



## Contrast sensors KT3, KT3L Laser

KT3L-P3216



**Model Name** > [KT3L-P3216](#)  
**Part No.** > [1026244](#)



**At a glance**

- Very small housing
- Precise, small laser spot
- Sensing distance up to 60 mm
- Simple 2-point teach-in
- Switching frequency of 1,5 kHz
- Reliable operation for jittering materials

**Your benefits**

- Compact design fits in applications with limited space
- Small, precise light spot detects the smallest contrast marks, e.g., 1 x 1 mm<sup>2</sup>, using Class II laser technology
- Long sensing distances up to 60 mm enable flexible installation
- The sensor's long depth-of-field ensures that it can be used at various sensing distances
- Automatic adaptation for high-gloss objects ensures high throughput
- Reliable operation for jittering materials



**Features**

Sensing distance:	40 mm
Sensing distance tolerance:	± 20 mm
Light source <sup>1)</sup> :	Laser
Wave length:	655 nm
Light spot size:	1 mm x 2 mm
Light spot direction <sup>2)</sup> :	Vertical
Operating distance:	20 mm ... 60 mm
Type of light:	Visible red light
Laser class:	II
Dimensions (W x H x D):	12 mm x 40 mm x 22 mm
Housing design (light emission):	Rectangular
Teach-in mode:	Static 2-point teach-in

<sup>1)</sup> Average service life 50,000 h at T<sub>A</sub> = +25 °C <sup>2)</sup> In relation to long side of housing

**Mechanics/electronics**

Ripple <sup>1)</sup> :	≤ 5 Vpp
Power consumption <sup>2)</sup> :	< 35 mA

Switching frequency <sup>3)</sup> :	1.5 kHz
Response time <sup>4)</sup> :	400 $\mu$ s
Output type:	PNP: HIGH = VS- $\leq$ 2 V / LOW approx. 0 V
Switching mode:	PNP
Input, teach-in (ET):	PNP:, Run: U < 2 V, Teach U > 8 V
Retention time (ET):	25 ms, non-volatile memory
Connection type:	Connector M12, 4-pin
Protection class <sup>5)</sup> :	II
Circuit protection:	Output Q short-circuit protected, Interference suppression, VS connections reverse-polarity protected
Enclosure rating:	IP 67, IP 67
Weight:	11 g
Housing material:	ABS, Plastic
Output current I <sub>max.</sub> :	100 mA
Supply voltage:	10 V DC ... 30 V DC <sup>6)</sup>
Fieldbus interface:	-

<sup>1)</sup> May not exceed or fall short of V<sub>S</sub> tolerances <sup>2)</sup> Without load <sup>3)</sup> With light/dark ratio 1:1 <sup>4)</sup> Signal transit time with resistive load <sup>5)</sup> Reference voltage DC 50 V <sup>6)</sup>

Limit values; operation in short-circuit protected network max. 8 A

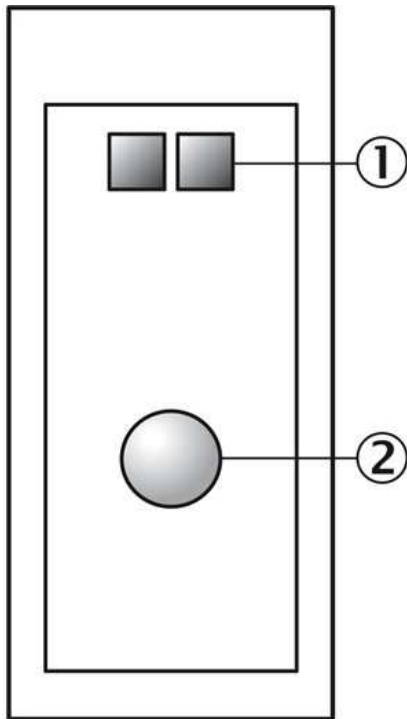
### Ambient data

Shock load:	According to IEC 60068
UL File No.:	NRKH.E181493 & NRKH7.E181493, CDRH-conform
Ambient operating temperature:	-10 °C ... +45 °C
Ambient storage temperature:	-20 °C ... +75 °C

### Dimensional drawing

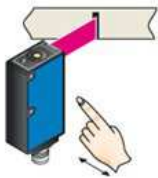
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## Adjustments



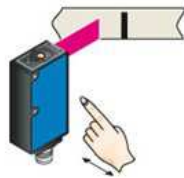
## Bedienhinweis

### 1. Position mark



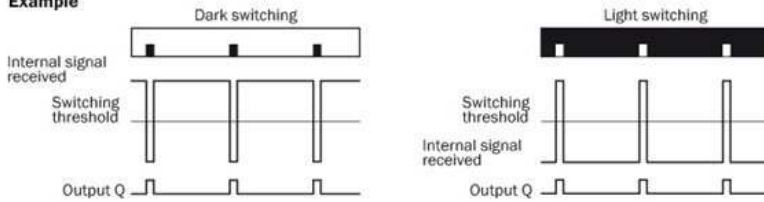
Press and hold teach-in button > 1 s.  
Yellow LED flashes slowly.

### 2. Position background



Press and hold teach-in button > 1 s.  
Yellow LED goes out.

### Example

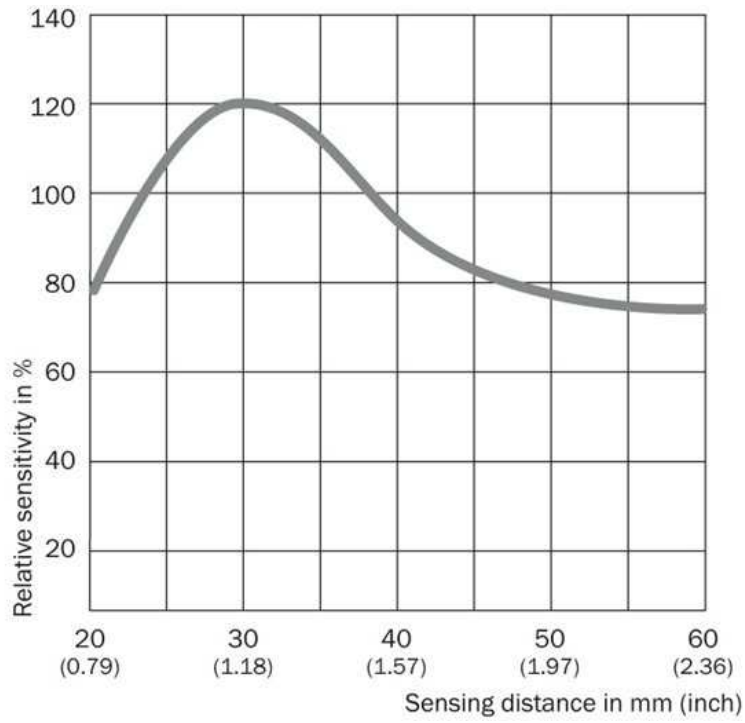


### Switching characteristics

The optimum emitted light is selected automatically.  
Light/dark setting is defined using teach-in sequence.  
The switching threshold is set in the center between the background and the mark.  
Teach-in can also be performed using an external control signal.

## Sensing distance

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