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DATA SHEET

KTM-MB31194P

KTM
Contrast sensors

SICK Sensor Intelligence



Illustration may differ

CONTRAST SENSORS

KTM-MB31194P

ORDERING INFORMATION

Type	part no.
KTM-MB31194P	1078048

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, White ¹⁾
Light emission	Long side of housing
Light spot size	Ø 2 mm (12.5 mm)
Light spot direction	Round
Receiving filters	None
Sensing distance	≤ 12.5 mm
Sensing distance tolerance	± 3 mm
Display	LED indicator green: power on LED indicator, yellow: Status switching output Q
Adjustment	Potentiometer

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

ELECTRONICS

Supply voltage	12 V DC ... 24 V DC ¹⁾
Ripple	≤ 5 V _{pp} ²⁾
Current consumption	< 50 mA ³⁾
Switching frequency	10 kHz ⁴⁾

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_I tolerances.

³⁾ Without load.

⁴⁾ With light/dark ratio 1:1.

⁵⁾ Total current of all Outputs.

Response time	50 µs
Jitter	25 µs
Switching output	PNP, NPN
Switching output (voltage)	PNP: HIGH = $U_v \leq 2 \text{ V}$ / LOW approx. 0 V, NPN: HIGH = approx. U_v / LOW $\leq 2 \text{ V}$
Switching mode	Light/dark switching
Output current I_{max}	50 mA ⁵⁾
Time delay	None
Protection class	III
Circuit protection	U_v connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Connection type	Cable open end, 4-wire, 2 m

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

CONNECTION TYPE/PINOUTS

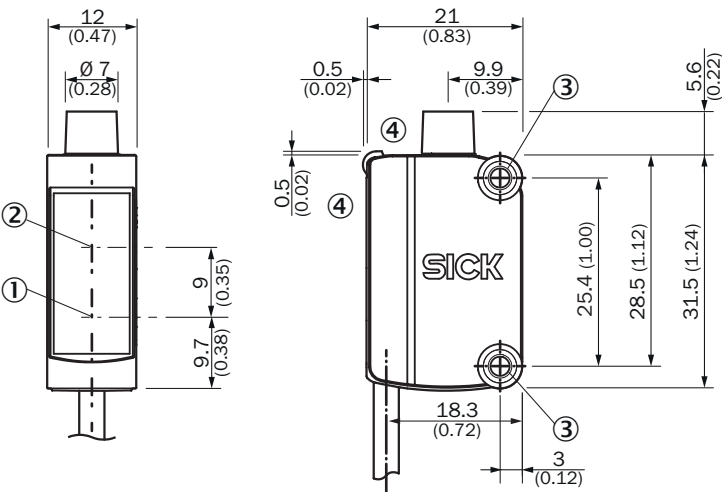
Connection type	Cable open end, 4-wire, 2 m
Pinouts	BN 1 + (L+) WH 2 Q _{NPN} BU 3 - (M) BK 4 Q _{PNP}

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	✓

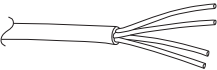
cULus certificate	✓
Photobiological safety (IEC EN 62471)	✓

DIMENSIONAL DRAWING



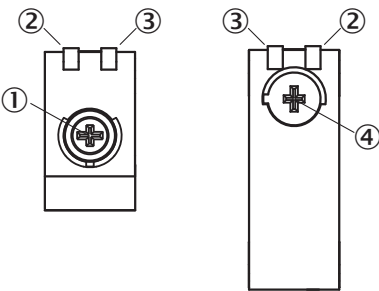
- Dimensions in mm (inch)
- ① Center of optical axis, sender
 - ② Center of optical axis, receiver
 - ③ Mounting holes M3
 - ④ display and adjustment elements

PINOUTS, SEE TABLE TECHNICAL DATA: CONNECTION TYPE/PINOUTS



Cable with flying leads, 4-wire, AWG 26, 0.15 mm²

DISPLAY AND ADJUSTMENT ELEMENTS

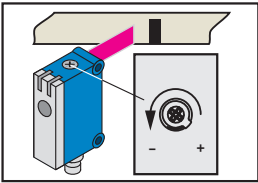


- ① potentiometer, adjustment of switching threshold
- ② LED yellow
- ③ LED green
- ④ Potentiometer, light/dark switching

SETTING THE SWITCHING THRESHOLD

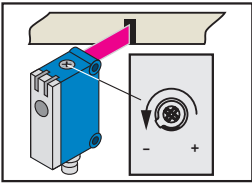
For example dark switching

1. Position background



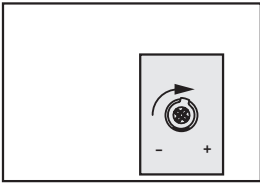
Start at "+" (right-hinged).
Turn potentiometer in direction
"-" until the yellow LED goes out.

2. Position mark



Yellow LED lights up.
Continue to turn the potentiometer
in direction "-" until the yellow LED
goes out again.

3. Set switching threshold



Turn between positions 1 and 2,
to ensure that the switching threshold
is optimally set.

Switching characteristics

Light switching: yellow LED $\neq$ switching output Q

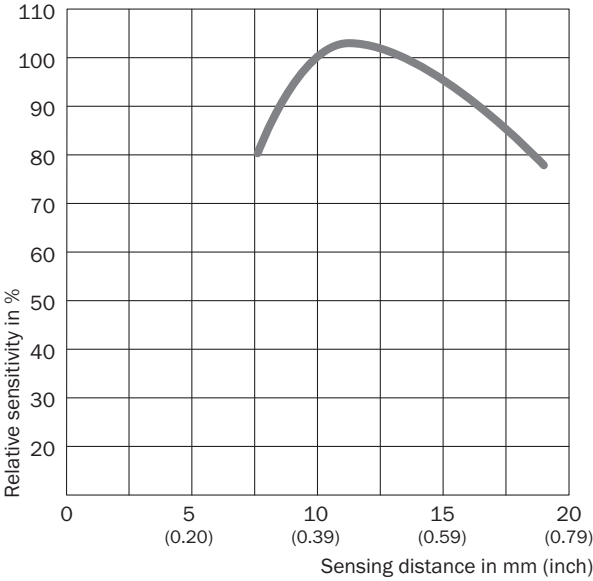
Dark switching: yellow LED = switching output Q

Light/dark switching selectable by means of rotary switch

KTM-xBxxx1xx: potentiometer can be adjusted with a screwdriver

KTM-xBxxx9xx: potentiometer can be adjusted with a screwdriver or by hand

SENSING DISTANCE



Further information as well as suitable accessories, example applications and downloads such as CAD di-
mensional models, operating instructions and software can be found at www.sick.com/1078048



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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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