# KTX Prime

Contrast detection with TwinEye-Technology in tried-and-tested housing. Innovation in familiar housing for the very best sensor performance

**CONTRAST SENSORS**

**SICK**
Sensor Intelligence.

# KTX Prime

## CONTRAST SENSORS

## Technical data overview

| | |
|---|---|
| **Dimensions (W x H x D)** | 30 mm x 53 mm x 78.5 mm |
| **Sensing distance** | 13 mm<br>40 mm<br>25 mm<br>150 mm<br>70 mm<br>200 mm |
| **Type of light** | LED [1]<br>RGB |
| **Light spot size** | 0.9 mm x 3.8 mm<br>0.9 mm x 3.9 mm<br>Ø 0.9 mm<br>3.8 mm x 0.9 mm<br>1.2 mm x 5.3 mm<br>3.9 mm x 0.9 mm<br>5.3 mm x 1.2 mm<br>Ø 3.3 mm<br>Ø 10 mm<br>Ø 12 mm<br>30 mm x 35 mm |
| **Switching frequency** | 11.5 kHz [2] [3]<br>50 kHz [2] [4]<br>70 kHz [2] [5]<br>6.25 kHz [2] [6]<br>25 kHz [2] [7] |
| **Response time** | 42 µs [8] [9]<br>10 µs [10] [8]<br>3 µs [11] [8]<br>80 µs [12] [8]<br>20 µs [13] [8] |
| **Switching output** | Push-pull: PNP/NPN<br>NPN<br>PNP<br>PNP, NPN  (depending on type) |
| **Adjustment** | N-point teach-in, 2-point teach-in, teach-in dynamic, auto mode<br>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<br>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.

[5] 1-point teach-in (color mode): 23 kHz.

[6] 1-point teach-in (color mode): 2 kHz.

[7] 1-point teach-in (color mode): 8 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): 9 µs.

[12] 1-point teach-in (color mode): 240 µs.

[13] 1-point teach-in (color mode): 60 µs.

## 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

## 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 wafers
- Roll end monitoring
- Color control in yarn or line production

## Ordering information

Other models and accessories ➔ www.sick.com/KTX_Prime

- **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 | 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 | KTX-WB-N114125AZZZZ | 1220056 |
| | | | | | Short device side | KTX-WB-N114225AZZZZ | 1220042 |

- **Special applications:** Color Sequence
- **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 | 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 | KTX-WB-N1141252ZZZZ | 1220055 |
| | | | | | Short device side | KTX-WB-N1142252ZZZZ | 1220041 |

- **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 | NPN | 0.9 mm x 3.8 mm | Male connector M12, 4-pin | Standard | Short device side | KTX-WN9114224IZZZZ | 1078088 |
| | | | Male connector M12, 5-pin | Standard | Short device side | KTX-WN9114225UZZZZ | 1218271 |

| Sensing distance | Switch-ing output | Light spot size | Connection type Detail | Device type | Light emission | Type | Part no. |
|---|---|---|---|---|---|---|---|
| | | Ø 0.9 mm | Male connector M12, 4-pin | Standard | Short device side | KTX-WN9414224IZZZZ | 1078089 |
| | PNP | 0.9 mm x 3.8 mm | Male connector M12, 4-pin | Standard | Long side of housing | KTX-WP9114124IZZZZ | 1078109 |
| | | | | | Short device side | KTX-WP9114224IZZZZ | 1078087 |
| | | | | | | KTX-WP9114224UZZZZ | 1078163 |
| | | | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WP9114125UZZZZ | 1078110 |
| | | | | | Short device side | KTX-WP9114225UZZZZ | 1078090 |
| | | | | | | KTX-WP9114225UZZZZ | 1078164 |
| | | 3.8 mm x 0.9 mm | Male connector M12, 5-pin | Standard | Short device side | KTX-WP9214225UZZZZ | 1078154 |
| | Push-pull: PNP/NPN | 0.9 mm x 3.8 mm | Male connector M12, 4-pin | Standard | Long side of housing | KTX-WB9114124UZZZZ | 1084196 |
| | | | | | Short device side | KTX-WB9114224IZZZZ | 1078160 |
| | | | | | | KTX-WB9114224UZZZZ | 1084195 |
| | | | | | | KTX-WB9114224UZZZZ | 1219610 |
| | | | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WB91141259ZZZZ | 1079090 |
| | | | | | | KTX-WB9114125UZZZZ | 1078111 |
| | | | | | Short device side | KTX-WB91142259ZZZZ | 1078096 |
| | | | | | | KTX-WB9114225UZZZZ | 1078091 |
| | | | | | | KTX-WB9114225UZZZZ | 1219608 |
| | | 3.8 mm x 0.9 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WB9214125UZZZZ | 1078112 |
| | | | | | Short device side | KTX-WB9214225UZZZZ | 1078092 |
| | | | | | | KTX-WB9214225UZZZZ | 1219609 |
| ≤ 25 mm | Push-pull: PNP/NPN | 1.2 mm x 5.3 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WB9124125UZZZZ | 1078113 |
| | | | | | Short device side | KTX-WB9124225UZZZZ | 1078093 |

2021-05-07 20:10:54 | Product family overview
Subject to change without notice
REGISTRATION SENSORS | SICK   5

# KTX Prime
## CONTRAST SENSORS

| Sensing distance | Switching output | Light spot size | Connection type Detail | Device type | Light emission | Type | Part no. |
|---|---|---|---|---|---|---|---|
| ≤ 40 mm | NPN | 0.9 mm x 3.9 mm | Male connector M12, 4-pin | Standard | Short device side | KTX-WN9234224IZZZZ | 1078139 |
| | PNP | 3.9 mm x 0.9 mm | Male connector M12, 4-pin | Standard | Short device side | KTX-WP9134224IZZZZ | 1078138 |
| | Push-pull: PNP/NPN | 3.9 mm x 0.9 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WB9134125UZZZZ | 1220793 |
| | | | | | Short device side | KTX-WB9134225UZZZZ | 1078140 |
| ≤ 70 mm | Push-pull: PNP/NPN | Ø 10 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WB9A64125UZZZZ | 1078148 |
| | | | | | Short device side | KTX-WB9A64225UZZZZ | 1078141 |
| ≤ 200 mm | PNP | 30 mm x 35 mm | Male connector M12, 4-pin | Standard | Long side of housing | KTX-WP9GA4124IZZZZ | 1078157 |

- **Special applications:** transmission color selection via cable
- **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 | PNP | 0.9 mm x 3.8 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WP9114125UZZZZ | 1223321 |
| | | 3.8 mm x 0.9 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WP9214125UZZZZ | 1223322 |

- **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 | KTX-WB9114125AZZZZ | 1081728 |
| | | | | | Short de-vice side | KTX-WB9114225AZZZZ | 1081727 |

- **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 | PNP | 3.8 mm x 0.9 mm | Male connector M12, 5-pin | Standard | Short de-vice side | KTX-WP9214225AZZZZ | 1078081 |
| | Push-pull: PNP/NPN | 0.9 mm x 3.8 mm | Male connector M12, 5-pin | Automa-tion func-tion, AFC90 (time stamp) | Short de-vice side | KTX-WB9114225AA90Z | 1078086 |
| | | | | Standard | Long side of housing | KTX-WB9114125AZZZZ | 1081721 |
| | | | | | Short de-vice side | KTX-WB9114225AZZZZ | 1078080 |
| | | 3.8 mm x 0.9 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WB9214125AZZZZ | 1081722 |
| | | | | | Short de-vice side | KTX-WB9214225AZZZZ | 1078082 |
| | | | | | | KTX-WB9214225AZZZZZZZZZDZZZ | 1221531 |
| | | Ø 0.9 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WB9414125AZZZZ | 1113486 |

| Sensing distance | Switch-ing output | Light spot size | Connection type Detail | Device type | Light emission | Type | Part no. |
|---|---|---|---|---|---|---|---|
| ≤ 25 mm | Push-pull: PNP/NPN | 1.2 mm x 5.3 mm | Male connector M12, 5-pin | Standard | Short de-vice side | KTX-WB9124225AZZZZ | 1078083 |
| | | | | | | KTX-WB9124225AZZZZ | 1221672 |
| | | 5.3 mm x 1.2 mm | Male connector M12, 5-pin | Standard | Short de-vice side | KTX-WB9224225AZZZZ | 1078084 |
| ≤ 40 mm | Push-pull: PNP/NPN | 3.9 mm x 0.9 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WB9134125AZZZZ | 1220792 |
| | | | | | Short de-vice side | KTX-WB9134225AZZZZ | 1220791 |
| ≤ 70 mm | Push-pull: PNP/NPN | Ø 10 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WB9A64125AZZZZ | 1220796 |
| | | | | | Short de-vice side | KTX-WB9A64225AZZZZ | 1220795 |
| ≤ 150 mm | Push-pull: PNP/NPN | Ø 12 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WB9A94125AZZZZ | 1220802 |
| | | | | | Short de-vice side | KTX-WB9A94225AZZZZ | 1220801 |
| | | Ø 3.3 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WB9494125AZZZZ | 1220799 |
| | | | | | Short de-vice side | KTX-WB9494225AZZZZ | 1220798 |

- **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 | Switch-ing output | Light spot size | Connection type Detail | Device type | Light emission | Type | Part no. |
|---|---|---|---|---|---|---|---|
| ≤ 13 mm | NPN | 0.9 mm x 3.8 mm | Male connector M12, 4-pin | Standard | Long side of housing | KTX-WN91141242ZZZZ | 1078102 |
| | | | | | Short de-vice side | KTX-WN91142242ZZZZ | 1078071 |
| | | | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WN91141252ZZZZ | 1078098 |
| ≤ 13 mm | NPN | 0.9 mm x 3.8 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WN91141252ZZZZZ | 1109467 |
| | | | | | Short de-vice side | KTX-WN91142252ZZZZ | 1078067 |
| | | | | | | KTX-WN91142252ZZZZ | 1219737 |
| | | 3.8 mm x 0.9 mm | Male connector M12, 4-pin | Standard | Short de-vice side | KTX-WN92142242ZZZZ | 1078073 |
| | | | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WN92141252ZZZZ | 1078100 |

| Sensing distance | Switching output | Light spot size | Connection type Detail | Device type | Light emission | Type | Part no. |
|---|---|---|---|---|---|---|---|
| | | | | | Short device side | KTX-WN92142252ZZZZ | 1078069 |
| | | Ø 0.9 mm | Male connector M12, 5-pin | Standard | Short device side | KTX-WN94142252ZZZZ | 1078153 |
| | PNP | 0.9 mm x 3.8 mm | Male connector M12, 4-pin | Standard | Long side of housing | KTX-WP91141242ZZZZ | 1078101 |
| | | | | | Short device side | KTX-WP91142242ZZZZ | 1078070 |
| | | | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WP91141252ZZZZ | 1078097 |
| | | | | | | KTX-WP91141252ZZZZZ | 1109466 |
| | | | | | Short device side | KTX-WP91142252ZZZZ | 1078066 |
| | | | | | | KTX-WP91142252ZZZZ | 1078155 |
| | | | | | | KTX-WP91142252ZZZZ | 1078158 |
| | | | | | | KTX-WP91142252ZZZZ | 1219607 |
| | | | | | | KTX-WP91142252ZZZZ | 1219605 |
| | | 3.8 mm x 0.9 mm | Male connector M12, 4-pin | Standard | Long side of housing | KTX-WP92141242ZZZZ | 1078103 |
| | | | | | Short device side | KTX-WP92142242ZZZZ | 1078072 |
| | | | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WP92141252ZZZZ | 1078099 |
| | | | | | Short device side | KTX-WP92142252ZZZZ | 1078068 |
| | PNP, NPN | 0.9 mm x 3.8 mm | Male connector M12, 4-pin | Standard | Long side of housing | KTX-WS91141242ZZZZ | 1078167 |
| | | | | | Short device side | KTX-WS91142242ZZZZ | 1078166 |
| | Push-pull: PNP/NPN | 0.9 mm x 3.8 mm | Male connector M12, 5-pin | Standard | Short device side | KTX-WB91142252ZZZZ | 1219736 |
| | | Ø 0.9 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WB94141252ZZZZ | 1078095 |
| | | | | | Short device side | KTX-WB94142252ZZZZ | 1078094 |

| Sensing distance | Switch-ing output | Light spot size | Connection type Detail | Device type | Light emission | Type | Part no. |
|---|---|---|---|---|---|---|---|
| ≤ 25 mm | NPN | 1.2 mm x 5.3 mm | Male connector M12, 4-pin | Standard | Long side of housing | KTX-WN91241242ZZZZ | 1078107 |
| | | | | | Short de-vice side | KTX-WN91242242ZZZZ | 1078078 |
| | | | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WN91241252ZZZZ | 1078105 |
| | | | | | Short de-vice side | KTX-WN91242252ZZZZ | 1078075 |
| | PNP | 1.2 mm x 5.3 mm | Male connector M12, 4-pin | Standard | Long side of housing | KTX-WP91241242ZZZZ | 1078106 |
| | | | | | Short de-vice side | KTX-WP91242242ZZZZ | 1078077 |
| | | | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WP91241252ZZZZ | 1078104 |
| | | | | | Short de-vice side | KTX-WP91242252ZZZZ | 1078074 |
| | | 5.3 mm x 1.2 mm | Male connector M12, 4-pin | Standard | Long side of housing | KTX-WP92241242ZZZZ | 1078108 |
| | | | | | Short de-vice side | KTX-WP92242242ZZZZ | 1078079 |
| | | | Male connector M12, 5-pin | Standard | Short de-vice side | KTX-WP92242252ZZZZ | 1078076 |
| ≤ 40 mm | NPN | 3.9 mm x 0.9 mm | Male connector M12, 4-pin | Standard | Long side of housing | KTX-WN91341242ZZZZ | 1078145 |
| | | | | | Short de-vice side | KTX-WN91342242ZZZZ | 1078136 |
| | | | Male connector M12, 5-pin | Standard | Short de-vice side | KTX-WN91342252ZZZZ | 1078133 |
| | PNP | 0.9 mm x 3.9 mm | Male connector M12, 4-pin | Standard | Short de-vice side | KTX-WP92342242ZZZZ | 1078137 |
| | | | Male connector M12, 5-pin | Standard | Short de-vice side | KTX-WP92342252ZZZZ | 1078134 |
| | | 3.9 mm x 0.9 mm | Male connector M12, 4-pin | Standard | Long side of housing | KTX-WP91341242ZZZZ | 1078146 |
| | | | | | Short de-vice side | KTX-WP91342242ZZZZ | 1078135 |
| | | | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WP91341252ZZZZ | 1078147 |
| | | | | | Short de-vice side | KTX-WP91342252ZZZZ | 1078132 |

- **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 | NPN | 0.9 mm x 3.8 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WN91141252ZZZZ | 1081726 |
| | | | | | Short de-vice side | KTX-WN91142252ZZZZ | 1081724 |
| | PNP | 0.9 mm x 3.8 mm | Male connector M12, 5-pin | Standard | Long side of housing | KTX-WP91141252ZZZZ | 1081725 |
| | | | | | Short de-vice side | KTX-WP91142252ZZZZ | 1081723 |
| | | 3.8 mm x 0.9 mm | Male connector M12, 5-pin | Standard | Short de-vice side | KTX-WP92142252ZZZZ | 1220994 |

## 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."**

## WORLDWIDE PRESENCE:

Contacts and other locations –**www.sick.com**

SICK AG | Waldkirch | Germany | www.sick.com

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Sensor Intelligence.