



# KTM-LP22181P

KTM Prime

CONTRAST SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
KTM-LP22181P	1105835

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

Illustration may differ



### 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>	≤ 50 mm
<b>Sensing distance tolerance</b>	± 30 mm
<b>Housing design</b>	Small
<b>Light source</b>	Laser, red <sup>1)</sup>
<b>Laser class</b>	I
<b>Wave length</b>	680 nm
<b>Light emission</b>	Long side of housing
<b>Light spot size</b>	Ø 1.7 mm (50 mm)
<b>Light spot direction</b>	Round
<b>Receiving filters</b>	None
<b>Max. web speed</b>	10 m/s <sup>2)</sup>
<b>Adjustment</b>	Teach-in button
<b>Teach-in mode</b>	2-point teach-in static/dynamic + proximity to mark ET: Teach-in dynamic

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

<sup>2)</sup> At mark size = 1.5 mm.

#### Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC
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<sup>1)</sup> May not exceed or fall below U<sub>v</sub> tolerances.

<sup>2)</sup> Without load.

<sup>3)</sup> With light/dark ratio 1:1.

<sup>4)</sup> Signal transit time with resistive load.

<sup>5)</sup> At supply voltage > 24 V, I<sub>max</sub> = 50 mA. I<sub>max</sub> is consumption count of all Q<sub>n</sub>.

<b>Ripple</b>	$\leq 5 V_{pp}$ <sup>1)</sup>
<b>Current consumption</b>	$< 35 \text{ mA}$ <sup>2)</sup>
<b>Switching frequency</b>	4 kHz <sup>3)</sup>
<b>Response time</b>	0.125 ms <sup>4)</sup>
<b>Jitter</b>	57 $\mu\text{s}$
<b>Accuracy</b>	0.08 mm
<b>Switching output</b>	PNP
<b>Switching output (voltage)</b>	PNP: HIGH = $U_V \leq 2 \text{ V}$ / LOW approx. 0 V
<b>Switching mode</b>	Light/dark switching
<b>Output current <math>I_{max}</math></b>	100 mA <sup>5)</sup>
<b>Input, dynamic teach-in (ET)</b>	PNP: Teach: $U = 10,8 \text{ V} \dots < U_V$ PNP: Run: $U < 2 \text{ V}$ or open
<b>Retention time (ET)</b>	250 ms
<b>Time delay</b>	None
<b>Connection type</b>	Male 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>	Approx. 11 g
<b>Housing material</b>	Plastic, ABS
<b>Optics material</b>	Plastic, PMMA
<b>Indication</b>	LED indicator green: power on LED indicator, yellow: Status switching output Q

<sup>1)</sup> May not exceed or fall below  $U_V$  tolerances.

<sup>2)</sup> Without load.

<sup>3)</sup> With light/dark ratio 1:1.

<sup>4)</sup> Signal transit time with resistive load.

<sup>5)</sup> At supply voltage  $> 24 \text{ V}$ ,  $I_{max} = 50 \text{ mA}$ .  $I_{max}$  is consumption count of all  $Q_n$ .

#### Ambient data

<b>Ambient operating temperature</b>	$-20 \text{ }^\circ\text{C} \dots +45 \text{ }^\circ\text{C}$
<b>Ambient temperature, storage</b>	$-40 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
<b>Shock load</b>	According to IEC 60068
<b>UL File No.</b>	E181493

#### 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

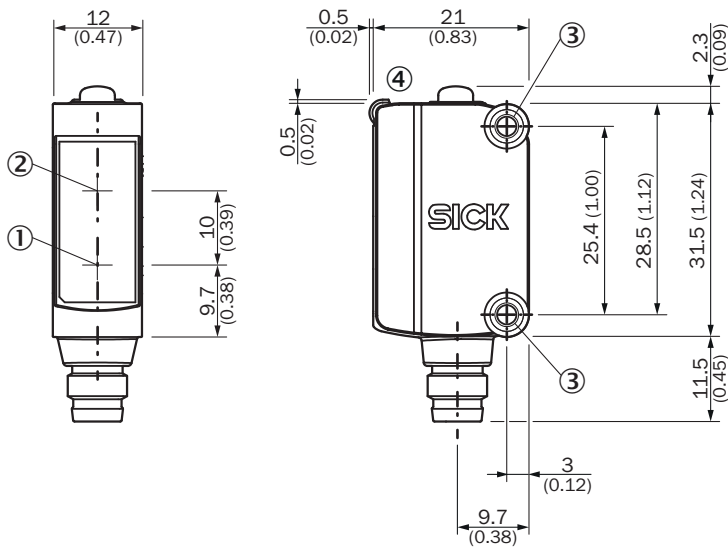
<b>eCl@ss 9.0</b>	27270906
<b>eCl@ss 10.0</b>	27270906
<b>eCl@ss 11.0</b>	27270906
<b>eCl@ss 12.0</b>	27270906
<b>ETIM 5.0</b>	EC001820
<b>ETIM 6.0</b>	EC001820
<b>ETIM 7.0</b>	EC001820
<b>ETIM 8.0</b>	EC001820
<b>UNSPSC 16.0901</b>	39121528

### Connection/pin assignment

<b>Connection type</b>	Male connector M8, 4-pin
<b>Pin assignment</b>	
BN 1	+ (L+)
WH 2	ET
BU 3	- (M)
BK 4	Q

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

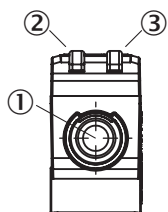
KTM-Lxxxx1P



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

## Adjustments

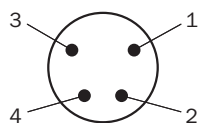
Display and adjustment elements



- ① Teach-in button
- ② LED yellow
- ③ LED green

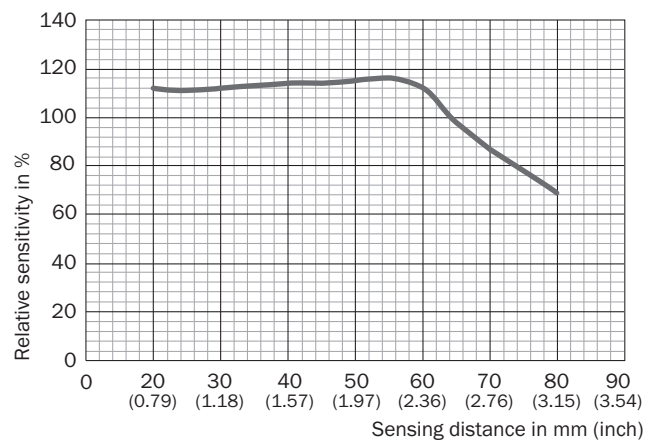
## Pin assignment

Connection type. see table: Connection/PIN assignment



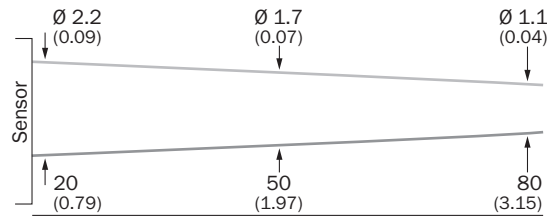
Male connector, M8, 4-pin, uncoded

## Sensing distance








### Light spot size

KTM-Lxx2xxxx



### Recommended accessories

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

	Brief description	Type	Part no.
<b>Universal bar clamp systems</b>			
	Plate N07 for universal clamp bracket, Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (5322626), mounting hardware	BEF-KHS-N07	2051613
<b>Mounting brackets and plates</b>			
	Universal mounting bracket for reflectors, steel, zinc coated	BEF-WN-REFX	2064574
<b>Plug connectors and cables</b>			
	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
<b>Reflectors</b>			
	Rectangular, screw connection, 84 mm x 84 mm, PMMA/ABS, Screw-on, 2 hole mounting	PL80A	1003865

## 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](http://www.sick.com)