



Contrast sensors  
KT5, KT5-2 Teach-in

KT5W-2P2156S42



**Model Name** > [KT5W-2P2156S42](#)  
**Part No.** > [1057643](#)



**At a glance**

- Tough, metal housing
- Teach-in of switching threshold via control panel or control cable
- Maximum detection reliability due to 3-color RGB LED technology
- Switching frequency of 10 kHz
- Analog output 0 V ... 5 V
- Transmission color adjustable
- M12 plug can be rotated 90°

**Your benefits**

- All print marks and color combinations are reliably detected, ensuring high machine throughput
- Reliable operation, even with jittering webs and high-gloss materials
- High positioning accuracy improves packaging quality
- Flexible start up: light source can be adjusted via external teach or manually
- Contrast mark or background receiving signal is displayed via the analog output



**Features**

Sensing distance <sup>1)</sup> :	10 mm
Sensing distance tolerance:	± 3 mm
Light source <sup>2)</sup> :	LED
Wave length:	470 nm, 525 nm, 640 nm
Light emission:	Long and short side of housing, exchangeable
Light spot size:	1.2 mm x 4.2 mm
Light spot direction <sup>3)</sup> :	Horizontal
Type of light:	Visible blue light, Visible green light, Visible red light
Dimensions (W x H x D):	30.4 mm x 53 mm x 80 mm
Housing design (light emission):	Rectangular
Teach-in mode:	Static 2-point teach-in

<sup>1)</sup> From front edge of lens    <sup>2)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C    <sup>3)</sup> In relation to long side of housing

**Mechanics/electronics**

Ripple <sup>1)</sup> :	≤ 5 Vpp
Power consumption <sup>2)</sup> :	< 80 mA
Switching frequency <sup>3)</sup> :	10 kHz

Switching frequency Q:	10 kHz 4)
Response time Q:	50 $\mu$ s <sup>5)</sup>
Output type:	PNP: HIGH = VS- $\leq$ 2 V/LOW approx. 0 V
Switching mode:	PNP
Analog output QA:	0 V ... 5 V
Input, teach-in (ET):	PNP:, Run: U < 2 V, Teach: U = 10 V ... < U <sub>V</sub>
Retention time (ET):	25 ms, non-volatile memory
Protection class <sup>6)</sup> :	II
Circuit protection:	Output Q short-circuit protected, Interference suppression, VS connections reverse-polarity protected
Enclosure rating:	IP 67
Weight:	400 g
Housing material:	Metal, Zinc diecast
Output current I <sub>max</sub> .:	100 mA
Supply voltage:	10 V DC ... 30 V DC <sup>7)</sup>
Fieldbus interface:	-

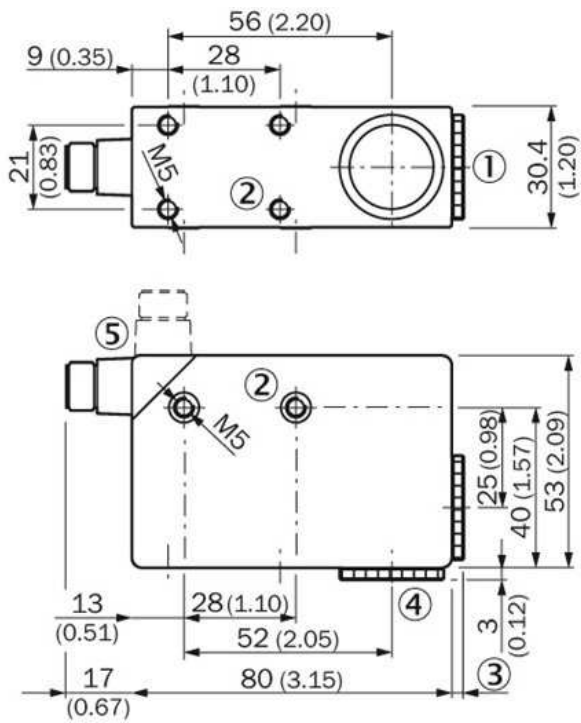
1) May not exceed or fall short of V<sub>S</sub> tolerances 2) Without load 3) 4) With light/dark ratio 1:1 5) Signal transit time with resistive load 6) Reference voltage DC 32 V 7)

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

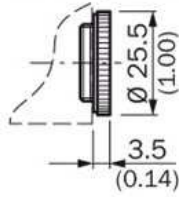
### Ambient data

Shock load:	According to IEC 60068
Ambient operating temperature:	-10 °C ... +55 °C
Ambient storage temperature:	-25 °C ... +75 °C

## Dimensional drawing

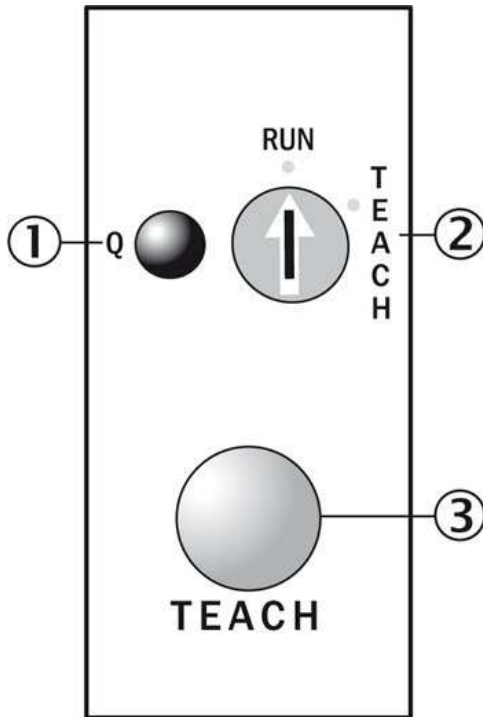


Sensing distance  
10 mm (0.39 inch)



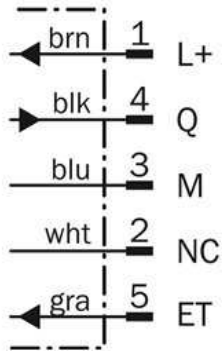
- [1] Lens (light transmission), can be exchanged for pos. 4
- [2] M5 threaded mounting hole, 5.5 mm deep
- [3] See dimensional drawing for lens
- [4] Blind screw can be replaced by pos. 1
- [5] Connector M12 (rotatable up to 90°)

## Adjustments

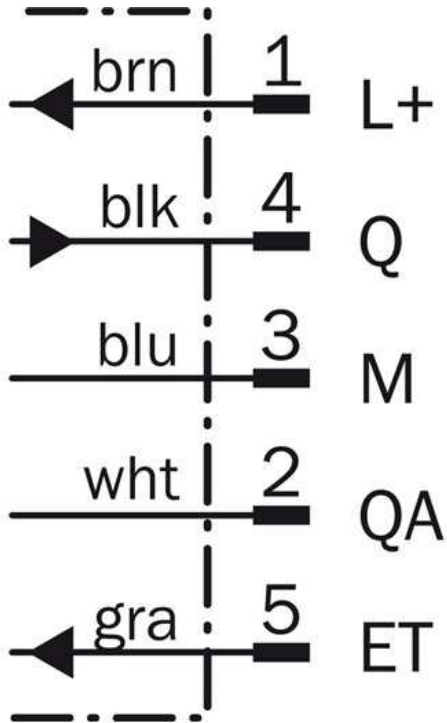


- [1] Function signal indicator (yellow)
- [2] Pre-selection switch
- [3] Teach-in button

Connection type and diagram

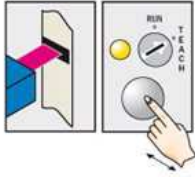


Connection diagram



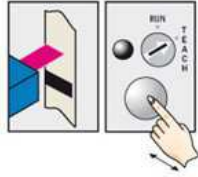
# Bedienhinweis

## 1. Position mark



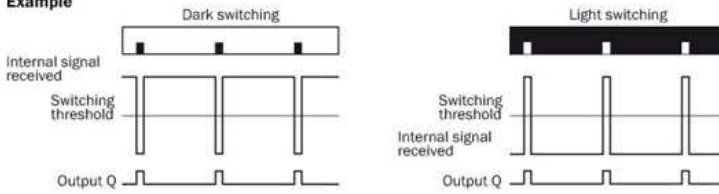
Turn rotary switch to "Teach" position. Press and hold teach-in button > 1 s. Red emitted light and yellow LED flash.

## 2. Position background



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

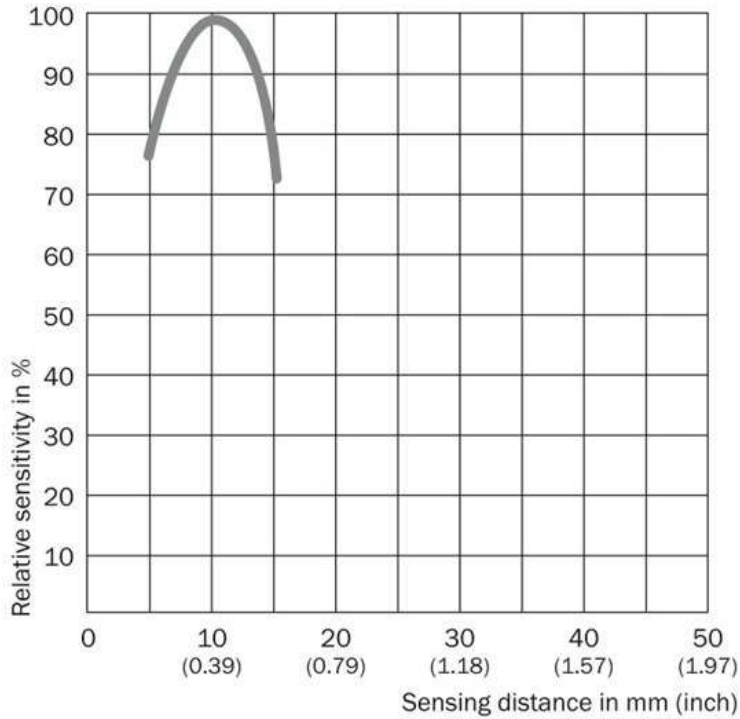
### Example



### 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.

## Characteristic curve



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