



Contrast sensors  
KT5, KTL5-2 Fiber Optic

KTL5W-2P23



**Model Name** > [KTL5W-2P23](#)  
**Part No.** > [1019551](#)



*Illustration may differ*

**At a glance**

- Various heat-resistant fiber-optic cable models are available
- Various teach-in methods, including potentiometer
- Analog output
- Switching frequency of 10 kHz

**Your benefits**

- Reliable contrast detection
- Flexible integration into machines due to minimal space requirements and various fiber-optic cable versions
- Durable, glass fiber-optic cables
- Reliable operation in adverse environmental conditions, such as extreme temperatures and moisture
- Resistant to aggressive cleaning agents
- Compact design fits in applications with limited space



**Features**

Sensing distance:	Dependent on the fiber-optic cable
Light source <sup>1)</sup> :	LED
Wave length:	470 nm, 525 nm, 640 nm
Light spot size:	Dependent on the fiber-optic cable
Output function:	Light/dark switching
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:	Dynamic teach-in

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

**Mechanics/electronics**

Ripple <sup>1)</sup> :	≤ 5 Vpp
Current consumption <sup>2)</sup> :	< 80 mA
Switching frequency <sup>3)</sup> :	10 kHz
Response time <sup>4)</sup> :	50 μs
Output type:	PNP: HIGH = VS- ≤ 2 V / LOW approx. 0 V
Switching mode:	PNP
Input, teach-in (ET):	PNP: Run: U < 2 V, Teach: U = 10 V ... < U <sub>V</sub>

Input, light/dark (L/D):	Dark: $U > 10 \text{ V} \dots < U_V$ , Light: $U = 0 \text{ V}$ , PNP:
Retention time (ET):	25 ms, non-volatile memory
Time delay:	20 ms
Connection type:	Connector M12, 5-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
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>6)</sup>
Fieldbus interface:	-

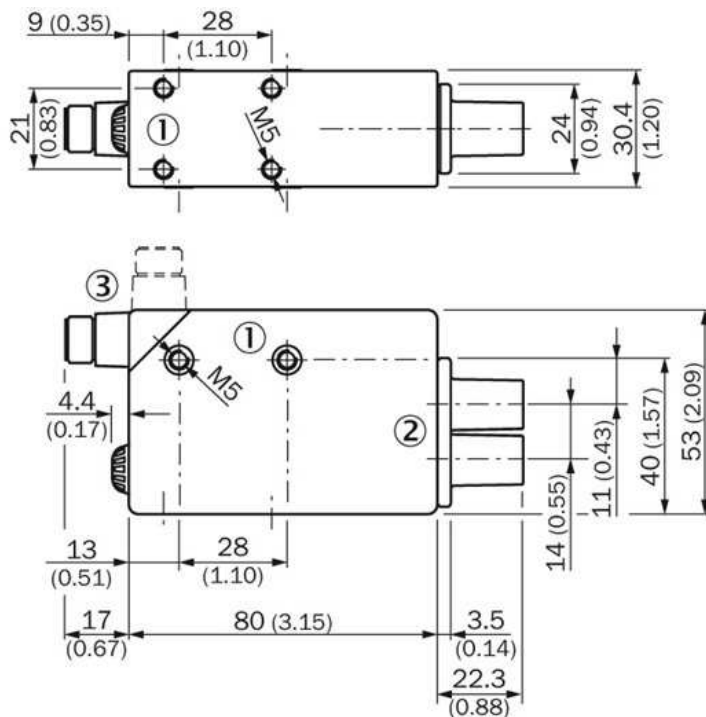
<sup>1)</sup> May not exceed or fall short of  $V_S$  tolerances <sup>2)</sup> Without load <sup>3)</sup> With light/dark ratio 1:1 <sup>4)</sup> Signal transit time with resistive load <sup>5)</sup> Reference voltage DC 50 V <sup>6)</sup>

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

### Ambient data

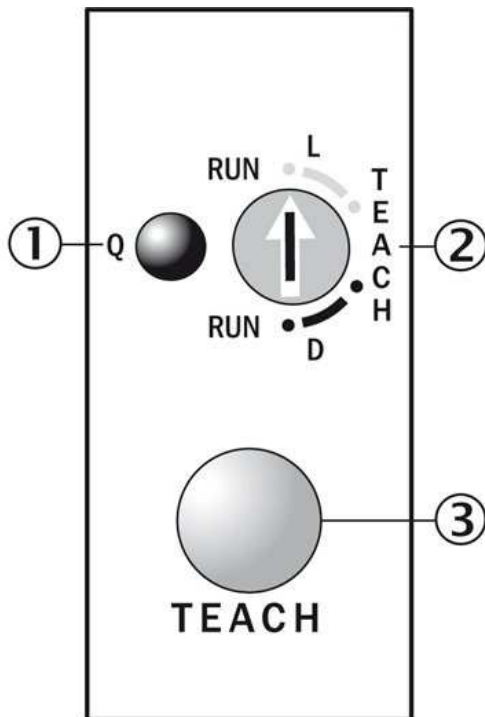
Shock load:	According to IEC 60068
Ambient operating temperature:	-10 °C ... +55 °C
Ambient storage temperature:	-25 °C ... +75 °C

### Dimensional drawing



- [1] M5 threaded mounting hole, 5.5 mm deep
- [2] Fiber-optic adapter (M12 x 1 internal thread)
- [3] Connector M12 (rotatable up to 90°)

## Adjustments



- |1| Function signal indicator (yellow)
- |2| Pre-selection switch (light/dark switching)
- |3| Teach-in button

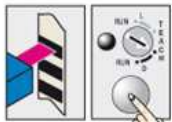
## Bedienhinweis

### 1. Select switching function (light/dark)



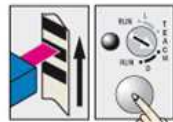
Turn the rotary switch to the desired teach position:  
D = dark switching  
L = light switching

### 2. Position mark or background



Press the teach-in button and keep it pressed.

### 3. Move at least one repeat length using the light spot

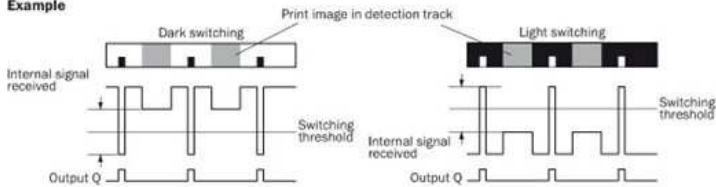


Keep the teach-in button pressed.



Release the teach-in button. Yellow LED will illuminate, when emitted light is on the mark.

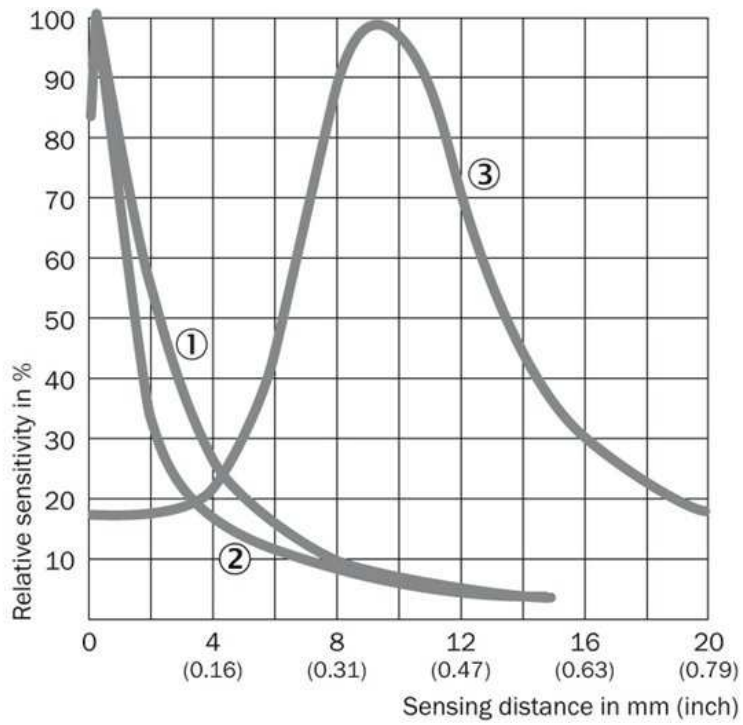
### Example



### Switching characteristics

The optimum emitted light is selected automatically.  
The switching threshold is set in the center between the lowest and the second-lowest reflectivity.  
Teach-in can also be performed using an external control signal.  
Light/dark setting can also be configured using an external control signal.  
Observe the minimum speed (25 mm/s ... 300 mm/s).

## Sensing distance



- |1| Fiber-optic cable LBST 32900
- |2| Fiber-optic cable LBSR 32900
- |3| Fiber-optic cable OCSL

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