



Contrast sensors KTM

KTM-MP31181P



Model Name > [KTM-MP31181P](#)
Part No. > [1065756](#)



At a glance

- Established mini housing
- High grayscale resolution
- Increased dynamic range means reliable detection of contrasts on shiny materials
- Static and dynamic teach-in in one variant
- Switching frequency 15 kHz (type-dependent)
- KTM Core for standard applications
- KTM Prime with IO-Link function

Your benefits

- For use in all contrast detection applications, particularly the packaging industry
- - Print mark detection on continuous materials for controlling the cutting process
- - Positioning of tubes
- - Label alignment on bottles



Features

Dimensions (L x W x H):	12 mm x 31.5 mm x 21 mm
Sensing distance:	12.5 mm
Sensing distance tolerance:	± 3 mm
Light source ¹⁾ : ²⁾ :	LED, white
Light spot size:	2 mm x 2 mm
Light spot direction ³⁾ :	Vertical
Adjustment:	2-point teach-in static/dynamic + proximity to mark
Max. web speed tech-in (dynamic):	1 m/s ⁴⁾

¹⁾ Average service life of 100,000 h at T_A = +25 °C ²⁾ Wave length: 470 nm, 525 nm, 625 nm ³⁾ In relation to long side of housing ⁴⁾ At a mark size of 4 mm

Mechanics/electronics

Supply voltage V _s ¹⁾ :	DC 12 V ... 24 V
Ripple ²⁾ :	≤ 5 Vpp
Power consumption ³⁾ :	< 50 mA
Switching frequency ⁴⁾ :	15 kHz
Response time ⁵⁾ :	35 µs
Output type:	PNP: HIGH = V _S - ≤ 2 V / LOW approx. 0 V
Switching mode:	PNP
Input, teach-in (ET):	PNP: Teach: U = 10,8 V ... < U _V , Run: U < 2 V or open
Retention time (ET):	28 ms, non-volatile memory

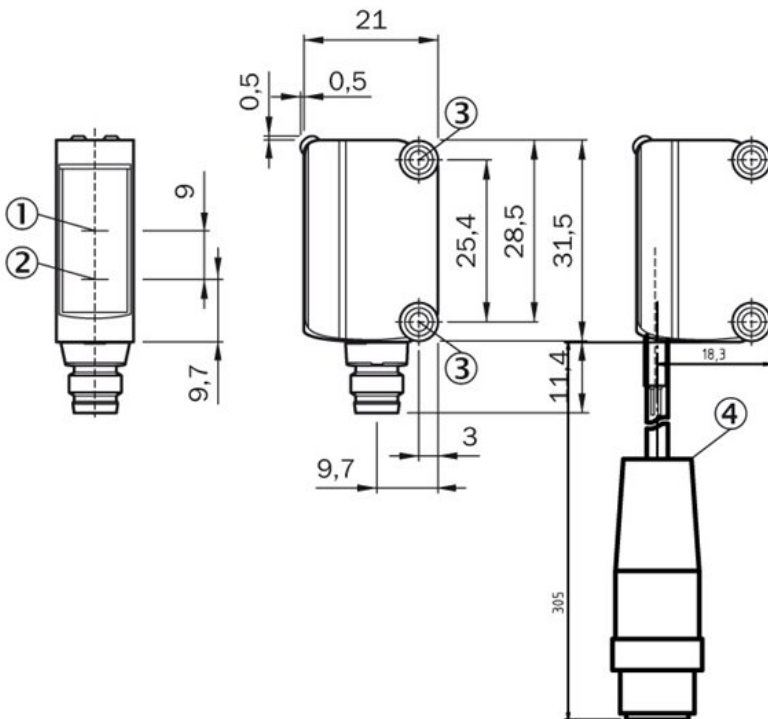
Connection type:	Connector M8, 4-pin
Protection class:	III
Circuit protection:	Output Q short-circuit protected, Interference suppression, VS connections reverse-polarity protected
Enclosure rating:	IP 67
Weight:	Ca. 20 g
Housing material:	ABS (plastic)
Output current I _{max} ..:	100 mA

¹⁾ Extreme values: 12 V (- 10 %) ... 24 V (+ 20 %). Operation in short-circuit protected network max. 8 A ²⁾ May not exceed or fall short of V_S tolerances ³⁾ Without load ⁴⁾ With light/dark ratio 1:1 ⁵⁾ Signal transit time with resistive load

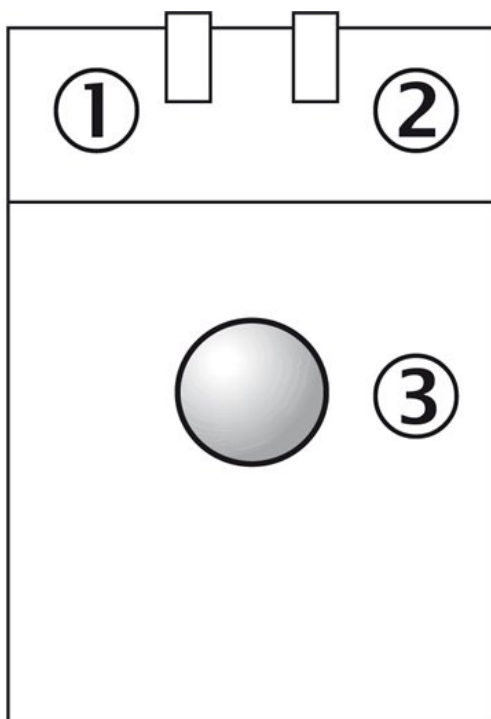
Ambient data

Ambient temperature:	Operation: -10 ... 55 °C, Storage: -20 ... 75 °C
Shock load:	According to IEC 60068
UL File No.:	NRKH.E348498

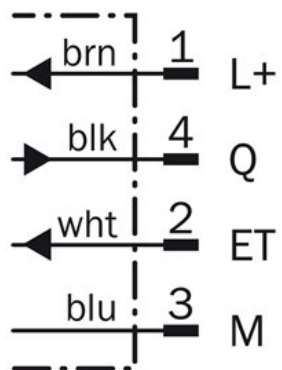
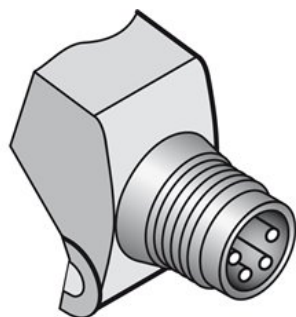
Dimensional drawing



Adjustments

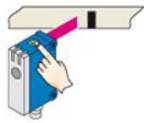


Anschlussart und -schema



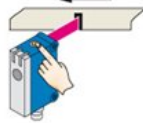
Bedienhinweis

1. Position background



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

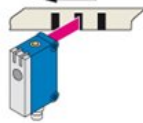
2. Move at least the mark and background using the light spot.



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

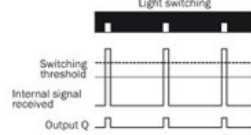
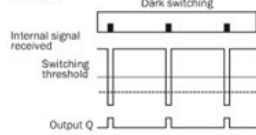


Release the teach-in button.



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 switching threshold is placed 25 % below the mark (dotted line in Figure).

Teach-in can also be performed using an external control signal (only dynamic teach-in).

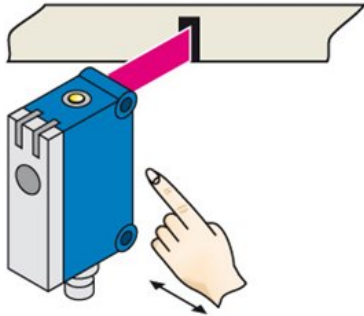
Keylock activation and deactivation: hold down teach-in button > 30 s.

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.

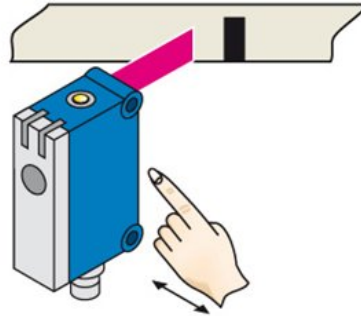
Bedienhinweis

1. Position mark



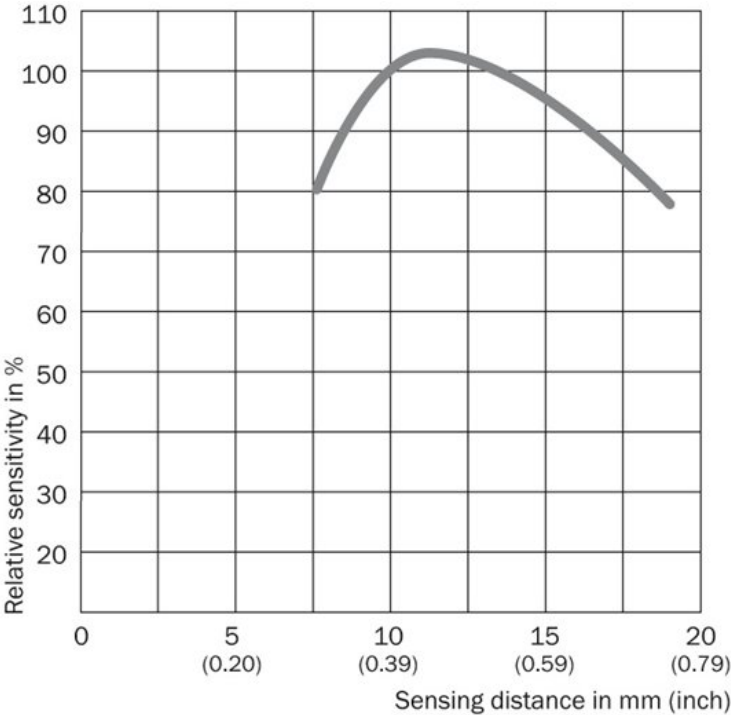
Press and hold teach-in button $> 1 < 3$ s.
Yellow LED flashes slowly.

2. Position background



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

Characteristic curve



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