Product data sheet

KTM-WP117A1P

KTM Prime

CONTRAST SENSORS

SICK
Sensor Intelligence.

Ordering information

Type	Part no.
KTM-WP117A1P	1061770

Other models and accessories ➜ www.sick.com/KTM_Prime

Detailed technical data

Features

Dimensions (W x H x D)	12 mm x 31.5 mm x 21 mm
Sensing distance	12.5 mm
Sensing distance tolerance	± 3 mm
Housing design (light emission)	Rectangular
Light source	LED, RGB [1]
Wave length	470 nm, 525 nm, 625 nm
Light emission	Long side of housing
Light spot size	1.5 mm x 6.5 mm
Light spot direction	Vertical [2]
Receiving filters	None
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 °C.

[2] In relation to long side of housing.

Mechanics/electronics

Supply voltage	12 V DC ... 24 V DC [1]

[1] Limit values: DC 12 V (–10 %) ... DC 24 V (+20 %). Operation in short-circuit protected network max. 8 A.

[2] May not exceed or fall below U_V tolerances.

[3] Without load.

[4] With light/dark ratio 1:1.

[5] Signal transit time with resistive load.

[6] Total current of all Outputs.

Ripple	≤ 5 V_{pp} [2]
Power consumption	< 50 mA [3]
Switching frequency	15 kHz [4]
Response time	32 µs [5]
Jitter	15 µs
Switching output	PNP
Switching output (voltage)	PNP: HIGH = V_S– ≤ 2 V / LOW approx. 0 V
Switching output	Light/dark switching
Output current $I_{max.}$	50 mA [6]
Retention time (ET)	28 ms, non-volatile memory
Connection type	Male connector M8, 4-pin
Protection class	III
Circuit protection	U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Enclosure rating	IP67
Weight	20 g
Housing material	Plastic, ABS
Optics material	Plastic, PMMA

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Communication interface

IO-Link	V1.1
Data transmission rate	38,4 kbit/s (COM2)
Process data length	16 Bit
Process data structure A	Bit 0 ... 2 = Emission Color Bit 3 ... 12 = Measurment Value RGB Bit 13 ... 15 = empty
Process data structure B	Bit 0 = switching signal Q_{L1} Bit 1 ... 10 = Measurment 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

Ambient data

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

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

Classifications

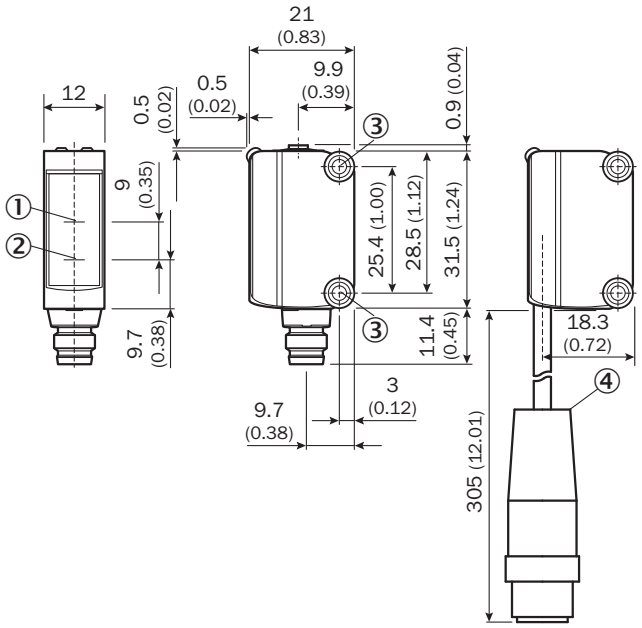
ECl@ss 5.0	27270906
ECl@ss 5.1.4	27270906
ECl@ss 6.0	27270906
ECl@ss 6.2	27270906
ECl@ss 7.0	27270906
ECl@ss 8.0	27270906
ECl@ss 8.1	27270906
ECl@ss 9.0	27270906
ETIM 5.0	EC001820
ETIM 6.0	EC001820
UNSPSC 16.0901	39121528

Connection/pin out

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

Dimensional drawing (Dimensions in mm (inch))

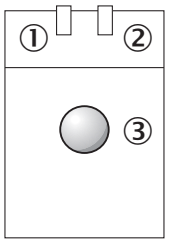
KTM Prime



① Optical axis, receiver
② Optical axis, sender
③ M3 mounting hole
④ Cable with male connector M12 (only KTM-xxxxx2x)

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

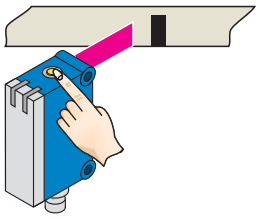
Connection type

See table: **Connection/pin out**

Concept of operation

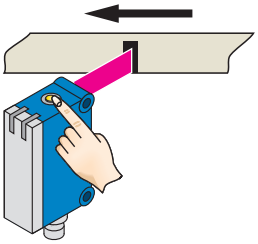
Setting the switching threshold (dynamic)

1. Position background

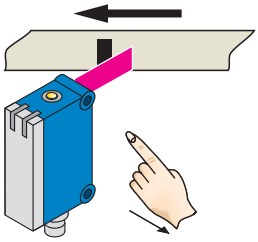


Press the teach-in button and keep it pressed. LED flashing slowly.

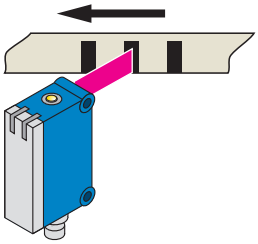
2. Move at least the mark and background using the light spot.



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

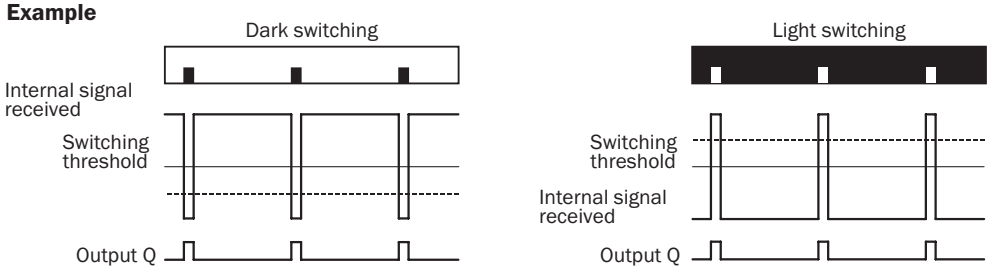


Release the teach-in button.



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.

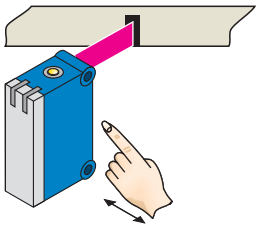
If the button is pressed again within 10 s of the teach (> 20 ms < 10 s), the relative switching threshold is placed 75 % between mark (100 %) and background (0 %) (dotted line in Figure).
Teach-in can also be performed using an external control signal.

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.

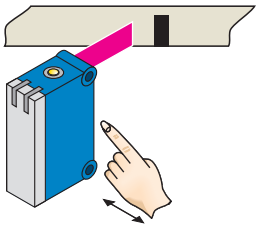
Setting the switching threshold (static)

1. Position mark



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

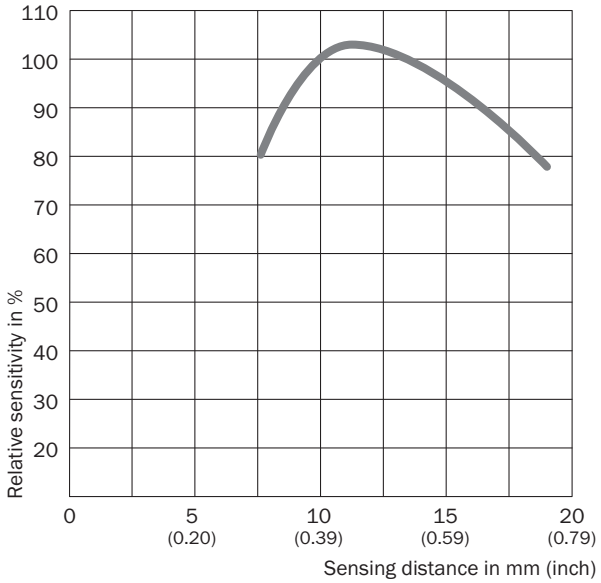
2. Position background



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

Sensing distance

Sensing distance



Recommended accessories

Other models and accessories ➜ www.sick.com/KTM_Prime

	Brief description	Type	Part no.
Mounting brackets and plates			
	Mounting bracket for wall mounting, stainless steel, mounting hardware included	BEF-W100-A	5311520

	Brief description	Type	Part no.
Plug connectors and cables			
	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: male connector, M8, 4-pin, straight Head B: - Cable: unshielded	STE-0804-G	6037323

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