



# KTM-LP22181P

KTM

CONTRAST SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

Type	part no.
KTM-LP22181P	1105835

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

## 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>U</sub> = +25 °C.

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

### Electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC
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<sup>1)</sup> May not fall below or exceed U<sub>y</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>	$4 \text{ kHz}$ <sup>3)</sup>
<b>Response time</b>	$125 \mu\text{s}$ <sup>4)</sup>
<b>Jitter</b>	$57 \mu\text{s}$
<b>Accuracy</b>	$0.08 \text{ mm}$
<b>Switching output</b>	PNP
<b>Switching output (voltage)</b>	PNP: $\text{HIGH} = U_V \leq 2 \text{ V}$ / LOW approx. $0 \text{ V}$
<b>Switching mode</b>	Light/dark switching
<b>Output current <math>I_{\text{max}}</math></b>	$100 \text{ mA}$ <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>	$250 \text{ ms}$
<b>Time delay</b>	None
<b>Protection class</b>	III
<b>Circuit protection</b>	$U_V$ connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression

<sup>1)</sup> May not fall below or exceed  $U_V$  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  $> 24 \text{ V}$ ,  $I_{\text{max}} = 50 \text{ mA}$ .  $I_{\text{max}}$  is consumption count of all  $Q_n$ .

## Mechanics

<b>Housing material</b>	ABS
<b>Display</b>	LED indicator green: power on LED indicator, yellow: Status switching output Q
<b>Optics material</b>	PMMA
<b>Connection type</b>	Male connector M8, 4-pin
<b>Weight</b>	Approx. $11 \text{ g}$

## 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>Enclosure rating</b>	IP67
<b>UL File No.</b>	E181493

## Connection type/pinouts

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

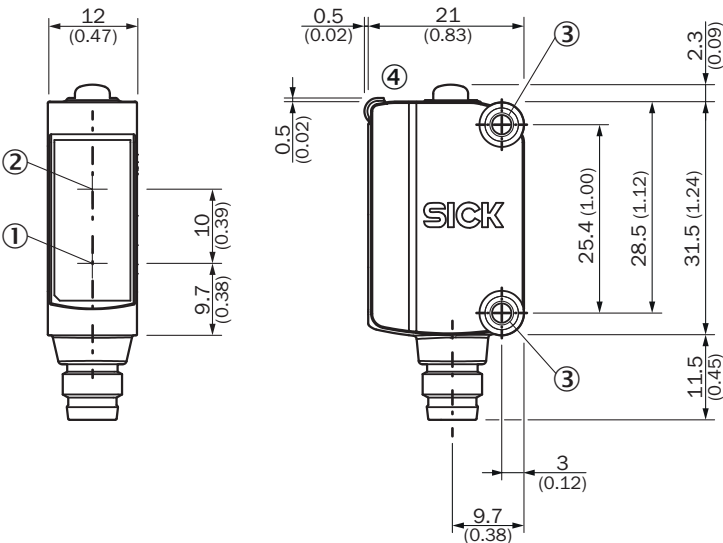
Certificates

<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓
<b>cULus certificate</b>	✓

Classifications

<b>ECLASS 5.0</b>	27270906
<b>ECLASS 5.1.4</b>	27270906
<b>ECLASS 6.0</b>	27270906
<b>ECLASS 6.2</b>	27270906
<b>ECLASS 7.0</b>	27270906
<b>ECLASS 8.0</b>	27270906
<b>ECLASS 8.1</b>	27270906
<b>ECLASS 9.0</b>	27270906
<b>ECLASS 10.0</b>	27270906
<b>ECLASS 11.0</b>	27270906
<b>ECLASS 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

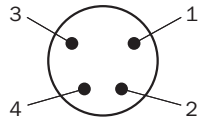
Dimensional drawing KTM-Lxxxx1P



Dimensions in mm (inch)

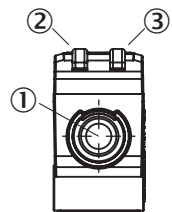
- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting holes M3
- ④ display and adjustment elements

Pinouts, see table [Technical data: Connection type/pinouts](#)



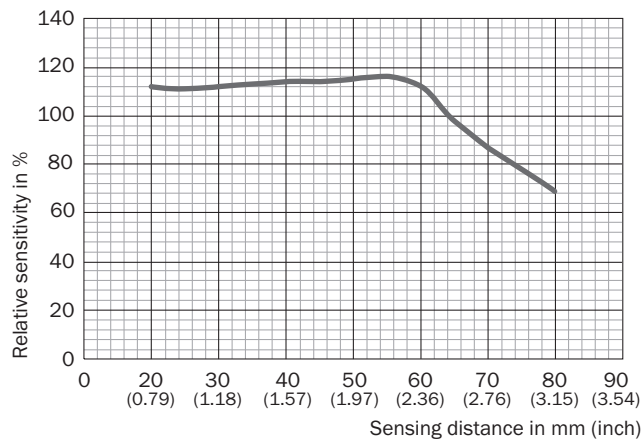
Male connector, M8, 4-pin, uncoded

display and adjustment elements

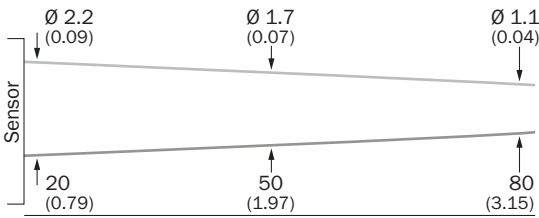


- ① Teach-in button
- ② LED yellow
- ③ LED green

Sensing distance



Light spot size KTM-Lxx2xxxx



Recommended accessories

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

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Female connector, M8, 4-pin, straight, A-coded</li><li>• <b>Connection type head B:</b> Male connector, M12, 4-pin, straight, A-coded</li><li>• <b>Signal type:</b> Sensor/actuator cable</li><li>• <b>Cable:</b> 5 m, 4-wire, PVC</li><li>• <b>Description:</b> Sensor/actuator cable, unshielded</li><li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul>	YF8U14-050VA3M2A14	2096609
	<ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Female connector, M8, 4-pin, straight, A-coded</li><li>• <b>Connection type head B:</b> Flying leads</li><li>• <b>Signal type:</b> Sensor/actuator cable</li><li>• <b>Cable:</b> 5 m, 4-wire, PVC</li><li>• <b>Description:</b> Sensor/actuator cable, unshielded</li><li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul>	YF8U14-050VA3XLEAX	2095889

## 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)