

# LL3-TR04

Fiber-optic cables

**FIBER-OPTIC SENSORS**

**SICK**  
Sensor Intelligence.



### Ordering information

Type	part no.
LL3-TR04	5325918

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>	Smooth sleeve
<b>Application</b>	High flexible (static), Robotics (dynamic flexible)
<b>Compatible fiber-optic amplifiers</b>	GLL70, WLL80, WLL180, GLL170(T), WLL24 Ex
<b>Sensing range max.</b>	340 mm (Sensing range of WLL80 at 8 ms)
<b>Minimal object diameter</b>	0.02 mm <sup>1)</sup>
<b>Optical fiber head</b>	
Angle of dispersion	60°
Integrated lens	No
Compatibility tip adapters	No
<b>Optical fiber</b>	
Compatibility with infrared light	No
Optical fiber cable can be shortened	✓
Adapter end sleeves required	No

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

#### Mechanics

<b>Optical fiber head</b>	
Light emission	Axial
Smooth sleeve diameter	1 mm
<b>Optical fiber</b>	
Fiber length	500 mm
Bending radius	4 mm
Dynamic flexibility (robotics)	Yes
Outside diameter, optical fiber cable connection	2.2 mm
Fiber arrangement	Singlefiber
Core structure	Ø 0,25 mm Singlefiber
<b>Material</b>	
Optical fiber head	Stainless steel
Sheath	Polyethylen (PE)
Fibers	Polymethylmethacrylat (PMMA)
<b>Weight</b>	23 g

## Ambient data

<b>Ambient operating temperature</b>	-40 °C ... +60 °C
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## Sensing ranges with WLL80

<b>Operating mode 16 µs</b>	20 mm
<b>Operating mode 70 µs</b>	70 mm
<b>Operating mode 250 µs</b>	110 mm
<b>Operating mode 500 µs</b>	140 mm
<b>Operating mode 1 ms</b>	160 mm
<b>Operating mode 2 ms</b>	220 mm
<b>Operating mode 8 ms</b>	340 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>	5 mm
<b>Operating mode 70 µs</b>	17 mm
<b>Operating mode 250 µs</b>	28 mm
<b>Operating mode 2 ms</b>	56 mm
<b>Operating mode 8 ms</b>	60 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>	40 mm
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## Sensing ranges with GLL170T

<b>Operating mode 50 µs</b>	20 mm
<b>Operating mode 250 µs</b>	50 mm

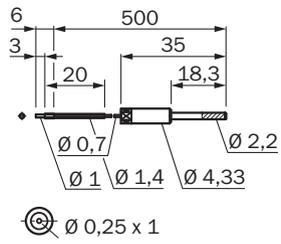
## Classifications

<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

UNSPSC 16.0901

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### Dimensional drawing LL3-TR04



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)