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DATA SHEET

KTS-WS91141142ZZZZ

KTS
Contrast sensors

SICK Sensor Intelligence



Illustration may differ

CONTRAST SENSORS

KTS-WS91141142ZZZZ

ORDERING INFORMATION

Type	part no.
KTS-WS91141142ZZZZ	1218594

Further device versions and accessories at www.sick.com/KTS

DETAILED TECHNICAL DATA

FEATURES

Parameter presettings	None
Special applications	Standard
Device type	Standard
Housing design	Middle
Dimensions (W x H x D)	26 mm x 62 mm x 47.5 mm
Light source	LED, RGB [1]
TwinEye technology	✓
Light emission	Long side of housing
Light spot size	0.9 mm x 3.8 mm
Light spot direction	Vertical [2]
Receiving filters	None
Wave length	470 nm, 525 nm, 625 nm
Sensing distance	≤ 13 mm
Sensing distance tolerance	± 5 mm
Teach-in mode	1-point teach-in, 2-point teach-in, teach-in dynamic, auto mode
Output function	Light/dark switching
Delay time	Adjustable
Setting the key lock	Standard
Delivery status	2-point teach-in
Safety-related parameters	
$MTTF_D$	291 years

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

[2] In relation to long side of housing.

ELECTRONICS

Supply voltage	10.8 V DC ... 28.8 V DC [1]
Ripple	≤ 5 V_{pp} [2]
Current consumption	< 100 mA [3]
Switching frequency	50 kHz [4] [5]
Response time	10 µs
Jitter	5 µs [6]
Switching output	PNP, NPN
Switching output (voltage)	PNP: HIGH = V_S - 3 V / LOW = 0 V, NPN: HIGH = V_S / LOW ≤ 3 V
Output current $I_{max.}$	100 mA [7]
Retention time (ET)	25 ms, non-volatile memory
Time delay	None
Protection class	III
Circuit protection	U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Connection type	Male connector M12, 4-pin

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

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

[3] Without load.

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

[5] 1-point teach-in (color mode): 16 kHz.

[6] 1-point teach-in (color mode): 15 µs.

[7] Total current of all Outputs.

MECHANICS

Housing material	VISTAL®
Optics material	COP
Weight	68 g

AMBIENT DATA

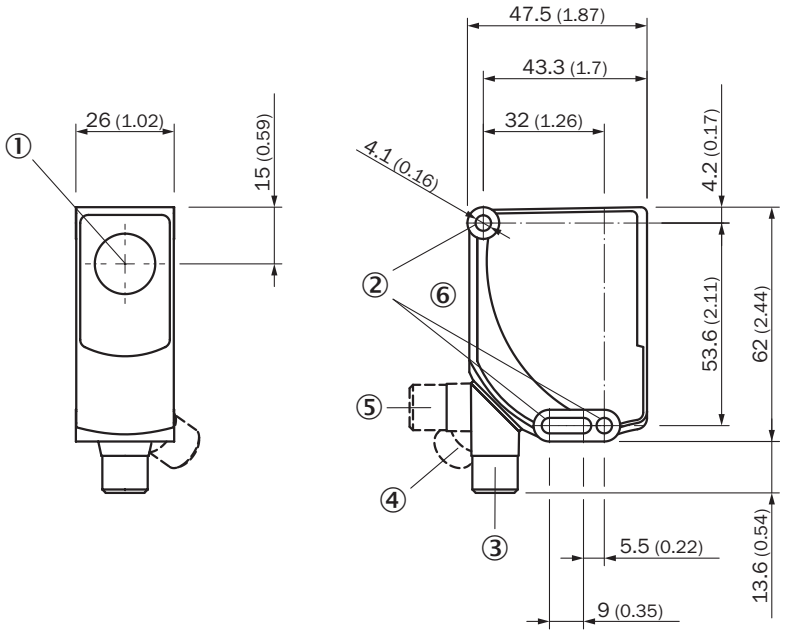
Ambient operating temperature	–20 °C ... +60 °C
Ambient temperature, storage	–25 °C ... +75 °C
Shock load	According to IEC 60068-2-27 (30 g/11 ms)
Enclosure rating	IP67
UL File No.	E181493

CERTIFICATES

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓

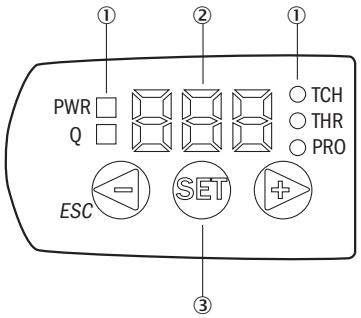
cULus certificate	✓
Photobiological safety (IEC EN 62471)	✓

DIMENSIONAL DRAWING



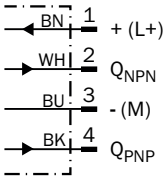
Dimensions in mm (inch)
① Optical axis
② fixing hole
③ M12 male connector, delivery state
④ M12 male connector, end stop right
⑤ M12 male connector, end stop left
⑥ display and adjustment elements

DISPLAY AND ADJUSTMENT ELEMENTS



① LED status indicator
② Display
③ Navigation buttons

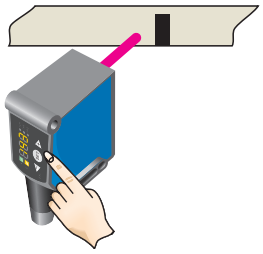
CONNECTION DIAGRAM CD-086



KTS/KTX PRIME - SETTING THE SWITCHING THRESHOLD (TEACH-IN DYNAMIC)

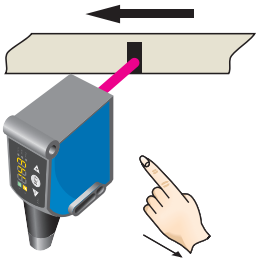
Suitable for teaching in moving objects.

1. Position background

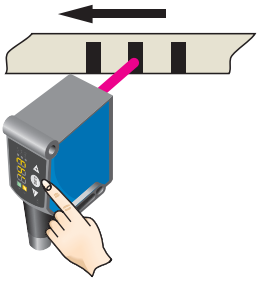


Press the Set pushbutton to start the teach-in process.

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

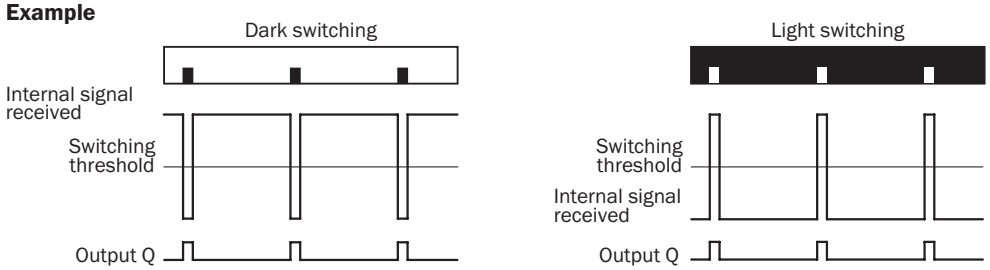


The display lights up during repeat length detection (- - -).



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

Example



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.

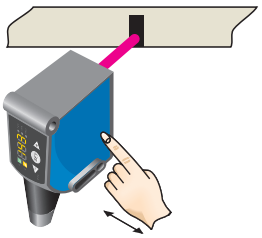
Keylock (activation and deactivation): Press and hold the “+” pushbutton > 10 s.

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

KTS/KTX PRIME - SETTING THE SWITCHING THRESHOLD (2-POINT TEACH-IN)

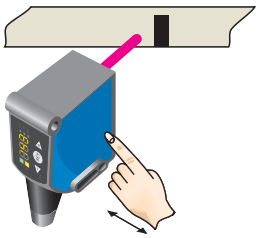
Suitable for manual positioning of the object to be detected, e.g. marks and background.

1. Position mark



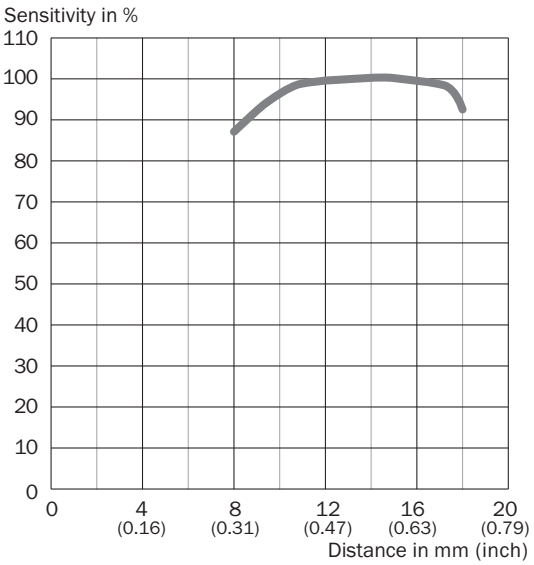
When setting the contrasts to be detected, “1st” flashes.
Press set button.

2. Position background



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

SENSING DISTANCE SENSING DISTANCE 13 MM, LIGHT SPOT DIRECTION HORIZONTAL/VERTICAL



Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1218594

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SICK AT A GLANCE

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SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

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