



DATA SHEET

# KT10W-2N1115

KT10  
Contrast sensors

# SICK

Sensor Intelligence



Illustration may differ

CONTRAST SENSORS

KT10W-2N1115

ORDERING INFORMATION

| Type         | part no. |
|--------------|----------|
| KT10W-2N1115 | 1028233  |

Further device versions and accessories at [www.sick.com/KT10](http://www.sick.com/KT10)

DETAILED TECHNICAL DATA

FEATURES

|                            |                                                       |
|----------------------------|-------------------------------------------------------|
| Housing design             | Middle                                                |
| Dimensions (W x H x D)     | 30.4 mm x 53 mm x 80 mm                               |
| Light source               | LED, RGB <sup>1)</sup>                                |
| Light emission             | Long and short side of housing, exchangeable          |
| Light spot size            | 0.8 mm x 4 mm                                         |
| Light spot direction       | Vertical <sup>2)</sup>                                |
| Wave length                | 640 nm, 525 nm, 470 nm                                |
| Sensing distance           | ≤ 10 mm <sup>3)</sup>                                 |
| Sensing distance tolerance | ± 3 mm                                                |
| Adjustment                 | Teach-in button                                       |
| Teach-in mode              | Static 2-point teach-in<br>Dynamic teach-in (min/max) |
| Function                   | Automatic drift correction                            |

<sup>1)</sup> Average service life: 100,000 h at T<sub>u</sub> = +25 °C.

<sup>2)</sup> In relation to long side of housing.

<sup>3)</sup> From leading edge of lens.

**ELECTRONICS**

|                            |                                                                                                                                                                        |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supply voltage             | 10 V DC ... 30 V DC <sup>1)</sup>                                                                                                                                      |
| Ripple                     | $\leq 5 \text{ V}_{pp}$ <sup>2)</sup>                                                                                                                                  |
| Current consumption        | $< 120 \text{ mA}$ <sup>3)</sup>                                                                                                                                       |
| Switching frequency        | 25 kHz <sup>4)</sup>                                                                                                                                                   |
| Response time              | 20 $\mu\text{s}$                                                                                                                                                       |
| Jitter                     | $< 10 \mu\text{s}$                                                                                                                                                     |
| Switching output           | NPN                                                                                                                                                                    |
| Switching output (voltage) | NPN: HIGH = approx. $U_v$ / LOW $\leq 2 \text{ V}$                                                                                                                     |
| Output current $I_{max}$   | 100 mA                                                                                                                                                                 |
| Input, teach-in (ET)       | NPN<br>Teach: $U < 2 \text{ V}$<br>Run: $U = 10 \text{ V} \dots < U_v$                                                                                                 |
| Input, blanking input (AT) | NPN<br>Blanked: $U < 2 \text{ V}$<br>Free-running: $U > 10 \text{ V} \dots < U_v$ <sup>5)</sup>                                                                        |
| Retention time (ET)        | 25 ms, non-volatile memory                                                                                                                                             |
| Time delay                 | 20 ms, adjustable                                                                                                                                                      |
| Protection class           | II <sup>6)</sup>                                                                                                                                                       |
| Circuit protection         | $U_v$ connections, reverse polarity protected<br>Output Q short-circuit protected<br>Interference pulse suppression<br>Outputs overcurrent and short-circuit protected |
| Connection type            | Plug, M12, 5-pin                                                                                                                                                       |

<sup>1)</sup> Limit values when operated in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not fall below or exceed  $U_v$  tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> With light/dark ratio 1:1.

<sup>5)</sup> AT  $> 200 \mu\text{s}$ .

<sup>6)</sup> Reference voltage DC 50 V.

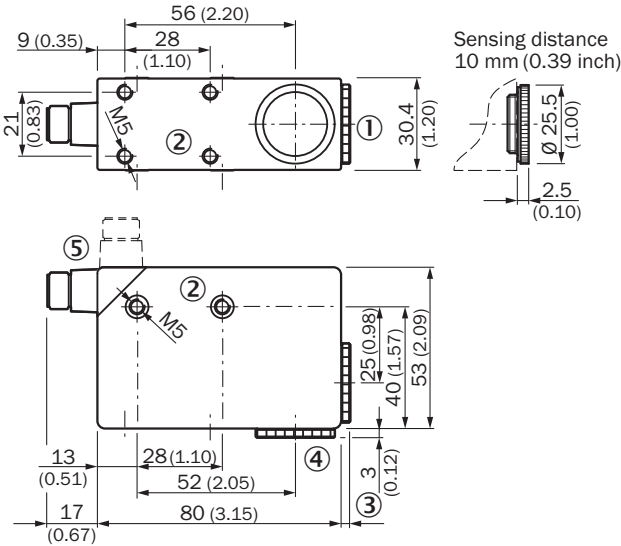
**MECHANICS**

|                  |              |
|------------------|--------------|
| Housing material | Zinc diecast |
| Weight           | 400 g        |

**AMBIENT DATA**

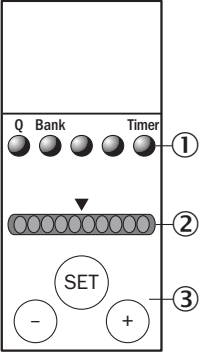
|                               |                              |
|-------------------------------|------------------------------|
| Ambient operating temperature | -10 °C ... +55 °C            |
| Ambient temperature, storage  | -10 °C ... +75 °C            |
| Shock load                    | According to IEC 60068       |
| Enclosure rating              | IP67                         |
| UL File No.                   | NRKH.E181493 & NRKH7.E181493 |

DIMENSIONAL DRAWING



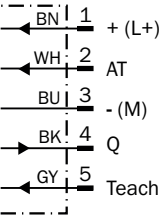
- Dimensions in mm (inch)
- ① lens (light emission)
  - ② M5 threaded mounting hole, 5.5 mm deep
  - ③ See dimensional drawing of lens
  - ④ Blind screw can be replaced by pos. 1
  - ⑤ Connector M12 (rotatable up to 90°)

ADJUSTMENTS



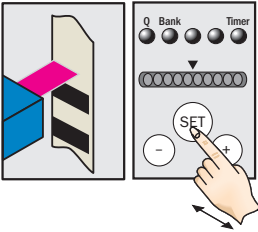
- ① Function signal indicators (yellow)
- ② Bar graph (green)
- ③ teach-in pushbutton / +/- pushbutton

CONNECTION DIAGRAM CD-313



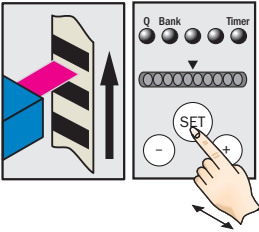
CONCEPT OF OPERATION TEACH-IN DYNAMIC

1. Position background

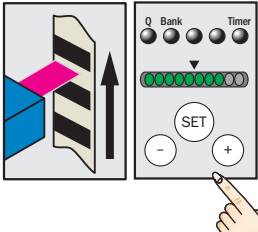


Press and hold SET button.  
Emitted light turns white.

2. Move at least one repeat length using the light spot



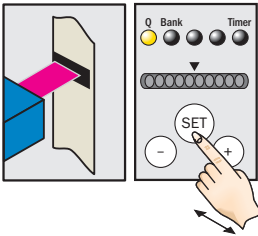
Hold down SET button.



Release SET button.

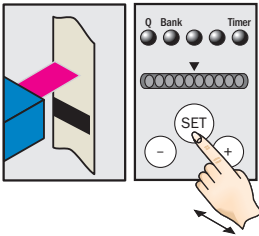
CONCEPT OF OPERATION TEACH-IN STATIC

1. Position mark



Press and hold SET button > 1 s.  
Red emitted light and yellow LED flash.

2. Position background



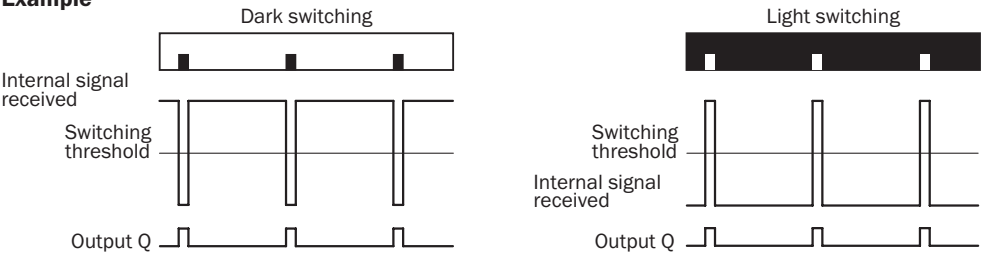
Press and hold SET button > 1 s.  
Yellow LED goes out.  
Optimum emitted light is selected.

Note

The bar display visualizes the detection reliability during teach-in. The more LEDs that illuminate, the better the teach-in:

- 1 LED illuminates = operation not reliable – lowest contrast difference
- ≤ 4 LEDs illuminate = operation OK – sufficient contrast difference
- > 4 LEDs illuminate = reliable operation – high contrast difference

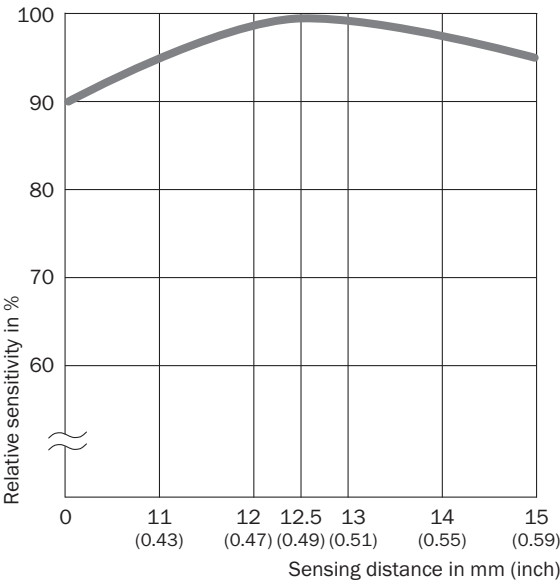
Example



Switching characteristics

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 and the light/dark setting can also be configured using an external control signal.

SENSING DISTANCE



Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at [www.sick.com/1028233](http://www.sick.com/1028233)



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# SICK AT A GLANCE

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SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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