Product data sheet



KTM-MB31111P

KTM Core

CONTRAST SENSORS

SICK
Sensor Intelligence.



Illustration may differ

Ordering information

Type	Part no.
KTM-MB31111P	1062202

Other models and accessories ➜ www.sick.com/KTM_Core

Detailed technical data

Features

Dimensions (W x H x D)	12 mm x 31.5 mm x 21 mm
Sensing distance	≤ 12.5 mm
Sensing distance tolerance	± 3 mm
Housing design	Small
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
Adjustment	Potentiometer, screw driver

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

Mechanics/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]
Response time	50 µs [5]
Jitter	25 µs

[1] Limit values: DC 12 V (–10 %) ... DC 24 V (+20 %). Operation in short-circuit protected network max. 8 A.
[2] May not exceed or fall below U_V tolerances.
[3] Without load.
[4] With light/dark ratio 1:1.
[5] Signal transit time with resistive load.
[6] Total current of all Outputs.

Switching output	PNP, NPN
Switching output (voltage)	PNP: HIGH = U_V ≤ 2 V / LOW approx. 0 V NPN: HIGH = approx. U_V / LOW ≤ 2 V
Switching mode	Light/dark switching
Output current $I_{max.}$	50 mA [6]
Time delay	None
Connection type	Male connector M8, 4-pin
Protection class	III
Circuit protection	U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Enclosure rating	IP67
Weight	20 g
Housing material	Plastic, ABS
Optics material	Plastic, PMMA
Indication	LED indicator green: power on LED indicator, yellow: Status switching output Q

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Ambient data

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

Classifications

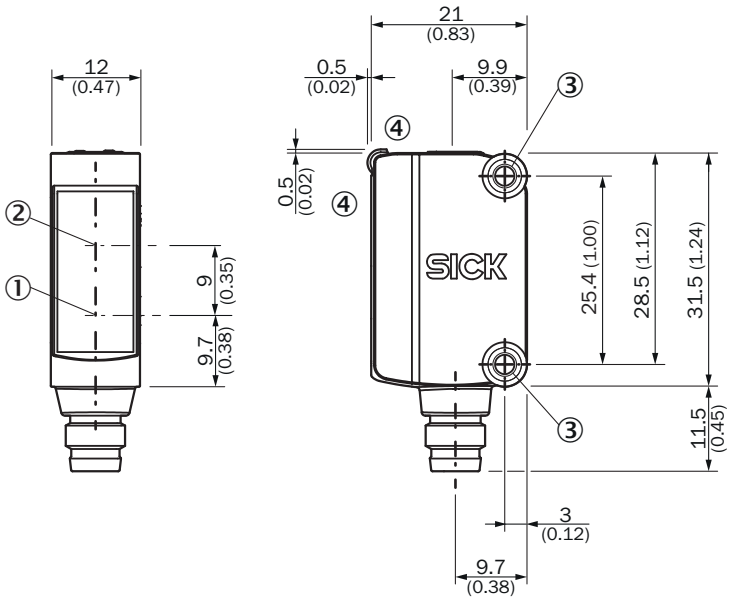
eCl@ss 5.0	27270906
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eCl@ss 9.0	27270906
eCl@ss 10.0	27270906
eCl@ss 11.0	27270906
eCl@ss 12.0	27270906
ETIM 5.0	EC001820
ETIM 6.0	EC001820
ETIM 7.0	EC001820

ETIM 8.0	EC001820
UNSPSC 16.0901	39121528

Connection/pin assignment

Connection type	Male connector M8, 4-pin
Pin assignment	
BN 1	+ (L+)
WH 2	Q $_{NPN}$
BU 3	- (M)
BK 4	Q $_{PNP}$

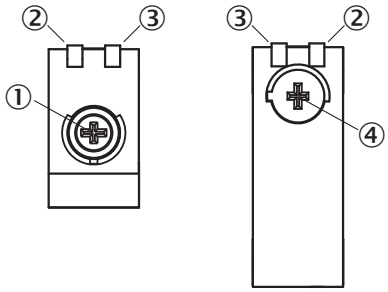
Dimensional drawing (Dimensions in mm (inch))



① Center of optical axis, sender
② Center of optical axis, receiver
③ Mounting holes M3
④ Display and adjustment elements

Adjustments

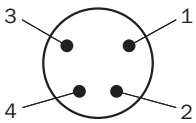
Display and adjustment elements



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

Connection type

Connection type. see table: Connection/PIN assignment



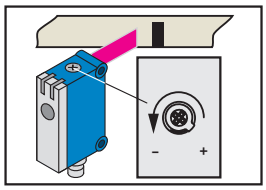
Male connector, M8, 4-pin, uncoded

Concept of operation

Setting the switching threshold

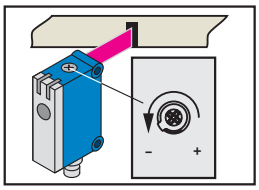
For example dark switching

1. Position background



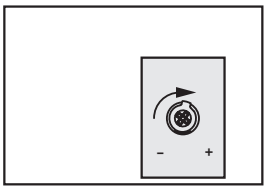
Start at "+" (right-hinged).
Turn potentiometer in direction "-" until the yellow LED goes out.

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

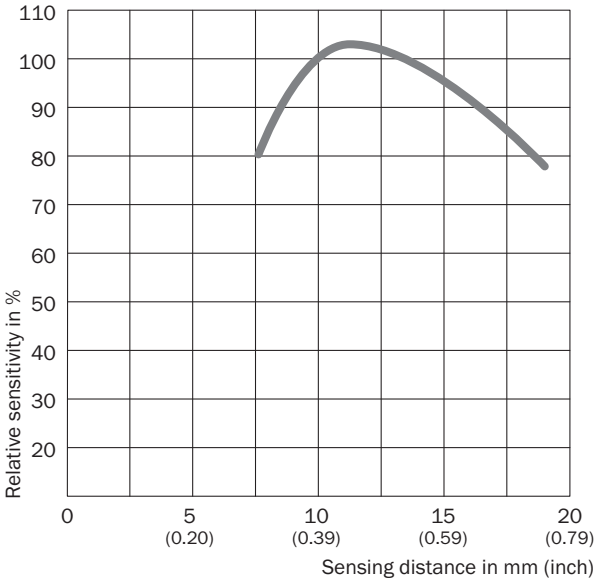


Turn between positions 1 and 2, to ensure that the switching threshold is optimally set.

Switching characteristics
Light switching: yellow LED ≠ 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



Recommended accessories

Other models and accessories ➜ www.sick.com/KTM_Core

	Brief description	Type	Part no.
Device protection (mechanical)			
	Stainless steel 1.4301 (SVS 304), 3 mm thick protective sleeve for G6, stainless steel 1.4301, mounting hardware included	BEF-SG-G6-01	2069044
Plug connectors and cables			
	Head A: female connector, M8, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF8U14-050VA3XLEAX	2095889
	Head A: female connector, M8, 4-pin, straight, A-coded Head B: male connector, M12, 4-pin, straight, A-coded Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF8U14-050VA3M2A14	2096609

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:

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