Contrast sensors
KTM

KTM-WP117A1P

SICK
Sensor Intelligence.

Model Name **> KTM-WP117A1P**
Part No. **> 1061770**

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
- Mini housing makes use in tight spaces possible
- Three-color LED technology allows a reliable process, with contrast marks detected even in conditions with weak contrast ratios
- Good contrast resolution and an increased dynamic range ensure good performance on shiny materials, thus increasing the range of applications in the industry
- High flexibility during commissioning thanks to various teach-in methods
- Extended diagnostics, visualization, and quick and simple format changes by downloading the parameter settings via IO-Link
- IO-Link provides easy data access from the PLC
- Quick and easy configuration
- Quick and easy integration using function blocks

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 red, green, blue
Light spot size:	1.5 mm x 6.5 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 Vs [1]:	DC 12 V ... 24 V
Ripple [2]:	≤ 5 Vpp

Current consumption [3]:	< 50 mA
Switching frequency [4]:	15 kHz
Response time [5]:	35 µs
Switching output:	PNP: HIGH = VS- ≤ 2 V ∕ LOW approx. 0 V
Switching mode:	PNP, IO-Link
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 Imax.:	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
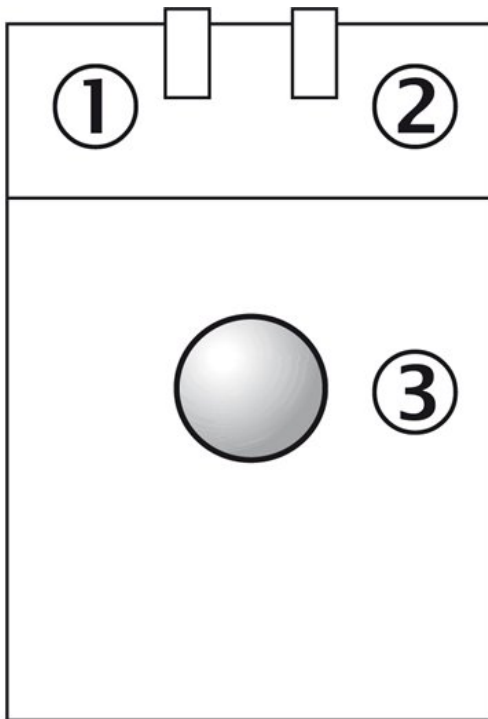
Ambient data

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

Dimensional drawing

|1| Optical axis receiver
|2| Optical axis sender
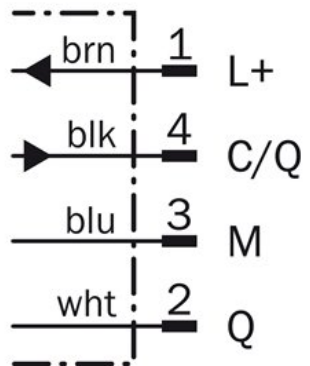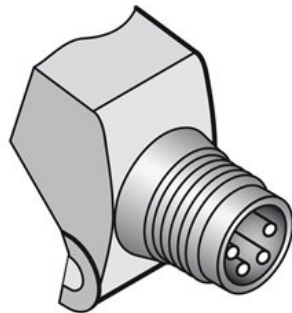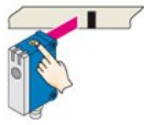|3| Fixing hole M3
|4| Pigtail (only KTM-xxxxx2x)
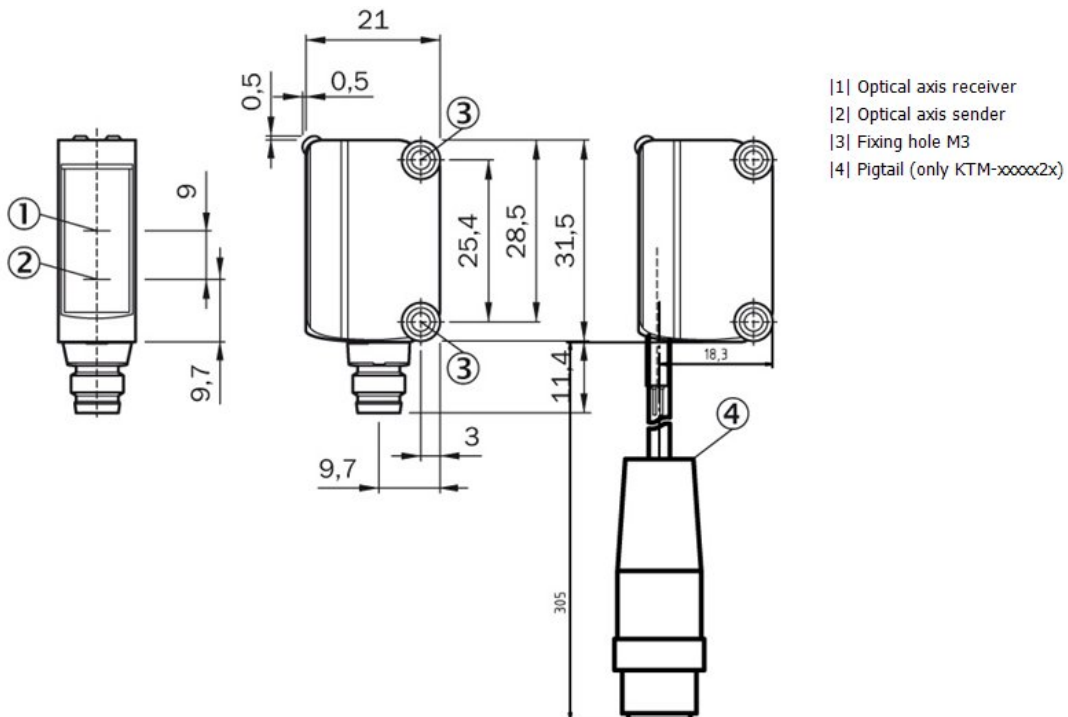
Adjustments

|1| Status indicator LED, yellow:
   Status switching output Q (dark-switching)
|2| Status indicator LED green: power on
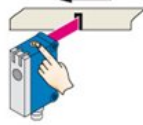|3| Teach-in button

Anschlussart und -schema

brn	1	L+
blk	4	C/Q
blu	3	M
wht	2	Q

Setting the switching threshold (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.
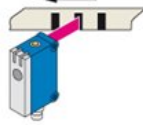
Yellow LED will illuminate, when emitted light is on the mark.

Example

Dark switching	Light switching
Internal signal received	Switching threshold
Switching threshold	Internal signal received
Output Q	Output Q
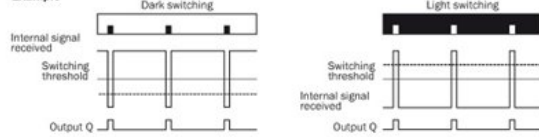
Switching characteristics

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 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.
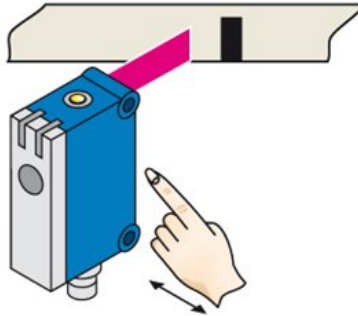For dynamic teach-in with ET signal (5 Hz) via switching output Q.

Setting the switching threshold (static)

1. Position mark

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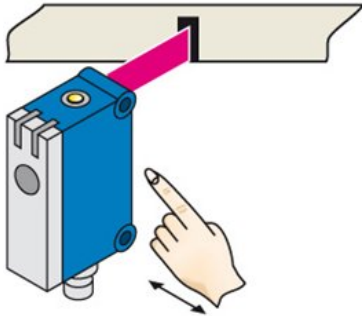
Press and hold teach-in button > 1 < 3 s.
Yellow LED flashes slowly.

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

Sensing distance

Relative sensitivity in % vs *Sensing distance in mm (inch)*
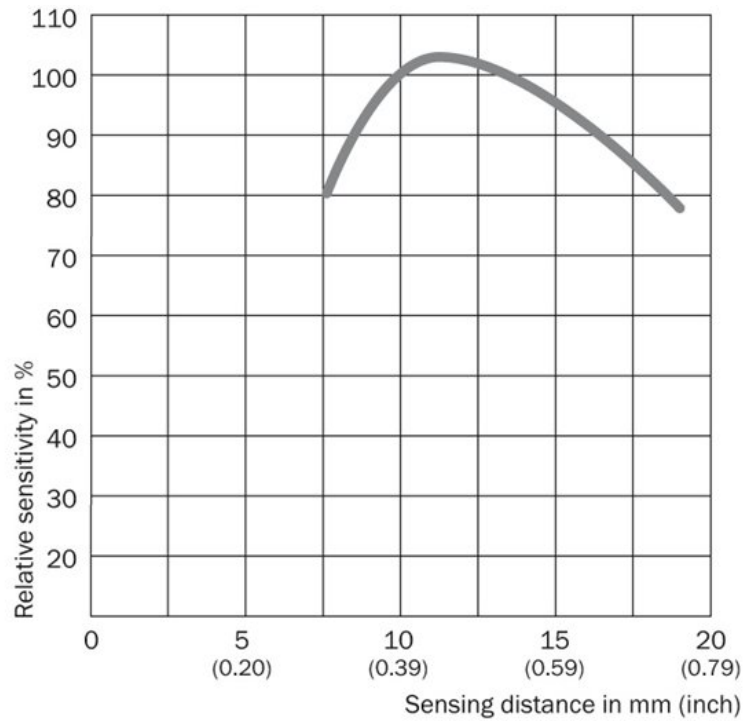
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