Product data sheet


# KTM-MB31194P

KTM

**CONTRAST SENSORS**

SICK
Sensor Intelligence.

Illustration may differ

## Ordering information

| Type | Part no. |
|---|---|
| KTM-MB31194P | 1078048 |

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

## 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 |

[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 fall below or exceed $U_V$ 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** | Cable open end, 4-wire, 2 m |
| **Protection class** | III |
| **Circuit protection** | $U_V$ connections, reverse polarity protected<br>Output Q short-circuit protected<br>Interference pulse suppression |
| **Enclosure rating** | IP67 |
| **Weight** | 20 g |
| **Housing material** | ABS |
| **Optics material** | PMMA |
| **Indication** | LED indicator green: power on<br>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 fall below or exceed $U_V$ 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 temperature, storage** | –20 °C ... +75 °C |
| **Shock load** | According to IEC 60068 |
| **UL File No.** | NRKH.E348498 & NRKH7.E348498 |

## Connection type/pinouts

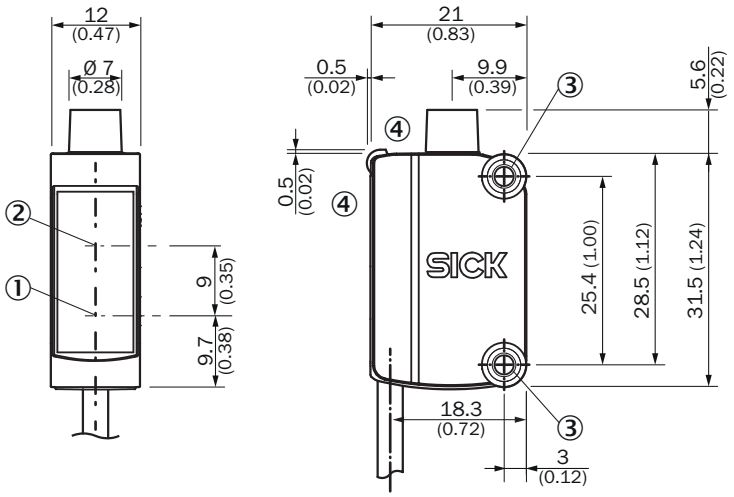
| | |
|---|---|
| **Connection type** | Cable open end, 4-wire, 2 m |
| **Pinouts** | |
| BN 1 | + (L+) |
| WH 2 | Q $_{NPN}$ |
| BU 3 | - (M) |
| BK 4 | Q $_{PNP}$ |

## Classifications

| | |
|---|---|
| **ECLASS 5.0** | 27270906 |
| **ECLASS 5.1.4** | 27270906 |
| **ECLASS 6.0** | 27270906 |
| **ECLASS 6.2** | 27270906 |
| **ECLASS 7.0** | 27270906 |
| **ECLASS 8.0** | 27270906 |
| **ECLASS 8.1** | 27270906 |
| **ECLASS 9.0** | 27270906 |

| | |
|---|---|
| **ECLASS 10.0** | 27270906 |
| **ECLASS 11.0** | 27270906 |
| **ECLASS 12.0** | 27270906 |
| **ETIM 5.0** | EC001820 |
| **ETIM 6.0** | EC001820 |
| **ETIM 7.0** | EC001820 |
| **ETIM 8.0** | EC001820 |
| **UNSPSC 16.0901** | 39121528 |

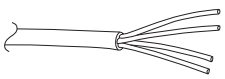
## Dimensional drawing (Dimensions in mm (inch))




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

## Pinouts

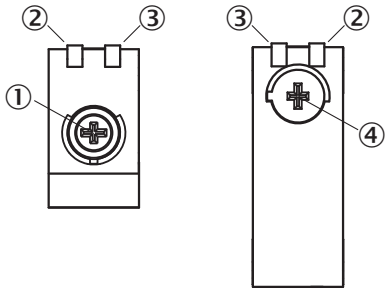
Pinouts, see table Technical data: **Connection type/pinouts**



Cable with flying leads, 4-wire, AWG26 0.15 mm²

## Adjustments

Display and adjustment elements



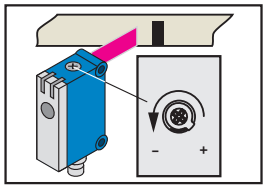

① Potentiometer, adjustment of switching threshold
② LED yellow
③ LED green
④ Potentiometer, light/dark switching

## Concept of operation

Setting the switching threshold

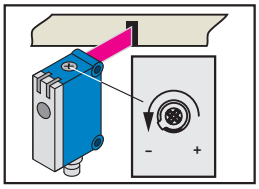
For example dark switching

**1. Position background**



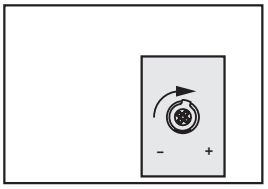

Start at "+" (right-hinged).
Turn potentiometer in direction "-" until the yellow LED goes out.

**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**



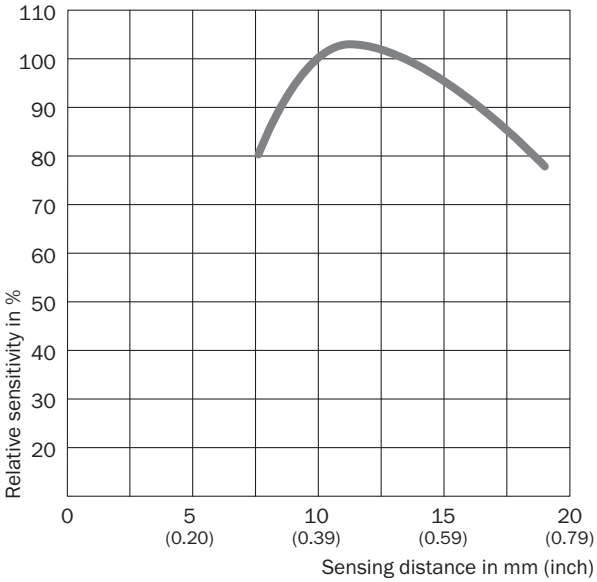

Turn between positions 1 and 2, to ensure that the switching threshold is optimally set.

**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

| | 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 |
| Others | | | |
|  | • **Connection type head A:** Male connector, M8, 4-pin, straight, A-coded<br>• **Description:** Unshielded<br>• **Connection systems:** Screw-type terminals<br>• **Permitted cross-section:** 0.14 mm² ... 0.5 mm² | STE-0804-G | 6037323 |
|  | • **Connection type head A:** Male connector, M12, 4-pin, straight, A-coded<br>• **Description:** Unshielded<br>• **Connection systems:** Screw-type terminals<br>• **Permitted cross-section:** ≤ 0.75 mm² | STE-1204-G | 6009932 |

# 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:

Contacts and other locations –www.sick.com