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DATA SHEET

KTM-WP11181P

KTM
Contrast sensors

SICK
Sensor Intelligence



Illustration may differ

CONTRAST SENSORS

KTM-WP11181P

ORDERING INFORMATION

Type	part no.
KTM-WP11181P	1062199

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

DETAILED TECHNICAL DATA

FEATURES

Housing design	Small
Dimensions (W x H x D)	12 mm x 31.5 mm x 21 mm
Light source	LED, RGB [1]
Light emission	Long side of housing
Light spot size	1.6 mm x 9.5 mm
Light spot direction	Vertical [2]
Receiving filters	None
Wave length	470 nm, 525 nm, 625 nm
Sensing distance	≤ 12.5 mm
Sensing distance tolerance	± 3 mm
Display	LED indicator green: power on LED indicator, yellow: Status switching output Q
Adjustment	Teach-in button
Teach-in mode	2-point teach-in static/dynamic + proximity to mark ET: Teach-in dynamic

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

[2] In relation to long side of housing.

ELECTRONICS

Supply voltage	12 V DC ... 24 V DC [1]

[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] Total current of all Outputs.

Ripple	≤ 5 V_{pp} [2]
Current consumption	< 50 mA [3]
Switching frequency	15 kHz [4]
Response time	32 µs
Jitter	15 µs
Switching output	PNP
Switching output (voltage)	PNP: HIGH = U_V ≤ 2 V / LOW approx. 0 V
Switching mode	Light/dark switching
Output current $I_{max.}$	50 mA [5]
Input, dynamic teach-in (ET)	PNP: Teach: U = 10,8 V ... < U_V PNP: Run: U < 2 V or open
Retention time (ET)	28 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 M8, 4-pin
Pinouts	BN 1 + (L+) WH 2 ET BU 3 - (M) BK 4 Q

[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] Total current of all Outputs.

MECHANICS

Housing material	ABS
Optics material	PMMA
Weight	20 g

AMBIENT DATA

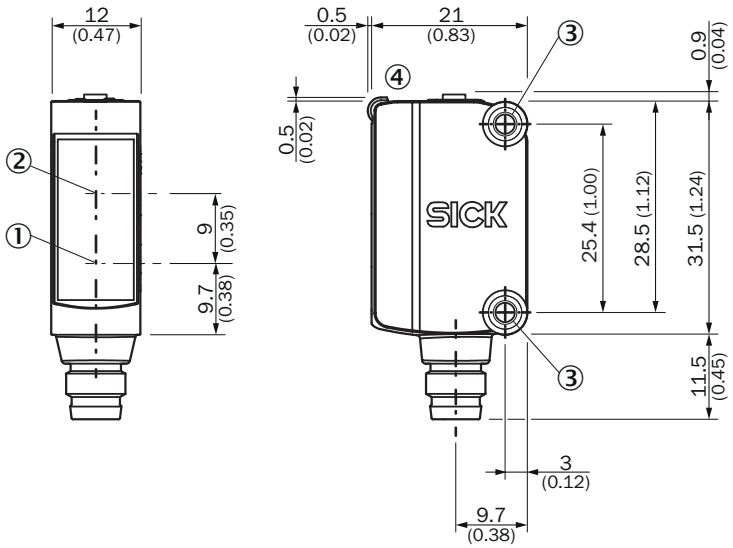
Ambient operating temperature	–10 °C ... +55 °C
Ambient temperature, storage	–20 °C ... +75 °C
Shock load	According to IEC 60068
Enclosure rating	IP67
UL File No.	NRKH.E348498 & NRKH7.E348498

CERTIFICATES

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓

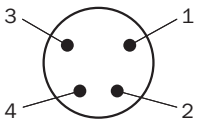
China Compulsory Product Certification (CCC) exempt	✓
cULus certificate	✓
Photobiological safety (IEC EN 62471)	✓

DIMENSIONAL DRAWING KTM-MXXXXX1P, KTM-WXXXXX1P



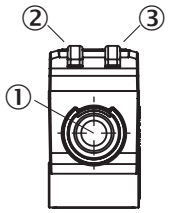
Dimensions in mm (inch)
① Center of optical axis, sender
② Center of optical axis, receiver
③ Mounting holes M3
④ display and adjustment elements

PINOUTS, SEE TABLE TECHNICAL DATA: ELECTRONICS



Male connector, M8, 4-pin, uncoded

DISPLAY AND ADJUSTMENT ELEMENTS

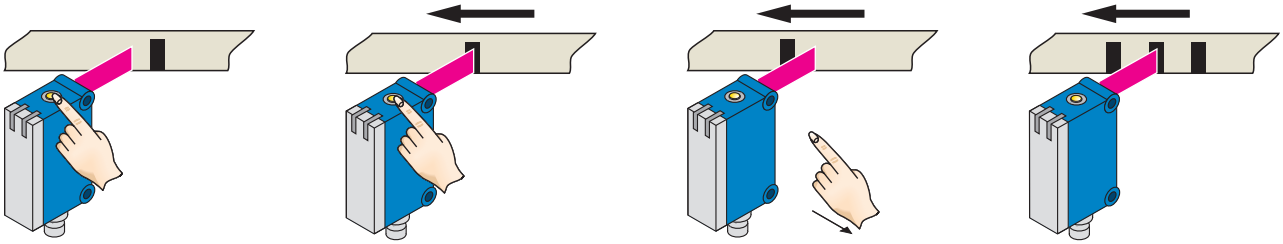


① Teach-in button
② LED yellow
③ LED green

SETTING THE SWITCHING THRESHOLD (DYNAMIC)

1. Position background

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



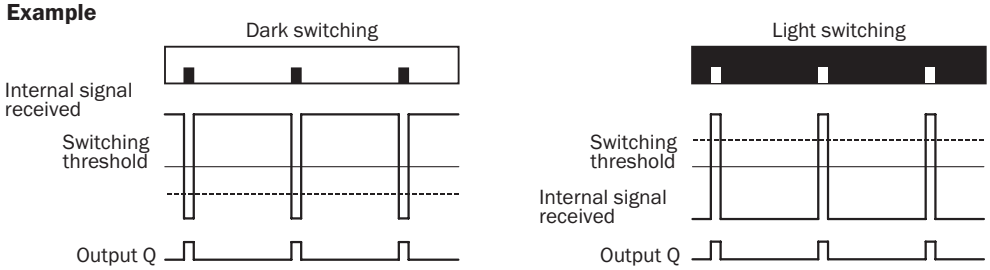
Press the teach-in button and keep it pressed. LED flashing slowly.

Keep the teach-in button > 3 < 30 s pressed.

Release the teach-in button.

Yellow LED will illuminate, when emitted light is on the mark.

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.

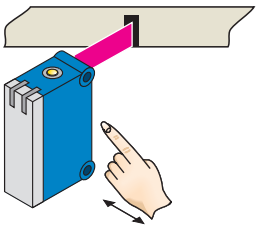
If the button is pressed again within 10 s of the teach (> 20 ms < 10 s), the relative switching threshold is placed 75 % between mark (100 %) and background (0 %) (dotted line in Figure).
Teach-in can also be performed using an external control signal.

Keylock activation and deactivation: hold down teach-in button > 30 s.

Teach-in failure: yellow LED indicator and the transmitted light of the sensor flashing quickly.
For dynamic teach-in with ET signal (5 Hz) via switching output Q.

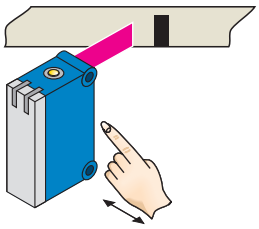
SETTING THE SWITCHING THRESHOLD (STATIC)

1. Position mark



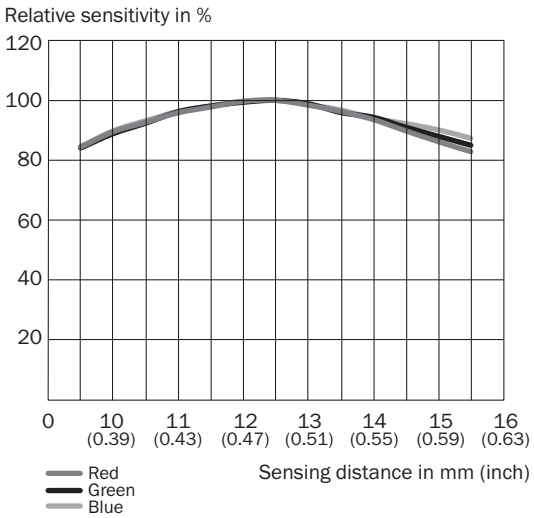
Press and hold teach-in button > 1 < 3 s.
Yellow LED flashes slowly.

2. Position background



Press and hold teach-in button < 3 s.
Yellow LED goes out.

SENSING DISTANCE



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/1062199

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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

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.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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