



Contrast sensors
KT8, KT8L Laser

KT8L-N3656



Model Name > [KT8L-N3656](#)
Part No. > [1041263](#)



At a glance

- Wide range of operating distances between 30 mm and 800 mm
- Small and precise laser light spot (Class II)
- Fast switching frequency of 17 kHz
- Analog output
- Simple teach-in
- Detection reliability displayed in the bar graph display

Your benefits

- Wide range of applications with sensing distances up to 800 mm
- Precise detection of the smallest marks and objects, e.g., 1 x 1 mm²
- Adjusts itself to specific applications, opening up a wide range of uses
- Reliable operation, even with unsteady objects



Features

Sensing distance ¹⁾ :	150 mm
Light source ²⁾ :	Laser
Wave length:	655 nm
Light emission:	Long side of housing
Light spot size:	Ø 0.3 mm ³⁾
Light spot direction:	Round
Operating distance:	30 mm ... 800 mm ⁴⁾
Function:	Automatic drift correction
Type of 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, Dynamic teach-in (min/max)

¹⁾ From front edge of lens ²⁾ Average service life 50,000 h at T_A = +25 °C ³⁾ At focal point = sensing distance 150 mm ⁴⁾ With respect to black-white contrast 6 %/90 %

Mechanics/electronics

Ripple ¹⁾ :	≤ 5 Vpp
Power consumption ²⁾ :	< 80 mA
Switching frequency ³⁾ :	17 kHz
Response time ⁴⁾ :	30 µs
Jitter:	< 15 µs

Output type:	NPN: HIGH = approx. VS / LOW ≤ 2 V
Switching mode:	NPN
Analog output QA:	0.3 mA ... 20 mA
Input, teach-in (ET):	NPN:, Run: U = 10 V ... < U _V , Teach: U < 2 V
Retention time (ET):	25 ms, non-volatile memory
Time delay:	20 ms, adjustable
Connection type:	Connector M12, 5-pin
Protection class ⁵⁾ :	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 _{max.} :	100 mA
Supply voltage:	10 V DC ... 30 V DC ⁶⁾
Fieldbus interface:	-

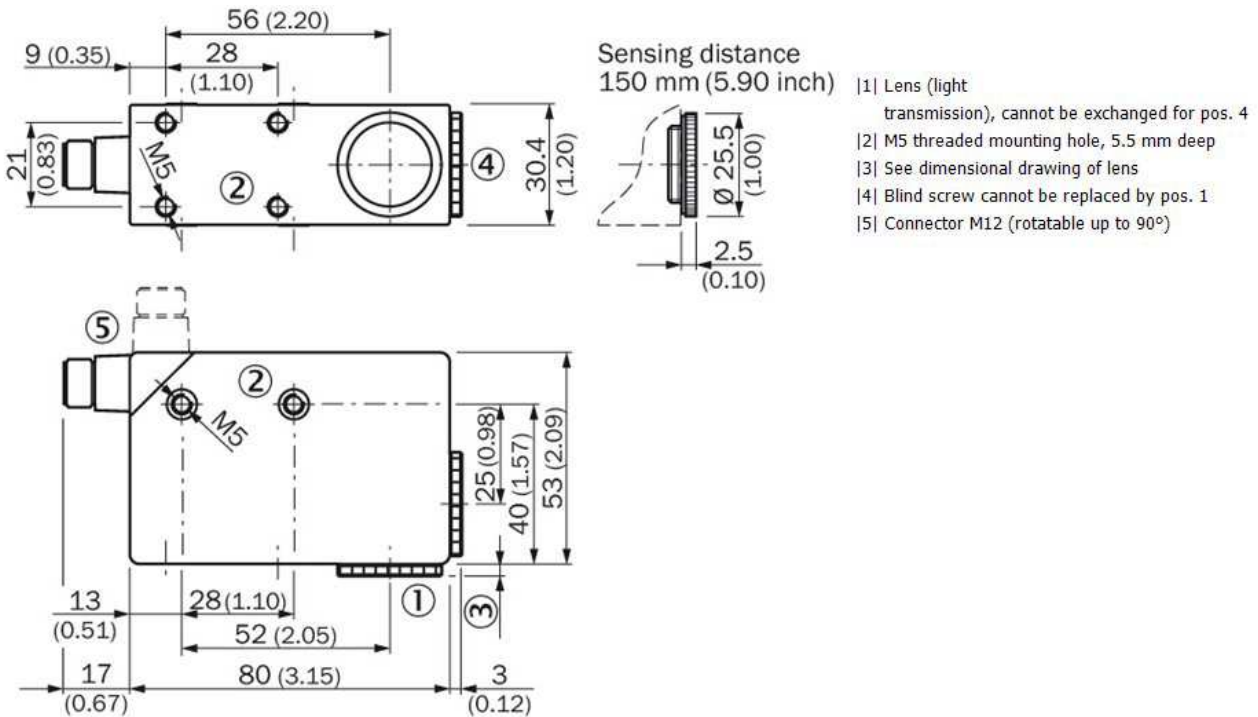
¹⁾ May not exceed or fall short of V_S tolerances ²⁾ Without load ³⁾ With light/dark ratio 1:1 ⁴⁾ Signal transit time with resistive load ⁵⁾ Reference voltage DC 50 V ⁶⁾

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

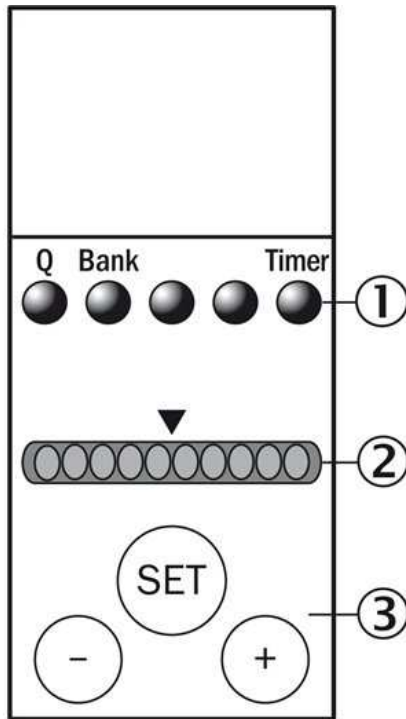
Ambient data

Shock load:	According to IEC 60068
UL File No.:	242368, CDRH-conform
Ambient operating temperature:	-10 °C ... +45 °C
Ambient storage temperature:	-10 °C ... +75 °C

Dimensional drawing



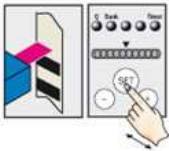
Adjustments



- [1] Function signal indicators (yellow)
- [2] Bar graph (green)
- [3] Teach-in button/"+" and "-" button

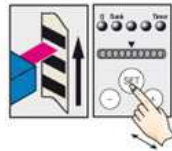
Connection type and diagram

1. Position background

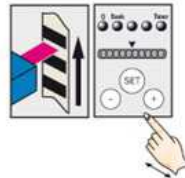


Press and hold SET button.
Emitted light turns white.

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



Hold down SET button.



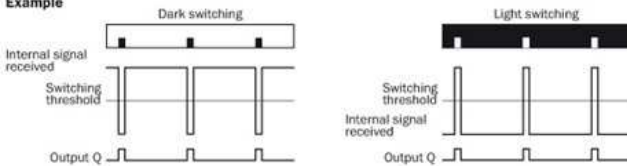
Release SET button.

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 – contrast difference too low
- ≤ 4 LEDs illuminate = operation OK – sufficient contrast difference
- > 4 LEDs illuminate = reliable operation – high contrast difference

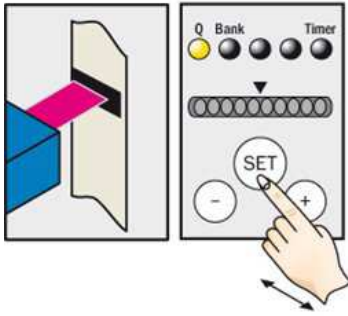
Example



Switching characteristics

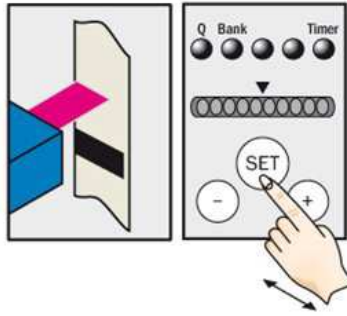
Light/dark setting is defined using teach-in sequence or menu, cf. operating instructions.
The switching threshold is set in the center between the background and the mark.
Teach-in and the light/dark setting can also be configured using an external control signal.

1. Position mark



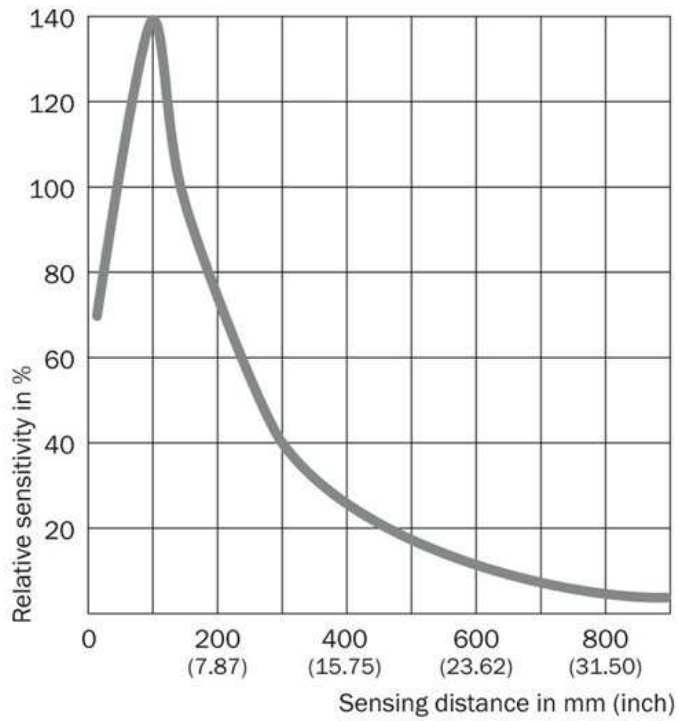
Press and hold SET button > 1 s.
Yellow LED flashes.

2. Position background



Press and hold SET button > 1 s.
Yellow LED goes out.

Sensing distance



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