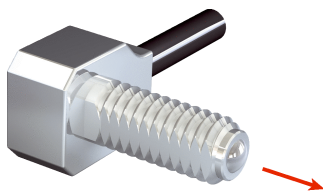


## LL3-TR09

Fiber-optic cables

FIBER-OPTIC SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	part no.
LL3-TR09	5325985

Other models and accessories → [www.sick.com/Fiber-optic\\_cables](http://www.sick.com/Fiber-optic_cables)

### Detailed technical data

#### Features

<b>Device type</b>	Fiber-optic cables
<b>Functional principle</b>	Through-beam system, consisting of a sender and a receiver
<b>Fiber-optic head design</b>	Threaded sleeve, 90° deflection
<b>Application</b>	Lcd / clear material / semiconductor, high flexible (static)
<b>Compatible fiber-optic amplifiers</b>	GLL70, WLL80, WLL180, GLL170(T), WLL24 Ex
<b>Sensing range max.</b>	3,600 mm (Sensing range of WLL80 at 8 ms)
<b>Minimal object diameter</b>	0.04 mm <sup>1)</sup>
<b>Optical fiber head</b>	
Angle of dispersion	16°
Integrated lens	Yes
Compatibility tip adapters	No
<b>Optical fiber</b>	
Compatibility with infrared light	No
Optical fiber cable can be shortened	✓
Adapter end sleeves required	No
<b>Included with delivery</b>	Mounting, 2 x M4 hexagon nut, 2 x washer, FC fiber cutter (5304141)

<sup>1)</sup> Minimum detectable object was determined at optimum measuring distance and optimum setting.

#### Mechanics

<b>Optical fiber head</b>	
Light emission	Radial
Thread diameter (housing)	M4
<b>Optical fiber</b>	
Fiber length	2,000 mm
Bending radius	1 mm
Dynamic flexibility (robotics)	No
Outside diameter, optical fiber cable connection	2.2 mm
Fiber arrangement	Multi-fiber
Core structure	151 x Ø 0,075 mm Multi-fiber
<b>Material</b>	
Optical fiber head	Zinc with nickel coating
Sheath	Polyethylen (PE)
Fibers	Polymethylmethacrylat (PMMA)

<b>Weight</b>	52 g
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## Ambient data

<b>Ambient operating temperature</b>	-40 °C ... +60 °C
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## Sensing ranges with GLL70

<b>Operating mode 50 µs</b>	1,490 mm
<b>Operating mode 250 µs</b>	3,600 mm
<b>Operating mode 1 ms</b>	3,600 mm
<b>Operating mode 4 ms</b>	3,600 mm

## Sensing ranges with WLL80

<b>Operating mode 16 µs</b>	845 mm
<b>Operating mode 70 µs</b>	2,545 mm
<b>Operating mode 250 µs</b>	3,600 mm
<b>Operating mode 500 µs</b>	3,600 mm
<b>Operating mode 1 ms</b>	3,600 mm
<b>Operating mode 2 ms</b>	3,600 mm
<b>Operating mode 8 ms</b>	3,600 mm
<b>Note</b>	Sensing ranges related to fiber-optic sensors with type of light: visible red light

## Sensing ranges with WLL180T

<b>Operating mode 16 µs</b>	360 mm
<b>Operating mode 70 µs</b>	1,200 mm
<b>Operating mode 250 µs</b>	2,200 mm
<b>Operating mode 2 ms</b>	4,000 mm
<b>Operating mode 8 ms</b>	4,000 mm
<b>Note</b>	Sensing ranges related to fiber-optic sensors with type of light: visible red light

## Sensing ranges with GLL170

<b>Operating mode 250 µs</b>	1,490 mm
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## Sensing ranges with GLL170T

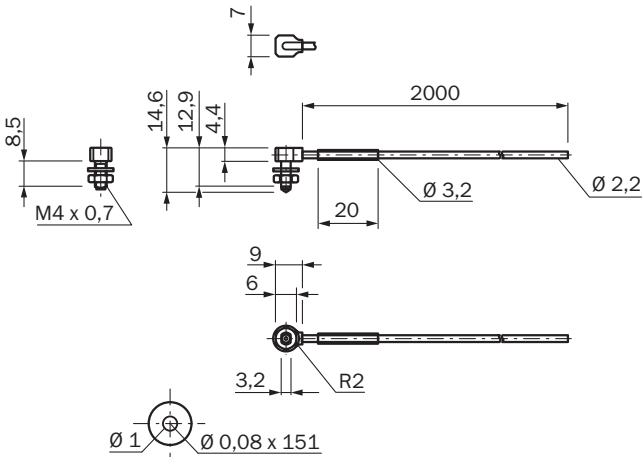
<b>Operating mode 50 µs</b>	1,220 mm
<b>Operating mode 250 µs</b>	1,970 mm

## Classifications

<b>ECLASS 5.0</b>	27270905
<b>ECLASS 5.1.4</b>	27270905
<b>ECLASS 6.0</b>	27270905
<b>ECLASS 6.2</b>	27270905
<b>ECLASS 7.0</b>	27270905
<b>ECLASS 8.0</b>	27270905
<b>ECLASS 8.1</b>	27270905
<b>ECLASS 9.0</b>	27270905

<b>ECLASS 10.0</b>	27270905
<b>ECLASS 11.0</b>	27270905
<b>ECLASS 12.0</b>	27270905
<b>ETIM 5.0</b>	EC002651
<b>ETIM 6.0</b>	EC002651
<b>ETIM 7.0</b>	EC002651
<b>ETIM 8.0</b>	EC002651
<b>UNSPSC 16.0901</b>	39121528

Dimensional drawing LL3-TR09



Dimensions in mm (inch)

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)