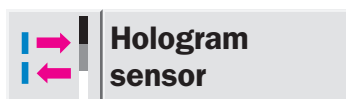
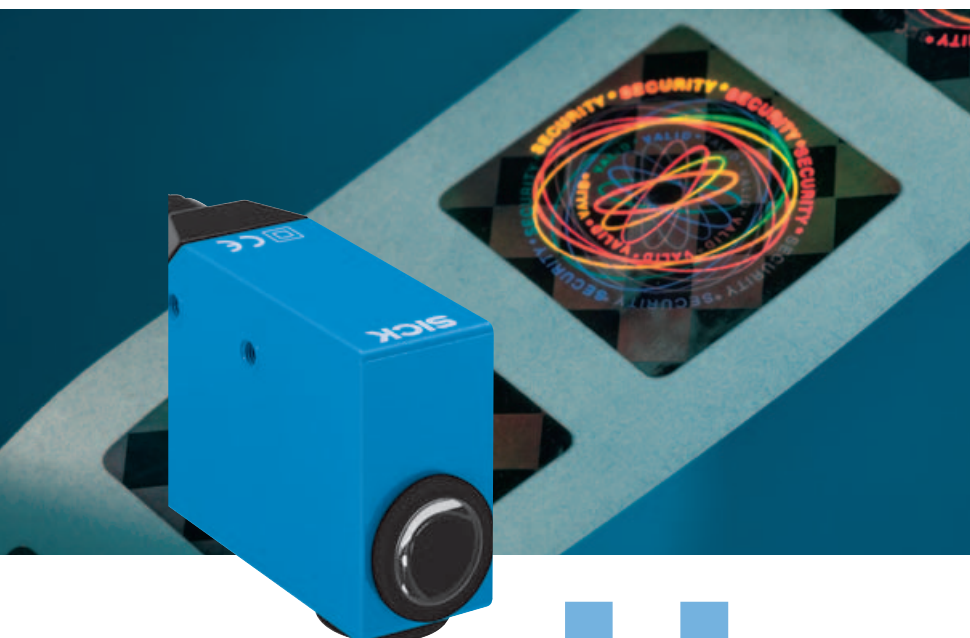


# KTH 5: Reliable detection of holograms in high speed production processes



**H**olograms are increasingly used for identification and security of goods. The hologram sensor KTH 5 is the first photoelectric proximity switch developed specifically for the detection of holograms. Whether machine production or labelling during the packaging process – the KTH 5 works reliably, thanks to its fast response time of 50  $\mu$ s.

Adjustment of the sensor to detect a glossy hologram, against a background, is quick and easy using the 2-stage teach-in procedure. The integrated bar display, clearly indicates the margin of detection.

Automatic gloss adjustment ensures maximum reliability of detection of all holograms, even against highly reflective background surfaces, thus ensuring reliable detection and maximum machine availability. A 3 colour (RGB) transmission LED diode, allows the optimum transmission light colour to be automatically selected based on the existing contrast.

The robust metal housing ensures long life and rounds off the benefits of the hologram sensor.

# SICK



Technical data		KTH 5W-	P1216D	N1216D								
<b>Scanning distance</b>	15 ... 30 mm (Focus 20 mm)											
from front edge of lens												
<b>Light spot dimensions</b>	1.5 x 5.5 mm (at 20 mm)											
<b>Light source<sup>1)</sup>, light type</b>	LED; red, blue, green											
<b>Supply voltage <math>V_S</math></b>	10 ... 30 V DC <sup>2)</sup>											
Residual ripple <sup>3)</sup>	< 5 $V_{PP}$											
Current consumption <sup>4)</sup>	< 130 mA											
<b>Switching outputs</b>	PNP: HIGH = $V_S - < 2 V$ / LOW = 0 V											
	NPN: HIGH = $V_S$ / LOW = < 2 V											
Output current $I_A$ max.	100 mA short-circuit protected											
Response time <sup>5)</sup>	50 $\mu s$											
Switching frequency <sup>6)</sup>	10 000/s											
<b>Time delay</b>	20 ms											
Light spot position	Longitudinal											
<b>Teach-in procedure</b>	2-point-Teach-in											
<b>Teach-in input ET</b>	PNP: teach > 10 V ... < $V_S$											
<b>via control wire</b>	Run 0 V or unswitched											
	NPN: teach 0 V											
	Run $V_S$ or unswitched											
<b>Retention time</b>	25 ms non-volatile memory											
<b>Connection type</b>	Plug M12, 5-pin											
<b>VDE protection class<sup>7)</sup></b>	□											
<b>Enclosure rating</b>	IP 67											
<b>Circuit protection<sup>8)</sup></b>	A, B, C											
<b>Ambient temperature</b>	Operation -10 ... +55 °C											
	Storage -25 ... +75 °C											
<b>Shock load</b>	To IEC 68											
<b>Weight</b>	Approx. 400 g											
<b>Housing material</b>	Cast zinc											

<sup>1)</sup> Average service life 100,000 h  
at  $T_A = +25\text{ °C}$

<sup>2)</sup> Limit values

<sup>3)</sup> May not exceeded or fall short of  $V_S$   
tolerances

<sup>4)</sup> Without load

<sup>5)</sup> Signal transit time with resistive load

<sup>6)</sup> With light/dark ratio 1:1

<sup>7)</sup> Reference voltage 50 V DC

<sup>8)</sup> A =  $V_S$  connections reverse-polarity  
protected

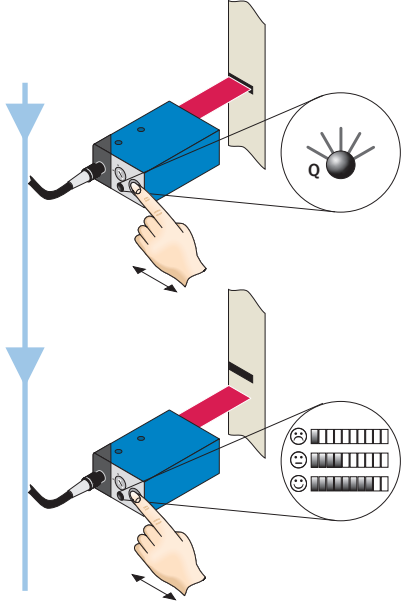
B = Output Q short-circuit protected

C = Interference pulse suppression

Order information	
Preferred type	Order no.
KTH5W-P1216D	1 028 249
KTH5W-N1216D	1 028 250

**Teach-in (“Teach” switch setting)**

Teach-in: adjustment switching threshold



■ After the first teach-in procedure, the red transmitter light and the status indicator blink and signal that a second teach-in procedure must be triggered.

■ The LED status indicator switches off after the second teach process.

■ **Detection reliability:**  
 1 LED on: minimum contrast  
 ≤ 4 LEDs on: sufficient contrast  
 > 4 LEDs on: high contrast



Status

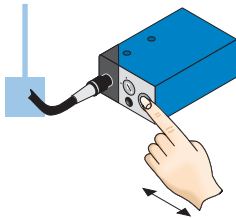
■ For very small contrasts between the hologram and background, the sensor should be positioned at an angle of  $\pm 30^\circ$  to the surface, and the teach-in procedure repeated.

Notes

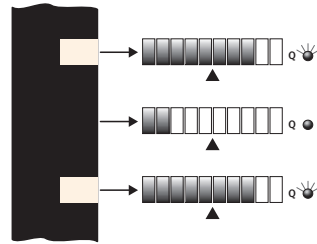
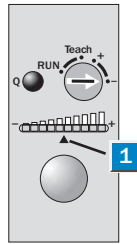
- The teach-in button can be locked against unintentional activation with “Run”.
- The optimum transmission light was selected automatically.
- Teach-in is also possible via control wire.

**Manual fine adjustment (“+” or “-” switch setting)**

Teach-in: adjustment switching threshold



■ Adjustment of the switching threshold via position “+”/“-” and pressing of keys.



1 Switching threshold

Status

- **Switching threshold adjustment:** The bar display visualizes the current level of the material to be scanned, which is on hand.
- As soon as the switching threshold is exceeded or fallen short of, the switching output changes its state.
- The switching threshold is correspondingly raised or lowered a half LED segment per pressing of the keys.

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