



KTM-WN117A1P

KTM

CONTRAST SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	part no.
KTM-WN117A1P	1061787

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

Illustration may differ



Detailed technical data

Features

Housing design	Small
Dimensions (W x H x D)	12 mm x 31.5 mm x 21 mm
Light source	LED, RGB ¹⁾
Light emission	Long side of housing
Light spot size	1.6 mm x 9.5 mm
Light spot direction	Vertical ²⁾
Receiving filters	None
Wave length	470 nm, 525 nm, 625 nm
Sensing distance	≤ 12.5 mm
Sensing distance tolerance	± 3 mm
Display	LED indicator green: power on LED indicator, yellow: Status switching output Q
Adjustment	Cable, IO-Link, Teach-in button
Teach-in mode	2-point teach-in static/dynamic + proximity to mark

¹⁾ Average service life: 100,000 h at $T_U = +25^\circ\text{C}$.

²⁾ In relation to long side of housing.

Interfaces

IO-Link	✓, V1.1
Data transmission rate	38,4 kbit/s (COM2)
Cycle time	2.3 ms

Process data length	16 Bit
Process data structure A	Bit 0 ... 2 = Emission Color Bit 3 ... 12 = Measurement Value RGB Bit 13 ... 15 = empty
Process data structure B	Bit 0 = switching signal Q_{L1} Bit 1 ... 10 = Measurement Value Emission Color Bit 11 ... 15 = empty
Process data structure C	Bit 0 = switching signal Q_{L1} Bit 1 = Quality of Run Alarm Bit 2 = Teach successful Bit 3 = Teach busy Bit 4 ... 15 = empty
Digital output	Q_1, Q_2
Number	2

Electronics

Supply voltage	12 V DC ... 24 V DC ¹⁾
Ripple	$\leq 5 \text{ V}_{\text{pp}}$ ²⁾
Current consumption	$< 50 \text{ mA}$ ³⁾
Switching frequency	15 kHz ⁴⁾
Response time	32 μs
Jitter	15 μs
Switching output	NPN
Switching output (voltage)	NPN: HIGH = approx. U_V / LOW $\leq 2 \text{ V}$
Switching mode	Light/dark switching
Output current $I_{\text{max.}}$	50 mA ⁵⁾
Retention time (ET)	28 ms, non-volatile memory
Time delay	Switch-off delay, 520 ms (via IO-Link)
Protection class	III
Circuit protection	U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Connection type	Male connector M8, 4-pin

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⁾ Total current of all Outputs.

Mechanics

Housing material	ABS
Optics material	PMMA
Weight	20 g

Ambient data

Ambient operating temperature	-10 °C ... +55 °C
Ambient temperature, storage	-20 °C ... +75 °C

Shock load	According to IEC 60068
Enclosure rating	IP67
UL File No.	NRKH.E348498 & NRKH7.E348498

Connection type/pinouts

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

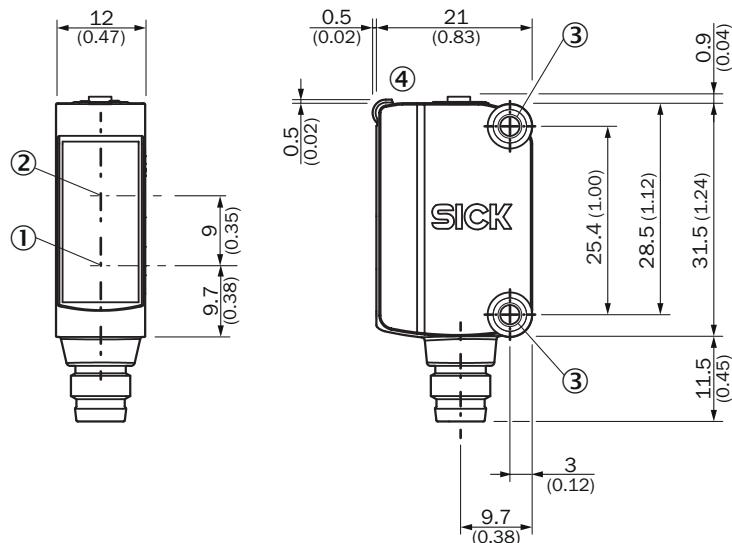
Classifications

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

Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
IO-Link certificate	✓
Photobiological safety (IEC EN 62471)	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

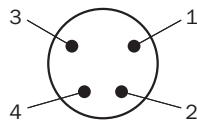
Dimensional drawing KTM-Mxxxx1P, KTM-Wxxxx1P



Dimensions in mm (inch)

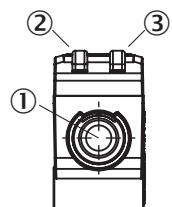
- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting holes M3
- ④ display and adjustment elements

Pinouts, see table Technical data: Connection type/pinouts



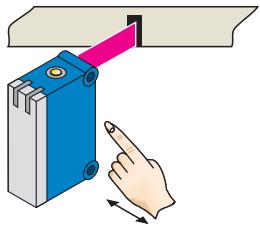
Male connector, M8, 4-pin, uncoded

display and adjustment elements

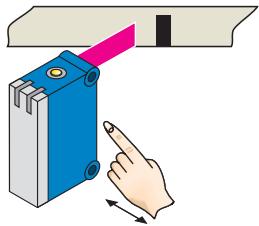


- ① Teach-in button
- ② LED yellow
- ③ LED green

Setting the switching threshold (static)

1. Position mark

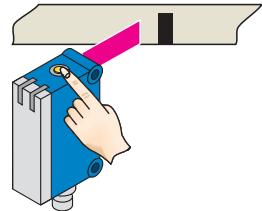
Press and hold teach-in button $> 1 < 3$ s.
Yellow LED flashes slowly.

2. Position background

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

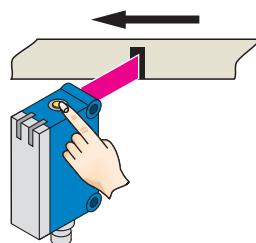
Setting the switching threshold (dynamic)

1. Position background

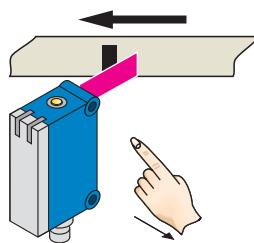


Press the teach-in button and keep it pressed. LED flashing slowly.

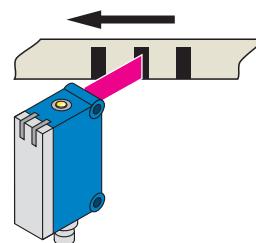
2. Move at least the mark and background using the light spot.



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

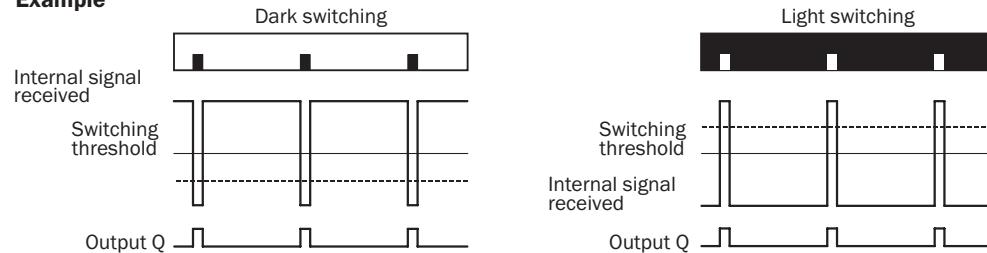


Release the teach-in button.



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.

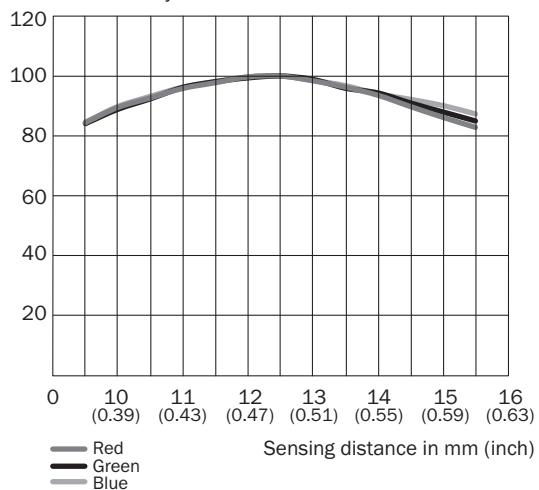
Keylock activation and deactivation: hold down teach-in button > 30 s.

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.

Sensing distance

Relative sensitivity in %



Recommended accessories

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

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"> Description: Mounting bracket for wall mounting Material: Stainless steel Details: Stainless steel Items supplied: Mounting hardware included Suitable for: W8, W8G, W8 Laser, W8 Inox, G6, G6 Inox, W100 Laser, W100-2, KTM Core, KTM Prime, CSM, LUTM, W4S 	BEF-W100-A	5311520
connectors and cables			
	<ul style="list-style-type: none"> Connection type head A: Female connector, M8, 4-pin, straight, A-coded Connection type head B: Male connector, M12, 4-pin, straight, A-coded Signal type: Sensor/actuator cable Cable: 5 m, 4-wire, PVC Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with chemicals 	YF8U14-050VA3M2A14	2096609
	<ul style="list-style-type: none"> Connection type head A: Female connector, M8, 4-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 5 m, 4-wire, PVC Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with chemicals 	YF8U14-050VA3XLEAX	2095889

SICK AT A GLANCE

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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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