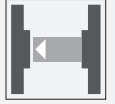


# Thru-beam sensor

## LA39/LK39/31/40a/116



- Light-on/dark-on, switchable
- Supplied with mounting accessory
- Degree of protection IP54

Thru-beam sensor, 20 m detection range, infrared light, light/dark on, AC/DC version, relay contact output, sensitivity adjuster, terminal compartment



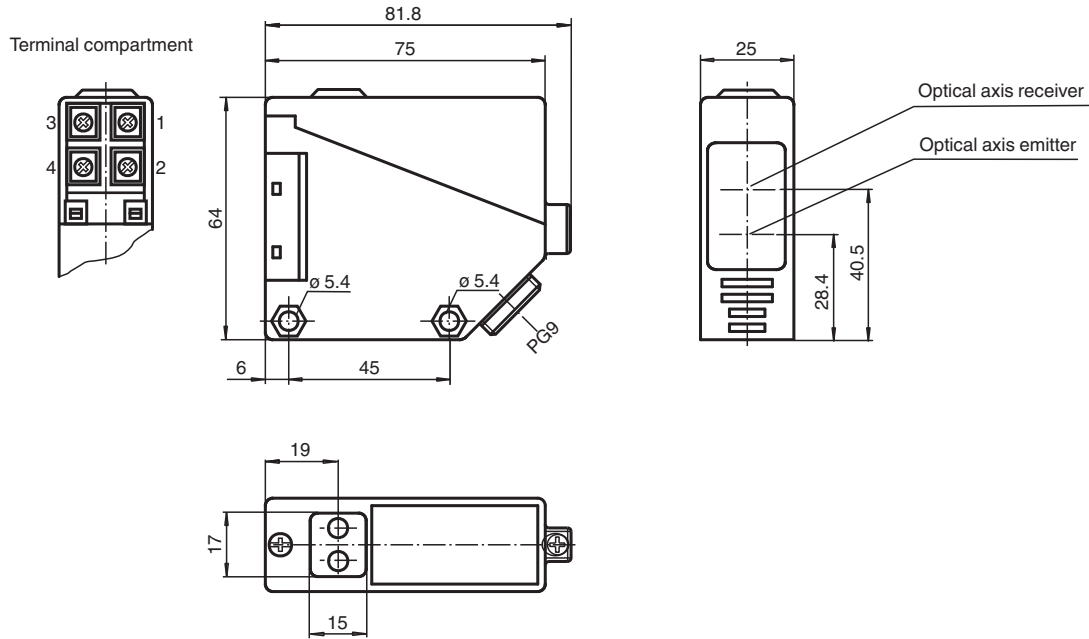
### Function

Series 39 sensors are characterized by their high performance level, compact housing design, and variety of available versions. These include thru-beam sensors with a 20 m detection range, retroreflective sensors with polarization filter for a 5 m detection range, energetic diffuse mode sensors with an 800 mm and 2000 mm detection range, and a background suppression sensor with 500 mm detection range. Fitted in a robust plastic housing, this series is ideal for tough industrial applications. The sensors are supplied with 10 V to 30 V DC, or 24 V to 240 V AC/DC. Various transistor and relay outputs are available as signal outputs. Standard features include pre-fault diagnostics and pre-fault output. The switching element function can be changed using the light/dark switch.

### Application

- Object tracking in material handling, and the packaging sector
- Material flow monitoring
- Bin occupancy check in storage technology
- Fine positioning in high-bay warehouses
- Presence and height monitoring on pallet conveyors
- Single-beam protection for automatic industrial gates and elevator doors
- Protection at automatic gates

**Dimensions**



**Technical Data**

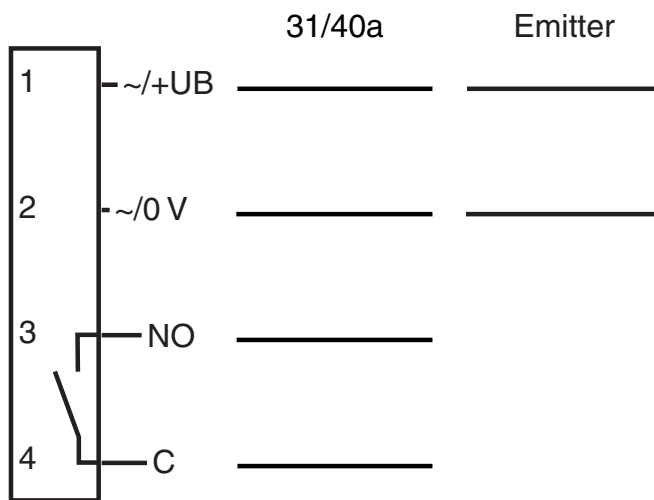
<b>System components</b>		
Emitter		LA39/116
Receiver		LK39/31/40a/116
<b>General specifications</b>		
Effective detection range		0 ... 20 m
Threshold detection range		25 m
Adjustment range		2 ... 25 m
Reference target		receiver
Light source		IRED
Light type		modulated infrared light
Ambient light limit		IEC / EN 60947-5-2 , 10000 Lux
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>		916 a
Mission Time (T <sub>M</sub> )		20 a
Diagnostic Coverage (DC)		0 %
<b>Indicators/operating means</b>		
Operation indicator		LED red (emitter)
Function indicator		LED yellow: switching state LED red: pre-fault indication
Control elements		Sensing range adjuster, light-on/dark-on changeover switch
<b>Electrical specifications</b>		
Operating voltage	U <sub>B</sub>	12 ... 240 V DC / 24 ... 240 V AC (50 ... 60 Hz)
Ripple		10 %
No-load supply current	I <sub>0</sub>	≤ 60 mA receiver and emitter
Protection class		II, rated voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1 Caution! The protection class 2 is only valid when the terminal compartment is closed. output circuit has basic insulation to control circuit according to IEC/EN 61140
Power consumption	P <sub>0</sub>	≤ 3 VA
Time delay before availability	t <sub>v</sub>	≤ 300 ms
<b>Output</b>		
Switching type		light/dark on
Signal output		1 relay output

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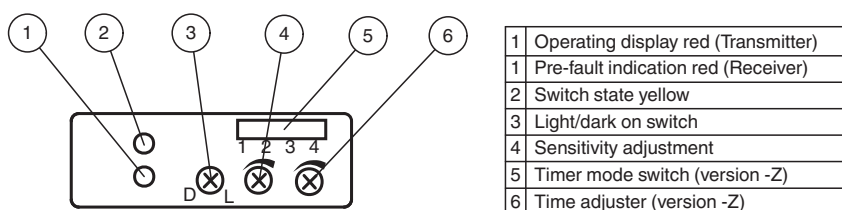
### Technical Data

Switching voltage		max. 240 V AC ; 150 V DC
Switching current		max. 3 A
Switching power		DC: max. 90 W AC: max. 750 VA
Switching frequency	f	≤ 25 Hz
Response time		≤ 20 ms
<b>Conformity</b>		
Product standard		EN 60947-5-2
<b>Approvals and certificates</b>		
CCC approval		Certified by China Compulsory Certification (CCC)
Approvals		CE
<b>Ambient conditions</b>		
Ambient temperature		-25 ... 55 °C (-13 ... 131 °F)
Storage temperature		-40 ... 70 °C (-40 ... 158 °F)
<b>Mechanical specifications</b>		
Degree of protection		IP54
Connection		terminal compartment PG9 , ≤ 0.75 mm <sup>2</sup>
<b>Material</b>		
Housing		PBT
Optical face		PMMA
Mass		Emitter: approx. 90 g receiver: approx. 110 g
<b>Dimensions</b>		
Height		64 mm
Width		25 mm
Depth		75 mm
<b>General information</b>		
Scope of delivery		Mounting aid

### Connection Assignment

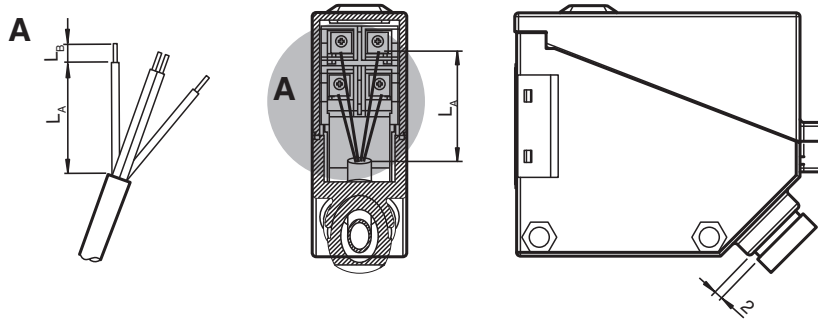


### Assembly



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**Installation**

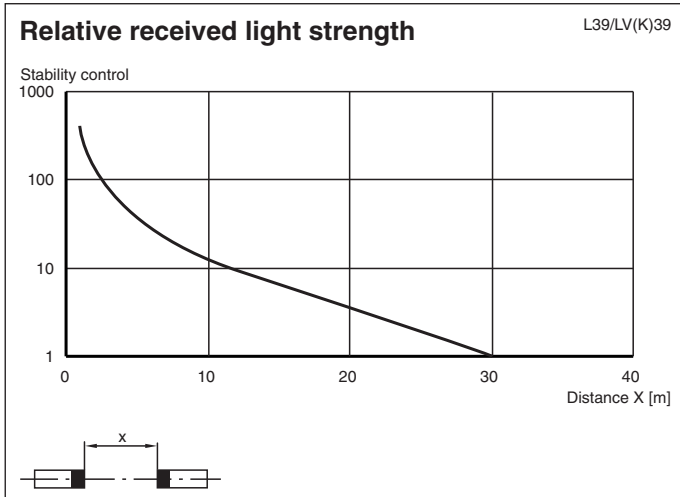
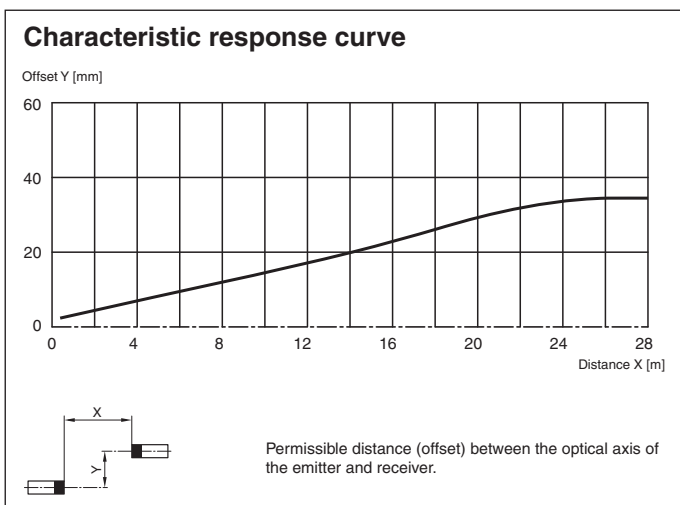


Wire length $L_A$ [mm]	Strip length $L_B$ [mm]
30±2	5±1

Recommendations for cable installation:

1. Use flexible cable with a bending radius less than 5 x outer diameter.
2. Use cable with an outer diameter of  $6.2 \pm 0.2$  mm with the provided gasket with an inner diameter of 7 mm.
3. Cut, strip, and crimp the cable according to the dimensions in the table above.
4. Ensure that the distance between cable gland and housing is approximately 2 mm. Do not screw in the cable gland fully.

**Characteristic Curve**



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## Function Principle

The thru-beam sensor requires a pair of devices for operation, comprising a light transmitter and a light receiver. The emitter and receiver must be arranged in optical alignment with each other. The infrared light from the emitter is detected by the receiver and evaluated.

## Additional Information

### System Description

The thru-beam sensor consists of an emitter and receiver in physically separate housings. The emitter sends signals directly to the receiver. When the light beam is interrupted by an object, the switching function is triggered.

### Mounting

The sensors can be mounted directly with thru-holes or using the mounting bracket supplied.

Ensure that the background is level to prevent the housing from becoming distorted when the fittings are tightened.

Secure the nuts and screws with spring disks to prevent the sensor from becoming misaligned.

Mount the emitter and receiver opposite each other. Roughly align the emitter and receiver with each other. Next, adjust the emitter or receiver by swiveling it horizontally and vertically so that the yellow signal indicator on the receiver lights up continuously. In the event of misalignment, the red signal indicator lights up.

### Commissioning

**Checking object detection:** Follow the steps below to check that the sensor detects objects as required.

Position the object in the beam path of the sensor.

When the object is detected, the yellow signal indicator goes out. If the yellow signal indicator remains lit, reduce the sensitivity of the potentiometer until the yellow signal indicator goes out.

When the object disappears from the beam path of the sensor, the yellow signal indicator lights up again continuously.

### Maintenance

**Cleaning:** If the transmission reception deteriorates, e.g., due to dirt or misalignment, and is lower than the functional reserve, the red signal indicator on the receiver lights up. Clean the optical interfaces of the sensor (e.g., lenses) at regular intervals.

**Maintenance:** Check the mounting fittings and the electrical connections regularly.