



# KTM-MP11181P

KTM Prime

CONTRAST SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
KTM-MP1181P	1072473

Other models and accessories → [www.sick.com/KTM\\_Prime](http://www.sick.com/KTM_Prime)



### Detailed technical data

#### Features

<b>Dimensions (W x H x D)</b>	12 mm x 31.5 mm x 21 mm
<b>Sensing distance</b>	12.5 mm
<b>Housing design (light emission)</b>	Rectangular
<b>Sensing distance tolerance</b>	± 3 mm
<b>Light source</b>	LED, White <sup>1)</sup>
<b>Light spot size</b>	1.5 mm x 3.5 mm
<b>Light spot direction</b>	Vertical <sup>2)</sup>
<b>Max. web speed tech-in (dynamic)</b>	1 m/s <sup>3)</sup>
<b>Adjustment</b>	Teach-in button
<b>Teach-in mode</b>	2-point teach-in static/dynamic + proximity to mark
<b>Output function</b>	Light/dark switching

<sup>1)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

<sup>2)</sup> In relation to long side of housing.

<sup>3)</sup> At a mark size of 4 mm.

#### Mechanics/electronics

<b>Supply voltage</b>	12 V DC ... 24 V DC <sup>1)</sup>
<b>Ripple</b>	≤ 5 V <sub>pp</sub> <sup>2)</sup>
<b>Power consumption</b>	< 50 mA <sup>3)</sup>
<b>Switching frequency</b>	15 kHz <sup>4)</sup>
<b>Response time</b>	35 μs <sup>5)</sup>

<sup>1)</sup> Limit values: DC 12 V (-10 %) ... DC 24 V (+20 %). Operation in short-circuit protected network max. 8 A.

<sup>2)</sup> May not exceed or fall below U<sub>v</sub> tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> With light/dark ratio 1:1.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> At supply voltage > 24 V, I<sub>max</sub> = 30 mA. I<sub>max</sub> is consumption count of all Q<sub>N</sub>.

<b>Jitter</b>	15 $\mu$ s
<b>Output type</b>	PNP
<b>Switching output (voltage)</b>	PNP: HIGH = $V_S - \leq 2$ V / LOW approx. 0 V
<b>Switching output</b>	Light/dark switching
<b>Output current <math>I_{max}</math></b>	50 mA <sup>6)</sup>
<b>Input, dynamic teach-in (ET)</b>	PNP: Teach: U = 10,8 V ... < $U_V$ Run: U < 2 V or open
<b>Retention time (ET)</b>	28 ms, non-volatile memory
<b>Connection type</b>	Connector M8, 4-pin
<b>Protection class</b>	III
<b>Circuit protection</b>	$U_V$ connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
<b>Enclosure rating</b>	IP67
<b>Weight</b>	20 g
<b>Housing material</b>	ABS

<sup>1)</sup> Limit values: DC 12 V (-10 %) ... DC 24 V (+20 %). Operation in short-circuit protected network max. 8 A.

<sup>2)</sup> May not exceed or fall below  $U_V$  tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> With light/dark ratio 1:1.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> At supply voltage > 24 V,  $I_{max} = 30$  mA.  $I_{max}$  is consumption count of all  $Q_n$ .

## Ambient data

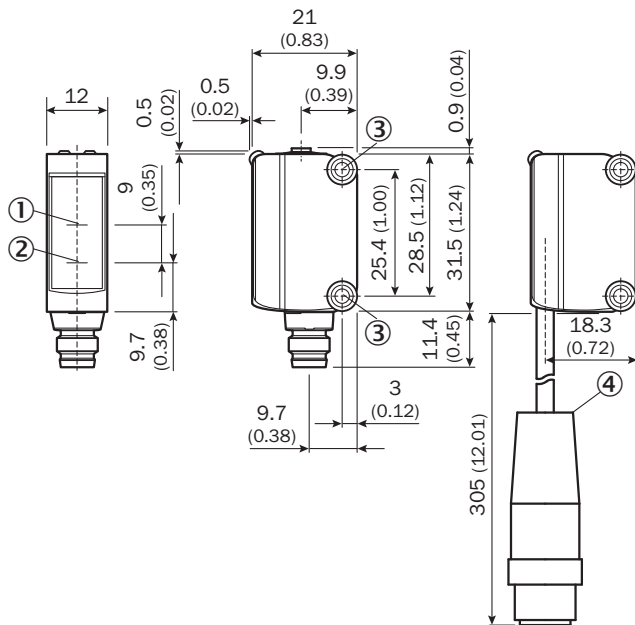
<b>Ambient operating temperature</b>	-10 °C ... +55 °C
<b>Ambient storage temperature</b>	-20 °C ... +75 °C
<b>Shock load</b>	According to IEC 60068
<b>UL File No.</b>	NRKH.E348498 & NRKH7.E348498

## Classifications

<b>ECl@ss 5.0</b>	27270906
<b>ECl@ss 5.1.4</b>	27270906
<b>ECl@ss 6.0</b>	27270906
<b>ECl@ss 6.2</b>	27270906
<b>ECl@ss 7.0</b>	27270906
<b>ECl@ss 8.0</b>	27270906
<b>ECl@ss 8.1</b>	27270906
<b>ECl@ss 9.0</b>	27270906
<b>ETIM 5.0</b>	EC001820
<b>ETIM 6.0</b>	EC001820
<b>UNSPSC 16.0901</b>	39121528

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

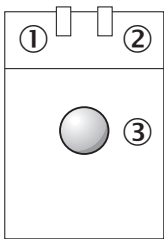
KTM Prime



- ① Optical axis receiver
- ② Optical axis sender
- ③ M3 mounting hole
- ④ Cable with male connector M12 (only KTM-xxxx2x)

### Adjustments

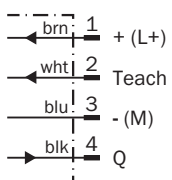
KTM Prime



- ① Status indicator LED, yellow: Status switching output Q (dark switching)
- ② LED indicator green: Supply voltage active
- ③ Teach-in button

### Connection diagram

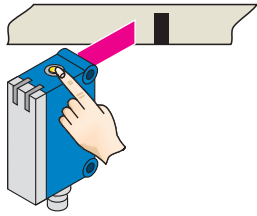
Cd-092



## Concept of operation

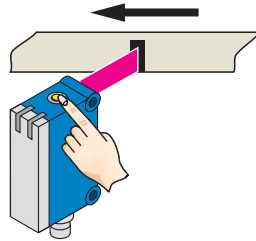
Teach-in dynamic

### 1. Position background

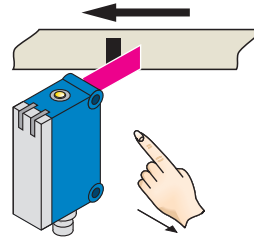


Press the teach-in button and keep it pressed. LED flashing slowly.

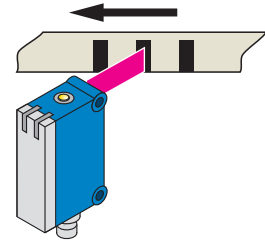
### 2. Move at least the mark and background using the light spot.



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

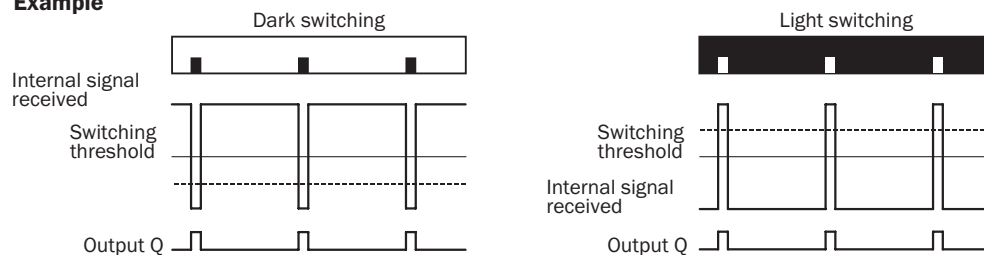


Release the teach-in button.



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.

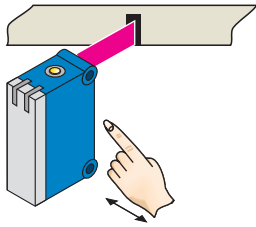
Keylock activation and deactivation: hold down teach-in button > 30 s.

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.

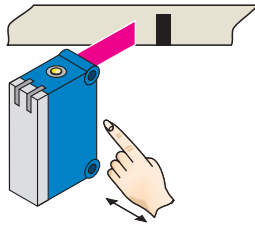
Teach-in static

### 1. Position mark



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

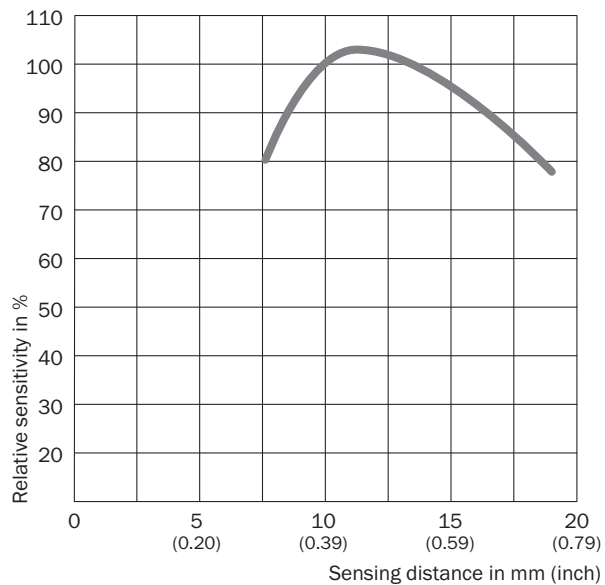
### 2. Position background



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

## Characteristic curve






Sensing distance



## Recommended accessories

Other models and accessories → [www.sick.com/KTM\\_Prime](http://www.sick.com/KTM_Prime)

	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	2069044

	Brief description	Type	Part no.
<b>Mounting brackets and plates</b>			
	Mounting bracket for wall mounting, Stainless steel, mounting hardware included	BEF-W100-A	5311520
	Mounting bracket for floor mounting, steel, zinc coated, mounting hardware included	BEF-W100-B	5311521
	Adapter plate KT3 to KTM, Stainless steel, fastening screws included	BEF-AP-KTMS01	2068786
<b>Plug connectors and cables</b>			
	Head A: female connector, M8, 4-pin, straight Head B: cable Cable: PVC, unshielded, 5 m	DOL-0804-G05M	6009872
	Head A: female connector, M8, 4-pin, straight Head B: male connector, M12, 4-pin, straight Cable: PVC, unshielded, 0.6 m	DSL-8204-G0M6	6022571

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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.”

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