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**FIBERS** 

# LL3-TS22M | LL3

**FIBERS** 



### Ordering information

Туре	Part no.
LL3-TS22M	5325968

Included in delivery: BF-WLL160-10 (1), FC (1)

Other models and accessories → www.sick.com/LL3

## Detailed technical data

#### Features

Percent priceFiloresFunctional principieFindury StatesFunctional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a sender and a receiverFur functional principie detailConsisting of a receiver		
Functional principle detailConsisting of a sender and a receiverFor fiber-optic sensorGLL170(T), WLL180, WLL80Fiber length2,000 mmFiber materialPolymethylmethacrylat (PMMA)Jacket materialPolymethylmethacrylat (PMMA)Jacket materialStainless steelOuter diameter, fiber-optic cable connec1Fiber-optic cable cuttable✓Fiber-optic cable cuttable✓Fiber-optic cable cuttable✓Fiber-optic cable cuttable✓Gongatibility with infrared light (1,450 m)NoAngle of dispersion < 60°YesCompatibility with infrared light (1,450 m)NoAdapter end sleeves requiredSaAngle of dispersionSaAngle of dispersionSaSa SaSa<	Device type	Fibers
For fiber-optic sensorGLI 170(T, WLI 180, WLI 80Fiber length2,000 mmFiber materialPolymethylmethacrylat (PMMA)Jacket materialPolyethylen (PE)Fiber head materialStainless steelOuter diameter, fiber-optic cable connect1Fiber-optic cable cuttable✓Fiber-optic cable cuttable✓Fiber-optic cable cuttableØ0° deflection, Smooth sleeve, 90° deflectionFiber-optic cable cuttable✓Fiber-optic cable cuttableØ0° deflection, Smooth sleeve, 90° deflectionFiber-optic cable cuttableØ0° deflection, Smooth sleeve, 90° deflectionGongatibility with infrared light (1,450 m)Ø0° deflectionApplicationHeat-resistant (≥100°C)Adapter end sleeves requiredVAdapter end sleeves requiredSiaIntegrated lensSiaIntegrated lensØ0° minIntegrated lensØ0° minMinimal object diameterØ0° minIcuded with deliveryGons m <sup>1</sup> Kattang of offiber headSiaptersleeves, FC fiber cutter (5304141), protective clading for fiber head	Functional principle	Through-beam system
Fiber length2,000 mmFiber material00/meth/methacrylat (PMMA)Jacket material00/meth/methacrylat (PMMA)Jacket material00/meth/methacrylat (PMMA)Fiber head materialStainless steelOutgr diameter, fiber-optic cable connectionFiber optic cable cuttableFiber optic cable cuttableFiber optic cable cuttableFiber optic head design00° deflection, Smooth sleeve, 90° deflectionFiber arrangementMonofiberCore structure0.9.5 mm MonofiberAngle of dispersion < 60°	Functional principle detail	Consisting of a sender and a receiver
Fiber material   Polymethylmethacrylat (PMMA)     Jacket material   Polymethylmethacrylat (PMMA)     Fiber head material   Stainless steel     Outer diameter, fiber-optic cable connecton   Imm     Fiber optic cable cuttable   Imm     Fiber arrangement   Monfiber     Core structure   0.05 mm Monofiber     Angle of dispersion < 60°   No     Application   No     Application   No     Adapter end sleeves required   Yes     Angle of dispersion   Si <sup>3</sup> Angle of dispersion   Si <sup>3</sup> Adapter end sleeves required   Yes     Angle of dispersion   Si <sup>3</sup> Integrated lens   No     Minimal object diameter   O:Si m <sup>1</sup> Nozerset, BF-WLL160-10 (1.0 mm) adapter sleev	For fiber-optic sensor	GLL170(T), GLL170(T), WLL180, WLL80
Jacket materialPolyethylen (PE)Fiber head materialStainless steelOuter diameter, fiber-optic cable connection1 mmFiber-optic cable cuttableI mmFiber-optic cable cuttableIFiber-optic head design90° deflection, Smooth sleeve, 90° deflectionFiber arrangementMonofiberCore structureØ 0,5 mm MonofiberAngle of dispersion < 60°YesCompatibility with infrared light (1,450 m)NoApplicationNoHighty flexible/elastic fibers (bend radius)NoAdapter end sleeves requiredSaAngle of dispersion6.3°Integrated lens.005 mm <sup>1</sup> Integrated lens.005 mm <sup>1</sup> Integrated lens.005 mm <sup>1</sup> Mondiber.005 mm <sup>1</sup> Marker site of the presence of the pre	Fiber length	2,000 mm
Fiber head materialStainless steelOuter diameter, fiber-optic cable connection1Fiber-optic cable cuttable✓Fiber-optic cable cuttable✓Fiber-optic cable cuttableذ deflection, Smooth sleeve, 90° deflectionFiber arrangementMonofiberCore structureØ(,5 mm MonofiberAngle of dispersion < 60°NoAngle of dispersion < 60°NoAuger and sleeves requiredNoAdapter end sleeves requiredNoAngle of dispersionNoAdapter end sleeves requiredNoAngle of dispersionSiAngle of dispersionNoAdapter end sleeves requiredNoAngle of dispersionNoAngle of dispersionSiAngle of dispersionNoAngle of dispersionNoAdapter end sleeves requiredNoMinimal object diameterNoIncluded with deliveryAdapter sleeves, BF-WLL160-10(10 mm) adapter sleeves, FC fiber cutter (5304141), protection sleeves, Grieber head	Fiber material	Polymethylmethacrylat (PMMA)
Outer diameter, fiber-optic cable controlImmaFiber-optic cable cuttable✓Fiber-optic cable cuttableØO' deflection, Smooth Sleeve, 90° deflectionFiber arrangementMonofiberCore structureØAngle of dispersion < 60°VsCompatibility with infrared light (1,450 m)NoApplicationNoApplicationNoApple of dispersion < 60°NoAngle of dispersion structureNoApple of dispersion structureNoAdapter end sleeves requiredNoAngle of dispersionSiAngle of dispersionNoIntegrated lensNoNormalityNoAngle of dispersionNoAngle of dispersionNoAngle of dispersionNoAngle of dispersionNoIntegrated lensNoNormalityNoAngle of dispersionNoNormalityNoAngle of dispersionNoAngle of dispersionNo	Jacket material	Polyethylen (PE)
tiontionFiber-optic cable cuttable✓Fiber-optic cable cuttable0° deflection, Smooth sleeve, 90° deflectionFiber-optic head design0° deflection, Smooth sleeve, 90° deflectionFiber arrangementMonofiberCore structure0,5 mm MonofiberAngle of dispersion < 60°YesCompatibility with infrared light (1,450 m)NoApplicationHeat-resistant (≥100°C)ApplicationNoAdapter end sleeves requiredYesAdapter end sleeves requiredSiAngle of dispersion6.3°Integrated lensNoMinimal object diameter.05 mm <sup>1)</sup> Included with deliveryAdapter specees, BF-WLL160-10 (1.0 mm) adapter sleeves, FC fiber cutter (5304141), protective cutter dispersion	Fiber head material	Stainless steel
Fiber-optic head design90° deflection, Smooth sleeve, 90° deflectionFiber arrangementMonofiberCore structureØ0, 5 mm MonofiberAngle of dispersion < 60°	, .	1 mm
Fiber arrangementMonofiberCore structureØ0,5 mm MonofiberAngle of dispersion < 60°YesCompatibility with infrared light (1,450 mm)NoApplicationHeat-resistant (≥100°C)ApplicationNoAdapter end sleeves requiredNoAngle of dispersionSiAngle of dispersionSiIntegrated lensYesMinimal object diameterO.05 mm <sup>1</sup> )Included with deliveryAdapter sleeves, BF-WLL160-10 (1.0 mm) adapter sleeves, FC fiber cutter (5304141), protect tive clading friber head	Fiber-optic cable cuttable	✓
Core structureØ 0,5 mm MonofiberAngle of dispersion < 60°	Fiber-optic head design	90° deflection, Smooth sleeve, 90° deflection
Angle of dispersion < 60°   Yes     Compatibility with infrared light (1,450 un)   No     Application   Heat-resistant (≥100°C)     Applications   No     Adapter end sleeves required   No     Angle of dispersion   6.3°     Integrated lens   Ves     Minimal object diameter   0.05 mm <sup>1</sup> Included with delivery   Adapter seques content of the seques content	Fiber arrangement	Monofiber
Compatibility with infrared light (1,450 nm)NoApplicationHeat-resistant (≥100°C)Highly flexible/elastic fibers (bend radius c-4 mm)NoAdapter end sleeves requiredVesAdapter end sleeves requiredSoAngle of dispersionSoIntegrated lensNoMinimal object diameterOo Smm <sup>1</sup> Included with deliveryAdapter sleeves, BF-WLL160-Unity of the diameter	Core structure	Ø 0,5 mm Monofiber
ApplicationHeat-resistant (≥100°C)Highly flexible/elastic fibers (bend radius 1-4 mm)NoAdapter end sleeves requiredYesAdapter of dispersion6.3°Integrated lensYesMinimal object diameter0.05 mm <sup>1</sup> )Included with deliveryAdapter seques (SF-WLL160-101, 000, 000, 000, 000, 000, 000, 000	Angle of dispersion < 60 °	Yes
Highly flexible/elastic fibers (bend radius 1-4 mm)NoAdapter end sleeves requiredYesAngle of dispersion6.3°Integrated lensYesMinimal object diameter0.05 mm <sup>1)</sup> Included with deliveryAdapter sleeves, BF-WLL160-10 (1.0 mm) adapter sleeves, FC fiber cutter (5304141), protec- vie cladding for fiber head	Compatibility with infrared light (1,450 nm)	No
1-4 mm)YesAdapter end sleeves requiredYesAngle of dispersion6.3°Integrated lensYesMinimal object diameter0.05 mm <sup>1)</sup> Included with deliveryAdapter sleeves, BF-WLL160-10 (1.0 mm) adapter sleeves, FC fiber cutter (5304141), protective cladding for fiber head	Application	Heat-resistant (≥100 °C)
Angle of dispersion6.3°Integrated lensYesMinimal object diameter0.05 mm <sup>1)</sup> Included with deliveryAdapter sleeves, BF-WLL160-10 (1.0 mm) adapter sleeves, FC fiber cutter (5304141), protective cladding for fiber head		No
Integrated lens Yes   Minimal object diameter 0.05 mm <sup>1)</sup> Included with delivery Adapter sleeves, BF-WLL160-10 (1.0 mm) adapter sleeves, FC fiber cutter (5304141), protective cladding for fiber head	Adapter end sleeves required	Yes
Minimal object diameter   0.05 mm <sup>1)</sup> Included with delivery   Adapter sleeves, BF-WLL160-10 (1.0 mm) adapter sleeves, FC fiber cutter (5304141), protective cladding for fiber head	Angle of dispersion	6.3°
Included with delivery Adapter sleeves, BF-WLL160-10 (1.0 mm) adapter sleeves, FC fiber cutter (5304141), protec- tive cladding for fiber head	Integrated lens	Yes
tive cladding for fiber head	Minimal object diameter	0.05 mm <sup>1)</sup>
Compatibility tip adapters No	Included with delivery	
	Compatibility tip adapters	No

 $^{1)}$  Minimum detectable object was determined at optimum measuring distance and optimum setting.

#### Mechanics/electronics

Bend radius, fibre-optic cable	10 mm
Ambient operating temperature	-40 °C +105 °C

### Classifications

ECLASS 5.0	27270905
ECLASS 5.1.4	27270905
ECLASS 6.0	27270905
ECLASS 6.2	27270905
ECLASS 7.0	27270905
ECLASS 8.0	27270905
ECLASS 8.1	27270905
ECLASS 9.0	27270905
ECLASS 10.0	27270905
ECLASS 11.0	27270905
ECLASS 12.0	27270905
ETIM 5.0	EC002651
ETIM 6.0	EC002651
ETIM 7.0	EC002651
ETIM 8.0	EC002651
UNSPSC 16.0901	39121528

## Sensing ranges with WLL80

Operating mode 16 µs	645 mm
Operating mode 70 µs	1,945 mm
Operating mode 250 µs	3,040 mm
Operating mode 500 µs	3,600 mm
Operating mode 1 ms	3,600 mm
Operating mode 2 ms	3,600 mm
Operating mode 8 ms	3,600 mm

# Sensing ranges with WLL180T

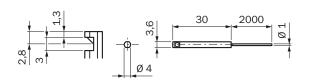
Operating mode 16 µs	220 mm
Operating mode 70 µs	760 mm
Operating mode 250 µs	1,500 mm
Operating mode 2 ms	2,900 mm
Operating mode 8 ms	4,000 mm
Note	Sensing ranges related to fiber-optic sensors with type of light: visible red light
Sensing ranges with GLL170	
Operating mode 250 µs	1,190 mm
<b>Operating mode 250 μs</b> Sensing ranges with GLL170T	1,190 mm
	1,190 mm 1,040 mm

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### Dimensional drawing (Dimensions in mm (inch))

LL3-TS22M



# 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



Online data sheet

