PRODUCT INFORMATION

KTS/KTX

SIMPLY DETECT MORE.

Contrast sensors

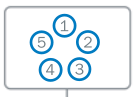
SICK
Sensor Intelligence.

KTS AND KTX:
SIMPLY DETECT MORE.

Nothing simply improves by itself. Except these: our new KTS and KTX incorporate more than just the reliability and availability of contrast sensors from the market and technology leader. We go further: TwinEye-Technology®, multifunctional display, individual setting options. And offer contrast sensors that now also detect colors. The advantages? Significantly higher performance and process stability as well as more possible applications. But without anything changing.

Multi-functional 7-segment display

- Quick and easy input, simple navigation
- Enables a large variety of individualized adjustments
- Visualization of sensor function and process quality
- Visual feedback of mounting quality



Integrated job memory

- Option of managing configurations (up to 5 different formats can be stored) directly in the storage bank, even without IO-Link
- Flexible format change thanks to simple access to stored configurations

Smart sensor functions

- Enhanced sensing: Custom intelligence and performance for contrast and color detection
- Efficient communication: IO-Link and additional integrated functions such as sensor configuration or sensor visualization
- Diagnostics: Access to process, service, and analysis data
- Smart tasks: Configuration management for quick and easy format change

High-precision RGB LED

- Excellent color mixture
- Clearly visible and precise light spot
- More precision, higher resolution and improved depth of field

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TwinEye technology®

- Reliable detection and process stability, even with high-gloss and fluttering materials and materials with minor contrast differences
- Wide depth of field range
- Increased sensing range tolerance (± 5 mm)

Color mode

- Combination of contrast and color sensor technology
- Detection of difficult marks with very low contrast or very low color differences using special color mode
- More flexibility, more application possibilities for the sensor usage

Special versions

- “High Precision” with 70 kHz switching frequency and 3 µs jitter
- “High Sensitivity” with increased gray-scale resolution

Always the ideal solution:

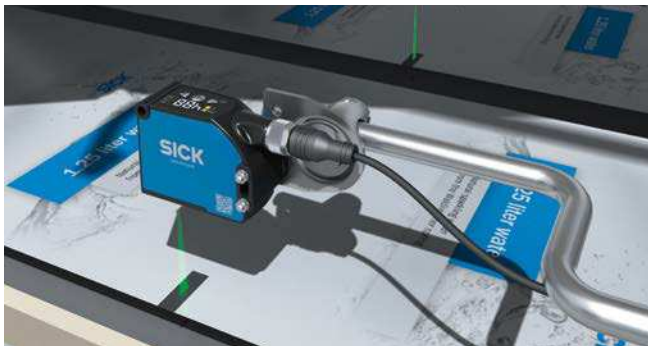
KTS – the new housing shape: perfectly equipped for modern machine concepts.
KTX – the well-known mounting pattern: for easy integration into existing machines.

KTS UND KTX: MORE THAN JUST PRINT MARK SENSORS

Where most of the contrast sensors reach their limits, the KTS and KTX offer more applications, more areas of use, more flexibility. And all this without neglecting the core task:

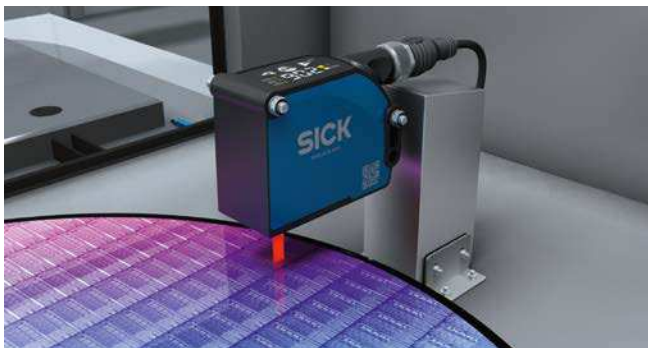
Controlling print marks

With the KTS and KTX, you can control your packaging processes quickly and precisely. Thanks to TwinEye-Technology®, the KTS and KTX detect high-gloss materials and complex contrasts, even on heavily fluttering materials. The integrated color mode also enables reliable detection of even the most minor contrast differences and color features. Furthermore, the sensing range tolerance has been extended to ±5 mm for stable detection even in the most unstable material transportation systems.



Detection of wafers

When producing wafers, the individual layers must be correctly positioned for further processing. Depending on the layer, the wafers have different, sometimes high-gloss surfaces. Thanks to the TwinEye-Technology® and high grayscale resolution, KTS and KTX detection of all different types of wafer surfaces is not only reliable, but teach-in is also quick and easy.



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Controlling the filling of tubes

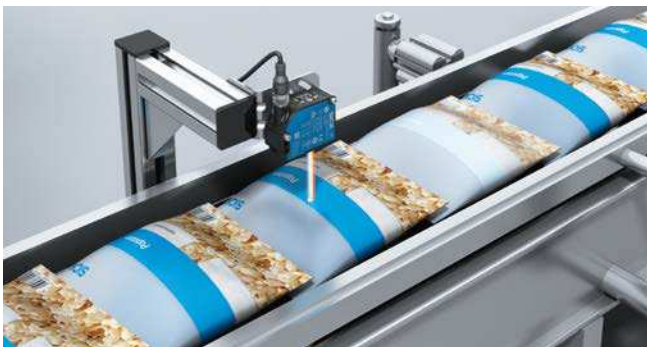
With the KTS and KTX, you can precisely control the filling and adhesion of tubes. When doing so, the sensors reliably detect the necessary control marks - a complex task since the tubes rotate quickly and consist in part of high-gloss materials and welding seams make detection more difficult. It is here that the high accuracy of the sensors comes into effect, thanks to the 50 kHz switching frequency and 5 µs jitter as well as the additional color mode.

Control of roll changes

Supply material such as wire or backsplice foil is often wound around rolls. If the roll is changed too early or too late, material loss and machine downtimes are the result. The KTS and KTX reliably detect the difference between supply material and roll, so necessary roll changes are automatically signaled at the right time.

Color detection and quality control

The perfect combination of contrast and color sensor technology: when producing cables or yarn, the KTS and KTX detect even the most minor color and contrast difference thanks to the color mode. Even faulty, incorrectly dyed material is detected reliably and sorted out in time.



UNIVERSAL CONTRAST DETECTION IN MODERN HOUSING

Product description

High performance for universal application in a range of applications: The new KTS Core in modern design with white LED or RGB LED and VISTAL® housing impresses with its switching frequency and gray line resolution, different teach-in variants and manual switching threshold adjustment. A response time of 20 µs and a jitter of 10 µs ensure reliable and accurate detection of contrast differences, e.g. in print marks, even on high-gloss materials. Thanks to various teach-in processes and manual switching threshold adjustment, commissioning is more flexible and detection more stable. The KTS Core detects even the smallest differences in contrast and is therefore well-suited for use in a wide range of applications.

At a glance

- White LED or RGB LED
- High gray line resolution
- Very large dynamic range means reliable detection of contrasts on glossy materials
- 12.5 kHz / 25 kHz switching frequency
- Display for easy sensor adjustment
- 2-point and dynamic teach-in
- Manual switching threshold adjustment
- Light/dark switching

Your benefits

- High switching frequency for use in quick machine processes with high switching accuracy requirements
- Display and flexible sensor settings for easy sensor handling and user-friendly operation
- High gray line resolution enables the detection of very small contrast differences and high-gloss materials - high process stability and fewer downtimes
- Various teach-in processes for ideal sensor and process setting in different applications
- Manual switching threshold adjustment supports stable material detection and individual sensor adaption to different contrasts

Additional information

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→ www.sick.com/KTS_Core

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

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Detailed technical data

Features

Dimensions (W x H x D)	26 mm x 62 mm x 47.5 mm
Sensing distance	13 mm
Housing design (light emission)	Rectangular
Sensing distance tolerance	± 3 mm
Light source	LED, White [1] LED, RGB [1] (depending on type)
Wave length	
White	400 nm ... 750 nm
RGB	470 nm, 525 nm, 625 nm
Light emission	Long side of housing
Light spot size	1.2 mm x 3.9 mm
Light spot direction [2]	Vertical
Teach-in mode	2-point teach-in Dynamic Teach-in (depending on type)
Output function	Light/dark switching

[1] Average service life: 100,000 h at T_U = +25 °C.

[2] In relation to long side of housing.

Mechanics/electronics

Supply voltage [1]	10.8 V DC ... 28.8 V DC
Ripple [2]	≤ 5 V_{pp}
Power consumption [3]	< 100 mA
Switching frequency [4]	12,5 kHz / 25 kHz (depending on type)
Response time [5]	40 µs / 20 µs (depending on type)
Jitter	20 µs / 10 µs (depending on type)
Output type	PUSH/PULL, NPN (depending on type)
Switching output (voltage)	Push/Pull: HIGH = V_S - 3 V / LOW ≤ 3 V
Output current $I_{max.}$	100 mA
Input, teach-in (ET)	Teach: U = 10 V ... < V_S: Run: U < 2 V
Retention time (ET)	35 ms, non-volatile memory
Connection type	Male connector M12, 4-pin
Protection class	III
Circuit protection	U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Enclosure rating	IP67
Weight	68 g
Housing material	VISTAL®

[1] Limit values: DC 12 V (–10 %) ... DC 24 V (+20 %). Operation in short-circuit protected network max. 8 A.

[2] May not exceed or fall below U_V tolerances.

[3] Without load.

[4] With light/dark ratio 1:1.

[5] Signal transit time with resistive load.

Ambient data

Ambient operating temperature	–20 °C ... +60 °C
Ambient storage temperature	–25 °C ... +75 °C
Shock load	According to IEC 60068-2-27 (30 g/11 ms)
UL File No.	E181493

Ordering information

KTS Core white LED

- **Fieldbus, industrial network:** -
- **Teach-in mode:** 2-point teach-in, dynamic Teach-in
- **Light emission:** Long side of housing
- **Light spot direction:** vertical
- **Light source:** LED, white (Average service life: 100,000 h at T_U = +25 °C.)
- **Switching frequency:** 25 kHz
- **Response time:** 20 µs
- **Jitter:** 10 µs

Sensing distance	Sensing distance tolerance	Switching output	Connection type	Connection diagram	Type	Part no.
13 mm	± 3 mm	PUSH/PULL	Male connector M12, 4-pin	cd-380	KTS-MB811411142ZZZZ	1078119

KTS Core RGB-LED

- **Fieldbus, industrial network:** -
- **Teach-in mode:** 2-point teach-in, dynamic Teach-in
- **Light emission:** Long side of housing
- **Light spot direction:** vertical
- **Light source:** LED, RGB (Average service life: 100,000 h at T_U = +25 °C.)
- **Switching frequency:** 25 kHz
- **Response time:** 20 µs
- **Jitter:** 10 µs

Sensing distance	Sensing distance tolerance	Switching output	Connection type	Connection diagram	Type	Part no.
13 mm	± 3 mm	PUSH/PULL	Male connector M12, 4-pin	cd-380	KTS-WB811411142ZZZZ	1078120

KTS Core Easy-Teach white LED

- **Fieldbus, industrial network:** -
- **Light emission:** Long side of housing
- **Light spot direction:** vertical
- **Light source:** LED, white (Average service life: 100,000 h at T_U = +25 °C.)
- **Switching frequency:** 12,5 kHz
- **Response time:** 40 µs
- **Jitter:** 20 µs

Teach-in mode	Sensing distance	Sensing distance tolerance	Switching output	Connection type	Connection diagram	Type	Part no.
2-point teach-in	13 mm	± 3 mm	PUSH/PULL	Male connector M12, 4-pin	cd-380	KTS-MB411411142ZZZZ	1219606
			NPN	Male connector M12, 4-pin	cd-380	KTS-MN411411142ZZZZ	1219612

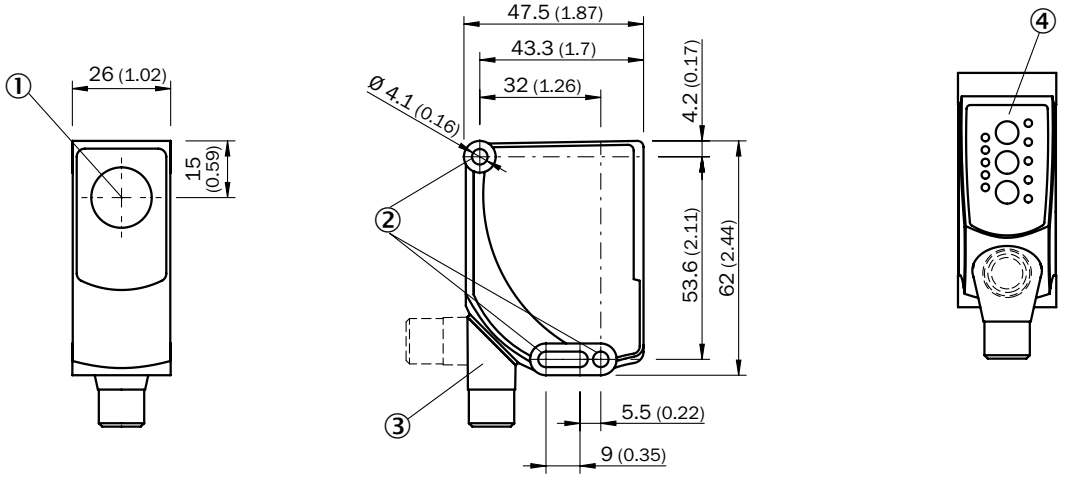
KTS Core Easy-Teach RGB-LED

- **Fieldbus, industrial network:** -
- **Light emission:** Long side of housing
- **Light spot direction:** vertical
- **Light source:** LED, RGB (Average service life: 100,000 h at T_U = +25 °C.)
- **Switching frequency:** 25 kHz
- **Response time:** 20 µs
- **Jitter:** 10 µs

Teach-in mode	Sensing distance	Sensing distance tolerance	Switching output	Connection type	Connection diagram	Type	Part no.
2-point teach-in	13 mm	± 3 mm	PUSH/PULL	Male connector M12, 4-pin	cd-380	KTS-WB41141142ZZZZ	1218200
			NPN	Male connector M12, 4-pin	cd-380	KTS-WN41141142ZZZZ	1219611
dynamic Teach-in	13 mm	± 3 mm	PUSH/PULL	Male connector M12, 4-pin	cd-380	KTS-WB51141142ZZZZ	1219064

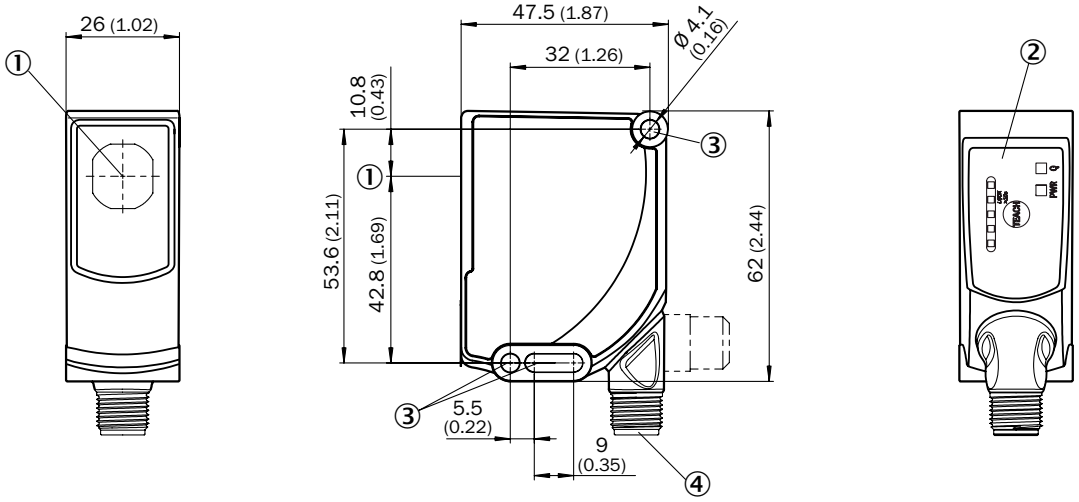
Dimensional drawings (Dimensions in mm (inch))

KTS Core



① Optical axis, sender
② Fixing hole
③ Connector M12 (rotatable up to 180°)
④ Control panel

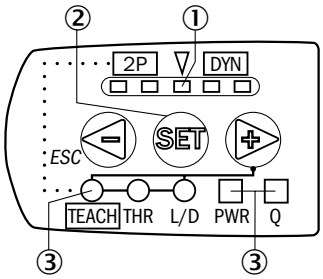
KTS Core Easy-Teach



① Optical axis, sender
② Control panel
③ Fixing hole
④ Connector M12 (rotatable up to 180°)

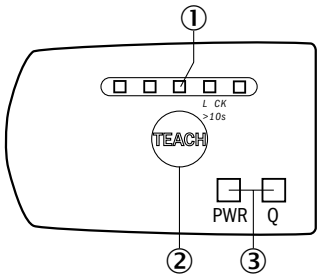
Adjustments

KTS Core



① Bar graph
② Navigation buttons
③ Status indicator LED

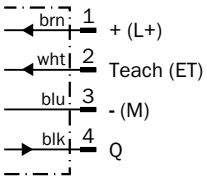
KTS Core Easy-Teach



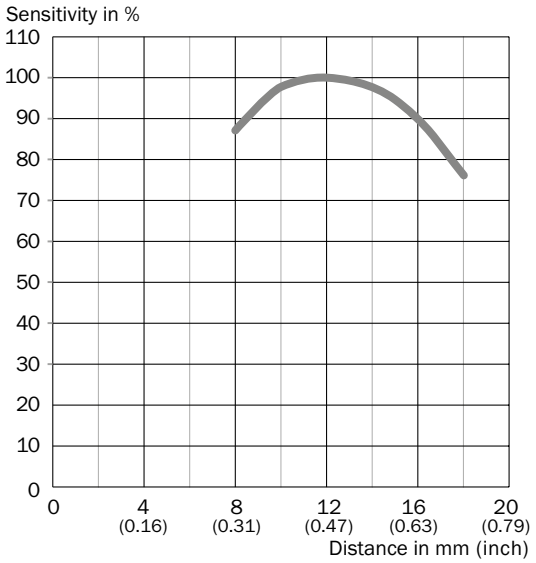
① Bar graph
② Single teach-in button
③ LED status indicator

Connection type and diagram

Cd-380



Sensing distance

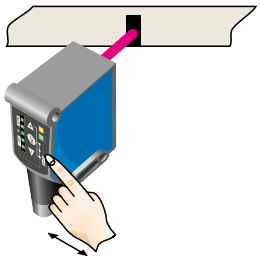


Setting the switching threshold

KTS Core - Setting the switching threshold (2-point teach-in)

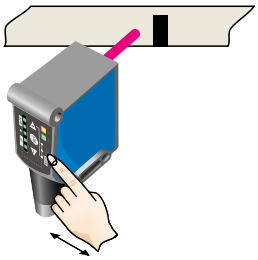
Suitable for manual positioning of the object to be detected, e.g. marks and background.

1. Position mark



When setting the contrasts to be detected, the first LED (green) flashes in the bar graph.
Press Teach-in pushbutton.

2. Position background

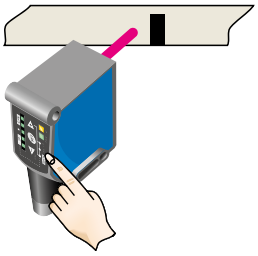


When setting the contrasts to be detected, the second LED (green) flashes in the bar graph.
Press Teach-in pushbutton.
The Quality of Teach is displayed.

KTS Core - Setting the switching threshold (dynamic Teach-in)

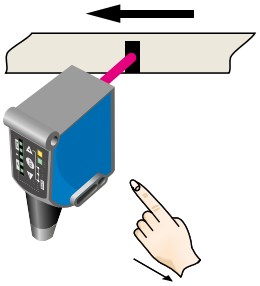
Suitable for teaching in moving objects.

1. Position background

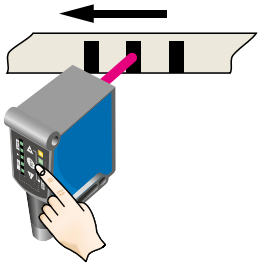


Press the Teach-in pushbutton < 1 s.

2. Move at least the mark and background using the light spot

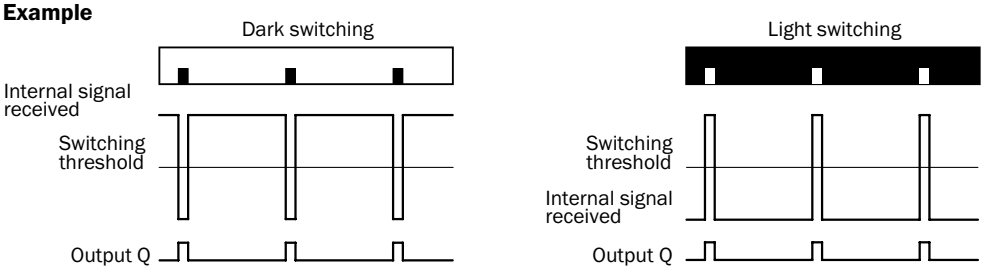


The bar graph display flashes during repeat length detection.



Press the Teach-in pushbutton to end the teach-in process.
The Quality of Teach is displayed.

Example



Switching characteristics

The optimum emitted light is selected automatically (at RGB variants).
Static teach-in: light/dark setting is defined using teach-in sequence.
Dynamic teach-in: switching output active on mark, if background is longer in the field of view during the teach-in.
The switching threshold is set in the center between the background and the mark.

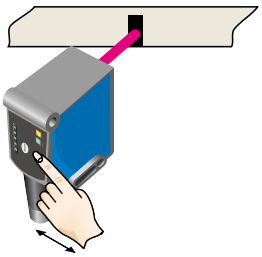
Keylock (activation and deactivation): Press and hold the “+” pushbutton > 10 s.

Teach-in failure: The Q-LED (yellow) flashes and all LEDs flash on the bar graph (green).

KTS Core Easy-Teach - Setting the switching threshold (2-point teach-in)

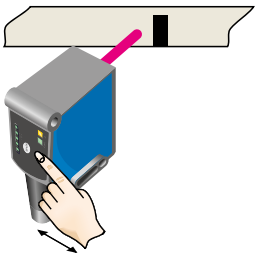
Suitable for manual positioning of the object to be detected, e.g. marks and background.

1. Position mark



When setting the contrasts to be detected, the first LED (green) flashes in the bar graph.
Press Teach-in pushbutton.

2. Position background



When setting the contrasts to be detected, the second LED (green) flashes in the bar graph.
Press Teach-in pushbutton.
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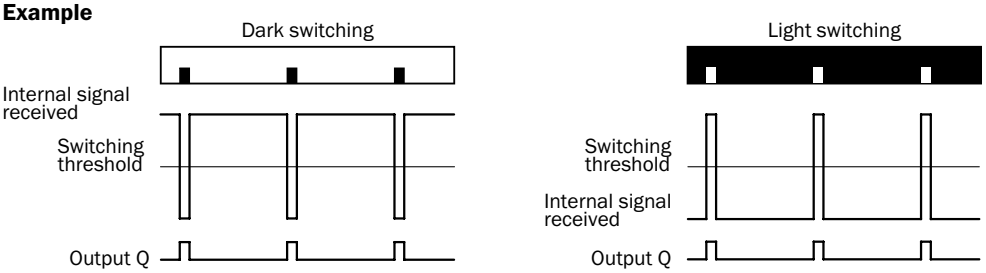
Example



Switching characteristics

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Static teach-in: light/dark setting is defined using teach-in sequence.

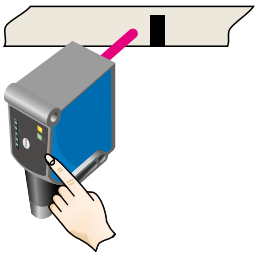
Keylock (activation and deactivation): Press and hold the Teach-in pushbutton > 10 s.

Teach-in failure: The Q-LED (yellow) flashes and all LEDs flash on the bar graph (green).

KTS Core Easy-Teach - Setting the switching threshold (dynamic Teach-in)

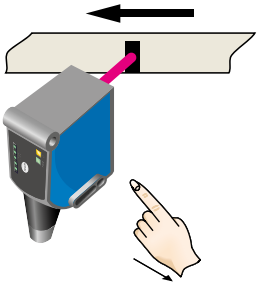
Suitable for teaching in moving objects.

1. Position background

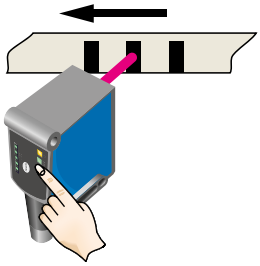


Press the Teach-in pushbutton < 1 s.

2. Move at least the mark and background using the light spot

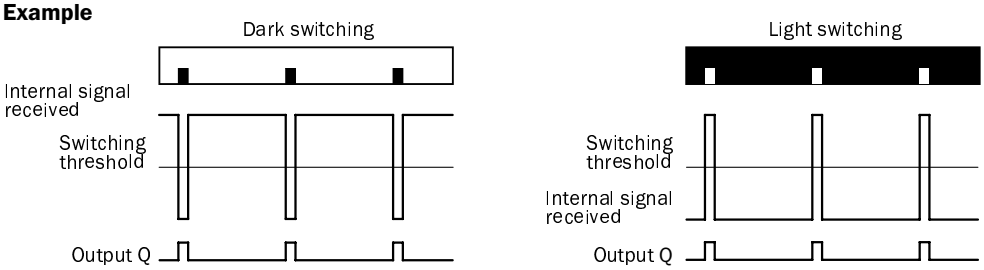


The bar graph display flashes during repeat length detection.



Press the Teach-in pushbutton to end the teach-in process.
The Quality of Teach is displayed.

Example



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Teach-in failure: The Q-LED (yellow) flashes and all LEDs flash on the bar graph (green).

INNOVATIVE TWINEYE-TECHNOLOGY FOR BETTER CONTRAST DETECTION

Product description

Outstanding performance for a variety of applications, even with difficult framework conditions: The new KTS Prime with modern design, high-precision RGB LED and VISTAL® housing impresses with TwinEye-Technology, color mode, high switching frequency, excellent gray line resolution, 7-segment display and IO-Link. The response time of 10 µs and a jitter of 5 µs ensure accurate detection of contrast differences, even at high machine speeds. Thanks to various teach-in processes, integrated color mode and variable sensor adjustment, commissioning is more flexible and the processes more stable. The KTS Prime provides additional diagnosis and analysis data via IO-Link. The new KTS Prime - it can easily do more.

At a glance

- TwinEye-Technology for increased depth of field and sensing distance tolerance
- 50 kHz switching frequency and 5 µs jitter
- Large dynamic range means reliable detection of contrasts on glossy materials
- 7-segment display
- Color mode
- Assembly feedback
- IO-Link and automation functions
- Flexible sensor setting thanks to various sensor parameters

Your benefits

- Small design for installation even where space is limited
- TwinEye-Technology for better performance on glossy or jittering materials - less machine downtime and more process stability
- Multi-functional sensor adjustment for individual sensor adjustment
- Excellent contrast resolution and a large dynamic range for good performance on complex materials
- High flexibility thanks to a range of teach-in processes
- Integrated color mode - stable detection even with complex color differences
- Job storage in sensor - flexible process design and format change
- Diagnostics and visualization as well as easy format change via IO-Link

IO-Link

Additional information

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→ www.sick.com/KTS_Prime

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

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Detailed technical data

Features

Dimensions (W x H x D)	26 mm x 62 mm x 47.5 mm
Sensing distance	13 mm / 25 mm (depending on type)
Housing design (light emission)	Rectangular
Sensing distance tolerance	± 5 mm / ± 6 mm (depending on type)
Light source [1]	LED, RGB
Wave length	470 nm, 525 nm, 625 nm
Light emission	Long side of housing
Light spot size	
Vertical 13 mm	0.9 mm x 3.8 mm
Vertical 25 mm	1.2 mm x 5.3 mm
Horizontal 13 mm	3.8 mm x 0.9 mm
Horizontal 25 mm	5.3 mm x 1.2 mm
Round	Ø 0.9 mm
Light spot direction [2]	Vertical Horizontal Round (depending on type)
Teach-in mode	1-point teach-in, 2-point teach-in, dynamic Teach-in, auto mode
Output function	Light/dark switching
Delay time	Adjustable

[1] Average service life: 100,000 h at T_U = +25 °C.

[2] In relation to long side of housing.

Mechanics/electronics

Supply voltage [1]	10.8 V DC ... 28.8 V DC
Ripple [2]	≤ 5 V_{pp}
Power consumption [3]	< 100 mA
Switching frequency [4]	
KTS Prime	50 kHz
KTS Prime High Precision	70 kHz
KTS Prime High Sensitivity	25 kHz
Response time [5]	
KTS Prime	10 µs
KTS Prime High Precision	3 µs
KTS Prime High Sensitivity	20 µs
Jitter	
KTS Prime	5 µs
KTS Prime High Precision	3 µs
KTS Prime High Sensitivity	10 µs
Output type	PUSH/PULL / PNP / NPN (depending on type)
Switching output (voltage)	Push/Pull: HIGH = V_S - 3 V / LOW ≤ 3 V PNP: HIGH = V_S - 3 V / LOW = 0 V NPN: HIGH = V_S / LOW ≤ 3 V (depending on type)
Output current $I_{max.}$ [6]	100 mA

Analog output	0 mA ... 20 mA 0 V ... 10 V (depending on type)
Max. resistance at I analog	400 Ω
Max. resistance at U analog	1000 Ω
Measured value at white 90%	
I analog output	4.5 mA (= 400 digits)
U analog output	2 V (= 400 digits)
Input, teach-in (ET)	
Push/Pull, PNP	Teach: U = 10 V ... < V_S: Run: U < 2 V
NPN	Teach: U < 2 V: Run: U = 10 V ... < U_V
Input, blanking input (AT)	
Push/Pull, PNP	Blanked: U = 10 V ... < Uv: free-running: U < 2 V
NPN	Blanked: U < 2 V: free-running: U = 10 V ... < Uv
Input, fine/coarse (F/C)	
Push/Pull, PNP	Coarse: U = 10 V ... < Uv: fine: U < 2 V
NPN	Coarse: U < 2 V: fine: U = 10 V ... < Uv
Input, light/dark (L/D)	
Push/Pull, PNP	Light switching: U < 2 V / dark switching: 10 V ... < Uv
NPN	Light switching: 10 V ... < Uv / dark switching: U < 2 V
Retention time (ET)	25 ms, non-volatile memory
Connection type	Male connector M12, 4-pin / male connector M12, 5-pin (depending on type)
Protection class	III
Circuit protection	U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Enclosure rating	IP67
Weight	68 g
Housing material	VISTAL®

[1] Limit values: DC 12 V (–10 %) ... DC 24 V (+20 %). Operation in short-circuit protected network max. 8 A.
[2] May not exceed or fall below U_v tolerances.
[3] Without load.
[4] With light/dark ratio 1:1.
[5] Signal transit time with resistive load.
[6] Total current of all Outputs.

Ambient data

Ambient operating temperature	–20 °C ... +60 °C
Ambient storage temperature	–25 °C ... +75 °C
Shock load	According to IEC 60068-2-27 (30 g/11 ms)
UL File No.	E181493

Communication interface

Fieldbus integration	IO-Link V1.1
Mode	COM 2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
VendorID	Dez: 26; Hex: 001A

Process data structure - standard device	Bit 0 = switching signal Q_{L1} Bit 1 = empty Bit 2 = quality of run alarm Bit 3 ... 5 = emission color Bit 6 ... 15 = measurment value emission color
DeviceID - standard device	Dez: 8388772; Hex: 8000a4
Process data structure A - device with Timestamp in standard mode	Bit 0 = switching signal Q_{L1} Bit 1 = empty Bit 2 = quality of run alarm Bit 3 ... 5 = emission color Bit 6 ... 15 = measurment value emission color
Process data structure B - device with Timestamp in standard mode	Bit 0 = switching signal Q_{L1} Bit 1 = switching signal Q_{L2} Bit 2 ... 15 = time stamp
DeviceID - device with Timestamp	Dez: 8388773; Hex: 8000a5

Ordering information

KTS Prime

- **Teach-in mode:** 1-point teach-in, 2-point teach-in, dynamic Teach-in, auto mode
- **Light emission:** Long side of housing
- **Light source:** LED, RGB (Average service life: 100,000 h at T_U = +25 °C.)

Fieldbus, industrial network	Light spot direction	Sensing distance	Sensing distance tolerance	Switching output	Connection type	Connection diagram	Type	Part no.
-	Vertical	13 mm	± 5 mm	PNP, NPN	Male connector M12, 4-pin	cd-381	KTS-WS91141142ZZZZ	1218594
				PUSH/PULL	Male connector M12, 4-pin	cd-381	KTS-WB91141142ZZZZ	1078121
					Male connector M12, 5-pin	cd-382	KTS-WB91141152ZZZZ	1078122
		25 mm	± 6 mm	PUSH/PULL	Male connector M12, 4-pin	cd-381	KTS-WB91241142ZZZZ	1084207
					Male connector M12, 5-pin	cd-382	KTS-WB91241152ZZZZ	1078124
	Horizontal	13 mm	± 5 mm	PUSH/PULL	Male connector M12, 4-pin	cd-381	KTS-WB92141142ZZZZ	1084237
					Male connector M12, 5-pin	cd-382	KTS-WB92141152ZZZZ	1078123
		25 mm	± 6 mm	PUSH/PULL	Male connector M12, 5-pin	cd-382	KTS-WB92241152ZZZZ	1078125
	Round	13 mm	± 5 mm	PUSH/PULL	Male connector M12, 5-pin	cd-382	KTS-WB94141152ZZZZ	1218201
IO-Link	Vertical	13 mm	± 5 mm	PUSH/PULL	Male connector M12, 5-pin	cd-387	KTS-WB9114115AZZZZ	1078126
		25 mm	± 6 mm	PUSH/PULL	Male connector M12, 5-pin	cd-387	KTS-WB9124115AZZZZ	1078128
	Horizontal	13 mm	± 5 mm	PUSH/PULL	Male connector M12, 5-pin	cd-387	KTS-WB9214115AZZZZ	1078127
		25 mm	± 6 mm	PUSH/PULL	Male connector M12, 5-pin	cd-387	KTS-WB9224115AZZZZ	1078129
	Round	13 mm	± 5 mm	PUSH/PULL	Male connector M12, 5-pin	cd-387	KTS-WB9414115AZZZZ	1218831
IO-Link + Timestamp	Vertical	13 mm	± 5 mm	PUSH/PULL	Male connector M12, 5-pin	cd-387	KTS-WB9114115AA90Z	1078131

KTS Prime Analog

- **Fieldbus, industrial network:** -
- **Teach-in mode:** 1-point teach-in, 2-point teach-in, dynamic Teach-in, auto mode
- **Light emission:** Long side of housing
- **Light source:** LED, RGB (Average service life: 100,000 h at T_U = +25 °C.)
- **Switching output:** PUSH/PULL

Light spot direction	Sensing distance	Sensing distance tolerance	Analog output	Connection type	Connection diagram	Type	Part no.
Vertical	13 mm	± 5 mm	0 mA ... 20 mA	Male connector M12, 4-pin	cd-383	KTS-WB9114114IZZZZ	1078851
			0 V ... 10 V	Male connector M12, 4-pin	cd-384	KTS-WB9114114UZZZZ	1084197
				Male connector M12, 5-pin	cd-385	KTS-WB9114115UZZZZ	1084194
Horizontal	13 mm	± 5 mm	0 V ... 10 V	Male connector M12, 5-pin	cd-385	KTS-WB9214115UZZZZ	1081387

KTS Prime High Precision

- **Teach-in mode:** 1-point teach-in, 2-point teach-in, dynamic Teach-in, auto mode
- **Light emission:** Long side of housing
- **Light spot direction:** vertical
- **Light source:** LED, RGB (Average service life: 100,000 h at T_U = +25 °C.)
- **Switching output:** PUSH/PULL

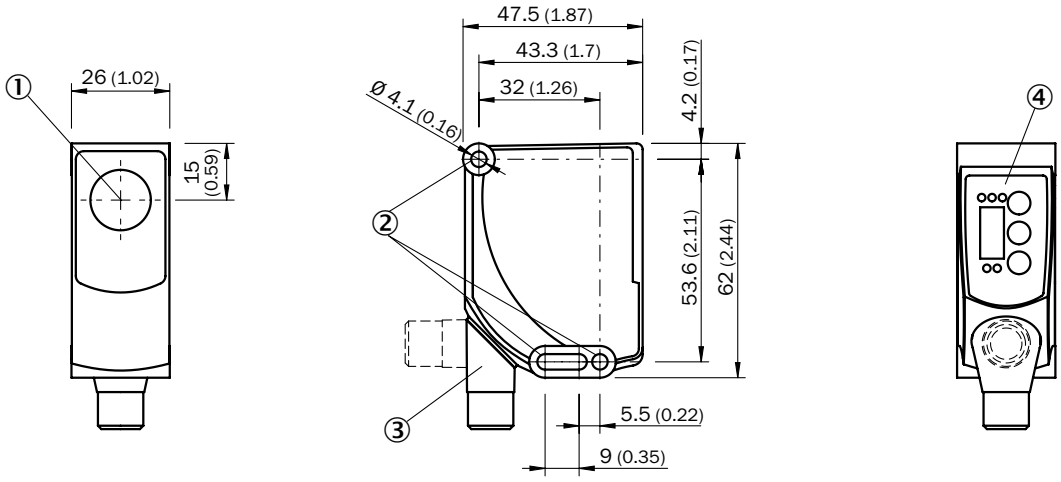
Fieldbus, industrial network	Sensing distance	Sensing distance tolerance	Connection type	Connection diagram	Type	Part no.
-	13 mm	± 5 mm	Male connector M12, 5-pin	cd-382	KTS-WB91141152ZZZZ	1081730
IO-Link	13 mm	± 5 mm	Male connector M12, 5-pin	cd-387	KTS-WB9114115AZZZZ	1081731

KTS Prime High Sensitivity

- **Teach-in mode:** 1-point teach-in, 2-point teach-in, dynamic Teach-in, auto mode
- **Light emission:** Long side of housing
- **Light source:** LED, RGB (Average service life: 100,000 h at T_U = +25 °C.)
- **Switching output:** PUSH/PULL

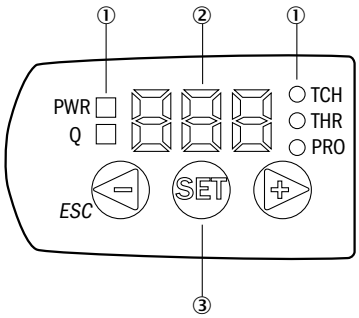
Fieldbus, industrial network	Light spot direction	Sensing distance	Sensing distance tolerance	Connection type	Connection diagram	Type	Part no.
-	Vertical	13 mm	± 5 mm	Male connector M12, 4-pin	cd-381	KTS-WB91141142ZZZZ	1218193
				Male connector M12, 5-pin	cd-382	KTS-WB91141152ZZZZ	1078114
		25 mm	± 6 mm	Male connector M12, 5-pin	cd-382	KTS-WB91241152ZZZZ	1218195
	Horizontal	13 mm	± 5 mm	Male connector M12, 5-pin	cd-382	KTS-WB92141152ZZZZ	1218194
		25 mm	± 6 mm	Male connector M12, 5-pin	cd-382	KTS-WB92241152ZZZZ	1218196
IO-Link	Vertical	13 mm	± 5 mm	Male connector M12, 5-pin	cd-387	KTS-WB9114115AZZZZ	1218198
	Horizontal	13 mm	± 5 mm	Male connector M12, 5-pin	cd-387	KTS-WB9214115AZZZZ	1218199

Dimensional drawings (Dimensions in mm (inch))



① Optical axis sender
② Fixing hole
③ Connector M12 (rotatable up to 180°)
④ Control panel

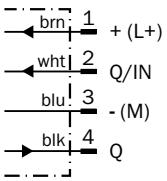
Adjustments



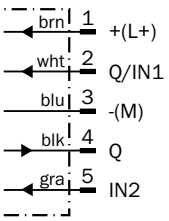
① LED status indicator
② Display
③ Control panel

Connection type and diagram

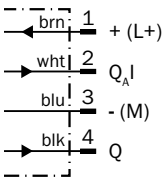
Cd-381



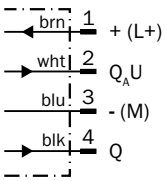
Cd-382



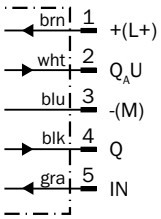
Cd-383



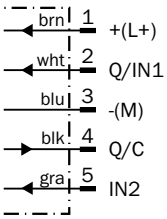
Cd-384



Cd-385

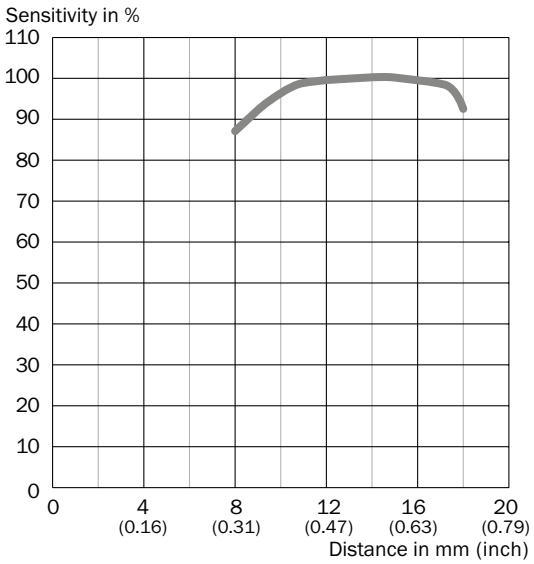


Cd-387

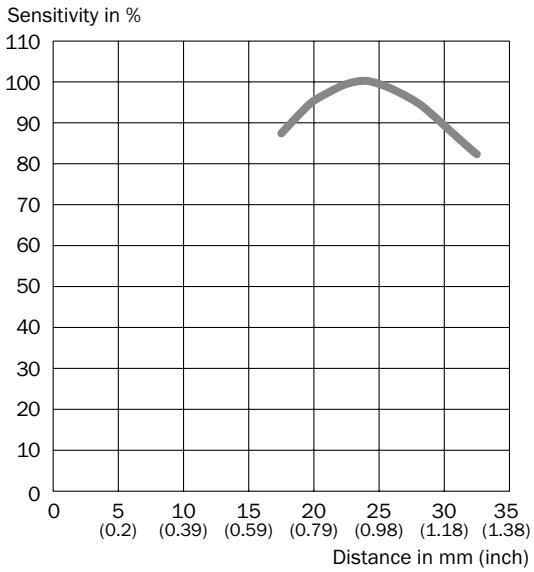


Sensing distance

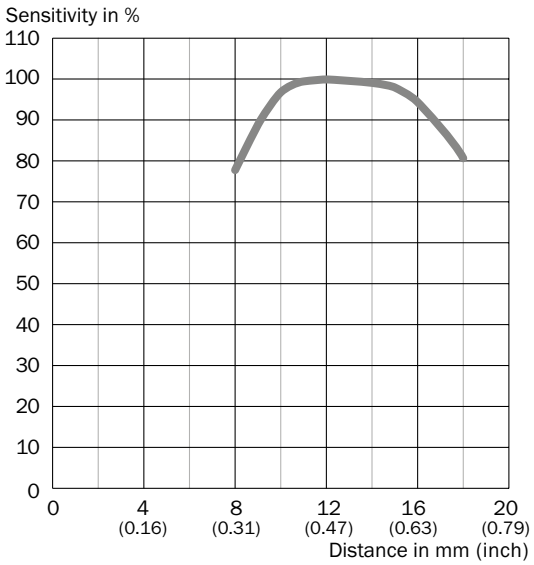
Sensing distance 13 mm,
light spot direction horizontal/vertical



Sensing distance 25 mm,
light spot direction horizontal/vertical



Sensing distance 13 mm,
light spot direction round



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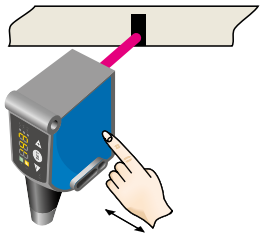
Setting the switching threshold

KTS Prime - Setting the switching threshold (2-point teach-in)

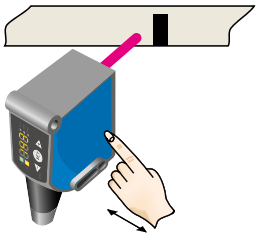
Suitable for manual positioning of the object to be detected, e.g. marks and background.

1. Position mark



When setting the contrasts to be detected, “1st” flashes.
Press set button.

2. Position background

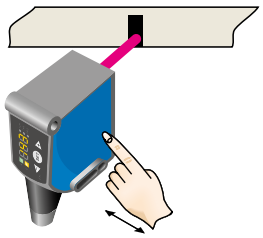


When setting the contrasts to be detected, “2nd” flashes. Press set button.
The Quality of Teach is displayed.

KTS Prime - Setting the switching threshold (color mode)

Suitable for teaching in color properties.

1. Position mark/color property

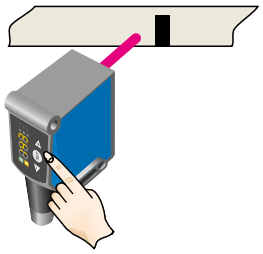


When detecting the contrast or color to be detected, “1st” flashes. Press set button.
The Quality of Teach-in is displayed.

KTS Prime - Setting the switching threshold (dynamic Teach-in)

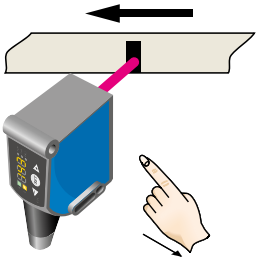
Suitable for teaching in moving objects.

1. Position background

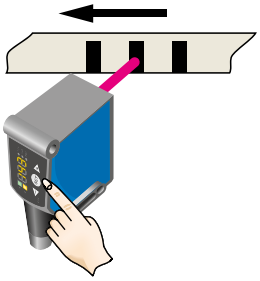


Press the Set pushbutton to start the teach-in process.

2. Move at least the mark and background using the light spot

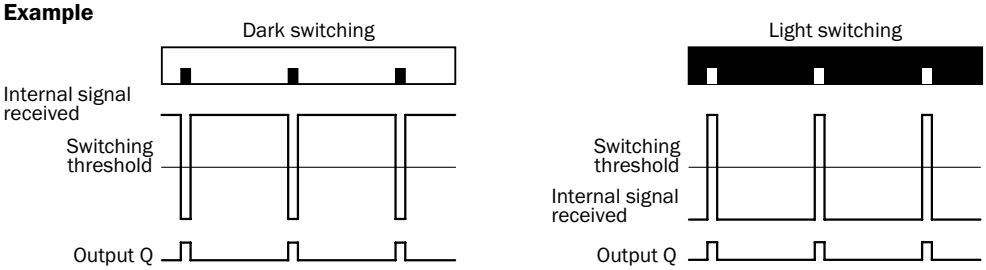


The display lights up during repeat length detection (- - -).

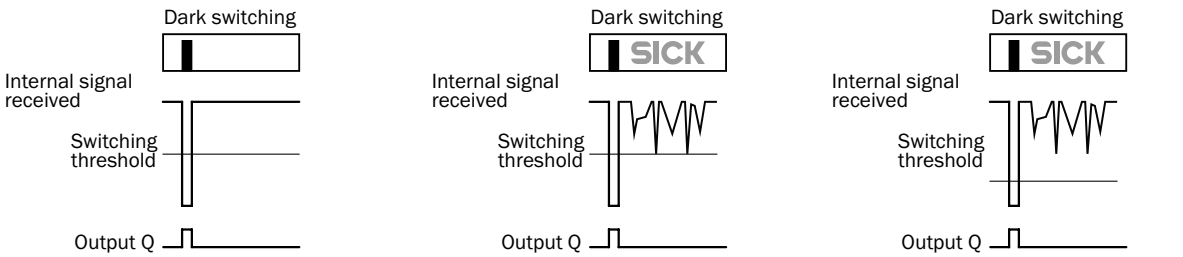


Press the Set pushbutton to end the teach-in process.
The Quality of Teach is displayed.

Example



Example: sensitivity adjustment with a fault in the background



Switching threshold **fine**, **medium**, **coarse** without interferences in the background

Switching threshold **coarse** in case of interference in the background

Switching threshold **fine**, **medium** in case of interference in the background

Switching characteristics

The optimum emitted light is selected automatically (at RGB variants).
Static teach-in: light/dark setting is defined using teach-in sequence.
Dynamic teach-in: switching output active on mark, if background is longer in the field of view during the teach-in.

If the sensitivity adjustment is coarse, the switching threshold is set in the center between the background and the mark.
If the sensitivity adjustment is medium or fine, the switching threshold is set between the mark and the fault in the background.
If no fault is present, then the switching threshold is also set in the center between the background and the mark.

Keylock (activation and deactivation): Press and hold the “+” pushbutton > 10 s.

The Q-LED (yellow) flashes and the “Err” error message appears on the display.

CONTRAST AND COLOR DETECTION WITH TWIN-EYE-TECHNOLOGY IN FAMILIAR HOUSING FOR THE VERY BEST SENSOR PERFORMANCE

Product description

Outstanding performance for a variety of applications, even with difficult framework conditions: The new KTX Prime with familiar hole pattern, high-precision RGB LED and VISTAL® housing impresses with TwinEye-Technology, color mode, high switching frequency, excellent gray line resolution, 7-segment display and IO-Link. The response time of 10 µs and a jitter of 5 µs ensure accurate detection of contrast differences, even at high machine speeds. Thanks to various teach-in processes, integrated color mode and variable sensor adjustment, commissioning is more flexible and the processes more stable. The KTX Prime provides additional diagnosis and analysis data via IO-Link. The new KTX Prime - it can easily do more.

At a glance

- TwinEye-Technology for increased depth of field and sensing distance tolerance
- 50 kHz switching frequency and 5 µs jitter
- Large dynamic range means reliable detection of contrasts on glossy materials
- 7-segment display
- Color mode
- Assembly feedback
- IO-Link and automation functions
- Flexible sensor setting thanks to various sensor parameters

Your benefits

- 1:1 replacement for existing KT series - assembly compatibility
- TwinEye-Technology for better performance on glossy or jittering materials - less machine downtime and more process stability
- Multi-functional sensor adjustment for individual sensor adjustment
- Excellent contrast resolution and a large dynamic range for good performance on complex materials
- High flexibility thanks to a range of teach-in processes
- Integrated color mode - stable detection even with complex color differences
- Job storage in sensor - flexible process design and format change
- Diagnostics and visualization as well as easy format change via IO-Link

IO-Link

Additional information

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→ www.sick.com/KTX_Prime

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

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Detailed technical data

Features

Dimensions (W x H x D)	30 mm x 53 mm x 78.5 mm
Sensing distance	13 mm / 25 mm (depending on type)
Housing design (light emission)	Rectangular
Sensing distance tolerance	± 5 mm / ± 6 mm (depending on type)
Light source [1]	LED, RGB
Wave length	470 nm, 525 nm, 625 nm
Light emission	Short device side / Long side of housing (depending on type)
Light spot size	
Horizontal 13 mm	3.8 mm x 0.9 mm
Horizontal 25 mm	5.3 mm x 1.2 mm
Vertical 13 mm	0.9 mm x 3.8 mm
Vertical 13 mm	1.2 mm x 5.3 mm
Round	Ø 0.9 mm
Light spot direction [2]	Horizontal Vertical Round (depending on type)
Teach-in mode	1-point teach-in, 2-point teach-in, dynamic Teach-in, auto mode
Output function	Light/dark switching
Delay time	Adjustable

[1] Average service life: 100,000 h at T_U = +25 °C.

[2] In relation to long side of housing.

Mechanics/electronics

Supply voltage [1]	10.8 V DC ... 28.8 V DC
Ripple [2]	≤ 5 V_{pp}
Power consumption [3]	< 100 mA
Switching frequency [4]	
KTX Prime	50 kHz
KTX Prime High Precision	70 kHz
Response time [5]	
KTX Prime	10 µs
KTX Prime High Precision	3 µs
Jitter	
KTX Prime	5 µs
KTX Prime High Precision	3 µs
Output type	PUSH/PULL / PNP / NPN (depending on type)
Switching output (voltage)	Push/Pull: HIGH = V_S - 3 V / LOW ≤ 3 V PNP: HIGH = V_S - 3 V / LOW = 0 V NPN: HIGH = V_S / LOW ≤ 3 V (depending on type)
Output current $I_{max.}$ [6]	100 mA

Analog output	0 V ... 10 V 0 mA ... 20 mA (depending on type)
Analog input	0 V ... 10 V
Max. resistance at I analog	400 Ω
Max. resistance at U analog	1000 Ω
Measured value at white 90%	
I analog output	4.5 mA (= 400 digits)
U analog output	2 V (= 400 digits)
Input, teach-in (ET)	
PUSH/PULL, PNP	Teach: U = 10 V ... < V_S: Run: U < 2 V
NPN	Teach: U < 2 V: Run: U = 10 V ... < V_S
Input, blanking input (AT)	
PUSH/PULL, PNP	Blanked: U = 10 V ... < Uv: free-running: U < 2 V
NPN	Blanked: U < 2 V: free-running: U = 10 V ... < Uv
Input, fine/coarse (F/C)	
PUSH/PULL, PNP	Coarse: U = 10 V ... < Uv: fine: U < 2 V
NPN	Coarse: U < 2 V: fine: U = 10 V ... < Uv
Input, light/dark (L/D)	
PUSH/PULL, PNP	Light switching: U < 2 V / dark switching: 10 V ... < Uv
NPN	Light switching: 10 V ... < Uv / dark switching: U < 2 V
Retention time (ET)	25 ms, non-volatile memory
Connection type	Male connector M12, 4-pin / male connector M12, 5-pin (depending on type)
Protection class	III
Circuit protection	U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Enclosure rating	IP67
Weight	94 g
Housing material	VISTAL®

[1] Limit values: DC 12 V (–10 %) ... DC 24 V (+20 %). Operation in short-circuit protected network max. 8 A.
[2] May not exceed or fall below U_V tolerances.
[3] Without load.
[4] With light/dark ratio 1:1.
[5] Signal transit time with resistive load.
[6] Total current of all Outputs.

Ambient data

Ambient operating temperature	–20 °C ... +60 °C
Ambient storage temperature	–25 °C ... +75 °C
Shock load	According to IEC 60068-2-27 (30 g/11 ms)
UL File No.	E181493

Communication interface

Fieldbus integration	IO-Link V1.1
Mode	COM 2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
VendorID	Dez: 26; Hex: 001A

Process data structure - standard device	Bit 0 = switching signal Q_{L1} Bit 1 = empty Bit 2 = quality of run alarm Bit 3 ... 5 = emission color Bit 6 ... 15 = measurment value emission color
DeviceID - standard device	Dez: 8388772; Hex: 8000a4
Process data structure A - device with Timestamp in standard mode	Bit 0 = switching signal Q_{L1} Bit 1 = empty Bit 2 = quality of run alarm Bit 3 ... 5 = emission color Bit 6 ... 15 = measurment value emission color
Process data structure B - device with Timestamp in standard mode	Bit 0 = switching signal Q_{L1} Bit 1 = switching signal Q_{L2} Bit 2 ... 15 = time stamp
DeviceID - device with Timestamp	Dez: 8388773; Hex: 8000a5

Ordering information

KTX Prime

- **Teach-in mode:** 1-point teach-in, 2-point teach-in, dynamic Teach-in, auto mode
- **Light source:** LED, RGB (Average service life: 100,000 h at T_U = +25 °C.)

Fieldbus, industrial network	Light emission	Light spot direction	Sensing distance	Sensing distance tolerance	Switching output	Connection type	Connection diagram	Type	Part no.
-	Short device side	Vertical	13 mm	± 5 mm	NPN	Male connector M12, 4-pin	cd-381	KTX-WN911422422ZZZZ	1078071
						Male connector M12, 5-pin	cd-382	KTX-WN911422522ZZZZ	1078067
					PNP	Male connector M12, 4-pin	cd-381	KTX-WP911422422ZZZZ	1078070
						Male connector M12, 5-pin	cd-382	KTX-WP911422522ZZZZ	1078066
					PNP, NPN	Male connector M12, 4-pin	cd-381	KTX-WS911422422ZZZZ	1078166
			25 mm	± 6 mm	NPN	Male connector M12, 4-pin	cd-381	KTX-WN912422422ZZZZ	1078078
						Male connector M12, 5-pin	cd-382	KTX-WN912422522ZZZZ	1078075
					PNP	Male connector M12, 4-pin	cd-381	KTX-WP912422422ZZZZ	1078077
						Male connector M12, 5-pin	cd-382	KTX-WP912422522ZZZZ	1078074

Fieldbus, industrial network	Light emission	Light spot direction	Sensing distance	Sensing distance tolerance	Switching output	Connection type	Connection diagram	Type	Part no.
-	Short device side	Horizontal	13 mm	± 5 mm	NPN	Male connector M12, 4-pin	cd-381	KTX-WN92142242ZZZZ	1078073
						Male connector M12, 5-pin	cd-382	KTX-WN92142252ZZZZ	1078069
					PNP	Male connector M12, 4-pin	cd-381	KTX-WP92142242ZZZZ	1078072
						Male connector M12, 5-pin	cd-382	KTX-WP92142252ZZZZ	1078068
			25 mm	± 6 mm	PNP	Male connector M12, 4-pin	cd-381	KTX-WP92242242ZZZZ	1078079
						Male connector M12, 5-pin	cd-382	KTX-WP92242252ZZZZ	1078076
		Round	13 mm	± 5 mm	NPN	Male connector M12, 5-pin	cd-382	KTX-WN94142252ZZZZ	1078153
					PUSH/PULL	Male connector M12, 5-pin	cd-382	KTX-WB94142252ZZZZ	1078094
	Long side of housing	Vertical	13 mm	± 5 mm	NPN	Male connector M12, 4-pin	cd-381	KTX-WN91141242ZZZZ	1078102
						Male connector M12, 5-pin	cd-382	KTX-WN91141252ZZZZ	1078098
					PNP	Male connector M12, 4-pin	cd-381	KTX-WP91141242ZZZZ	1078101
						Male connector M12, 5-pin	cd-382	KTX-WP91141252ZZZZ	1078097
					PNP, NPN	Male connector M12, 4-pin	cd-381	KTX-WS91141242ZZZZ	1078167
			25 mm	± 6 mm	NPN	Male connector M12, 4-pin	cd-381	KTX-WN91241242ZZZZ	1078107
						Male connector M12, 5-pin	cd-382	KTX-WN91241252ZZZZ	1078105
					PNP	Male connector M12, 4-pin	cd-381	KTX-WP91241242ZZZZ	1078106
						Male connector M12, 5-pin	cd-382	KTX-WP91241252ZZZZ	1078104

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Fieldbus, industrial network	Light emission	Light spot direction	Sensing distance	Sensing distance tolerance	Switching output	Connection type	Connection diagram	Type	Part no.
–	Long side of housing	Horizontal	13 mm	± 5 mm	NPN	Male connector M12, 5-pin	cd-382	KTX-WN92141252ZZZZ	1078100
					PNP	Male connector M12, 4-pin	cd-381	KTX-WP92141242ZZZZ	1078103
						Male connector M12, 5-pin	cd-382	KTX-WP92141252ZZZZ	1078099
			25 mm	± 6 mm	PNP	Male connector M12, 4-pin	cd-381	KTX-WP92241242ZZZZ	1078108
		Round	13 mm	± 5 mm	PUSH/PULL	Male connector M12, 5-pin	cd-382	KTX-WB94141252ZZZZ	1078095
IO-Link	Short device side	Vertical	13 mm	± 5 mm	PUSH/PULL	Male connector M12, 5-pin	cd-387	KTX-WB9114225AZZZZ	1078080
			25 mm	± 6 mm	PUSH/PULL	Male connector M12, 5-pin	cd-387	KTX-WB9124225AZZZZ	1078083
		Horizontal	13 mm	± 5 mm	PNP	Male connector M12, 5-pin	cd-387	KTX-WP9214225AZZZZ	1078081
					PUSH/PULL	Male connector M12, 5-pin	cd-387	KTX-WB9214225AZZZZ	1078082
			25 mm	± 6 mm	PUSH/PULL	Male connector M12, 5-pin	cd-387	KTX-WB9224225AZZZZ	1078084
	Long side of housing	Vertical	13 mm	± 5 mm	PUSH/PULL	Male connector M12, 5-pin	cd-387	KTX-WB9114125AZZZZ	1081721
		Horizontal	13 mm	± 5 mm	PUSH/PULL	Male connector M12, 5-pin	cd-387	KTX-WB9214125AZZZZ	1081722
IO-Link + Timestamp	Short device side	Vertical	13 mm	± 5 mm	PUSH/PULL	Male connector M12, 5-pin	cd-387	KTX-WB9114225AA90Z	1078086

KTX Prime Analog

- **Fieldbus, industrial network:** -
- **Light source:** LED, RGB (Average service life: 100,000 h at T_U = +25 °C.)
- **Sensing distance tolerance:** ± 5 mm (13 mm sensing distance), ± 6 mm (25 mm sensing distance)

Teach-in mode	Light emission	Light spot direction	Sensing distance	Switching output	Analog output	Analog input	Connection type	Connection diagram	Type	Part no.
1-point teach-in, 2-point teach-in, dynamic Teach-in, auto mode	Short device side	Vertical	13 mm	NPN	0 mA ... 20 mA	–	Male connector M12, 4-pin	cd-383	KTX-WN9114224IZZZZ	1078088
					0 V ... 10 V	–	Male connector M12, 5-pin	cd-385	KTX-WN9114225UZZZZ	1218271
				PNP	0 mA ... 20 mA	–	Male connector M12, 4-pin	cd-383	KTX-WP9114224IZZZZ	1078087
					0 V ... 10 V	–	Male connector M12, 5-pin	cd-385	KTX-WP9114225UZZZZ	1078090
				PUSH/PULL	0 V ... 10 V	–	Male connector M12, 4-pin	cd-384	KTX-WB9114224UZZZZ	1084195
							Male connector M12, 5-pin	cd-385	KTX-WB9114225UZZZZ	1078091
			25 mm	PUSH/PULL	0 V ... 10 V	–	Male connector M12, 5-pin	cd-385	KTX-WB9124225UZZZZ	1078093
		Horizontal	13 mm	PUSH/PULL	0 V ... 10 V	–	Male connector M12, 5-pin	cd-385	KTX-WB9214225UZZZZ	1078092
		Round	13 mm	NPN	0 mA ... 20 mA	–	Male connector M12, 4-pin	cd-383	KTX-WN9414224IZZZZ	1078089
	Long side of housing	Vertical	13 mm	PNP	0 mA ... 20 mA	–	Male connector M12, 4-pin	cd-383	KTX-WP9114124IZZZZ	1078109
					0 V ... 10 V	–	Male connector M12, 5-pin	cd-385	KTX-WP9114125UZZZZ	1078110
				PUSH/PULL	0 V ... 10 V	–	Male connector M12, 4-pin	cd-384	KTX-WB9114124UZZZZ	1084196
							Male connector M12, 5-pin	cd-385	KTX-WB9114125UZZZZ	1078111
			25 mm	PUSH/PULL	0 V ... 10 V	–	Male connector M12, 5-pin	cd-385	KTX-WB9124125UZZZZ	1078113
		Horizontal	13 mm	PUSH/PULL	0 V ... 10 V	–	Male connector M12, 5-pin	cd-385	KTX-WB9214125UZZZZ	1078112
–	Short device side	Vertical	13 mm	PUSH/PULL	0 V ... 10 V	0 V ... 10 V	Male connector M12, 5-pin	cd-386	KTX-WB91142259ZZZZ	1078096
	Long side of housing	Vertical	13 mm	PUSH/PULL	0 V ... 10 V	0 V ... 10 V	Male connector M12, 5-pin	cd-386	KTX-WB91141259ZZZZ	1079090

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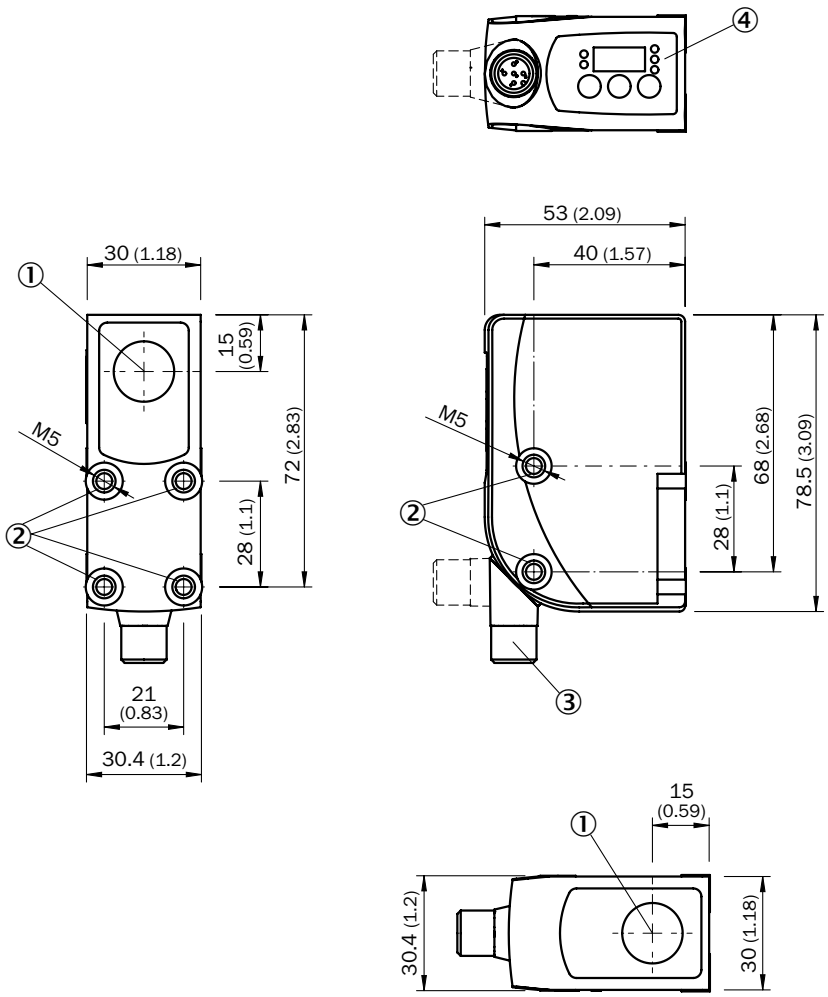
KTX Prime High Precision

- **Teach-in mode:** 1-point teach-in, 2-point teach-in, dynamic Teach-in, auto mode
- **Light spot direction:** vertical
- **Light source:** LED, RGB (Average service life: 100,000 h at T_U = +25 °C.)

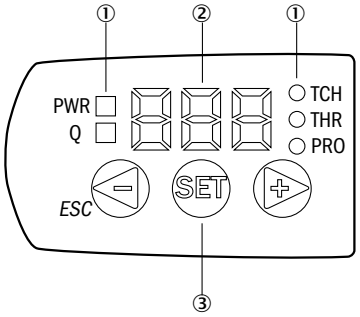
Fieldbus, industrial network	Light emission	Sensing distance	Sensing distance tolerance	Switching output	Connection type	Connection diagram	Type	Part no.
-	Short device side	13 mm	± 5 mm	NPN	Male connector M12, 5-pin	cd-382	KTX-WN91142252ZZZZ	1081724
				PNP	Male connector M12, 5-pin	cd-382	KTX-WP91142252ZZZZ	1081723
	Long side of housing	13 mm	± 5 mm	NPN	Male connector M12, 5-pin	cd-382	KTX-WN91141252ZZZZ	1081726
				PNP	Male connector M12, 5-pin	cd-382	KTX-WP91141252ZZZZ	1081725
IO-Link	Short device side	13 mm	± 5 mm	PUSH/PULL	Male connector M12, 5-pin	cd-387	KTX-WB9114225AZZZZ	1081727
	Long side of housing	13 mm	± 5 mm	PUSH/PULL	Male connector M12, 5-pin	cd-387	KTX-WB9114125AZZZZ	1081728

Dimensional drawings (Dimensions in mm (inch))



① Optical axis and light emissionedge / length housing side
② Threaded mounting hole M5
③ Connector M12 (rotatable up to 180°)
④ Control panel

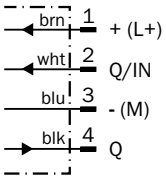
Adjustments



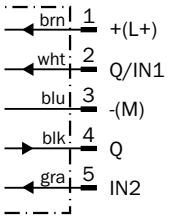
① LED status indicator
② Display
③ Control panel

Connection type and diagram

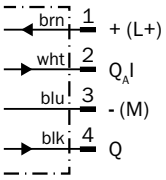
Cd-381



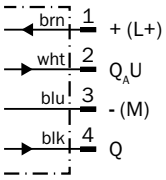
Cd-382



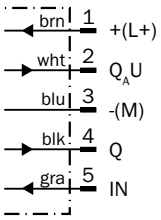
Cd-383



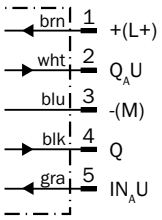
Cd-384



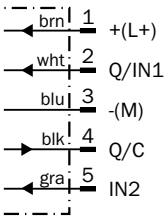
Cd-385



Cd-386

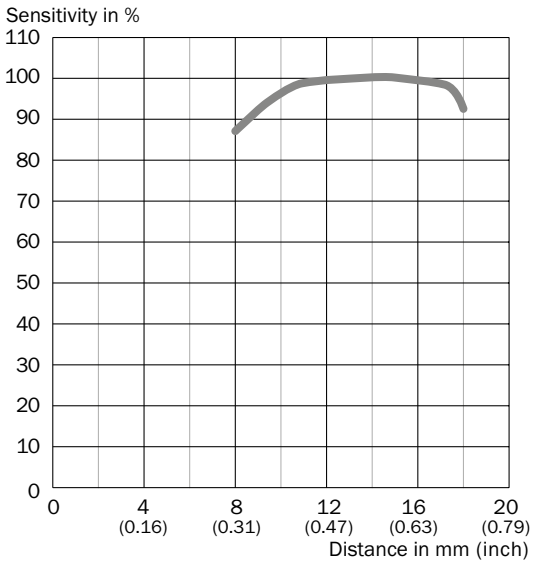


Cd-387

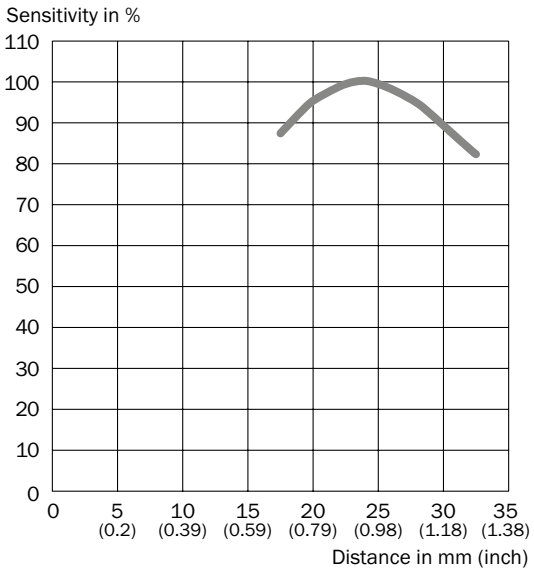


Sensing distance

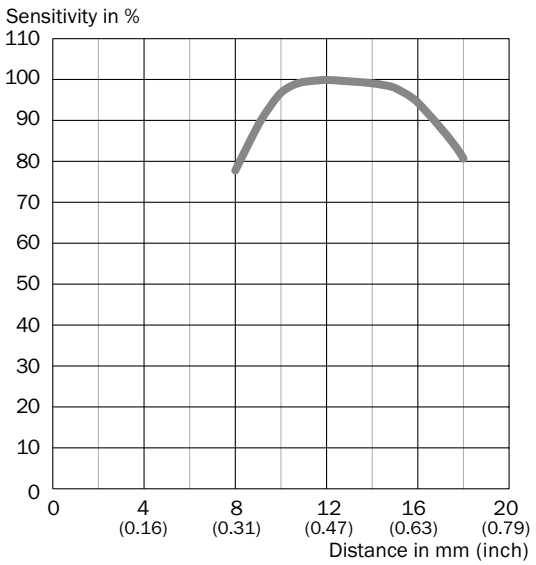
Sensing distance 13 mm,
light spot direction horizontal/vertical



Sensing distance 25 mm,
light spot direction horizontal/vertical



Sensing distance 13 mm,
light spot direction round

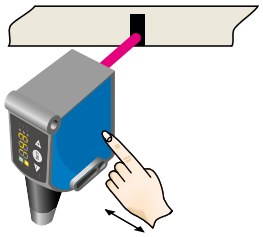


Setting the switching threshold

KTS/KTX Prime - Setting the switching threshold (2-point teach-in)

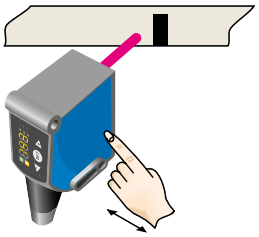
Suitable for manual positioning of the object to be detected, e.g. marks and background.

1. Position mark



When setting the contrasts to be detected, “1st” flashes.
Press set button.

2. Position background

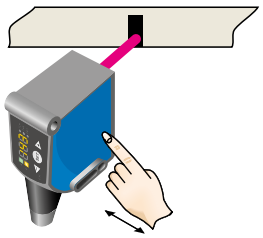


When setting the contrasts to be detected, “2nd” flashes. Press set button.
The Quality of Teach is displayed.

KTS/KTX Prime - Setting the switching threshold (color mode)

Suitable for teaching in color properties.

1. Position mark/color property

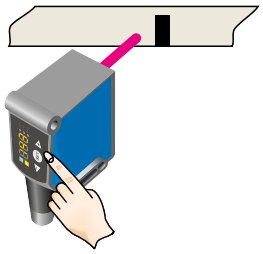


When detecting the contrast or color to be detected, “1st” flashes. Press set button.
The Quality of Teach-in is displayed.

KTS/KTX Prime - Setting the switching threshold (dynamic Teach-in)

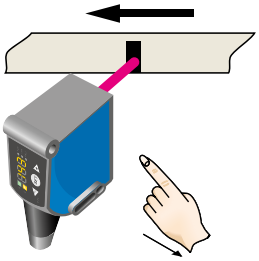
Suitable for teaching in moving objects.

1. Position background

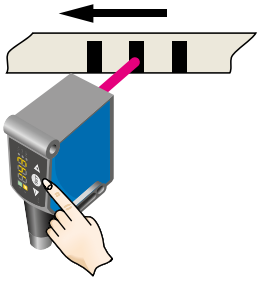


Press the Set pushbutton to start the teach-in process.

2. Move at least the mark and background using the light spot

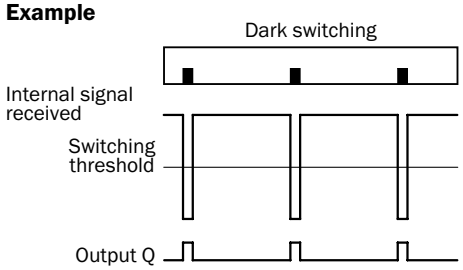


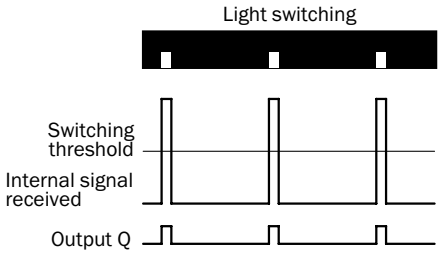
The display lights up during repeat length detection (- - -).



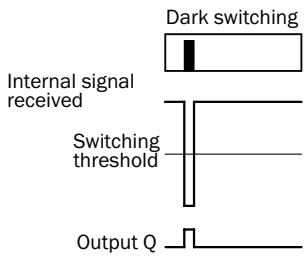
Press the Set pushbutton to end the teach-in process.
The Quality of Teach is displayed.

Example

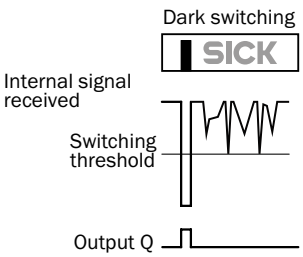




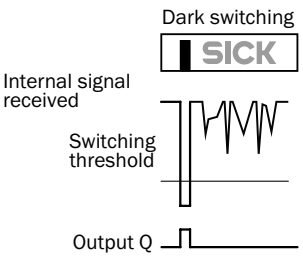
Example: sensitivity adjustment with a fault in the background



Switching threshold **fine**, **medium**, **coarse** without interferences in the background



Switching threshold **coarse** in case of interference in the background



Switching threshold **fine**, **medium** in case of interference in the background

Switching characteristics

The optimum emitted light is selected automatically (at RGB variants).
Static teach-in: light/dark setting is defined using teach-in sequence.
Dynamic teach-in: switching output active on mark, if background is longer in the field of view during the teach-in.

If the sensitivity adjustment is coarse, the switching threshold is set in the center between the background and the mark.
If the sensitivity adjustment is medium or fine, the switching threshold is set between the mark and the fault in the background.
If no fault is present, then the switching threshold is also set in the center between the background and the mark.

Keylock (activation and deactivation): Press and hold the “+” pushbutton > 10 s.

The Q-LED (yellow) flashes and the “Err” error message appears on the display.

Accessories KTS/KTX

Mounting systems

Universal bar clamp systems

Figure	Material	Description	Type	Part no.	KTS Core	KTS Prime	KTX Prime
	Steel, zinc coated	Plate G for universal clamp bracket	BEF-KHS-G01	2022464	–	–	●
		Plate K for universal clamp bracket	BEF-KHS-K01	2022718	●	●	●
		Universal clamp bracket for rod mounting	BEF-KHS-KH1	2022726	●	●	●
		Mounting bar, straight, 200 mm, steel	BEF-MS12G-A	4056054	●	●	●
		Mounting bar, straight, 300 mm, steel	BEF-MS12G-B	4056055	●	●	●
		Mounting bar, L-shaped, 150 mm x 150 mm, steel	BEF-MS12L-A	4056052	●	●	●
		Mounting bar, L-shaped, 250 x 250 mm, steel	BEF-MS12L-B	4056053	●	●	●

Connection systems

Modules and gateways

Cloning module

Figure	Brief description	Type	Part no.	KTS Core	KTS Prime	KTX Prime
	IO-Link version V1.1, Port class 2, PIN 2, 4, 5 galvanically connected, Supply voltage 18 V DC ... 32 V DC (limit values, operation in short-circuit protected network max. 8 A)	IOLP2ZZ-M3201 (SICK Memory Stick)	1064290	–	●	●

Connection modules

Figure	Brief description	Type	Part no.	KTS Core	KTS Prime	KTX Prime
	IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24V / 1A	IOLA2US-01101 (SiLink2 Master)	1061790	–	●	●

Fieldbus modules

Figure	Brief description	Type	Part no.	KTS Core	KTS Prime	KTX Prime
	EtherCAT IO-Link Master, IO-Link V1.1, power supply via 7/8'' cable 24 V / 8 A, fieldbus connection via M12 cable	IOLG2EC-03208R01 (IO-Link Master)	6053254	–	●	●
	EtherNet/IP IO-Link Master, IO-Link V1.1, power supply via 7/8'' cable 24 V / 8 A, fieldbus connection via M12-cable	IOLG2EI-03208R01 (IO-Link Master)	6053255	–	●	●

Figure	Brief description	Type	Part no.	KTS Core	KTS Prime	KTX Prime
	PROFINET IO-Link Master, IO-Link V1.1, Class A port, power supply via 7/8'' cable 24 V / 8 A, fieldbus connection via M12 cable	IOLG2PN-03208R01 (IO-Link Master)	6053253	–	●	●

Plug connectors and cables

Connecting cables with female connector M12, 4-pin, PVC, chemical resistant

- **Cable material:** PVC
- **Connector material:** TPU
- **Locking nut material:** CuZn, nickel-plated brass

Figure	Connection type head A	Connection type head B	Connecting cable	Type	Part no.	KTS Core	KTS Prime	KTX Prime
	Female connector, M12, 4-pin, straight, unshielded	Cable, Flying leads	2 m, 4-wire, unshielded, PVC	DOL-1204-G02M	6009382	●	●	●
			5 m, 4-wire, unshielded, PVC	DOL-1204-G05M	6009866	●	●	●
	Female connector, M12, 4-pin, angled, unshielded	Cable, Flying leads	2 m, 4-wire, unshielded, PVC	DOL-1204-W02M	6009383	●	●	●
			5 m, 4-wire, unshielded, PVC	DOL-1204-W05M	6009867	●	●	●

Connecting cables with female connector M12, 5-pin, PVC, chemical resistant

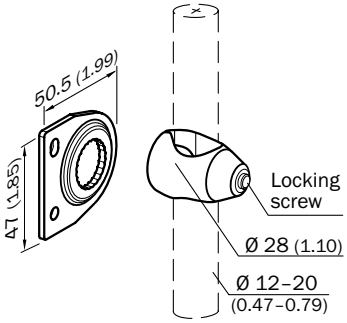
- **Cable material:** PVC
- **Connector material:** TPU
- **Locking nut material:** CuZn, nickel-plated brass

Figure	Connection type head A	Connection type head B	Connecting cable	Type	Part no.	KTS Core	KTS Prime	KTX Prime
	Female connector, M12, 5-pin, straight, unshielded	Cable, Flying leads	2 m, 5-wire, unshielded, PVC	DOL-1205-G02M	6008899	●	●	●
			5 m, 5-wire, unshielded, PVC	DOL-1205-G05M	6009868	●	●	●
	Female connector, M12, 5-pin, angled, unshielded	Cable, Flying leads	2 m, 5-wire, unshielded, PVC	DOL-1205-W02M	6008900	●	●	●
			5 m, 5-wire, unshielded, PVC	DOL-1205-W05M	6009869	●	●	●

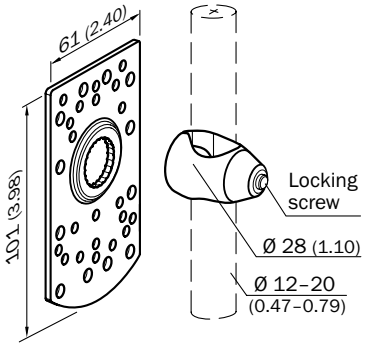
Dimensional drawings

Mounting systems

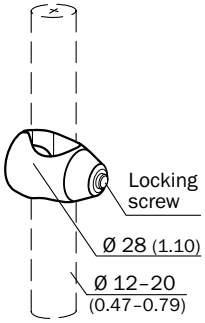
BEF-KHS-G01



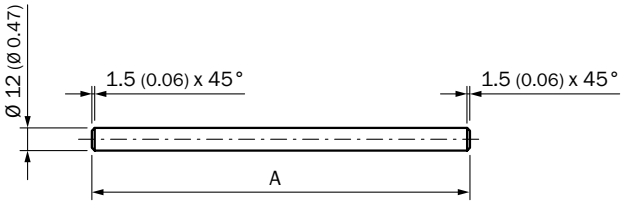
BEF-KHS-K01



BEF-KHS-KH1

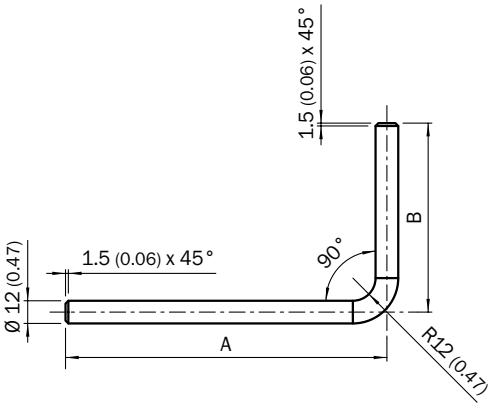


BEF-MS12G-A
BEF-MS12G-B



BEF-MS12G-(N)A: A = 200 mm
BEF-MS12G-(N)B: A = 300 mm

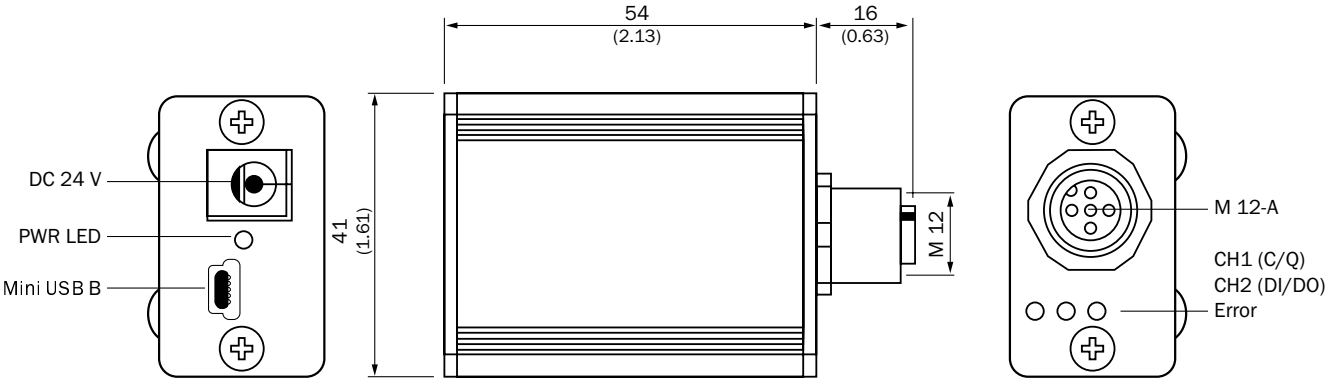
BEF-MS12L-A
BEF-MS12L-B



BEF-MS12L-(N)A: A = 200 mm, B = 150 mm
BEF-MS12L-(N)B: A = 250 mm, B = 250 mm

Connection systems

IOLA2US-01101 (SiLink2 Master)



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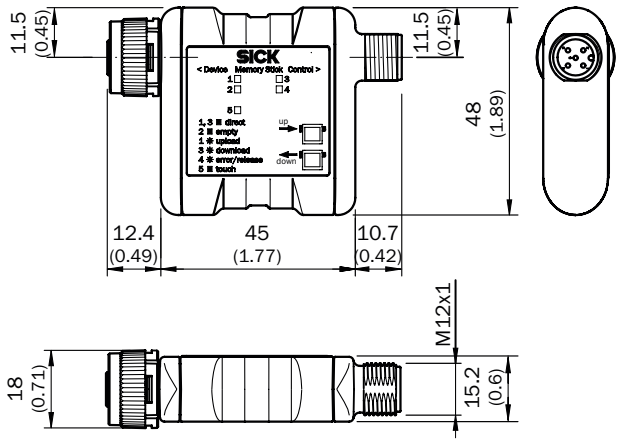
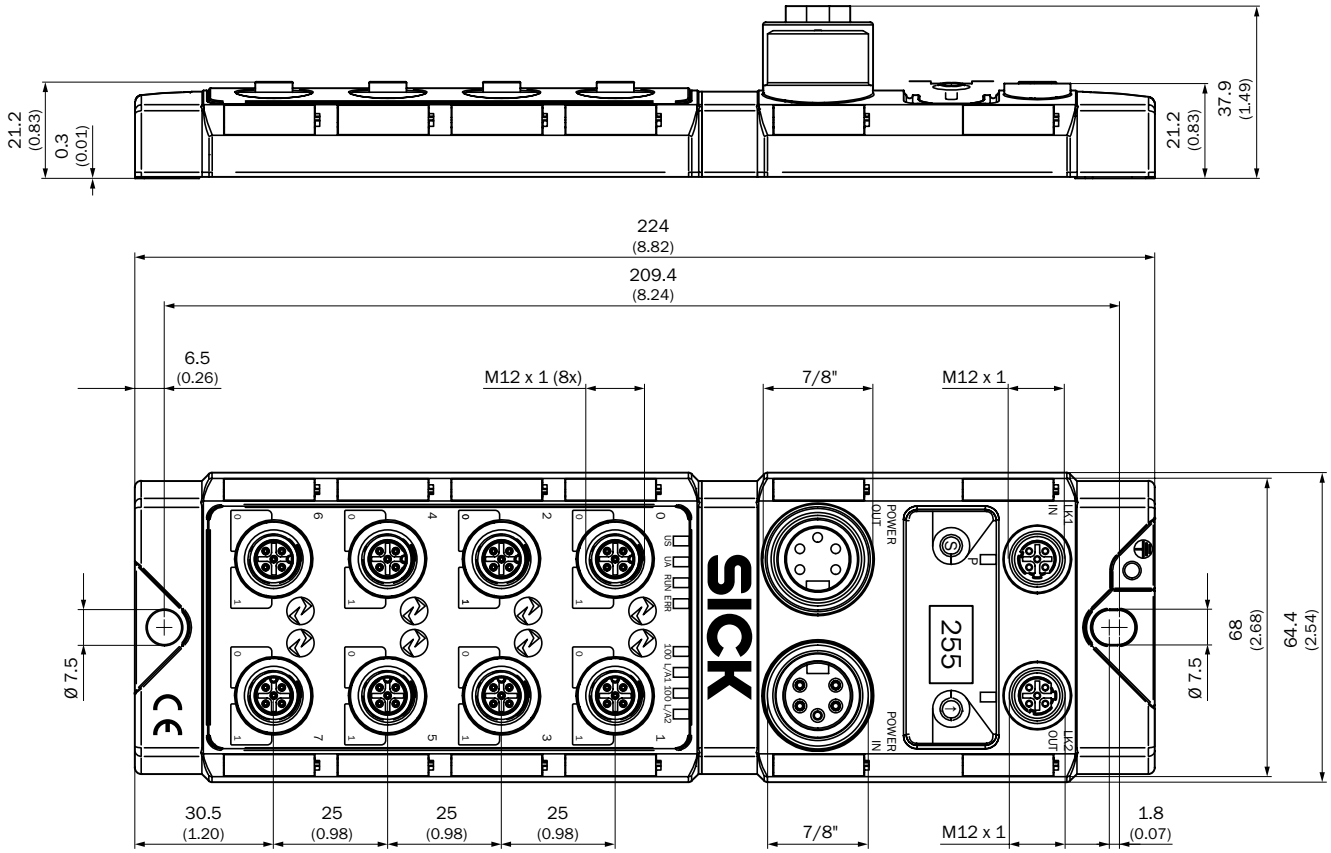
Subject to change without notice

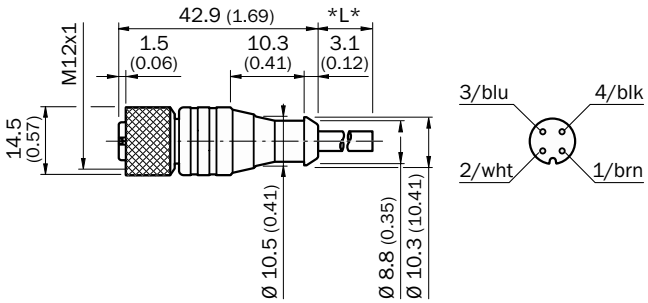
IOLP2ZZ-M3201 (SICK Memory Stick)



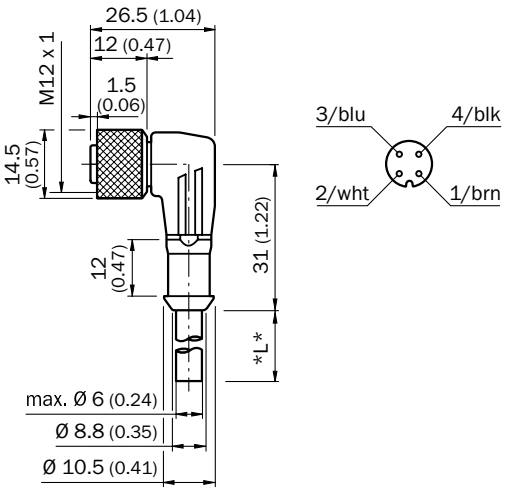
IOLG2EC-03208R01, IOLG2EI-03208R01, IOLG2PN-03208R01 (IO-Link Master)



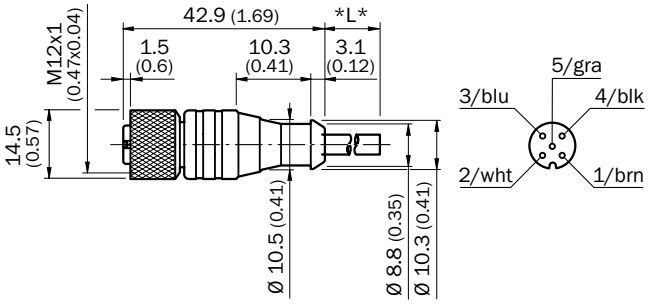
DOL-1204-G02M
DOL-1204-G05M



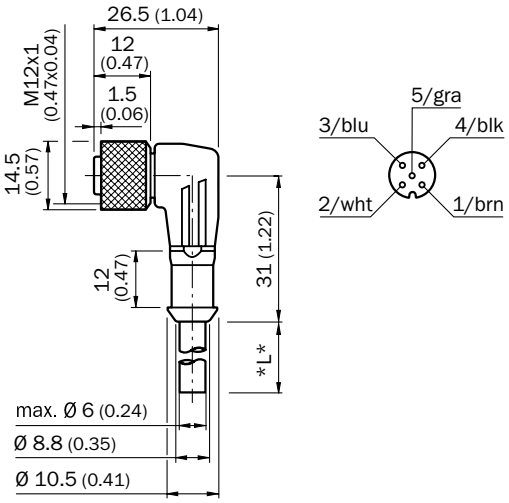
DOL-1204-W02M
DOL-1204-W05M



DOL-1205-G02M
DOL-1205-G05M



DOL-1205-W02M
DOL-1205-W05M



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