KTS Prime

Innovative TwinEye-Technology for better contrast detection

CONTRAST SENSORS

SICK
Sensor Intelligence.

KTS Prime
CONTRAST SENSORS

Technical data overview

Dimensions (W x H x D)	26 mm x 62 mm x 47.5 mm
Sensing distance	25 mm 13 mm 27.5 mm 40 mm 150 mm 70 mm
Type of light	LED [1] White LED [1] RGB
Light spot size	0.9 mm x 3.8 mm 0.8 mm x 8 mm 1.2 mm x 5.3 mm 3.8 mm x 0.9 mm 3.9 mm x 0.9 mm 5.3 mm x 1.2 mm Ø 0.9 mm Ø 3.3 mm Ø 10 mm Ø 12 mm
Switching frequency	1.5 kHz [2] 11.5 kHz [2] [3] 16.5 kHz [2] 50 kHz [2] [4] 25 kHz [2] [5] 70 kHz [2] [6] 6.25 kHz [2] [7]
Response time	320 µs [8] 42 µs [8] [9] 60 µs [8] 10 µs [10] [8] 20 µs [11] [8] 3 µs [12] [8] 80 µs [13] [8]
Switching output	Push-pull: PNP/NPN PNP PNP, NPN (depending on type)
Adjustment	Active light detection N-point teach-in, 2-point teach-in, teach-in dynamic, auto mode Teach-in dynamic, auto mode

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

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

[3] Contrast mode: 35 kHz.

[4] 1-point teach-in (color mode): 16 kHz.

[5] 1-point teach-in (color mode): 8 kHz.

[6] 1-point teach-in (color mode): 23 kHz.

[7] 1-point teach-in (color mode): 2 kHz.

[8] Signal transit time with resistive load.

[9] Contrast mode: 14 µs.

[10] 1-point teach-in (color mode): 30 µs.

[11] 1-point teach-in (color mode): 60 µs.

[12] 1-point teach-in (color mode): 9 µs.

[13] 1-point teach-in (color mode): 240 µs.

	1-point teach-in, 2-point teach-in, teach-in dynamic, auto mode (depending on type)
Connection type	Male connector M12, 5-pin / male connector M12, 4-pin (depending on type)
Communication interface	IO-Link Analog (depending on type)

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

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

[3] Contrast mode: 35 kHz.

[4] 1-point teach-in (color mode): 16 kHz.

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[13] 1-point teach-in (color mode): 240 µs.

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

Fields of application

- Applications in which contrast is a distinguishing feature
- Print mark detection for controlling the cutting process
- Print control in the printing industry
- Positioning tubes
- Label alignment on bottles
- Monitoring of wafer surfaces
- Roll end monitoring
- Color control in yarn or line production

Ordering information

Other models and accessories → www.sick.com/KTS_Prime

- **Special applications:** Active Light Detection
- **Teach-in mode:** Active light detection
- **Light source:** LED, White (Average service life: 100,000 h at T_U = +25 °C.)

Sensing distance	Switching output	Connection type Detail	Device type	Light emission	Type	Part no.
≤ 25 mm	Push-pull: PNP/NPN	Male connector M12, 5-pin	Standard	Long side of housing	KTS-MBAC241152ZZZZ	1220204

- **Special applications:** Color Sequence
- **Communication interface:** IO-Link
- **Teach-in mode:** n-point teach-in, 2-point teach-in, teach-in dynamic, auto mode
- **Light source:** LED, RGB (Average service life: 100,000 h at T_U = +25 °C.)

Sensing distance	Switching output	Light spot size	Connection type Detail	Device type	Light emission	Type	Part no.
≤ 13 mm	Push-pull: PNP/NPN	0.9 mm x 3.8 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB-N114115AZZZZ	1220040

- **Special applications:** Gap Detection
- **Communication interface:** IO-Link
- **Teach-in mode:** teach-in dynamic, auto mode
- **Light source:** LED, White (Average service life: 100,000 h at T_U = +25 °C.)

Sensing distance	Switching output	Light spot size	Connection type Detail	Device type	Light emission	Type	Part no.
≤ 27.5 mm	Push-pull: PNP/NPN	0.8 mm x 8 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-MB-D724115AZZZZ	1116839

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

Sensing distance	Switching output	Light spot size	Connection type Detail	Device type	Light emission	Type	Part no.
≤ 13 mm	PNP	0.9 mm x 3.8 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WP91141152ZZZZ	1222312
						KTS-WP91141152ZZZZ	1222691
	PNP, NPN	0.9 mm x 3.8 mm	Male connector M12, 4-pin	Standard	Long side of housing	KTS-WS91141142ZZZZ	1218594
	Push-pull: PNP/NPN	0.9 mm x 3.8 mm	Male connector M12, 4-pin	Standard	Long side of housing	KTS-WB91141142ZZZZ	1078121
			Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB91141152ZZZZ	1078122
		3.8 mm x 0.9 mm	Male connector M12, 4-pin	Standard	Long side of housing	KTS-WB92141142ZZZZ	1084237
			Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB92141152ZZZZ	1078123
		Ø 0.9 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB94141152ZZZZ	1218201

Sensing distance	Switch-ing output	Light spot size	Connection type Detail	Device type	Light emission	Type	Part no.
≤ 25 mm	PNP	1.2 mm x 5.3 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WP91241152ZZZZ	1219437
						KTS-WP91241152ZZZZ	1221243
	Push-pull: PNP/NPN	1.2 mm x 5.3 mm	Male connector M12, 4-pin	Standard	Long side of housing	KTS-WB91241142ZZZZ	1084207
			Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB91241152ZZZZ	1078124
		5.3 mm x 1.2 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB92241152ZZZZ	1078125

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

Sensing distance	Switch-ing output	Light spot size	Connection type Detail	Device type	Light emission	Type	Part no.
≤ 13 mm	Push-pull: PNP/NPN	0.9 mm x 3.8 mm	Male connector M12, 4-pin	Standard	Long side of housing	KTS-WB91141142ZZZZ	1218193
			Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB91141152ZZZZ	1078114
		3.8 mm x 0.9 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB92141152ZZZZ	1218194
≤ 25 mm	Push-pull: PNP/NPN	1.2 mm x 5.3 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB91241152ZZZZ	1218195
		5.3 mm x 1.2 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB92241152ZZZZ	1218196

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

Sensing distance	Switch-ing output	Light spot size	Connection type Detail	Device type	Light emission	Type	Part no.
≤ 13 mm	Push-pull: PNP/NPN	0.9 mm x 3.8 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9114115AZZZZ	1081731
≤ 25 mm	Push-pull: PNP/NPN	5.3 mm x 1.2 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9224115AZZZZ	1221347

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

Sensing distance	Switch-ing output	Light spot size	Connection type Detail	Device type	Light emission	Type	Part no.
≤ 13 mm	Push-pull: PNP/NPN	0.9 mm x 3.8 mm	Male connector M12, 5-pin	Automa-tion func-tion, AFC90 (time stamp)	Long side of housing	KTS-WB9114115AA90Z	1078131
				Standard	Long side of housing	KTS-WB9114115AZZZZ	1078126
		3.8 mm x 0.9 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9214115AZZZZ	1078127
		Ø 0.9 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9414115AZZZZ	1218831
						KTS-WB9414115AZZZZ	1221015
≤ 25 mm	Push-pull: PNP/NPN	1.2 mm x 5.3 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9124115AZZZZ	1078128
						KTS-WB9124115AZZZZ	1221669
		5.3 mm x 1.2 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9224115AZZZZ	1078129
≤ 40 mm	Push-pull: PNP/NPN	3.9 mm x 0.9 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9134115AZZZZ	1220673
		Ø 3.3 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9A34115AZZZZ	1220790
≤ 70 mm	Push-pull: PNP/NPN	Ø 10 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9A64115AZZZZ	1220794
≤ 150 mm	Push-pull: PNP/NPN	Ø 12 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9A94115AZZZZ	1220800
		Ø 3.3 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9494115AZZZZ	1220797

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

Sensing distance	Switch-ing output	Light spot size	Connection type Detail	Device type	Light emission	Type	Part no.
≤ 13 mm	Push-pull: PNP/NPN	0.9 mm x 3.8 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9114115AZZZZ	1218198
		3.8 mm x 0.9 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9214115AZZZZ	1218199
≤ 25 mm	Push-pull: PNP/NPN	1.2 mm x 5.3 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9124115AZZZZ	1221290
≤ 40 mm	Push-pull: PNP/NPN	3.9 mm x 0.9 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9134115AZZZZZZSZZZZZ	1222250

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

Sensing distance	Switch-ing output	Light spot size	Connection type Detail	Device type	Light emission	Type	Part no.
≤ 13 mm	Push-pull: PNP/NPN	0.9 mm x 3.8 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB91141152ZZZZ	1081730
≤ 25 mm	PNP	1.2 mm x 5.3 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WP91241152ZZZZ	1221244

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

Sensing distance	Switch-ing output	Light spot size	Connection type Detail	Device type	Light emission	Type	Part no.
≤ 13 mm	Push-pull: PNP/NPN	0.9 mm x 3.8 mm	Male connector M12, 4-pin	Standard	Long side of housing	KTS-WB9114114IZZZZ	1078851
						KTS-WB9114114UZZZZ	1084197
			Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9114115UZZZZ	1084194
		3.8 mm x 0.9 mm	Male connector M12, 5-pin	Standard	Long side of housing	KTS-WB9214115UZZZZ	1081387

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

Sensing distance	Switch-ing output	Light spot size	Connection type Detail	Device type	Light emission	Type	Part no.
≤ 13 mm	Push-pull: PNP/NPN	0.9 mm x 3.8 mm	Male connector M12, 4-pin	Standard	Long side of housing	KTS-WB9114114IZZZZ	1218197

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is "Sensor Intelligence."

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