ... 0.0155 m	3,500 Hz	LED, RGB	4x, transistor, NPN, light/dark reversible	Connector, M12, 8-pin	Detection of four colors, autocollimation, teach input
50109600	CRT 20B M/P-12-004-S12	0.0095 ... 0.0155 m	3,500 Hz	LED, RGB	4x, transistor, PNP, light/dark reversible	Connector, M12, 8-pin	Detection of four colors, autocollimation, teach input

### Dimensioned drawings: CRT 20B



CRT 20B color sensor

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

## ACCESSORIES: CRT 20B

### Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104567	K-D M12A-5P-2m-PUR	Connector, M12, axial, female	5-pin	2,000 mm	PUR
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC
50104559	K-D M12A-5P-10m-PVC	Connector, M12, axial, female	5-pin	10,000 mm	PVC
50104591	K-D M12A-8P-2m-PUR	Connector, M12, axial, female	8-pin	2,000 mm	PUR
50104590	K-D M12A-8P-5m-PUR	Connector, M12, axial, female	8-pin	5,000 mm	PUR
50106882	K-D M12A-8P-10m-PUR	Connector, M12, axial, female	8-pin	10,000 mm	PUR

Further connection cables can be found on our website

### /// CRT 448



This series with 3 color channels and the scan function for color gradients can be used flexibly in many areas of applications.



#### Benefits:

- 22 mm or 32 mm range
- Small plastic construction
- Simple teach-in of three reference colors
- Scan function for color gradients
- Color tolerance separately adjustable per color channel
- 500 Hz switching frequency
- Configuration options
- Turnable M12 connector

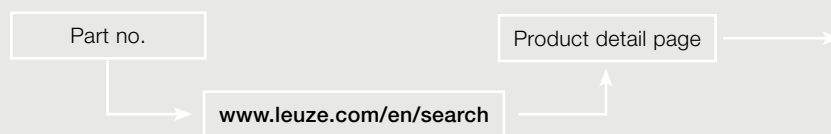


Direct access to the online product selector at [www.leuze.com/en/crt448](http://www.leuze.com/en/crt448)

Part no.	Part description	Operating range	Switching frequency	Light source	Switching outputs	Connection	Description
50121293	CRT 448.S3/222-M12	0.012 ... 0.032 m	500 Hz	LED, white	3x, transistor, NPN	Connector, M12, 8-pin	Detection of three colors, teach input, synchronization input
50121294	CRT 448.S3/444-M12	0.012 ... 0.032 m	500 Hz	LED, white	3x, transistor, PNP	Connector, M12, 8-pin	Detection of three colors, synchronization input
50121291	CRT 448.L3/222-M12	0.018 ... 0.022 m	500 Hz	LED, white	3x, transistor, NPN	Connector, M12, 8-pin	Detection of three colors, teach input, synchronization input
50121292	CRT 448.L3/444-M12	0.018 ... 0.022 m	500 Hz	LED, white	3x, transistor, PNP	Connector, M12, 8-pin	Detection of three colors, synchronization input

## SMARTER CUSTOMER SERVICE

The quickest way to find matching accessories and technical downloads:

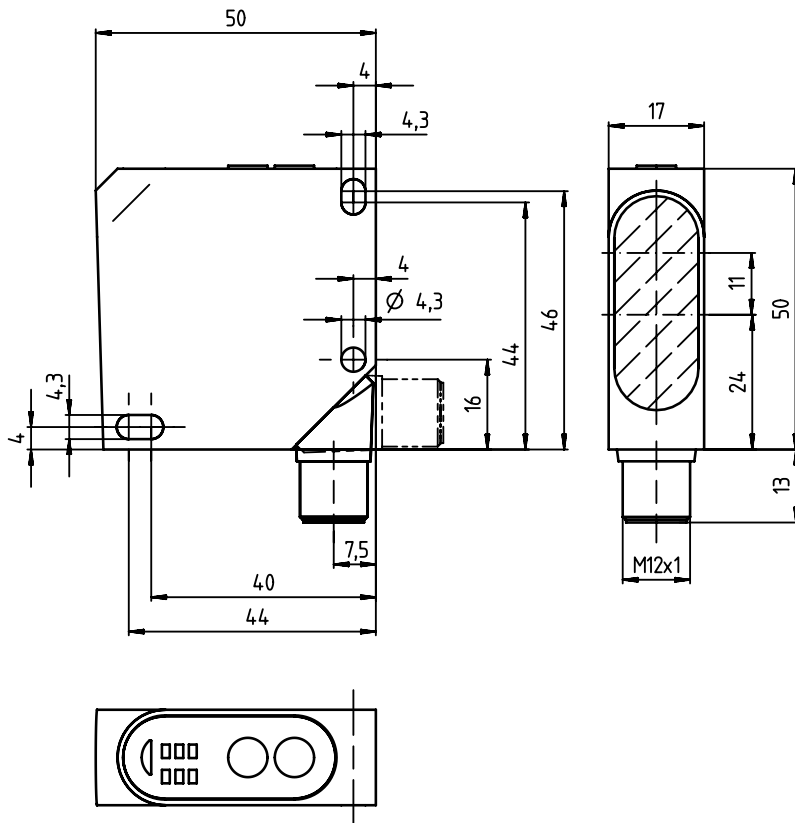


Matching accessories  
 Necessary accessories  
 3D-CAD models  
 Technical descriptions  
 Data sheets  
 Software  
 Drivers



On the product detail pages you will find comprehensive technical downloads: [www.leuze.com/en/search](http://www.leuze.com/en/search)

**Dimensioned drawings: CRT 448**



CRT 448 color sensor

**ACCESSORIES: CRT 448**

**Connection technology**

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104591	K-D M12A-8P-2m-PUR	Connector, M12, axial, female	8-pin	2,000 mm	PUR
50104590	K-D M12A-8P-5m-PUR	Connector, M12, axial, female	8-pin	5,000 mm	PUR
50106882	K-D M12A-8P-10m-PUR	Connector, M12, axial, female	8-pin	10,000 mm	PUR

Further connection cables can be found on our website

**Reflectors**

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50022816	TKS 100X100	Rectangular	96 mm x 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm  
Further standard reflectors can be found on our website

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