

KTM-MB31111P

KTM Core

CONTRAST SENSORS

SICK
Sensor Intelligence.



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 (light emission)	Rectangular
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_J = +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
Switching output	PNP, NPN
Switching output (voltage)	PNP: HIGH = V _{S-} ≤ 2 V / LOW approx. 0 V

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.

	NPN: HIGH = approx. V_S / 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

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.

Ambient data

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

Classifications

ECl@ss 5.0	27270906
ECl@ss 5.1.4	27270906
ECl@ss 6.0	27270906
ECl@ss 6.2	27270906
ECl@ss 7.0	27270906
ECl@ss 8.0	27270906
ECl@ss 8.1	27270906
ECl@ss 9.0	27270906
ECl@ss 10.0	27270906
ECl@ss 11.0	27270906
ETIM 5.0	EC001820
ETIM 6.0	EC001820
ETIM 7.0	EC001820
UNSPSC 16.0901	39121528

Connection/Pin assignment

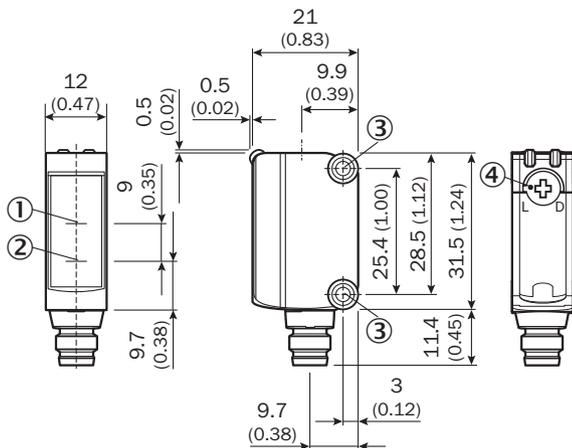
Connection type	Male connector M8, 4-pin
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Pin assignment

BN 1	+ (L+)
WH 2	Q NPN
BU 3	- (M)
BK 4	Q PNP

Dimensional drawing (Dimensions in mm (inch))

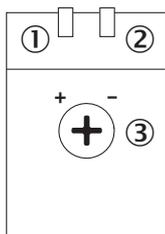
KTM-xBxxx11x



- ① Optical axis, receiver
- ② Optical axis, sender
- ③ M3 mounting hole
- ④ Light/ dark rotary switch: L = light switching, D = dark switching

Adjustments

KTM Core



- ① Status indicator LED, yellow: Status switching output Q (dark switching)
- ② LED indicator green: Supply voltage active
- ③ Light/ dark rotary switch: L = light switching, D = dark switching

Connection type

See table: **Connection/Pin assignment**

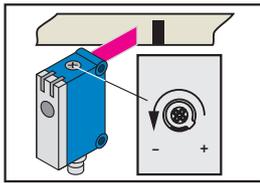


Concept of operation

Setting the switching threshold

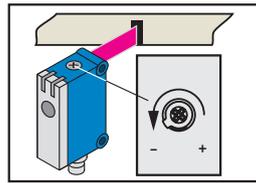
For example dark switching

1. Position background



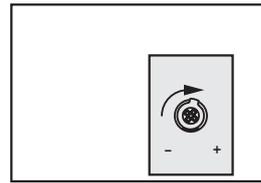
Start at "+" (right-hinged).
 Turn potentiometer in direction
 "-" until the yellow LED goes out.

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

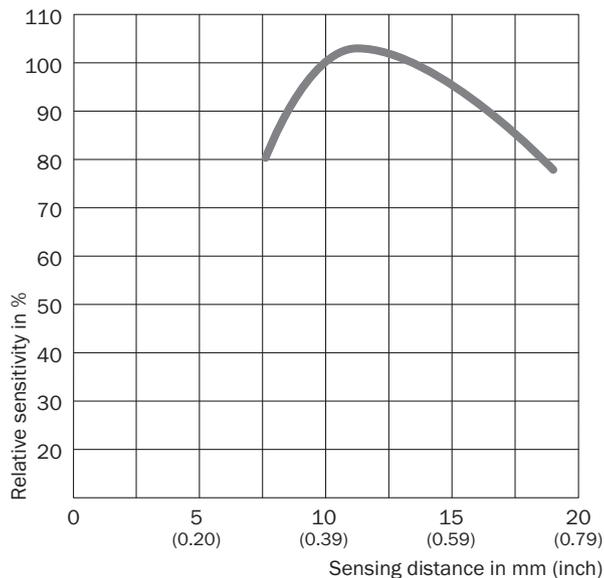
Light switching: yellow LED \neq switching output Q

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

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: male connector, M8, 4-pin, straight Head B: - Cable: unshielded	STE-0804-G	6037323

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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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