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
Housing design (light emission)	Rectangular
Sensing distance tolerance	± 3 mm
Light source	LED, RGB [1]
Wave length	470 nm, 525 nm, 625 nm
Light spot size	1.5 mm x 6.5 mm
Light spot direction	Vertical [2]
Max. web speed tech-in (dynamic)	1 m/s [3]
Adjustment	Teach-in button
Teach-in mode	2-point teach-in static/dynamic + proximity to mark
Output function	Light/dark switching

[1] Average service life: 100,000 h at T_U = +25 °C.

[2] In relation to long side of housing.

[3] At a mark size of 4 mm.

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] At supply voltage > 24 V, I_{max} = 30 mA. I_{max} is consumption count of all Q_n.

Ripple	≤ 5 V_{pp} [2]
Power consumption	< 50 mA [3]
Switching frequency	15 kHz [4]
Response time	35 μs [5]
Jitter	15 μs
Output type	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]
Input, static 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	U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Enclosure rating	IP 67
Weight	20 g
Housing material	ABS

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[3] Without load.

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

[5] Signal transit time with resistive load.

[6] At supply voltage > 24 V, I_{max} = 30 mA. I_{max} is consumption count of all Q_n.

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

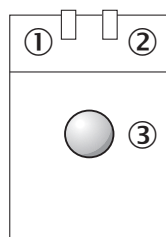| UNSPSC 16.0901	39121528

Dimensional drawing (Dimensions in mm (inch))

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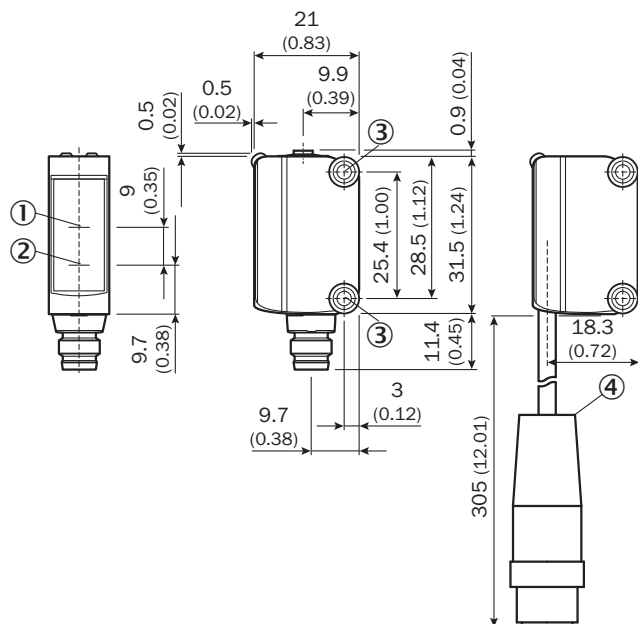
① Optical axis receiver
② Optical axis sender
③ Fixing hole M3
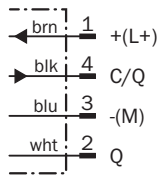④ Cable with male connector M12 (only KTM-xxxxx2x)

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 diagram

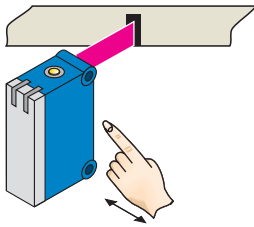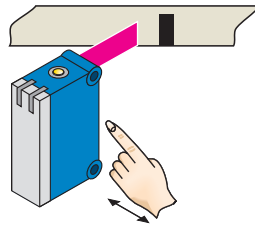cd-321

Concept of operation

Teach-in static

1. Position mark

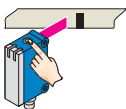Press and hold teach-in button > 1 < 3 s.
Yellow LED flashes slowly.

2. Position background

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

Teach-in dynamic

1. Position background

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

Press the teach-in button and keep it pressed. LED flashing slowly.
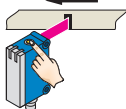
Keep the teach-in button > 3 < 30 s pressed.
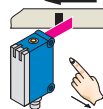
Release the teach-in button.
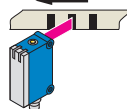
Yellow LED will illuminate, when emitted light is on the mark.

Example

Dark switching

Internal signal received

Switching threshold

Output Q

Light switching

Switching threshold

Internal signal received
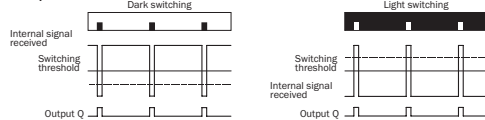
Output Q

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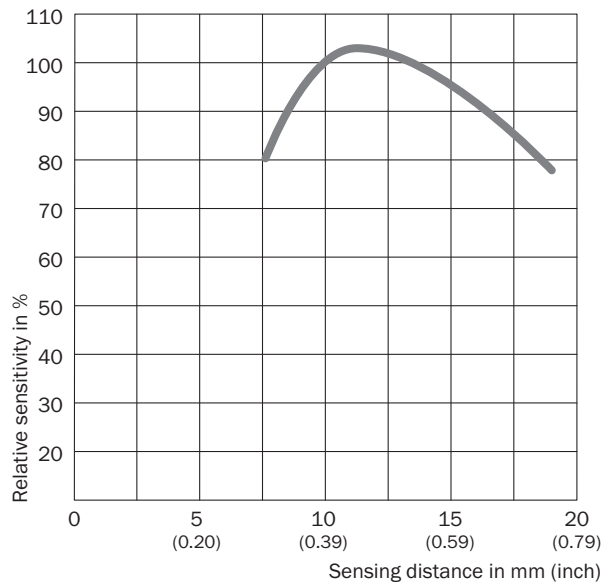
Keylock activation and deactivation: hold down teach-in button > 30 s.

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.

Characteristic curve

Sensing distance

(Chart showing Relative sensitivity in % vs Sensing distance in mm (inch). Y-axis: 20–110. X-axis: 0, 5 (0.20), 10 (0.39), 15 (0.59), 20 (0.79).)

Recommended accessories

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

	Brief description	Type	Part no.
Device protection (mechanical)			
	Stainless steel 1.4301 (SVS 304), 3 mm thick protective sleeve for G6, stainless steel 1.4301, mounting hardware included	BEF-SG-G6	2069044
Mounting brackets and mounting plates			
	Mounting bracket for wall mounting, Stainless steel, mounting hardware included	BEF-W100-A	5311520
	Mounting bracket for floor mounting, steel, zinc coated, mounting hardware included	BEF-W100-B	5311521
	Adapter plate KT3 to KTM, Stainless steel, fastening screws included	BEF-AP-KTMS01	2068786
Plug connectors and cables			
	Head A: female connector, M8, 4-pin, straight Head B: cable Cable: PVC, unshielded, 5 m	DOL-0804-G05M	6009872
	Head A: female connector, M8, 4-pin, straight Head B: male connector, M12, 4-pin, straight Cable: PVC, unshielded, 0.6 m	DSL-8204-G0M6	6022571

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."

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