Baumer
Passion for Sensors

Fiber-optic sensor and cable

Manual

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Baumer fiber optic sensors are miniature photoelectric sensors.

Fiber optics products is dived into several main categories depending on material and shape:

- With glass cables
- With plastic cables
- Cylindrical
- Square
- Miniaturized
- Specialized

Baumer hubner fiber optic are very compact and rugged optical sensors. They perform accurate measurements in cramped spaces even in harsh conditions.

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Object detection

Fiber optic sensors and fiber optic cables

Plastic fiber optic sensors	4
Plastic fiber optic cables / Diffuse sensors	22
Plastic fiber optic cables / Through beam sensors	50
Glass fiber optic sensors	82

Accessories

Fiber optics	99

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product family	FVDK 10	FVDK 12	FVDK 12	FVDK 22	FVDK 66	FVDK 66	FVDK 67
version		integrated alarm output	fast version	integrated alarm output	master slave		2 outputs
width / diameter	10,4 mm	12 mm	12 mm	22 mm	10 mm	10 mm	10 mm
actual range Sb (FSE 200C1002)	160 mm	320 mm	140 mm	320 mm	340 mm	340 mm	1200 mm
sensing distance Tw (FUE 200C1003)	45 mm	90 mm	40 mm	90 mm	130 mm	130 mm	300 mm
response time / release time	< 1 ms	< 1 ms	< 0,05 ms	< 1 ms	0,25 ... 1 ms	0,25 ... 1 ms	0,14 ... 5 ms
light source	pulsed red LED	pulsed red LED	pulsed red LED	pulsed red LED	pulsed red LED	pulsed red LED	pulsed red LED
output circuit	NPN PNP	PNP	PNP	PNP	NPN PNP	NPN PNP	NPN PNP
connection types	cable connector	cable connector	connector	cable connector	cable	cable connector	cable connector
housing material	plastic	plastic	plastic	plastic	plastic	plastic	plastic
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product family	FVDK 67	FVDK 67	FVDK 80	FWDK 84
version	master slave		small hysteresis high sensitivity	
width / diameter	10 mm	10 mm	10 mm	10 mm
actual range Sb (FSE 200C1002)	1200 mm	1200 mm	240 mm 440 mm	90 mm
sensing distance Tw (FUE 200C1003)	300 mm	300 mm	70 mm 120 mm	25 mm
response time / release time	0,05 ... 5 ms 0,058 ... 5 ms	0,05 ... 5 ms 0,058 ... 5 ms	< 0,5 ms	1 ... 50 ms
light source	pulsed red LED	pulsed red LED	pulsed red LED	pulsed red LED
output circuit	NPN PNP	NPN PNP	NPN PNP	analog 1 ... 5 VDC
connection types	cable	cable connector flylead connector	cable flylead connector	cable
housing material	plastic	plastic	plastic	plastic
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General information

Fiber optics are the extended vision of conventional sensors and, due to their miniature construction, can be installed directly in the most difficult ambient conditions. As only light is conveyed, fiber optics are intrinsically safe, which adds to their range of applications.

Plastic fiber optics are characterized primarily by the properties of the employed raw material – the plastic. Advances in the manufacture of plastics permit bending radii of just 1 mm for the optical fibers, which is completely impossible for glass fibers. Fiber materials are now available which are extremely tolerant to bending and thereby make their use in drag chains possible.

Typical applications

Due to their versatility, optical fibers can be used in the most diverse applications. The small, space-saving sensing heads are very suitable for use in very constricted conditions. It is also possible to monitor whole areas or execute precise positioning by the different arrangements of the fibers.

- Due to the light weight and space-saving construction, optical fibers can be integrated directly in pick & place tools
- Detection, differentiation and positioning of the most diverse objects
- Monitoring of whole areas with fiber optic arrays with linear fiber arrangement
- Use at high, low or constantly fluctuating ambient temperatures
- Detection of levels or leaks, including hazardous liquids
- Detection of transparent media such as glass, wafers or films with focused fiber optic reflective types

Characteristics and advantages

Independent of the environment
As only light is conveyed, electromagnetic fields, high or low temperatures have no effect on the functional reliability.

Space-saving
The smallest sensing heads have a diameter of 1,5 mm and are only 10 mm long. With bending radii of just 1 mm, it is possible to integrate the eye of the sensor even in the most constricted places.

Precise light spots
Fiber cross-sections of only 0,25 mm generate a fine core beam in fiber optic through beam types, whereas doubling lenses in fiber optic reflective types permit precise light spots of 0,1 mm.

Application-specific fiber arrangement
The coaxial fiber arrangement permits optimum light distribution over the receiver fibers and thereby makes precise positioning of objects possible. Also, fiber optic arrays with a linear fiber arrangement allow a whole area to be monitored or the detection of randomly conveyed objects.

Application feedback
Multi-digit displays integrated in the fiber optic sensors permit the stability of the application to be assessed and make fault analyses possible.

Fast processes
Fiber optic sensors with response times of only 50 microseconds allow the detection of objects even in very fast processes.

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Technology and operation

The technology is based on intensity differences. The fiber optic through beam types detect an object breaking the light beam between the emitter and receiver. The fiber optic reflective types evaluate the amount of light reflected back from an object. The high-resolution analog/digital conversion in the fiber optic sensors permits very slight changes to be evaluated. This is important where the detection of small objects or differentiation of the finest contrasts is demanded.

Fundamentally, the fiber optics form a unit with the corresponding processing units, and the type of fiber optic head is mainly decisive for the detection of objects. The table below is intended to provide aid in understanding the large range of different sensing heads:

Version/type	Properties	Field of application	Example types
Standard	Large selection of different shapes. Economical	Standard applications, simple object detection	FUE 200C1003 FUE 200C1004
Coaxial	Homogenous light distribution over all receiver fibers. Lens adaptation possible	Optimally suited for positioning tasks. Highly accurate in combination with focusing lenses	FCE 200C1Y00 FCE 200D1Y00
Side light exit	90° light exit Reduced beam angle More installation space	Constricted conditions	FUE 200C4Y00 FSE 200C4002
Array	Linear arrangement of the fibers. Line lengths of 5,25 ... 21 mm. Reflective or through beam types	Detection of objects which cannot be precisely conveyed. Measurement of object sizes or edge positions	FUE 200C6Y00 FSE 200C6Y00
Longer range Parallel beam	Integrated lens Small beam angle Long range	Object detection and positioning over a long distance. No influencing by interfering objects close to the optical fiber	FLE 200C1Y00 FPE 200C1Y00
Highly flexible	Min. bending radius down to 1 mm Suitable for flexible installation	Constricted conditions	FUE 200E1Y00 FSE 200F6Y00
Bendable	Extremely bendable, designed for bending more than 1 million times.	For use in drag chains or on moving parts	FSE 200D1Y50
Small light spot	In combination with focusing lenses, a light spot of only 0,1mm can be produced.	Detection of very small objects Highly accurate edge positioning	FCE 050C1Y10 with lens 134544
Level detection	Special sensing tip to avoid liquid residues. Version for pipe/hose fitting	Detection of levels in different liquids, in or out of contact	FUL 200D2Y00 FSL 500C6Y00 FOC 500C6Y00
Spezial versions	Heat and cold resistent Chemical and oil resistent	For extreme environmental. Conditions such as chemical or aggressive surroundings or temperatures from -60 ... +350 °C	FUG 500C1Y00 FUC 200C2Y00

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Fiber optic sensors of the ranges FVDK 66 and FVDK 67 – versatile and multifunctional

The generation of multifunction fiber optic sensors is particularly suitable for handling processes, where very fast movements as well as exact positioning or the detection of very small objects are important. A single sensor undertakes the tasks which were formerly performed by many different sensors. The user can choose from 3 to 8 different operating modes from very short response time to high sensitivity to adapt the sensor optimally to his application. Despite the all-in-one concept, the requirement for simple operation is also fulfilled.

	FVDK 67	FVDK 66
Sensing range (FSE 200C1002)	1200 mm	340 mm
Sensing distance (FUE 200C1003)	300 mm	130 mm
Min. response time	50 µsec	250 µsec
Speed / sensing modes	5 levels	3 levels
Adjustment	Automatically via teach-in manually with +/- button	Automatically via teach-in manually with +/- button
Suppression of reciprocal influences	8 sensors	2 sensors
Long-term stability	yes	yes
Timer	On- or Off-Delay On- and Off-Delay One-Shot One-Shot and On-Delay	On- or Off-Delay
Available versions	Standard With external teach-in Master/Slave 2 switching outputs	Standard With external teach-in Master/Slave
Additional functions	Factory setup Rotate display Delay / freeze display Keylock Chemical and oil resistant	Factory setup Rotate display

Reduced wiring

With the master/slave version up to 16 sensors can be connected together to one unit (consisting of one master and the appropriate number of slaves). Only the power of the master has to be wired. The slaves are supplied through the side plug. For maximum flexibility in the wiring of the individual sensor signals each slave has a single-core cable. Series 66 and 67 can be combined in any order.

Application feedback

The application feedback is particularly important during commissioning if consistent detection is to be ensured. The switching point and the relative received signal are indicated simultaneously on the 2x4 digit display of the FVDK 67 range. With this information it can be determined at a glance whether the switching point has been optimally adjusted.

Long-term stability

In both sensor series measures have been taken to ensure the long-term stability of the switching function. This is done either by compensating the aging of the emitting LED or by repositioning the switching threshold.

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Teach-in or potentiometer? Just simple operation

The fiber optic sensors of the FVDK 12, 22 and 60 ranges are characterized particularly by their simple handling. The sensitivity can be adjusted either with a potentiometer or a Teach-in button. Differently colored LEDs or simple displays provide the adjustment feedback. The sensor ranges differ primarily in their speed, sensitivity, hysteresis functions and supplementary functions such as timers, external Teach-in or logical output gates. However, all have the same thing in common: regardless of where the sensor is installed, the adjustment can be made practically without the need for operating instructions.

Type FVDK 12

- Integrated, dynamic Teach-in allows the most reliable detection of moving objects or small parts for which it is difficult to find an exact Teach-in position
- High-speed version with a response time of only 50 µs
- Integrated alarm output warns in advance of excessive soiling
- Protection class IP 65

Type FVDK 22

- Two sensors in one housing reduces the necessary wiring
- The two integrated sensors do not interfere with each other
- It is possible to link the two outputs logically
- Version with external Teach-in from the controller

Teach-in or potentiometer? Just simple operation

Type FVDK 10

- Smallest fiber optic sensor
- Easy and quick sensitivity adjustment with potentio-meter
- Protection against optical interference between up to 3 optical fibers

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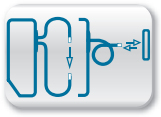
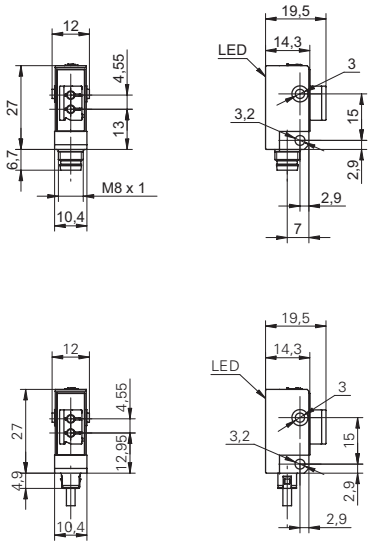


Sb = 160 mm
Tw = 45 mm

- sensitivity adjustable via potentiometer
- suppression of mutual optical interference

general data	
actual range Sb (FSE 200C1002)	160 mm
sensing distance Tw (FUE 200C1003)	45 mm
light source	pulsed red LED
light indicator	LED yellow
alignment / soiled lens indicator	flashing light indicator
adjustment	potentiometer, 270°
wave length	660 nm
suppression of reciprocal influence	yes
electrical data	
response time / release time	< 1 ms
voltage supply range +Vs	10 ... 30 VDC
current consumption max. (no load)	30 mA
current consumption typ.	20 mA
voltage drop Vd	< 1,8 VDC
output function	light / dark operate
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	10,4 mm
height / length	27 mm
depth	14 mm
type	rectangular
housing material	plastic (ASA)
ambient conditions	
operating temperature	-25 ... +55 °C
protection class	IP 40
connectors and mating connectors	
ESG 32AH0200	Connector M8, 4 pin, straight, 2 m
ESW 31AH0200	Connector M8, 4 pin, angular, 2 m
additional cable connectors and field wireable connectors: see accessories	
Accessories	
10150326	Sensofix series 10 / series 20
10114501	Mounting bracket series 10 (U design)
10133792	Mounting bracket series 10 (L design)
10162083	Mounting panel for sensors series 10
10118798	Mounting bracket series 10
for details: see accessories section	

dimension drawings



connection diagrams

order reference	output circuit	connection types
FVDK 10N5101	NPN	cable, 2 m
FVDK 10N5101/S35A	NPN	connector M8
FVDK 10P5101	PNP	cable, 2 m
FVDK 10P5101/S35A	PNP	connector M8

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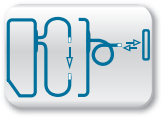
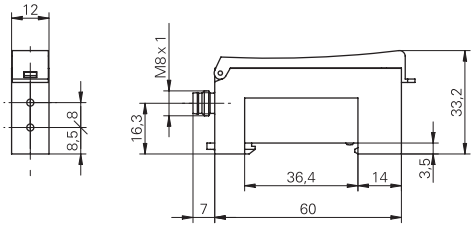


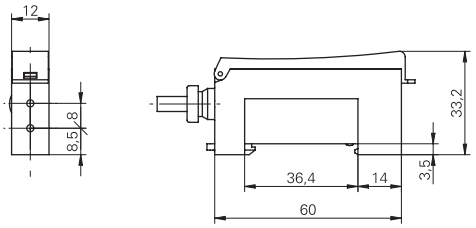
Sb = 320 mm
Tw = 90 mm

- sensitivity adjustable via Teach-in
- integrated alarm output
- protection class IP 65

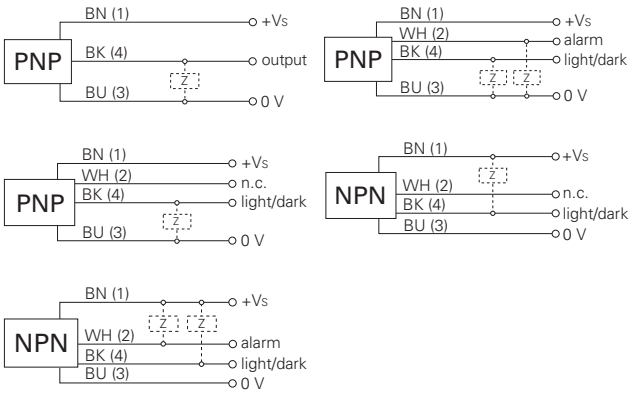
general data	
actual range Sb (FSE 200C1002)	320 mm
sensing distance Tw (FUE 200C1003)	90 mm
light source	pulsed red LED
light indicator	LED green
alignment / soiled lens indicator	LED green, flashing
output indicator	LED yellow
adjustment	Teach-in
wave length	660 nm
electrical data	
response time / release time	< 1 ms
voltage supply range +Vs	10 ... 30 VDC
current consumption max. (no load)	46 mA
current consumption typ.	36 mA
voltage drop Vd	< 1,8 VDC
output function	light / dark operate switchable
output circuit	PNP
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	12 mm
height / length	33,2 mm
depth	60 mm
type	rectangular
housing material	PBT / PC
ambient conditions	
operating temperature	-25 ... +55 °C
protection class	IP 65
connectors and mating connectors	
ESG 32AH0200	Connector M8, 4 pin, straight, 2 m
ESW 31AH0200	Connector M8, 4 pin, angular, 2 m
additional cable connectors and field wireable connectors: see accessories	
Accessories	
10145702	Mounting bracket for fiber optic sensors series 12
for details: see accessories section	

dimension drawings

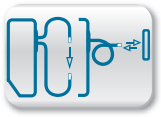




connection diagrams



order reference	min. output pulse length	connection types	version
FVDK 12P6101	-	cable, 2 m	-
FVDK 12P6101/S35A	-	connector M8 4 pin	-
FVDK 12P6401	-	cable, 2 m	integrated alarm output
FVDK 12P6401/S35A	-	connector M8 4 pin	integrated alarm output
FVDK 12P6501/S35A	40 ms	connector M8 4 pin	integrated alarm output

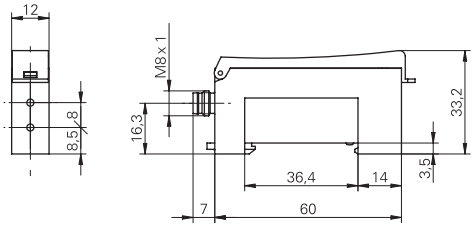


Sb = 140 mm

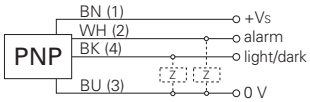
- short response time 50 µs
- fast version < 0,05 ms
- integrated alarm output

general data	
version	fast version
actual range Sb (FSE 200C1002)	140 mm
sensing distance Tw (FUE 200C1003)	40 mm
light source	pulsed red LED
light indicator	LED green
alignment / soiled lens indicator	LED green, flashing
output indicator	LED yellow
adjustment	Teach-in
wave length	660 nm
electrical data	
response time / release time	< 0,05 ms
voltage supply range +Vs	10 ... 30 VDC
current consumption max. (no load)	45 mA
current consumption typ.	40 mA
voltage drop Vd	< 1,8 VDC
output function	light / dark operate switchable
output circuit	PNP
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	12 mm
height / length	33,2 mm
depth	60 mm
type	rectangular
housing material	PBT / PC
connection types	connector M8 4 pin
ambient conditions	
operating temperature	-25 ... +55 °C
protection class	IP 65
connectors and mating connectors	
ESG 32AH0200	Connector M8, 4 pin, straight, 2 m
ESW 31AH0200	Connector M8, 4 pin, angular, 2 m
additional cable connectors and field wireable connectors: see accessories	
Accessories	
10145702	Mounting bracket for fiber optic sensors series 12
for details: see accessories section	

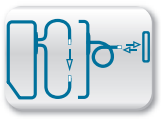
dimension drawing



connection diagram



order reference
FVDK 12P6410/S35A

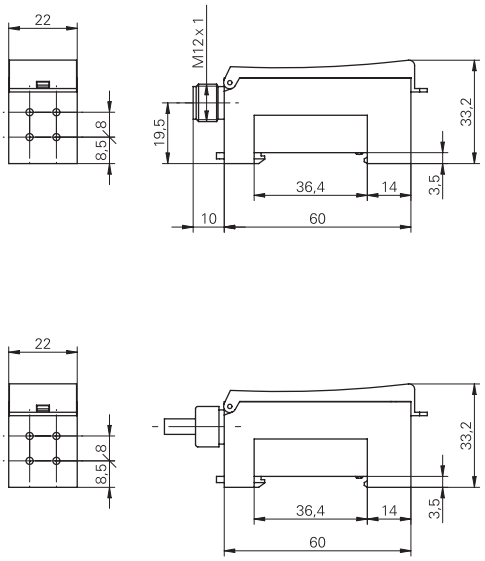


Sb = 320 mm
Tw = 90 mm

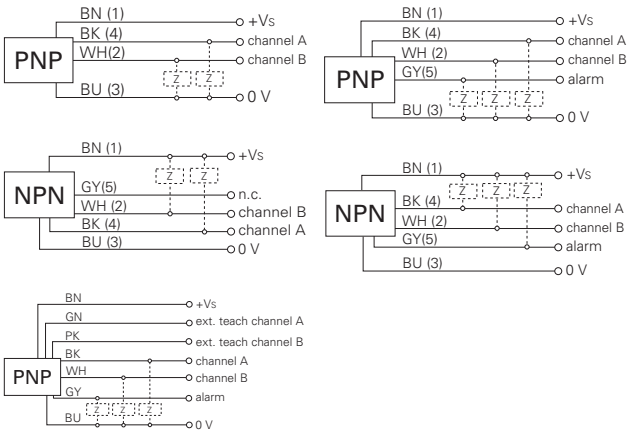
- 2 sensors in one housing
- sensitivity adjustable via Teach-in
- optional logical output operation

general data	
actual range Sb (FSE 200C1002)	320 mm
sensing distance Tw (FUE 200C1003)	90 mm
light source	pulsed red LED
light indicator	LED green
alignment / soiled lens indicator	LED green, flashing
output indicator	LED yellow
adjustment	Teach-in
wave length	660 nm
suppression of reciprocal influence	yes
electrical data	
response time / release time	< 1 ms
voltage supply range +Vs	10 ... 30 VDC
current consumption max. (no load)	68 mA
current consumption typ.	50 mA
voltage drop Vd	< 1,8 VDC
output function	light / dark operate switchable
output circuit	PNP
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	22 mm
height / length	33,2 mm
depth	60 mm
type	rectangular
housing material	PBT / PC
ambient conditions	
operating temperature	-25 ... +55 °C
protection class	IP 65
connectors and mating connectors	
ESG 34CH0200	Connector M12, 5 pin, straight, 2 m
ESW 33CH0200	Connector M12, 5 pin, angular, 2 m
ESW 33CH0500	Connector M12, 5 pin, angular, 5 m
additional cable connectors and field wireable connectors: see accessories	
Accessories	
10125534	Mounting bracket for fiber optic sensors series 22
for details: see accessories section	

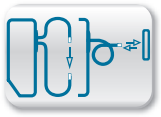
dimension drawings



connection diagrams



order reference	min. output pulse length	connection types	version
FVDK 22P6101	-	cable, 2 m	-
FVDK 22P6101/S14C	-	connector M12 5 pin	-
FVDK 22P6401	-	cable, 2 m	integrated alarm output
FVDK 22P6401/S14C	-	connector M12 5 pin	integrated alarm output
FVDK 22P6501/S14C	40 ms	connector M12 5 pin	integrated alarm output

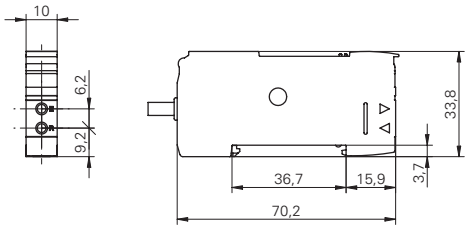


Sb = 340 mm
Tw = 130 mm

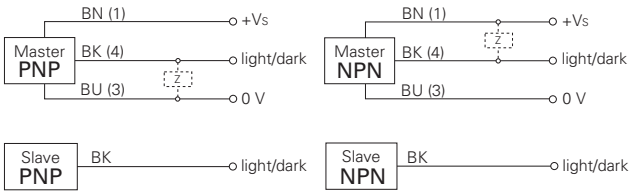
- master/slave system with up to 15 extension units
- 2x4 digit display

general data	
actual range Sb (FSE 200C1002)	340 mm
sensing distance Tw (FUE 200C1003)	130 mm
light source	pulsed red LED
light indicator	2 x 4-digit display
output indicator	LED yellow
adjustment	Teach-in
wave length	645 nm
suppression of reciprocal influence	yes
electrical data	
response time / release time	0,25 ... 1 ms (adjustable)
voltage supply range +Vs	10,8 ... 26,4 VDC
current consumption max. (no load)	30 mA
voltage drop Vd	< 2,1 VDC
output function	light / dark operate switchable
on / off delay	1 ... 5000 ms
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	10 mm
height / length	33,8 mm
depth	70,2 mm
type	rectangular
housing material	polycarbonate/ABS
connection types	cable, 2 m
ambient conditions	
operating temperature	-20 ... +55 °C
protection class	IP 40
Accessories	
10159806	Mounting bracket for fiber optic sensors series 60, 66, 67, 80
for details: see accessories section	

dimension drawing



connection diagrams



order reference	output circuit	version
FVDK 10N66YM	NPN	master
FVDK 10N66YS	NPN	slave
FVDK 10P66YM	PNP	master
FVDK 10P66YS	PNP	slave

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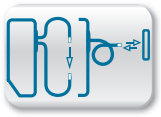
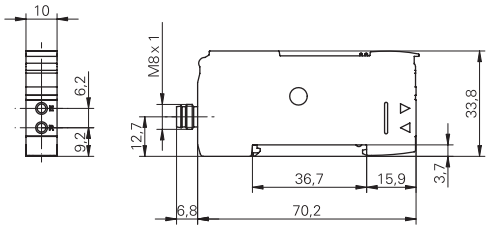


Sb = 340 mm
Tw = 130 mm

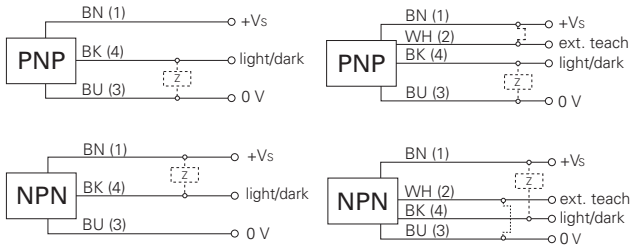
- 2x4 digit display indicates the switching point and receiving light level
- easy operation

general data	
actual range Sb (FSE 200C1002)	340 mm
sensing distance Tw (FUE 200C1003)	130 mm
light source	pulsed red LED
light indicator	2 x 4-digit display
output indicator	LED yellow
wave length	645 nm
suppression of reciprocal influence	yes
electrical data	
response time / release time	0,25 ... 1 ms (adjustable)
voltage supply range +Vs	10,8 ... 26,4 VDC
current consumption max. (no load)	30 mA
voltage drop Vd	< 2,1 VDC
output function	light / dark operate switchable
on / off delay	1 ... 5000 ms
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	10 mm
height / length	33,8 mm
depth	70,2 mm
type	rectangular
housing material	polycarbonate/ABS
ambient conditions	
operating temperature	-20 ... +55 °C
protection class	IP 40
connectors and mating connectors	
ESG 32AH0200	Connector M8, 4 pin, straight, 2 m
ESW 31AH0200	Connector M8, 4 pin, angular, 2 m
additional cable connectors and field wireable connectors: see accessories	
Accessories	
10159806	Mounting bracket for fiber optic sensors series 60, 66, 67, 80
for details: see accessories section	

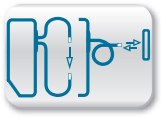
dimension drawing



connection diagrams



order reference	adjustment	output circuit	connection types
FVDK 10N66Y0	Teach-in	NPN	cable, 2 m
FVDK 10N66Y0/S35A	Teach-in	NPN	connector M8 4 pin
FVDK 10N66YR	Teach-in: button / external	NPN	cable, 2 m
FVDK 10P66Y0	Teach-in	PNP	cable, 2 m
FVDK 10P66Y0/S35A	Teach-in	PNP	connector M8 4 pin
FVDK 10P66YR	Teach-in: button / external	PNP	cable, 2 m

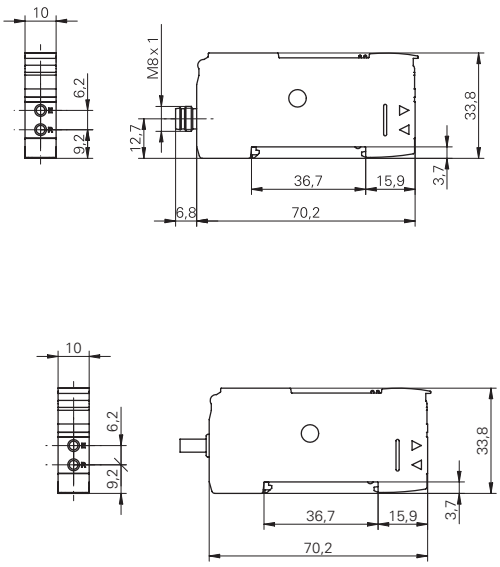


Sb = 1200 mm
Tw = 300 mm

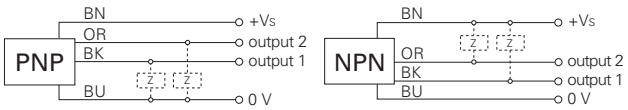
- 2 independently adjustable outputs
- suppression of mutual optical interference
- 2x4 digit display

general data	
version	2 outputs
actual range Sb (FSE 200C1002)	1200 mm
sensing distance Tw (FUE 200C1003)	300 mm
light source	pulsed red LED
light indicator	2 x 4-digit display
output indicator	LED orange
adjustment	Teach-in
wave length	660 nm
suppression of reciprocal influence	yes
electrical data	
response time / release time	0,14 ... 5 ms (adjustable)
voltage supply range +Vs	10,8 ... 26,4 VDC
current consumption max. (no load)	30 mA
voltage drop Vd	< 2,1 VDC
output function	light / dark operate switchable
on / off delay	0,25 ... 20000 ms
min. output pulse length	0,25 ... 20000 ms
output current	< 30 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	10 mm
height / length	33,8 mm
depth	70,2 mm
type	rectangular
housing material	polycarbonate/ABS
ambient conditions	
operating temperature	-20 ... +55 °C
protection class	IP 40
Accessories	
10159806	Mounting bracket for fiber optic sensors series 60, 66, 67, 80
for details: see accessories section	

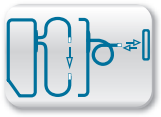
dimension drawings



connection diagrams



order reference	output circuit	connection types
FVDK 10N67Y2	NPN	cable, 2 m
FVDK 10P67Y2/S35A	PNP	connector M8 4 pin

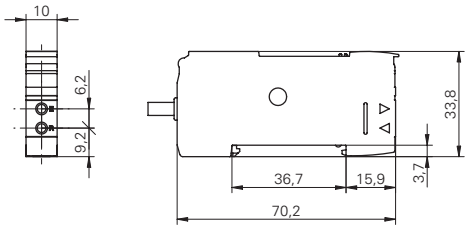


Sb = 1200 mm
Tw = 300 mm

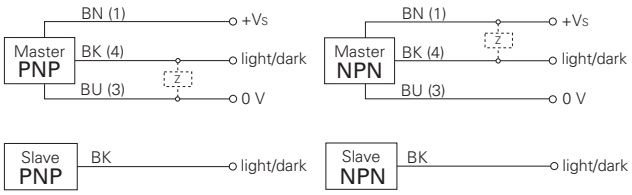
- master/slave system with up to 16 extension units
- integrated dynamic auto-teach-in function
- 2x4 digit display

general data	
actual range Sb (FSE 200C1002)	1200 mm
sensing distance Tw (FUE 200C1003)	300 mm
light source	pulsed red LED
light indicator	2 x 4-digit display
output indicator	LED orange
adjustment	Teach-in
wave length	660 nm
suppression of reciprocal influence	yes
electrical data	
voltage supply range +Vs	10,8 ... 26,4 VDC
current consumption max. (no load)	30 mA
voltage drop Vd	< 2,1 VDC
output function	light / dark operate switchable
on / off delay	0,25 ... 20000 ms
min. output pulse length	0,25 ... 20000 ms
output current	< 50 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	10 mm
height / length	33,8 mm
depth	70,2 mm
type	rectangular
housing material	polycarbonate/ABS
ambient conditions	
operating temperature	-20 ... +55 °C
protection class	IP 40
Accessories	
10159806	Mounting bracket for fiber optic sensors series 60, 66, 67, 80
for details: see accessories section	

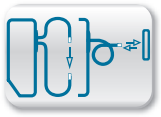
dimension drawing



connection diagrams



order reference	response time / release time	output circuit	connection types	version
FVDK 10N67YM	0,05 ... 5 ms (adjustable)	NPN	cable, 2 m	master
FVDK 10N67YS	0,05 ... 5 ms (adjustable)	NPN	cable (output only), 2 m	slave
FVDK 10P67YM	0,058 ... 5 ms (adjustable)	PNP	cable, 2 m	master
FVDK 10P67YS	0,058 ... 5 ms (adjustable)	PNP	cable (output only), 2 m	slave

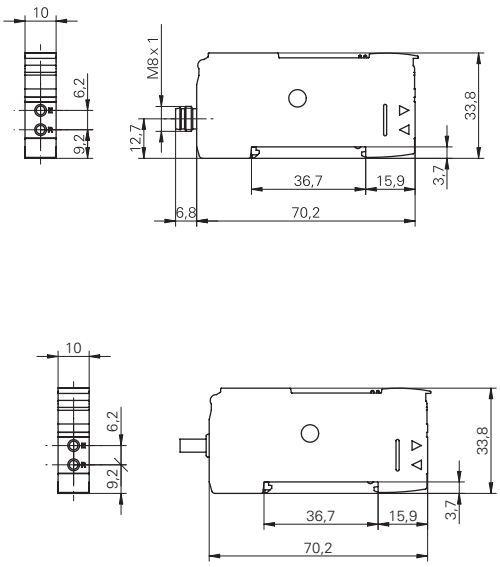


Sb = 1200 mm
Tw = 300 mm

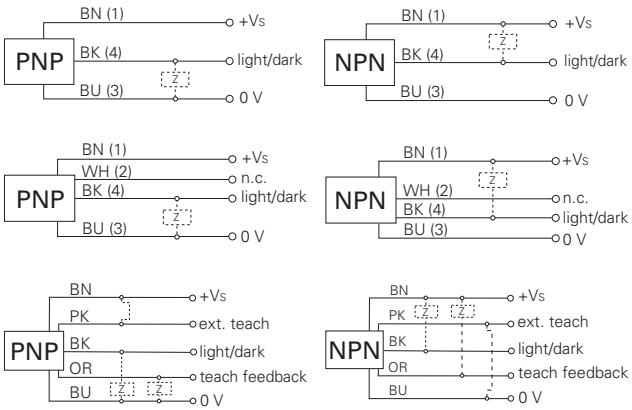
- 2x4 digit display indicates the switching point and receiving light level
- versatile applicable due to 8 integrated operating

general data	
actual range Sb (FSE 200C1002)	1200 mm
sensing distance Tw (FUE 200C1003)	300 mm
light source	pulsed red LED
light indicator	2 x 4-digit display
output indicator	LED orange
wave length	660 nm
suppression of reciprocal influence	yes
electrical data	
voltage supply range +Vs	10,8 ... 26,4 VDC
current consumption max. (no load)	30 mA
voltage drop Vd	< 2,1 VDC
output function	light / dark operate switchable
on / off delay	0,25 ... 20000 ms
min. output pulse length	0,25 ... 20000 ms
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	10 mm
height / length	33,8 mm
depth	70,2 mm
type	rectangular
housing material	polycarbonate/ABS
ambient conditions	
operating temperature	-20 ... +55 °C
protection class	IP 40
connectors and mating connectors	
ESG 32AH0200	Connector M8, 4 pin, straight, 2 m
ESW 31AH0200	Connector M8, 4 pin, angular, 2 m
additional cable connectors and field wireable connectors: see accessories	
Accessories	
10159806	Mounting bracket for fiber optic sensors series 60, 66, 67, 80
for details: see accessories section	

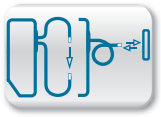
dimension drawings



connection diagrams



order reference	adjustment	response time / release time	output circuit	output current	connection types
FVDK 10N67Y0	Teach-in	0,05 ... 5 ms (adjustable)	NPN	< 100 mA	cable, 2 m
FVDK 10N67Y0/S35A	Teach-in	0,05 ... 5 ms (adjustable)	NPN	< 100 mA	connector M8 4 pin
FVDK 10N67YR	Teach-in: button / external	0,05 ... 5 ms (adjustable)	NPN	< 50 mA	cable, 2 m
FVDK 10P67Y0	Teach-in	0,058 ... 5 ms (adjustable)	PNP	< 100 mA	cable, 2 m
FVDK 10P67Y0/KS35A	Teach-in	0,058 ... 5 ms (adjustable)	PNP	< 100 mA	flylead connector M8 4 pin, L=200 mm
FVDK 10P67Y0/S35A	Teach-in	0,058 ... 5 ms (adjustable)	PNP	< 100 mA	connector M8 4 pin
FVDK 10P67YR	Teach-in: button / external	0,058 ... 5 ms (adjustable)	PNP	< 50 mA	cable, 2 m

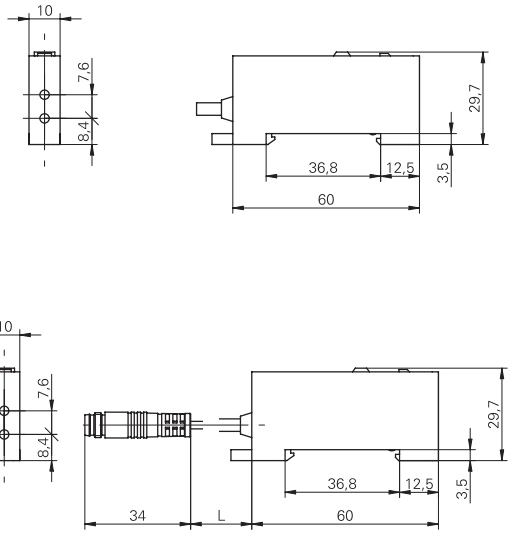


Sb = 440 mm
Tw = 120 mm

- sensitivity adjustable via potentiometer
- fast and high sensitivity version available
- integrated alarm output

general data	
light source	pulsed red LED
light indicator	LED green
alignment / soiled lens indicator	LED green, flashing
output indicator	LED red
adjustment	potentiometer
wave length	680 nm
suppression of reciprocal influence	yes
electrical data	
response time / release time	< 0,5 ms
voltage supply range +Vs	10 ... 30 VDC
current consumption max. (no load)	35 mA
voltage drop Vd	< 1 VDC
output function	light / dark operate switchable
off delay	40 ms
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	10 mm
height / length	29,7 mm
depth	60 mm
type	rectangular
housing material	polycarbonate/ABS
ambient conditions	
operating temperature	-20 ... +60 °C
protection class	IP 40
connectors and mating connectors	
ESG 32AH0200	Connector M8, 4 pin, straight, 2 m
ESW 31AH0200	Connector M8, 4 pin, angular, 2 m
additional cable connectors and field wireable connectors: see accessories	

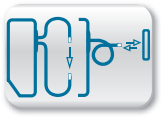
dimension drawings



cable length L = 200 mm

connection diagrams

order reference	actual range Sb (FSE 200C1002)	sensing distance Tw (FUE 200C1003)	output circuit	connection types	version
FVDK 10N81Y0	240 mm	70 mm	NPN	cable, 2 m	small hysteresis
FVDK 10N83Y0	440 mm	120 mm	NPN	cable, 2 m	high sensitivity
FVDK 10P81Y0	240 mm	70 mm	PNP	cable, 2 m	small hysteresis
FVDK 10P81Y0/KS35A	240 mm	70 mm	PNP	flylead connector M8 4 pin, L=200 mm	small hysteresis
FVDK 10P83Y0	440 mm	120 mm	PNP	cable, 2 m	high sensitivity
FVDK 10P83Y0/KS35A	440 mm	120 mm	PNP	flylead connector M8 4 pin, L=200 mm	high sensitivity



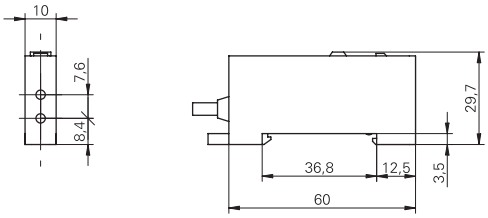
Sb = 90 mm
Tw = 25 mm

- analog output 1 ... 5 VDC
- adjustable resolution

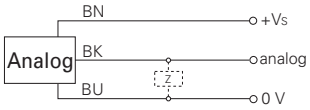
general data	
actual range Sb (FSE 200C1002)	90 mm
sensing distance Tw (FUE 200C1003)	25 mm
light source	pulsed red LED
alignment / soiled lens indicator	LED red
output indicator	LED green
adjustment	potentiometer
resolution	0,3 ... 6 % (Full Scale)
wave length	680 nm
electrical data	
response time / release time	1 ... 50 ms (adjustable)
voltage supply range +Vs	10,8 ... 26,4 VDC
current consumption max. (no load)	40 mA
output circuit	analog 1 ... 5 VDC
load resistance	> 10 kOhm
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	10 mm
height / length	29,7 mm
depth	60 mm
type	rectangular
housing material	polycarbonate/ABS
connection types	cable, 2 m
ambient conditions	
operating temperature	-20 ... +60 °C
protection class	IP 40

order reference
FWDK 10U84Y0

dimension drawing



connection diagram



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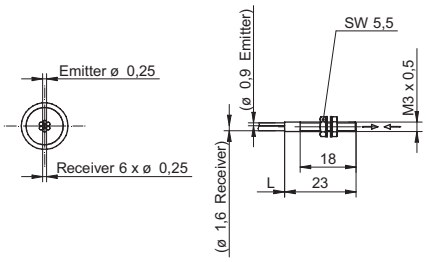
Tw = 1 ... 60 mm

- with thread
- coaxial

general data	
particular characteristics	coaxial
type	Diffuse sensors
sensing distance Tw	1 ... 60 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	3 mm
height / length (head)	23 mm
material (head)	stainless steel
bending radius	15 mm
cable jacket diameter	1,6 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	500 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
10134544	Focusing lens M3 ø 0,1 mm
10134543	Focusing lens M3 ø 0,4 m
10134542	Focusing lens M3 ø 2 mm
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 9 mm (HS)	-	1 ... 45 mm (nL)	1 ... 60 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 9 mm (HS)	-	1 ... 45 mm (nL)	1 ... 60 mm (HP)
FVDK 67 (master/slave)	1 ... 9 mm (HS)	-	1 ... 45 mm (nL)	1 ... 60 mm (HP)
FVDK 66 (standard version)	-	1 ... 15 mm (FT)	1 ... 25 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 15 mm (FT)	1 ... 25 mm (nL)	-
FVDK 22	-	-	1 ... 20 mm (nL)	-
FVDK 12	-	-	1 ... 20 mm (nL)	-
FVDK 12 (fast version)	1 ... 19 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 10 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 5 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FCE 050C1Y10

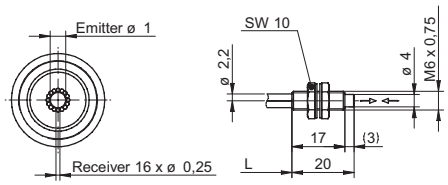
Tw = 1 ... 400 mm

- with thread
- coaxial

general data	
particular characteristics	coaxial
type	Diffuse sensors
sensing distance Tw	1 ... 400 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	6 mm
height / length (head)	20 mm
material (head)	stainless steel
bending radius	20 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 65 mm (HS)	-	1 ... 300 mm (nL)	1 ... 400 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 65 mm (HS)	-	1 ... 300 mm (nL)	1 ... 400 mm (HP)
FVDK 67 (master/slave)	1 ... 65 mm (HS)	-	1 ... 300 mm (nL)	1 ... 400 mm (HP)
FVDK 66 (standard version)	-	1 ... 90 mm (FT)	1 ... 150 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 90 mm (FT)	1 ... 150 mm (nL)	-
FVDK 22	-	-	1 ... 90 mm (nL)	-
FVDK 12	-	-	1 ... 90 mm (nL)	-
FVDK 12 (fast version)	1 ... 85 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 45 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 25 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FCE 200C1Y00

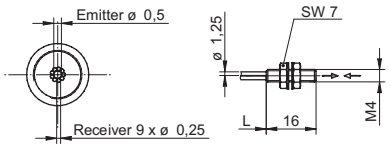
Tw = 1 ... 110 mm

- with thread
- coaxial

general data	
particular characteristics	coaxial
type	Diffuse sensors
sensing distance Tw	1 ... 110 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	4 mm
height / length (head)	16 mm
material (head)	stainless steel
bending radius	15 mm
cable jacket diameter	1,25 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 12 mm (HS)	-	1 ... 80 mm (nL)	1 ... 110 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 12 mm (HS)	-	1 ... 80 mm (nL)	1 ... 110 mm (HP)
FVDK 67 (master/slave)	1 ... 12 mm (HS)	-	1 ... 80 mm (nL)	1 ... 110 mm (HP)
FVDK 66 (standard version)	-	1 ... 20 mm (FT)	1 ... 35 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 20 mm (FT)	1 ... 35 mm (nL)	-
FVDK 22	-	-	1 ... 8 mm (nL)	-
FVDK 12	-	-	1 ... 8 mm (nL)	-
FVDK 12 (fast version)	1 ... 7 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 16 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 25 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FCE 200C1Y01

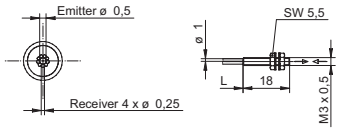
Tw = 1 ... 86 mm

- with thread
- coaxial

general data	
particular characteristics	coaxial
type	Diffuse sensors
sensing distance Tw	1 ... 86 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	3 mm
height / length (head)	18 mm
material (head)	stainless steel
bending radius	15 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
10134544	Focusing lens M3 ø 0,1 mm
10134543	Focusing lens M3 ø 0,4 m
10134542	Focusing lens M3 ø 2 mm
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 14 mm (HS)	-	1 ... 65 mm (nL)	1 ... 86 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 14 mm (HS)	-	1 ... 65 mm (nL)	1 ... 86 mm (HP)
FVDK 67 (master/slave)	1 ... 14 mm (HS)	-	1 ... 65 mm (nL)	1 ... 86 mm (HP)
FVDK 66 (standard version)	-	1 ... 21 mm (FT)	1 ... 35 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 21 mm (FT)	1 ... 35 mm (nL)	-
FVDK 22	-	-	1 ... 20 mm (nL)	-
FVDK 12	-	-	1 ... 20 mm (nL)	-
FVDK 12 (fast version)	1 ... 18 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 10 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 5 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FCE 200D1Y00

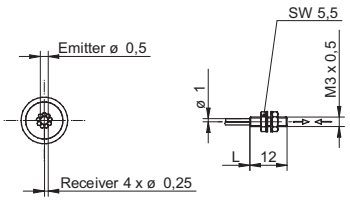
Tw = 1 ... 95 mm

- with thread
- coaxial

general data	
particular characteristics	coaxial
type	Diffuse sensors
sensing distance Tw	1 ... 95 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	3 mm
height / length (head)	12 mm
material (head)	stainless steel
bending radius	15 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
10134544	Focusing lens M3 ø 0,1 mm
10134543	Focusing lens M3 ø 0,4 m
10134542	Focusing lens M3 ø 2 mm
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 8 mm (HS)	-	1 ... 65 mm (nL)	1 ... 95 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 8 mm (HS)	-	1 ... 65 mm (nL)	1 ... 95 mm (HP)
FVDK 67 (master/slave)	1 ... 8 mm (HS)	-	1 ... 65 mm (nL)	1 ... 95 mm (HP)
FVDK 66 (standard version)	-	1 ... 16 mm (FT)	1 ... 28 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 16 mm (FT)	1 ... 28 mm (nL)	-
FVDK 22	-	-	1 ... 20 mm (nL)	-
FVDK 12	-	-	1 ... 20 mm (nL)	-
FVDK 12 (fast version)	1 ... 18 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 10 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 5 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FCE 200D1Y01

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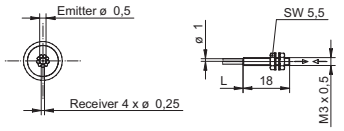
Tw = 1 ... 46 mm

- with thread
- coaxial

general data	
particular characteristics	ultra flexible coaxial
type	Diffuse sensors
sensing distance Tw	1 ... 46 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	3 mm
height / length (head)	18 mm
material (head)	stainless steel
bending radius	4 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
10134544	Focusing lens M3 ø 0,1 mm
10134543	Focusing lens M3 ø 0,4 m
10134542	Focusing lens M3 ø 2 mm
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 7 mm (HS)	-	1 ... 35 mm (nL)	1 ... 46 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 7 mm (HS)	-	1 ... 35 mm (nL)	1 ... 46 mm (HP)
FVDK 67 (master/slave)	1 ... 7 mm (HS)	-	1 ... 35 mm (nL)	1 ... 46 mm (HP)
FVDK 66 (standard version)	-	1 ... 10 mm (FT)	1 ... 18 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 10 mm (FT)	1 ... 18 mm (nL)	-
FVDK 22	-	-	1 ... 18 mm (nL)	-
FVDK 12	-	-	1 ... 18 mm (nL)	-
FVDK 12 (fast version)	1 ... 16 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 8 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 4 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FCE 200E1Y00

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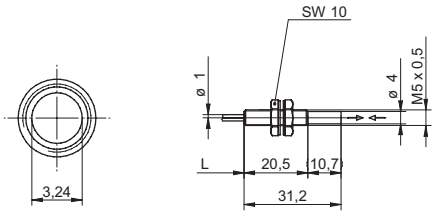
Tw = 1 ... 70 mm

- with thread
- coaxial

general data	
particular characteristics	parallel beam
type	Diffuse sensors
sensing distance Tw	1 ... 70 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	5 mm
height / length (head)	31,2 mm
material (head)	stainless steel
bending radius	15 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 8 mm (HS)	-	1 ... 60 mm (nL)	1 ... 70 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 8 mm (HS)	-	1 ... 60 mm (nL)	1 ... 70 mm (HP)
FVDK 67 (master/slave)	1 ... 8 mm (HS)	-	1 ... 60 mm (nL)	1 ... 70 mm (HP)
FVDK 66 (standard version)	-	1 ... 16 mm (FT)	1 ... 20 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 16 mm (FT)	1 ... 20 mm (nL)	-
FVDK 22	-	-	1 ... 20 mm (nL)	-
FVDK 12	-	-	1 ... 20 mm (nL)	-
FVDK 12 (fast version)	1 ... 18 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 10 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 5 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FKE 200D1Y00

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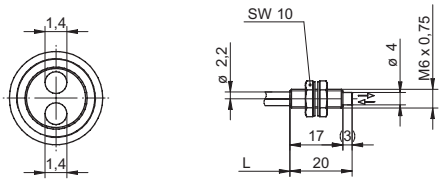
Tw = 1 ... 530 mm

- with thread
- long distance

general data	
particular characteristics	long distance
type	Diffuse sensors
sensing distance Tw	1 ... 530 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	6 mm
height / length (head)	20 mm
material (head)	stainless steel
bending radius	20 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 85 mm (HS)	-	1 ... 400 mm (nL)	1 ... 530 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 85 mm (HS)	-	1 ... 400 mm (nL)	1 ... 530 mm (HP)
FVDK 67 (master/slave)	1 ... 85 mm (HS)	-	1 ... 400 mm (nL)	1 ... 530 mm (HP)
FVDK 66 (standard version)	-	1 ... 120 mm (FT)	1 ... 210 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 120 mm (FT)	1 ... 210 mm (nL)	-
FVDK 22	-	-	1 ... 160 mm (nL)	-
FVDK 12	-	-	1 ... 160 mm (nL)	-
FVDK 12 (fast version)	1 ... 150 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 70 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 45 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FLE 200C1Y00

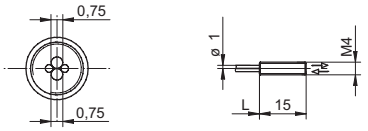
Tw = 1 ... 200 mm

- with thread
- long distance

general data	
particular characteristics	long distance
type	Diffuse sensors
sensing distance Tw	1 ... 200 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	4 mm
height / length (head)	15 mm
material (head)	stainless steel
bending radius	15 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 32 mm (HS)	-	1 ... 150 mm (nL)	1 ... 200 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 32 mm (HS)	-	1 ... 150 mm (nL)	1 ... 200 mm (HP)
FVDK 67 (master/slave)	1 ... 32 mm (HS)	-	1 ... 150 mm (nL)	1 ... 200 mm (HP)
FVDK 66 (standard version)	-	1 ... 46 mm (FT)	1 ... 75 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 46 mm (FT)	1 ... 75 mm (nL)	-
FVDK 22	-	-	1 ... 70 mm (nL)	-
FVDK 12	-	-	1 ... 70 mm (nL)	-
FVDK 12 (fast version)	1 ... 66 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 40 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 18 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FLE 200D1Y00

- leakage monitoring

general data	
type	Diffuse sensors (Leakage sensor)
measurement type	contact with medium
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	13 mm
height / length (head)	30,9 mm
depth (head)	9,9 mm
material (head)	PFA
bending radius	20 mm
cable jacket diameter	2,2 mm
material cable jacket	PFA (chemically resistant)
material (fiber optic cable)	plastic
length (fiber optic cable)	5000 mm
operating temperature	-30 ... +70 °C

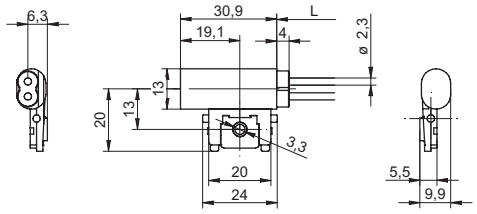
Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

fitting fiber optic sensors
FVDK 67 (standard version)
FVDK 67 (2 adjustable outputs)
FVDK 67 (master/slave)
FVDK 66 (standard version)
FVDK 66 (master/slave)
FVDK 22
FVDK 12
FVDK 12 (fast version)
FVDK 10

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FOC 500C6Y00

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

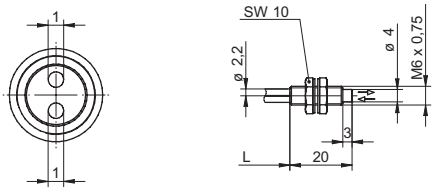
Tw = 1 ... 200 mm

- Heat resistant
- with thread

general data	
particular characteristics	heat resistant
type	Diffuse sensors
sensing distance Tw	1 ... 200 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	6 mm
height / length (head)	20 mm
material (head)	stainless steel
bending radius	25 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +105 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 43 mm (HS)	-	1 ... 190 mm (nL)	1 ... 200 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 43 mm (HS)	-	1 ... 190 mm (nL)	1 ... 200 mm (HP)
FVDK 67 (master/slave)	1 ... 43 mm (HS)	-	1 ... 190 mm (nL)	1 ... 200 mm (HP)
FVDK 66 (standard version)	-	1 ... 55 mm (FT)	1 ... 100 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 55 mm (FT)	1 ... 100 mm (nL)	-
FVDK 22	-	-	1 ... 70 mm (nL)	-
FVDK 12	-	-	1 ... 70 mm (nL)	-
FVDK 12 (fast version)	1 ... 66 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 40 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 18 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FUA 200C1Y00

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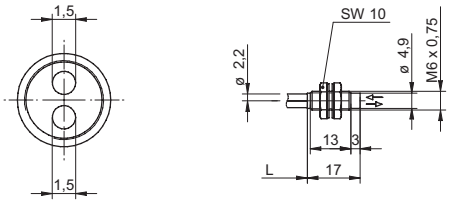
Tw = 1 ... 400 mm

- Heat and cold resistant
- with thread

general data	
particular characteristics	heat resistant
type	Diffuse sensors
sensing distance Tw	1 ... 400 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	6 mm
height / length (head)	17 mm
material (head)	stainless steel
bending radius	35 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-60 ... +150 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 65 mm (HS)	-	1 ... 300 mm (nL)	1 ... 400 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 65 mm (HS)	-	1 ... 300 mm (nL)	1 ... 400 mm (HP)
FVDK 67 (master/slave)	1 ... 42 mm (HS)	-	1 ... 300 mm (nL)	1 ... 400 mm (HP)
FVDK 66 (standard version)	-	1 ... 90 mm (FT)	1 ... 150 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 90 mm (FT)	1 ... 150 mm (nL)	-
FVDK 22	-	-	1 ... 110 mm (nL)	-
FVDK 12	-	-	1 ... 110 mm (nL)	-
FVDK 12 (fast version)	1 ... 103 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 45 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 28 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FUB 200C1Y00

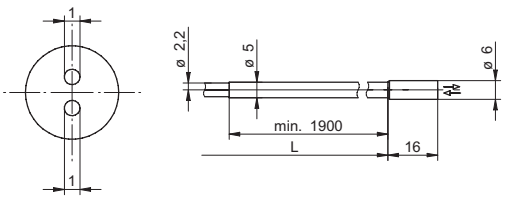
Tw = 1 ... 170 mm

- Chemically resistant
- Smooth sensing head

general data	
particular characteristics	chemically resistant
type	Diffuse sensors
sensing distance Tw	1 ... 170 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	6 mm
height / length (head)	16 mm
material (head)	stainless steel
bending radius	80 mm
cable jacket diameter	2,2 mm
material cable jacket	PFA (chemically resistant)
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 28 mm (HS)	-	1 ... 130 mm (nL)	1 ... 170 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 28 mm (HS)	-	1 ... 130 mm (nL)	1 ... 170 mm (HP)
FVDK 67 (master/slave)	1 ... 28 mm (HS)	-	1 ... 130 mm (nL)	1 ... 170 mm (HP)
FVDK 66 (standard version)	-	1 ... 42 mm (FT)	1 ... 70 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 42 mm (FT)	1 ... 70 mm (nL)	-
FVDK 22	-	-	1 ... 50 mm (nL)	-
FVDK 12	-	-	1 ... 50 mm (nL)	-
FVDK 12 (fast version)	1 ... 47 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 35 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 12 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FUC 200C2Y00

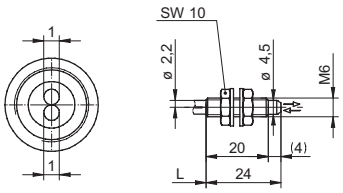
Tw = 1 ... 300 mm

- with thread

general data	
particular characteristics	standard
type	Diffuse sensors
sensing distance Tw	1 ... 300 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	6 mm
height / length (head)	24 mm
material (head)	brass
bending radius	15 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 33 mm (HS)	-	1 ... 260 mm (nL)	1 ... 300 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 33 mm (HS)	-	1 ... 260 mm (nL)	1 ... 300 mm (HP)
FVDK 67 (master/slave)	1 ... 33 mm (HS)	-	1 ... 260 mm (nL)	1 ... 300 mm (HP)
FVDK 66 (standard version)	-	1 ... 65 mm (FT)	1 ... 110 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 65 mm (FT)	1 ... 110 mm (nL)	-
FVDK 22	-	-	1 ... 90 mm (nL)	-
FVDK 12	-	-	1 ... 90 mm (nL)	-
FVDK 12 (fast version)	1 ... 84 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 45 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 25 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FUE 200C1003

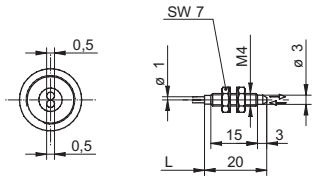
Tw = 1 ... 120 mm

- with thread

general data	
particular characteristics	standard
type	Diffuse sensors
sensing distance Tw	1 ... 120 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	4 mm
height / length (head)	20 mm
material (head)	brass
bending radius	8 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 12 mm (HS)	-	1 ... 100 mm (nL)	1 ... 120 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 12 mm (HS)	-	1 ... 100 mm (nL)	1 ... 120 mm (HP)
FVDK 67 (master/slave)	1 ... 12 mm (HS)	-	1 ... 100 mm (nL)	1 ... 120 mm (HP)
FVDK 66 (standard version)	-	1 ... 26 mm (FT)	1 ... 45 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 26 mm (FT)	1 ... 45 mm (nL)	-
FVDK 22	-	-	1 ... 35 mm (nL)	-
FVDK 12	-	-	1 ... 35 mm (nL)	-
FVDK 12 (fast version)	1 ... 33 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 18 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 10 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FUE 200C1004

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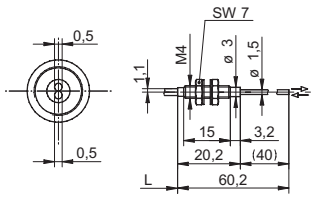
Tw = 1 ... 120 mm

- with thread
- small sensing head

general data	
particular characteristics	small sensing head sensing head can be bent once
type	Diffuse sensors
sensing distance Tw	1 ... 120 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	4 mm
height / length (head)	60,2 mm
material (head)	stainless steel / brass
bending radius	8 mm
cable jacket diameter	1,1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
for details: see accessories section	

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 12 mm (HS)	-	1 ... 100 mm (nL)	1 ... 120 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 12 mm (HS)	-	1 ... 100 mm (nL)	1 ... 120 mm (HP)
FVDK 67 (master/slave)	1 ... 12 mm (HS)	-	1 ... 100 mm (nL)	1 ... 120 mm (HP)
FVDK 66 (standard version)	-	1 ... 26 mm (FT)	1 ... 45 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 26 mm (FT)	1 ... 45 mm (nL)	-
FVDK 22	-	-	1 ... 35 mm (nL)	-
FVDK 12	-	-	1 ... 35 mm (nL)	-
FVDK 12 (fast version)	1 ... 33 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 18 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 10 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FUE 200C1012

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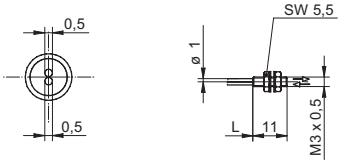
Tw = 1 ... 105 mm

- with thread

general data	
particular characteristics	standard
type	Diffuse sensors
sensing distance Tw	1 ... 105 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	3 mm
height / length (head)	11 mm
material (head)	stainless steel
bending radius	15 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 12 mm (HS)	-	1 ... 80 mm (nL)	1 ... 105 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 12 mm (HS)	-	1 ... 80 mm (nL)	1 ... 105 mm (HP)
FVDK 67 (master/slave)	1 ... 12 mm (HS)	-	1 ... 80 mm (nL)	1 ... 105 mm (HP)
FVDK 66 (standard version)	-	1 ... 25 mm (FT)	1 ... 43 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 25 mm (FT)	1 ... 43 mm (nL)	-
FVDK 22	-	-	1 ... 35 mm (nL)	-
FVDK 12	-	-	1 ... 35 mm (nL)	-
FVDK 12 (fast version)	1 ... 33 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 18 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 10 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FUE 200D1Y00

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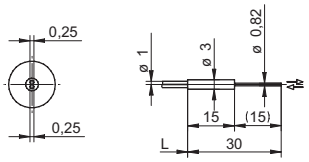
Tw = 1 ... 20 mm

- Smooth sensing head

general data	
particular characteristics	small sensing head
type	Diffuse sensors
sensing distance Tw	1 ... 20 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	3 mm
height / length (head)	30 mm
material (head)	stainless steel
bending radius	15 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	500 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 2 mm (HS)	-	1 ... 16 mm (nL)	1 ... 20 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 2 mm (HS)	-	1 ... 16 mm (nL)	1 ... 20 mm (HP)
FVDK 67 (master/slave)	1 ... 2 mm (HS)	-	1 ... 16 mm (nL)	1 ... 20 mm (HP)
FVDK 66 (standard version)	-	1 ... 2 mm (FT)	1 ... 4 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 2 mm (FT)	1 ... 4 mm (nL)	-
FVDK 22	-	-	1 ... 8 mm (nL)	-
FVDK 12	-	-	1 ... 8 mm (nL)	-
FVDK 12 (fast version)	1 ... 7 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 3 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 2 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FUE 050C2Y10

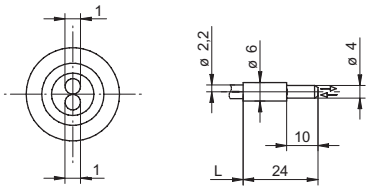
Tw = 1 ... 300 mm

- Smooth sensing head

general data	
particular characteristics	standard smooth sensing head without thread
type	Diffuse sensors
sensing distance Tw	1 ... 300 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	6 mm
height / length (head)	24 mm
material (head)	aluminum
bending radius	15 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 33 mm (HS)	-	1 ... 260 mm (nL)	1 ... 300 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 33 mm (HS)	-	1 ... 260 mm (nL)	1 ... 300 mm (HP)
FVDK 67 (master/slave)	1 ... 33 mm (HS)	-	1 ... 260 mm (nL)	1 ... 300 mm (HP)
FVDK 66 (standard version)	-	1 ... 65 mm (FT)	1 ... 110 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 65 mm (FT)	1 ... 110 mm (nL)	-
FVDK 22	-	-	1 ... 90 mm (nL)	-
FVDK 12	-	-	1 ... 90 mm (nL)	-
FVDK 12 (fast version)	1 ... 84 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 45 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 25 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FUE 200C2003

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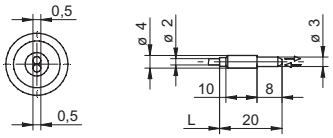
Tw = 1 ... 120 mm

- Smooth sensing head

general data	
particular characteristics	standard smooth sensing head without thread
type	Diffuse sensors
sensing distance Tw	1 ... 120 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	4 mm
height / length (head)	20 mm
material (head)	aluminum
bending radius	8 mm
cable jacket diameter	2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 12 mm (HS)	-	1 ... 100 mm (nL)	1 ... 120 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 12 mm (HS)	-	1 ... 100 mm (nL)	1 ... 120 mm (HP)
FVDK 67 (master/slave)	1 ... 12 mm (HS)	-	1 ... 100 mm (nL)	1 ... 120 mm (HP)
FVDK 66 (standard version)	-	1 ... 26 mm (FT)	1 ... 45 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 26 mm (FT)	1 ... 45 mm (nL)	-
FVDK 22	-	-	1 ... 35 mm (nL)	-
FVDK 12	-	-	1 ... 35 mm (nL)	-
FVDK 12 (fast version)	1 ... 33 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 18 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 10 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FUE 200C2004

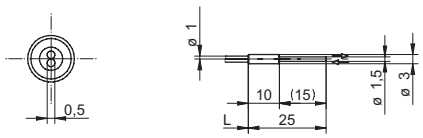
Tw = 1 ... 86 mm

- Smooth sensing head
- small sensing head

general data	
particular characteristics	small sensing head
type	Diffuse sensors
sensing distance Tw	1 ... 86 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	3 mm
height / length (head)	25 mm
material (head)	stainless steel
bending radius	15 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 14 mm (HS)	-	1 ... 65 mm (nL)	1 ... 86 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 14 mm (HS)	-	1 ... 65 mm (nL)	1 ... 86 mm (HP)
FVDK 67 (master/slave)	1 ... 14 mm (HS)	-	1 ... 65 mm (nL)	1 ... 86 mm (HP)
FVDK 66 (standard version)	-	1 ... 21 mm (FT)	1 ... 35 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 21 mm (FT)	1 ... 35 mm (nL)	-
FVDK 22	-	-	1 ... 35 mm (nL)	-
FVDK 12	-	-	1 ... 35 mm (nL)	-
FVDK 12 (fast version)	1 ... 33 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 18 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 9 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FUE 200C2Y00

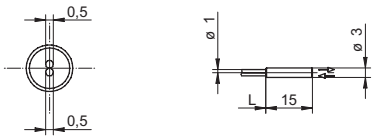
Tw = 1 ... 105 mm

- Smooth sensing head

general data	
particular characteristics	standard smooth sensing head without thread
type	Diffuse sensors
sensing distance Tw	1 ... 105 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	3 mm
height / length (head)	15 mm
material (head)	stainless steel
bending radius	15 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 17 mm (HS)	-	1 ... 80 mm (nL)	1 ... 105 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 17 mm (HS)	-	1 ... 80 mm (nL)	1 ... 105 mm (HP)
FVDK 67 (master/slave)	1 ... 17 mm (HS)	-	1 ... 80 mm (nL)	1 ... 105 mm (HP)
FVDK 66 (standard version)	-	1 ... 25 mm (FT)	1 ... 43 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 25 mm (FT)	1 ... 43 mm (nL)	-
FVDK 22	-	-	1 ... 35 mm (nL)	-
FVDK 12	-	-	1 ... 35 mm (nL)	-
FVDK 12 (fast version)	1 ... 33 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 18 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FUE 200D2Y00

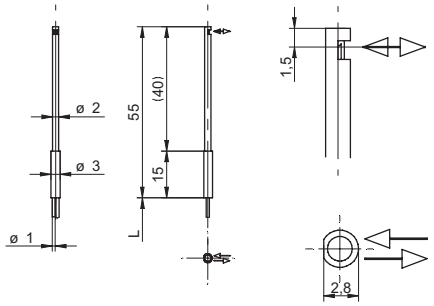
Tw = 1 ... 40 mm

- Smooth sensing head
- side view

general data	
particular characteristics	side view
type	Diffuse sensors
sensing distance Tw	1 ... 40 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (radial)
width / diameter (head)	3 mm
height / length (head)	55 mm
material (head)	brass nickel plated
bending radius	4 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 6 mm (HS)	-	1 ... 30 mm (nL)	1 ... 40 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 6 mm (HS)	-	1 ... 30 mm (nL)	1 ... 40 mm (HP)
FVDK 67 (master/slave)	1 ... 6 mm (HS)	-	1 ... 30 mm (nL)	1 ... 40 mm (HP)
FVDK 66 (standard version)	-	1 ... 10 mm (FT)	1 ... 17 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 10 mm (FT)	1 ... 17 mm (nL)	-
FVDK 22	-	-	1 ... 10 mm (nL)	-
FVDK 12	-	-	1 ... 10 mm (nL)	-
FVDK 12 (fast version)	1 ... 9 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 5 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 4 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FUE 200C4Y00

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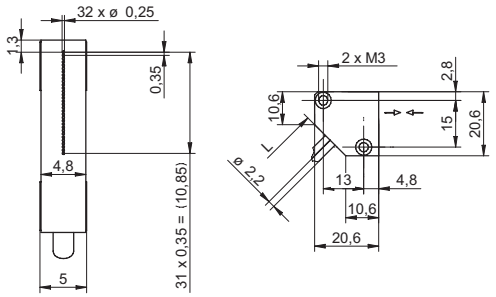
Tw = 1 ... 265 mm

- Array
- Line length = Number of holes x hole spacing

general data	
particular characteristics	side view
type	Diffuse sensors
sensing distance Tw	1 ... 265 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	rectangular, side view
width / diameter (head)	20,6 mm
height / length (head)	20,6 mm
depth (head)	5 mm
material (head)	stainless steel
bending radius	15 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 43 mm (HS)	-	1 ... 200 mm (nL)	1 ... 265 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 43 mm (HS)	-	1 ... 200 mm (nL)	1 ... 265 mm (HP)
FVDK 67 (master/slave)	1 ... 43 mm (HS)	-	1 ... 200 mm (nL)	1 ... 265 mm (HP)
FVDK 66 (standard version)	-	1 ... 60 mm (FT)	1 ... 100 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 60 mm (FT)	1 ... 100 mm (nL)	-
FVDK 22	-	-	1 ... 80 mm (nL)	-
FVDK 12	-	-	1 ... 80 mm (nL)	-
FVDK 12 (fast version)	1 ... 75 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 45 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 20 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FUE 200C6Y00

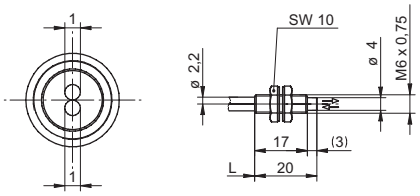
Tw = 1 ... 210 mm

- with thread
- ultra flexible

general data	
particular characteristics	ultra flexible
type	Diffuse sensors
sensing distance Tw	1 ... 210 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	6 mm
height / length (head)	20 mm
material (head)	stainless steel
bending radius	2 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 34 mm (HS)	-	1 ... 160 mm (nL)	1 ... 210 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 34 mm (HS)	-	1 ... 160 mm (nL)	1 ... 210 mm (HP)
FVDK 67 (master/slave)	1 ... 34 mm (HS)	-	1 ... 160 mm (nL)	1 ... 210 mm (HP)
FVDK 66 (standard version)	-	1 ... 50 mm (FT)	1 ... 85 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 50 mm (FT)	1 ... 85 mm (nL)	-
FVDK 22	-	-	1 ... 80 mm (nL)	-
FVDK 12	-	-	1 ... 60 mm (nL)	-
FVDK 12 (fast version)	1 ... 56 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 38 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 16 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FUE 200E1Y00

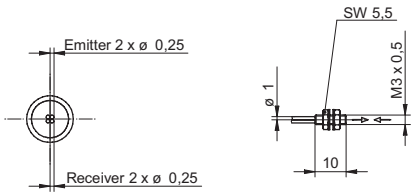
Tw = 1 ... 20 mm

- with thread
- ultra flexible

general data	
particular characteristics	ultra flexible
type	Diffuse sensors
sensing distance Tw	1 ... 20 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	3 mm
height / length (head)	10 mm
material (head)	stainless steel
bending radius	4 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	1 ... 3 mm (HS)	-	1 ... 15 mm (nL)	1 ... 20 mm (HP)
FVDK 67 (2 adjustable outputs)	1 ... 3 mm (HS)	-	1 ... 15 mm (nL)	1 ... 20 mm (HP)
FVDK 67 (master/slave)	1 ... 3 mm (HS)	-	1 ... 15 mm (nL)	1 ... 20 mm (HP)
FVDK 66 (standard version)	-	1 ... 5 mm (FT)	1 ... 8 mm (nL)	-
FVDK 66 (master/slave)	-	1 ... 5 mm (FT)	1 ... 8 mm (nL)	-
FVDK 22	-	-	1 ... 18 mm (nL)	-
FVDK 12	-	-	1 ... 15 mm (nL)	-
FVDK 12 (fast version)	1 ... 14 mm (HS)	-	-	-
FVDK 10	-	-	1 ... 6 mm (nL)	-
FWDK 84 (analog output)	-	-	1 ... 2 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

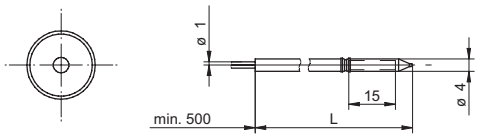
order reference
FUE 200F1Y00

- Fill level detection
- Smooth sensing head

general data	
type	Diffuse sensors (liquid level sensor)
measurement type	contact with medium
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	4 mm
height / length (head)	15 mm
material (head)	PFA
bending radius	15 mm
cable jacket diameter	1 mm
material cable jacket	PFA (chemically resistant)
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +105 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	-	-	-	-
FVDK 67 (2 adjustable outputs)	-	-	-	-
FVDK 67 (master/slave)	-	-	-	-
FVDK 66 (standard version)	-	-	-	-
FVDK 66 (master/slave)	-	-	-	-
FVDK 22	-	-	-	-
FVDK 12	-	-	-	-
FVDK 12 (fast version)	-	-	-	-
FVDK 10	-	-	-	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

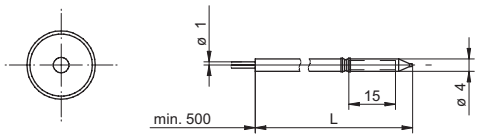
order reference
FUL 200D2Y00

- Fill level detection
- Smooth sensing head

general data	
type	Diffuse sensors (liquid level sensor)
measurement type	contact with medium
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	4 mm
height / length (head)	15 mm
material (head)	PFA
bending radius	15 mm
cable jacket diameter	1 mm
material cable jacket	PFA (chemically resistant)
material (fiber optic cable)	plastic
length (fiber optic cable)	5000 mm
operating temperature	-30 ... +105 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	sensing distance Tw (0,05 ms)	sensing distance Tw (0,25 ms)	sensing distance Tw (1 ms)	sensing distance Tw (5 ms)
FVDK 67 (standard version)	-	-	-	-
FVDK 67 (2 adjustable outputs)	-	-	-	-
FVDK 67 (master/slave)	-	-	-	-
FVDK 66 (standard version)	-	-	-	-
FVDK 66 (master/slave)	-	-	-	-
FVDK 22	-	-	-	-
FVDK 12	-	-	-	-
FVDK 12 (fast version)	-	-	-	-
FVDK 10	-	-	-	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

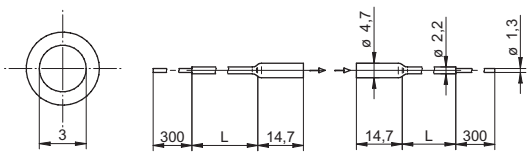
order reference
FUL 500D2Y00

Sb = 4500 mm

- Chemical and oil proof
- Smooth sensing head

general data	
type	through beam sensor
actual range Sb	4500 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	5 mm
height / length (head)	14,7 mm
material (head)	stainless steel
bending radius	20 mm
cable jacket diameter	2,2 mm
material cable jacket	PFA (chemically resistant)
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C
exit angle	± 2°

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
for details: see accessories section	

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	750 mm (HS)	-	3000 mm (nL)	4500 mm (HP)
FVDK 67 (2 adjustable outputs)	750 mm (HS)	-	3000 mm (nL)	4500 mm (HP)
FVDK 67 (master/slave)	750 mm (HS)	-	3000 mm (nL)	4500 mm (HP)
FVDK 66 (standard version)	-	880 mm (FT)	1500 mm (nL)	-
FVDK 66 (master/slave)	-	880 mm (FT)	1500 mm (nL)	-
FVDK 22	-	-	1100 mm (nL)	-
FVDK 12	-	-	1100 mm (nL)	-
FVDK 12 (fast version)	1050 mm (HS)	-	-	-
FVDK 10	-	-	500 mm (nL)	-
FWDK 84 (analog output)	-	-	300 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FLC 200D2Y00

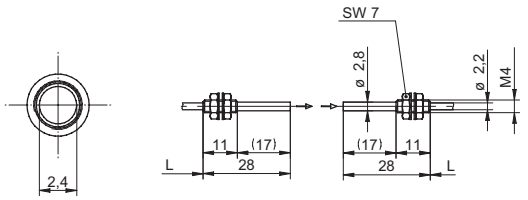
Sb = 4140 mm

- with thread
- parallel beam

general data	
particular characteristics	parallel beam
type	through beam sensor
actual range Sb	4140 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	4 mm
height / length (head)	28 mm
material (head)	stainless steel
bending radius	20 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C
exit angle	± 2°

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	690 mm (HS)	-	2760 mm (nL)	4140 mm (HP)
FVDK 67 (2 adjustable outputs)	690 mm (HS)	-	2760 mm (nL)	4140 mm (HP)
FVDK 67 (master/slave)	690 mm (HS)	-	2760 mm (nL)	4140 mm (HP)
FVDK 66 (standard version)	-	840 mm (FT)	1400 mm (nL)	-
FVDK 66 (master/slave)	-	840 mm (FT)	1400 mm (nL)	-
FVDK 22	-	-	1400 mm (nL)	-
FVDK 12	-	-	1400 mm (nL)	-
FVDK 12 (fast version)	1320 mm (HS)	-	-	-
FVDK 10	-	-	600 mm (nL)	-
FWDK 84 (analog output)	-	-	390 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FPE 200C1Y00

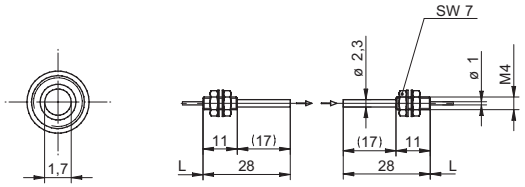
Sb = 3600 mm

- with thread
- parallel beam

general data	
particular characteristics	parallel beam
type	through beam sensor
actual range Sb	3600 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	4 mm
height / length (head)	28 mm
material (head)	stainless steel
bending radius	15 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C
exit angle	± 1°

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119912	Mounting bracket Ø 1,1 mm
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	600 mm (HS)	-	2400 mm (nL)	3600 mm (HP)
FVDK 67 (2 adjustable outputs)	600 mm (HS)	-	2400 mm (nL)	3600 mm (HP)
FVDK 67 (master/slave)	600 mm (HS)	-	2400 mm (nL)	3600 mm (HP)
FVDK 66 (standard version)	-	730 mm (FT)	1200 mm (nL)	-
FVDK 66 (master/slave)	-	730 mm (FT)	1200 mm (nL)	-
FVDK 22	-	-	800 mm (nL)	-
FVDK 12	-	-	800 mm (nL)	-
FVDK 12 (fast version)	755 mm (HS)	-	-	-
FVDK 10	-	-	320 mm (nL)	-
FWDK 84 (analog output)	-	-	200 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FPE 200D1Y00

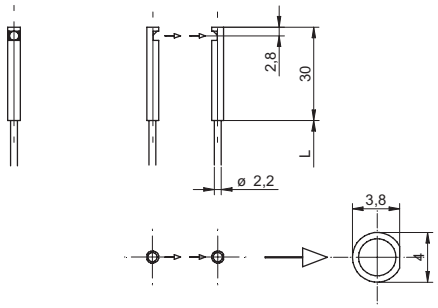
Sb = 4500 mm

- Smooth sensing head
- parallel beam

general data	
particular characteristics	parallel beam
type	through beam sensor
actual range Sb	4500 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (radial)
width / diameter (head)	4 mm
height / length (head)	30 mm
material (head)	stainless steel
bending radius	30 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C
exit angle	± 2°

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	750 mm (HS)	-	3000 mm (nL)	4500 mm (HP)
FVDK 67 (2 adjustable outputs)	750 mm (HS)	-	3000 mm (nL)	4500 mm (HP)
FVDK 67 (master/slave)	750 mm (HS)	-	3000 mm (nL)	4500 mm (HP)
FVDK 66 (standard version)	-	920 mm (FT)	1500 mm (nL)	-
FVDK 66 (master/slave)	-	920 mm (FT)	1500 mm (nL)	-
FVDK 22	-	-	1000 mm (nL)	-
FVDK 12	-	-	1000 mm (nL)	-
FVDK 12 (fast version)	945 mm (HS)	-	-	-
FVDK 10	-	-	400 mm (nL)	-
FWDK 84 (analog output)	-	-	200 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FPE 200C4Y00

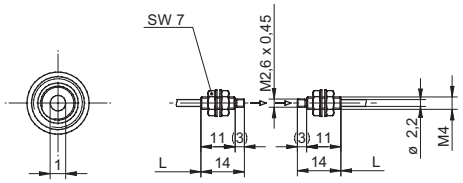
Sb = 690 mm

- Heat resistant
- with thread

general data	
particular characteristics	heat resistant
type	through beam sensor
actual range Sb	690 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	4 mm
height / length (head)	14 mm
material (head)	stainless steel
bending radius	25 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +105 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
10134541	Doubling lens increases the actual range (paires)
10134540	Doubling lens increases the actual range (paires)
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	115 mm (HS)	-	460 mm (nL)	690 mm (HP)
FVDK 67 (2 adjustable outputs)	115 mm (HS)	-	460 mm (nL)	690 mm (HP)
FVDK 67 (master/slave)	115 mm (HS)	-	60 mm (nL)	690 mm (HP)
FVDK 66 (standard version)	-	140 mm (FT)	240 mm (nL)	-
FVDK 66 (master/slave)	-	140 mm (FT)	240 mm (nL)	-
FVDK 22	-	-	210 mm (nL)	-
FVDK 12	-	-	210 mm (nL)	-
FVDK 12 (fast version)	198 mm (HS)	-	-	-
FVDK 10	-	-	100 mm (nL)	-
FWDK 84 (analog output)	-	-	60 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSA 200C1Y00

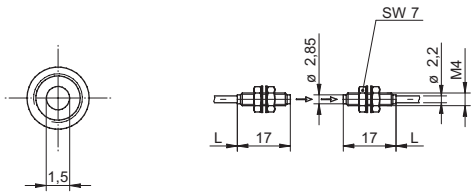
Sb = 1200 mm

- Heat resistant
- with thread

general data	
particular characteristics	heat resistant
type	through beam sensor
actual range Sb	1200 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	4 mm
height / length (head)	17 mm
material (head)	stainless steel
bending radius	35 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-60 ... +150 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	200 mm (HS)	-	800 mm (nL)	1200 mm (HP)
FVDK 67 (2 adjustable outputs)	200 mm (HS)	-	800 mm (nL)	1200 mm (HP)
FVDK 67 (master/slave)	200 mm (HS)	-	800 mm (nL)	1200 mm (HP)
FVDK 66 (standard version)	-	240 mm (FT)	410 mm (nL)	-
FVDK 66 (master/slave)	-	240 mm (FT)	10 mm (nL)	-
FVDK 22	-	-	310 mm (nL)	-
FVDK 12	-	-	310 mm (nL)	-
FVDK 12 (fast version)	292 mm (HS)	-	-	-
FVDK 10	-	-	160 mm (nL)	-
FWDK 84 (analog output)	-	-	85 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

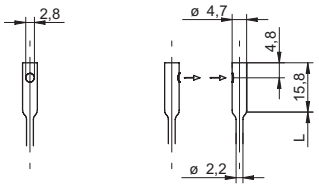
order reference
FSB 200C1Y00

Sb = 1030 mm

- side view

general data	
particular characteristics	side view
type	through beam sensor
actual range Sb	1030 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (radial)
width / diameter (head)	4,7 mm
height / length (head)	15,8 mm
material (head)	stainless steel
bending radius	20 mm
cable jacket diameter	2,2 mm
material cable jacket	PFA (chemically resistant)
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
for details: see accessories section	

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	170 mm (HS)	-	690 mm (nL)	1030 mm (HP)
FVDK 67 (2 adjustable outputs)	170 mm (HS)	-	690 mm (nL)	1030 mm (HP)
FVDK 67 (master/slave)	170 mm (HS)	-	690 mm (nL)	1030 mm (HP)
FVDK 66 (standard version)	-	210 mm (FT)	350 mm (nL)	-
FVDK 66 (master/slave)	-	210 mm (FT)	350 mm (nL)	-
FVDK 22	-	-	270 mm (nL)	-
FVDK 12	-	-	270 mm (nL)	-
FVDK 12 (fast version)	254 mm (HS)	-	-	-
FVDK 10	-	-	120 mm (nL)	-
FWDK 84 (analog output)	-	-	75 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSC 200C4Y00

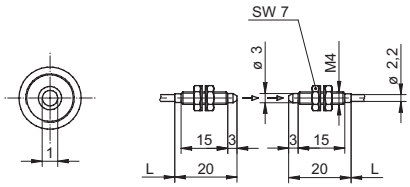
Sb = 1200 mm

- with thread

general data	
particular characteristics	standard
type	through beam sensor
actual range Sb	1200 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	4 mm
height / length (head)	20 mm
material (head)	brass
bending radius	15 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
10119909	Doubling lens M4 increases the actual range (paires)
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	130 mm (HS)	-	900 mm (nL)	1200 mm (HP)
FVDK 67 (2 adjustable outputs)	130 mm (HS)	-	900 mm (nL)	1200 mm (HP)
FVDK 67 (master/slave)	130 mm (HS)	-	900 mm (nL)	1200 mm (HP)
FVDK 66 (standard version)	-	220 mm (FT)	390 mm (nL)	-
FVDK 66 (master/slave)	-	220 mm (FT)	390 mm (nL)	-
FVDK 22	-	-	320 mm (nL)	-
FVDK 12	-	-	320 mm (nL)	-
FVDK 12 (fast version)	300 mm (HS)	-	-	-
FVDK 10	-	-	160 mm (nL)	-
FWDK 84 (analog output)	-	-	90 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200C1002

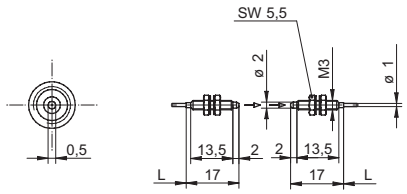
Sb = 340 mm

- with thread

general data	
particular characteristics	standard
type	through beam sensor
actual range Sb	340 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	3 mm
height / length (head)	17 mm
material (head)	brass
bending radius	8 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119912	Mounting bracket Ø 1,1 mm
10140260	Reduction tube
10119910	Doubling lens M3 increases the actual range (paires)
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	40 mm (HS)	-	290 mm (nL)	340 mm (HP)
FVDK 67 (2 adjustable outputs)	40 mm (HS)	-	290 mm (nL)	340 mm (HP)
FVDK 67 (master/slave)	40 mm (HS)	-	290 mm (nL)	340 mm (HP)
FVDK 66 (standard version)	-	70 mm (FT)	125 mm (nL)	-
FVDK 66 (master/slave)	-	70 mm (FT)	125 mm (nL)	-
FVDK 22	-	-	100 mm (nL)	-
FVDK 12	-	-	100 mm (nL)	-
FVDK 12 (fast version)	94 mm (HS)	-	-	-
FVDK 10	-	-	50 mm (nL)	-
FWDK 84 (analog output)	-	-	28 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200C1004

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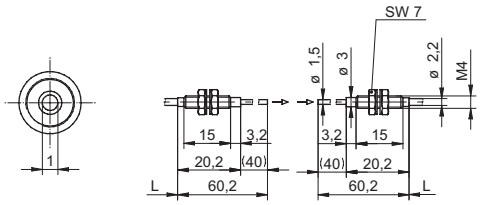
Sb = 340 mm

- with thread
- small sensing head

general data	
particular characteristics	small sensing head sensing head can be bent once
type	through beam sensor
actual range Sb	340 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	4 mm
height / length (head)	60,2 mm
material (head)	stainless steel / brass
bending radius	8 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

dimension drawing



Accessories

10114652	Cutting tool for plastic fiber optics
for details: see accessories section	

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	40 mm (HS)	-	290 mm (nL)	340 mm (HP)
FVDK 67 (2 adjustable outputs)	40 mm (HS)	-	290 mm (nL)	340 mm (HP)
FVDK 67 (master/slave)	40 mm (HS)	-	290 mm (nL)	340 mm (HP)
FVDK 66 (standard version)	-	70 mm (FT)	125 mm (nL)	-
FVDK 66 (master/slave)	-	70 mm (FT)	125 mm (nL)	-
FVDK 22	-	-	100 mm (nL)	-
FVDK 12	-	-	100 mm (nL)	-
FVDK 12 (fast version)	94 mm (HS)	-	-	-
FVDK 10	-	-	50 mm (nL)	-
FWDK 84 (analog output)	-	-	28 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200C1013

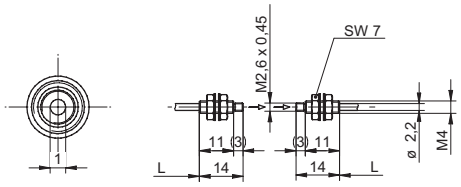
Sb = 1200 mm

- with thread
- small sensing head

general data	
particular characteristics	standard short sensing head
type	through beam sensor
actual range Sb	1200 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	4 mm
height / length (head)	14 mm
material (head)	stainless steel
bending radius	20 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
10134541	Doubling lens increases the actual range (paires)
10134540	Doubling lens increases the actual range (paires)
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	200 mm (HS)	-	800 mm (nL)	1200 mm (HP)
FVDK 67 (2 adjustable outputs)	200 mm (HS)	-	800 mm (nL)	1200 mm (HP)
FVDK 67 (master/slave)	200 mm (HS)	-	800 mm (nL)	1200 mm (HP)
FVDK 66 (standard version)	-	240 mm (FT)	410 mm (nL)	-
FVDK 66 (master/slave)	-	240 mm (FT)	390 mm (nL)	-
FVDK 22	-	-	320 mm (nL)	-
FVDK 12	-	-	320 mm (nL)	-
FVDK 12 (fast version)	300 mm (HS)	-	-	-
FVDK 10	-	-	160 mm (nL)	-
FWDK 84 (analog output)	-	-	90 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200C1Y00

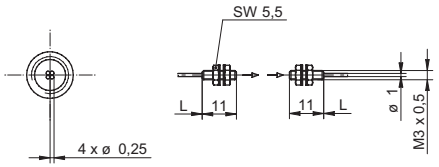
Sb = 180 mm

- with thread
- suitable for flexible cable carriers

general data	
particular characteristics	suitable for flexible cable carriers
type	through beam sensor
actual range Sb	180 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	3 mm
height / length (head)	11 mm
material (head)	stainless steel
bending radius	4 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119912	Mounting bracket Ø 1,1 mm
10140260	Reduction tube
10119910	Doubling lens M3 increases the actual range (paires)
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	30 mm (HS)	-	120 mm (nL)	180 mm (HP)
FVDK 67 (2 adjustable outputs)	30 mm (HS)	-	120 mm (nL)	180 mm (HP)
FVDK 67 (master/slave)	30 mm (HS)	-	120 mm (nL)	180 mm (HP)
FVDK 66 (standard version)	-	38 mm (FT)	60 mm (nL)	-
FVDK 66 (master/slave)	-	38 mm (FT)	60 mm (nL)	-
FVDK 22	-	-	45 mm (nL)	-
FVDK 12	-	-	45 mm (nL)	-
FVDK 12 (fast version)	42 mm (HS)	-	-	-
FVDK 10	-	-	20 mm (nL)	-
FWDK 84 (analog output)	-	-	20 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200D1Y50

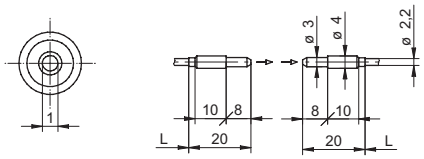
Sb = 1200 mm

- Smooth sensing head

general data	
particular characteristics	standard
type	through beam sensor
actual range Sb	1200 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	4 mm
height / length (head)	20 mm
material (head)	aluminum
bending radius	15 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	130 mm (HS)	-	900 mm (nL)	1200 mm (HP)
FVDK 67 (2 adjustable outputs)	130 mm (HS)	-	900 mm (nL)	1200 mm (HP)
FVDK 67 (master/slave)	130 mm (HS)	-	900 mm (nL)	1200 mm (HP)
FVDK 66 (standard version)	-	220 mm (FT)	390 mm (nL)	-
FVDK 66 (master/slave)	-	220 mm (FT)	390 mm (nL)	-
FVDK 22	-	-	320 mm (nL)	-
FVDK 12	-	-	320 mm (nL)	-
FVDK 12 (fast version)	300 mm (HS)	-	-	-
FVDK 10	-	-	160 mm (nL)	-
FWDK 84 (analog output)	-	-	90 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200C2002

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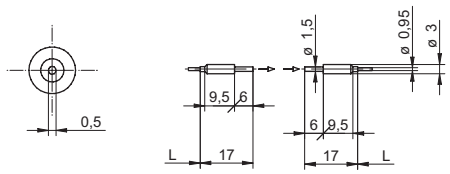
Sb = 340 mm

- Smooth sensing head

general data	
particular characteristics	standard
type	through beam sensor
actual range Sb	340 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	3 mm
height / length (head)	17 mm
material (head)	aluminum
bending radius	8 mm
cable jacket diameter	0,95 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119912	Mounting bracket Ø 1,1 mm
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	40 mm (HS)	-	290 mm (nL)	340 mm (HP)
FVDK 67 (2 adjustable outputs)	40 mm (HS)	-	290 mm (nL)	340 mm (HP)
FVDK 67 (master/slave)	40 mm (HS)	-	290 mm (nL)	340 mm (HP)
FVDK 66 (standard version)	-	70 mm (FT)	125 mm (nL)	-
FVDK 66 (master/slave)	-	70 mm (FT)	125 mm (nL)	-
FVDK 22	-	-	100 mm (nL)	-
FVDK 12	-	-	100 mm (nL)	-
FVDK 12 (fast version)	94 mm (HS)	-	-	-
FVDK 10	-	-	50 mm (nL)	-
FWDK 84 (analog output)	-	-	28 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200C2004

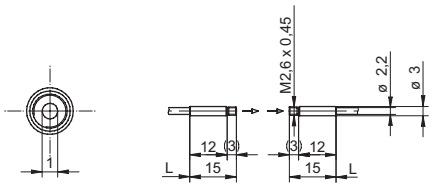
Sb = 1200 mm

- Smooth sensing head
- short sensing head

general data	
particular characteristics	standard short sensing head
type	through beam sensor
actual range Sb	1200 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	3 mm
height / length (head)	15 mm
material (head)	stainless steel
bending radius	20 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
10134541	Doubling lens increases the actual range (paires)
10134540	Doubling lens increases the actual range (paires)
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	200 mm (HS)	-	800 mm (nL)	1200 mm (HP)
FVDK 67 (2 adjustable outputs)	200 mm (HS)	-	800 mm (nL)	1200 mm (HP)
FVDK 67 (master/slave)	200 mm (HS)	-	800 mm (nL)	1200 mm (HP)
FVDK 66 (standard version)	-	240 mm (FT)	410 mm (nL)	-
FVDK 66 (master/slave)	-	240 mm (FT)	410 mm (nL)	-
FVDK 22	-	-	100 mm (nL)	-
FVDK 12	-	-	100 mm (nL)	-
FVDK 12 (fast version)	94 mm (HS)	-	-	-
FVDK 10	-	-	160 mm (nL)	-
FWDK 84 (analog output)	-	-	90 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200C2Y00

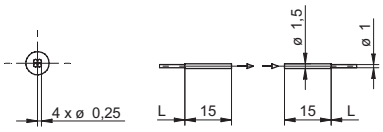
Sb = 180 mm

- Smooth sensing head

general data	
particular characteristics	standard
type	through beam sensor
actual range Sb	180 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	1,5 mm
height / length (head)	15 mm
material (head)	stainless steel
bending radius	4 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119912	Mounting bracket Ø 1,1 mm
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	30 mm (HS)	-	120 mm (nL)	180 mm (HP)
FVDK 67 (2 adjustable outputs)	30 mm (HS)	-	120 mm (nL)	180 mm (HP)
FVDK 67 (master/slave)	30 mm (HS)	-	120 mm (nL)	180 mm (HP)
FVDK 66 (standard version)	-	38 mm (FT)	60 mm (nL)	-
FVDK 66 (master/slave)	-	38 mm (FT)	60 mm (nL)	-
FVDK 22	-	-	45 mm (nL)	-
FVDK 12	-	-	45 mm (nL)	-
FVDK 12 (fast version)	42 mm (HS)	-	-	-
FVDK 10	-	-	20 mm (nL)	-
FWDK 84 (analog output)	-	-	20 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200D2Y00

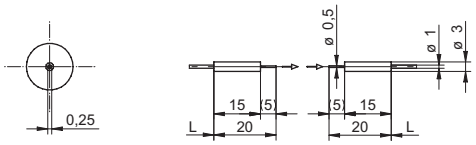
Sb = 37 mm

- Smooth sensing head
- small sensing head

general data	
particular characteristics	small sensing head
type	through beam sensor
actual range Sb	37 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	3 mm
height / length (head)	20 mm
material (head)	stainless steel
bending radius	15 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119912	Mounting bracket Ø 1,1 mm
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	6 mm (HS)	-	25 mm (nL)	37 mm (HP)
FVDK 67 (2 adjustable outputs)	6 mm (HS)	-	25 mm (nL)	37 mm (HP)
FVDK 67 (master/slave)	6 mm (HS)	-	25 mm (nL)	37 mm (HP)
FVDK 66 (standard version)	-	7 mm (FT)	12 mm (nL)	-
FVDK 66 (master/slave)	-	7 mm (FT)	12 mm (nL)	-
FVDK 22	-	-	15 mm (nL)	-
FVDK 12	-	-	15 mm (nL)	-
FVDK 12 (fast version)	14 mm (HS)	-	-	-
FVDK 10	-	-	8 mm (nL)	-
FWDK 84 (analog output)	-	-	4 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200D2Y50

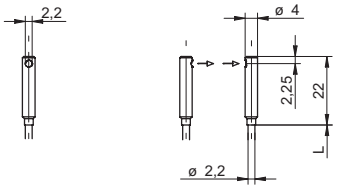
Sb = 750 mm

- Smooth sensing head
- side view

general data	
particular characteristics	side view smooth sensing head without thread
type	through beam sensor
actual range Sb	750 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (radial)
width / diameter (head)	4 mm
height / length (head)	22 mm
material (head)	aluminum
bending radius	15 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	80 mm (HS)	-	600 mm (nL)	750 mm (HP)
FVDK 67 (2 adjustable outputs)	80 mm (HS)	-	600 mm (nL)	750 mm (HP)
FVDK 67 (master/slave)	80 mm (HS)	-	600 mm (nL)	750 mm (HP)
FVDK 66 (standard version)	-	150 mm (FT)	260 mm (nL)	-
FVDK 66 (master/slave)	-	150 mm (FT)	260 mm (nL)	-
FVDK 22	-	-	200 mm (nL)	-
FVDK 12	-	-	200 mm (nL)	-
FVDK 12 (fast version)	188 mm (HS)	-	-	-
FVDK 10	-	-	100 mm (nL)	-
FWDK 84 (analog output)	-	-	55 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200C4001

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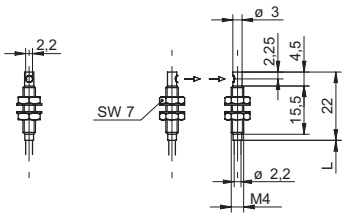
Sb = 750 mm

- with thread
- side view

general data	
particular characteristics	side view
type	through beam sensor
actual range Sb	750 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (radial)
width / diameter (head)	4 mm
height / length (head)	22 mm
material (head)	brass
bending radius	15 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	80 mm (HS)	-	600 mm (nL)	750 mm (HP)
FVDK 67 (2 adjustable outputs)	80 mm (HS)	-	600 mm (nL)	750 mm (HP)
FVDK 67 (master/slave)	80 mm (HS)	-	600 mm (nL)	750 mm (HP)
FVDK 66 (standard version)	-	150 mm (FT)	260 mm (nL)	-
FVDK 66 (master/slave)	-	150 mm (FT)	260 mm (nL)	-
FVDK 22	-	-	200 mm (nL)	-
FVDK 12	-	-	200 mm (nL)	-
FVDK 12 (fast version)	188 mm (HS)	-	-	-
FVDK 10	-	-	100 mm (nL)	-
FWDK 84 (analog output)	-	-	55 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200C4002

www.eltra-trade.com info@eltra-trade.com +421 552 601 099

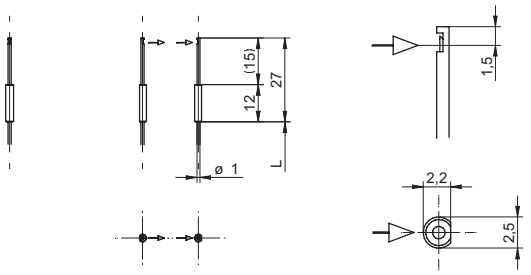
Sb = 165 mm

- Smooth sensing head
- side view

general data	
particular characteristics	side view small sensing head smooth sensing head without thread
type	through beam sensor
actual range Sb	165 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (radial)
width / diameter (head)	2,5 mm
height / length (head)	27 mm
material (head)	stainless steel
bending radius	15 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119912	Mounting bracket Ø 1,1 mm
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	27 mm (HS)	-	110 mm (nL)	165 mm (HP)
FVDK 67 (2 adjustable outputs)	27 mm (HS)	-	110 mm (nL)	165 mm (HP)
FVDK 67 (master/slave)	27 mm (HS)	-	110 mm (nL)	165 mm (HP)
FVDK 66 (standard version)	-	33 mm (FT)	55 mm (nL)	-
FVDK 66 (master/slave)	-	33 mm (FT)	55 mm (nL)	-
FVDK 22	-	-	50 mm (nL)	-
FVDK 12	-	-	50 mm (nL)	-
FVDK 12 (fast version)	47 mm (HS)	-	-	-
FVDK 10	-	-	18 mm (nL)	-
FWDK 84 (analog output)	-	-	14 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200D4Y00

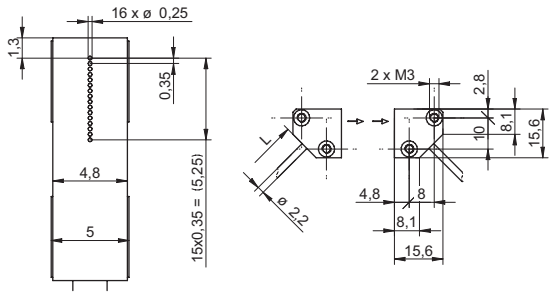
Sb = 780 mm

- Array
- Line length = Number of holes x hole spacing

general data	
particular characteristics	array (fine light barrier)
type	through beam sensor
actual range Sb	780 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	rectangular
width / diameter (head)	15,6 mm
height / length (head)	15,6 mm
depth (head)	5 mm
material (head)	POM
bending radius	4 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	130 mm (HS)	-	520 mm (nL)	780 mm (HP)
FVDK 67 (2 adjustable outputs)	130 mm (HS)	-	520 mm (nL)	780 mm (HP)
FVDK 67 (master/slave)	130 mm (HS)	-	520 mm (nL)	780 mm (HP)
FVDK 66 (standard version)	-	150 mm (FT)	270 mm (nL)	-
FVDK 66 (master/slave)	-	150 mm (FT)	270 mm (nL)	-
FVDK 22	-	-	200 mm (nL)	-
FVDK 12	-	-	200 mm (nL)	-
FVDK 12 (fast version)	188 mm (HS)	-	-	-
FVDK 10	-	-	100 mm (nL)	-
FWDK 84 (analog output)	-	-	55 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200C6Y00

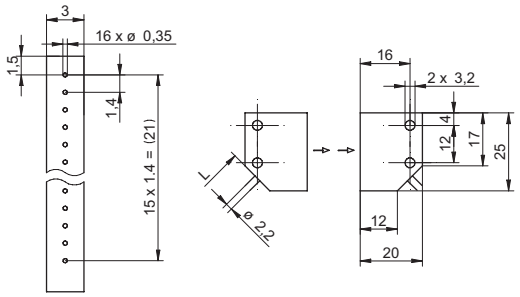
Sb = 790 mm

- Array
- Line length = Number of holes x hole spacing

general data	
particular characteristics	array (fine light barrier)
type	through beam sensor
actual range Sb	790 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	rectangular
width / diameter (head)	20 mm
height / length (head)	25 mm
depth (head)	3 mm
material (head)	aluminum
bending radius	4 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	85 mm (HS)	-	600 mm (nL)	790 mm (HP)
FVDK 67 (2 adjustable outputs)	85 mm (HS)	-	600 mm (nL)	790 mm (HP)
FVDK 67 (master/slave)	85 mm (HS)	-	600 mm (nL)	790 mm (HP)
FVDK 66 (standard version)	-	150 mm (FT)	260 mm (nL)	-
FVDK 66 (master/slave)	-	150 mm (FT)	260 mm (nL)	-
FVDK 22	-	-	200 mm (nL)	-
FVDK 12	-	-	200 mm (nL)	-
FVDK 12 (fast version)	188 mm (HS)	-	-	-
FVDK 10	-	-	100 mm (nL)	-
FWDK 84 (analog output)	-	-	55 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200C6Y02

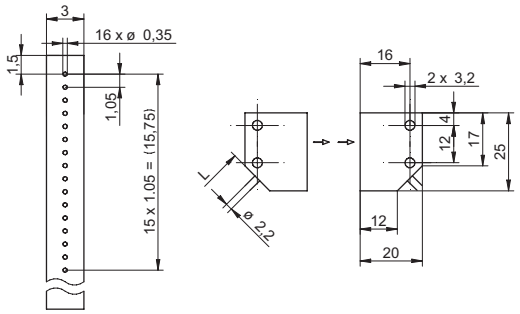
Sb = 790 mm

- Array
- Line length = Number of holes x hole spacing

general data	
particular characteristics	array (fine light barrier)
type	through beam sensor
actual range Sb	790 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	rectangular
width / diameter (head)	20 mm
height / length (head)	25 mm
depth (head)	3 mm
material (head)	aluminum
bending radius	4 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	85 mm (HS)	-	600 mm (nL)	790 mm (HP)
FVDK 67 (2 adjustable outputs)	85 mm (HS)	-	600 mm (nL)	790 mm (HP)
FVDK 67 (master/slave)	85 mm (HS)	-	600 mm (nL)	790 mm (HP)
FVDK 66 (standard version)	-	150 mm (FT)	260 mm (nL)	-
FVDK 66 (master/slave)	-	150 mm (FT)	260 mm (nL)	-
FVDK 22	-	-	200 mm (nL)	-
FVDK 12	-	-	200 mm (nL)	-
FVDK 12 (fast version)	188 mm (HS)	-	-	-
FVDK 10	-	-	100 mm (nL)	-
FWDK 84 (analog output)	-	-	55 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200C6Y15

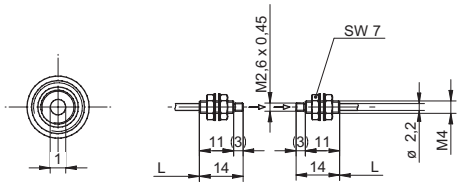
Sb = 900 mm

- with thread
- ultra flexible

general data	
particular characteristics	ultra flexible
type	through beam sensor
actual range Sb	900 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	4 mm
height / length (head)	14 mm
material (head)	stainless steel
bending radius	2 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
10134541	Doubling lens increases the actual range (paires)
10134540	Doubling lens increases the actual range (paires)
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	150 mm (HS)	-	600 mm (nL)	900 mm (HP)
FVDK 67 (2 adjustable outputs)	150 mm (HS)	-	600 mm (nL)	900 mm (HP)
FVDK 67 (master/slave)	150 mm (HS)	-	600 mm (nL)	900 mm (HP)
FVDK 66 (standard version)	-	180 mm (FT)	310 mm (nL)	-
FVDK 66 (master/slave)	-	180 mm (FT)	310 mm (nL)	-
FVDK 22	-	-	270 mm (nL)	-
FVDK 12	-	-	270 mm (nL)	-
FVDK 12 (fast version)	255 mm (HS)	-	-	-
FVDK 10	-	-	120 mm (nL)	-
FWDK 84 (analog output)	-	-	75 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200E1Y00

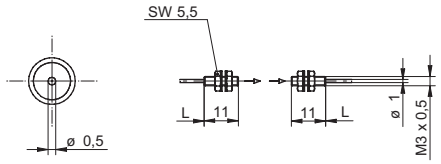
Sb = 140 mm

- with thread
- ultra flexible

general data	
particular characteristics	ultra flexible
type	through beam sensor
actual range Sb	140 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	3 mm
height / length (head)	11 mm
material (head)	stainless steel
bending radius	1 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119912	Mounting bracket Ø 1,1 mm
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	23 mm (HS)	-	95 mm (nL)	140 mm (HP)
FVDK 67 (2 adjustable outputs)	23 mm (HS)	-	95 mm (nL)	140 mm (HP)
FVDK 67 (master/slave)	23 mm (HS)	-	95 mm (nL)	140 mm (HP)
FVDK 66 (standard version)	-	29 mm (FT)	50 mm (nL)	-
FVDK 66 (master/slave)	-	29 mm (FT)	50 mm (nL)	-
FVDK 22	-	-	30 mm (nL)	-
FVDK 12	-	-	30 mm (nL)	-
FVDK 12 (fast version)	28 mm (HS)	-	-	-
FVDK 10	-	-	12 mm (nL)	-
FWDK 84 (analog output)	-	-	8 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200F1Y00

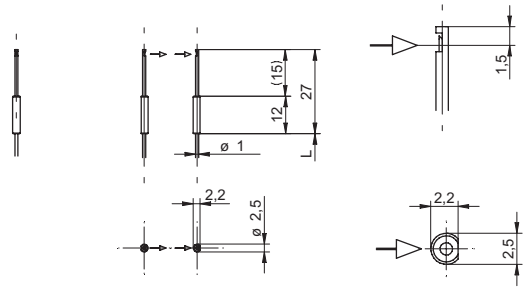
Sb = 52 mm

- smooth sensing head
- side view

general data	
particular characteristics	side view small sensing head
type	through beam sensor
actual range Sb	52 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (radial)
width / diameter (head)	2,5 mm
height / length (head)	27 mm
material (head)	stainless steel
bending radius	1 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119912	Mounting bracket Ø 1,1 mm
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	8 mm (HS)	-	35 mm (nL)	52 mm (HP)
FVDK 67 (2 adjustable outputs)	8 mm (HS)	-	35 mm (nL)	52 mm (HP)
FVDK 67 (master/slave)	8 mm (HS)	-	35 mm (nL)	52 mm (HP)
FVDK 66 (standard version)	-	11 mm (FT)	20 mm (nL)	-
FVDK 66 (master/slave)	-	11 mm (FT)	20 mm (nL)	-
FVDK 22	-	-	15 mm (nL)	-
FVDK 12	-	-	15 mm (nL)	-
FVDK 12 (fast version)	14 mm (HS)	-	-	-
FVDK 10	-	-	8 mm (nL)	-
FWDK 84 (analog output)	-	-	4 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200F4Y00

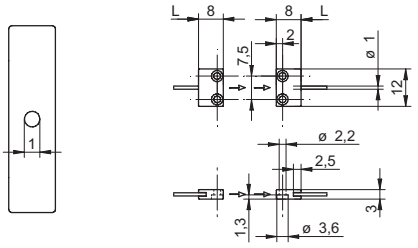
Sb = 140 mm

- rectangular
- plastic

general data	
type	through beam sensor
actual range Sb	140 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	rectangular
width / diameter (head)	12 mm
height / length (head)	8 mm
depth (head)	3 mm
material (head)	POM
bending radius	1 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below “fitting fiber optic sensors”.

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119912	Mounting bracket Ø 1,1 mm
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	17 mm (HS)	-	110 mm (nL)	140 mm (HP)
FVDK 67 (2 adjustable outputs)	17 mm (HS)	-	110 mm (nL)	140 mm (HP)
FVDK 67 (master/slave)	17 mm (HS)	-	110 mm (nL)	140 mm (HP)
FVDK 66 (standard version)	-	23 mm (FT)	40 mm (nL)	-
FVDK 66 (master/slave)	-	23 mm (FT)	40 mm (nL)	-
FVDK 22	-	-	40 mm (nL)	-
FVDK 12	-	-	40 mm (nL)	-
FVDK 12 (fast version)	37 mm (HS)	-	-	-
FVDK 10	-	-	15 mm (nL)	-
FWDK 84 (analog output)	-	-	11 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 100F6Y01

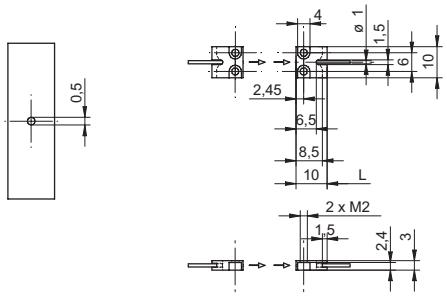
Sb = 140 mm

- rectangular
- brass nickel plated sensor head

general data	
type	through beam sensor
actual range Sb	140 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	rectangular
width / diameter (head)	10 mm
height / length (head)	10 mm
depth (head)	3 mm
material (head)	brass nickel plated
bending radius	1 mm
cable jacket diameter	1 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119912	Mounting bracket Ø 1,1 mm
10140260	Reduction tube
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	23 mm (HS)	-	95 mm (nL)	140 mm (HP)
FVDK 67 (2 adjustable outputs)	23 mm (HS)	-	95 mm (nL)	140 mm (HP)
FVDK 67 (master/slave)	23 mm (HS)	-	95 mm (nL)	140 mm (HP)
FVDK 66 (standard version)	-	29 mm (FT)	50 mm (nL)	-
FVDK 66 (master/slave)	-	29 mm (FT)	50 mm (nL)	-
FVDK 22	-	-	40 mm (nL)	-
FVDK 12	-	-	40 mm (nL)	-
FVDK 12 (fast version)	37 mm (HS)	-	-	-
FVDK 10	-	-	15 mm (nL)	-
FWDK 84 (analog output)	-	-	11 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FSE 200F6Y00

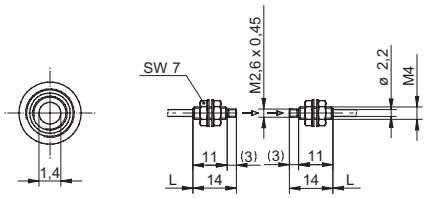
Sb = 2175 mm

- with thread

general data	
type	through beam sensor
actual range Sb	2175 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical threaded (axial)
width / diameter (head)	3 mm
height / length (head)	14 mm
material (head)	stainless steel
bending radius	20 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing



Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	360 mm (HS)	-	1450 mm (nL)	2175 mm (HP)
FVDK 67 (2 adjustable outputs)	360 mm (HS)	-	1450 mm (nL)	2175 mm (HP)
FVDK 67 (master/slave)	360 mm (HS)	-	1450 mm (nL)	2175 mm (HP)
FVDK 66 (standard version)	-	450 mm (FT)	770 mm (nL)	-
FVDK 66 (master/slave)	-	450 mm (FT)	770 mm (nL)	-
FVDK 22	-	-	680 mm (nL)	-
FVDK 12	-	-	680 mm (nL)	-
FVDK 12 (fast version)	640 mm (HS)	-	-	-
FVDK 10	-	-	300 mm (nL)	-
FWDK 84 (analog output)	-	-	190 mm (nL)	-

operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FWE 200C1Y00

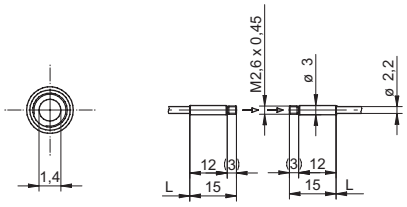
Sb = 2350 mm

- Smooth sensing head

general data	
type	through beam sensor
actual range Sb	2350 mm
response time / release time	0,05 ... 5 ms
type of head (fiber optic cable)	cylindrical smooth (axial)
width / diameter (head)	3 mm
height / length (head)	15 mm
material (head)	stainless steel
bending radius	20 mm
cable jacket diameter	2,2 mm
material cable jacket	PE
material (fiber optic cable)	plastic
length (fiber optic cable)	2000 mm
operating temperature	-30 ... +70 °C

Sensing distance/response time:
For the definitive sensing distance/response time please see table below "fitting fiber optic sensors".

dimension drawing

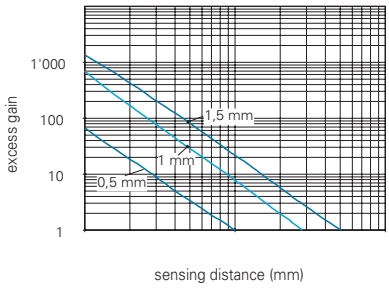


Accessories	
10114652	Cutting tool for plastic fiber optics
10119911	Mounting bracket Ø 2,2 mm
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m
10145523	Fiber optic cable extension 5 m hochflexibel
for details: see accessories section	

fitting fiber optic sensors	actual range Sb (0,05 ms)	actual range Sb (0,25 ms)	actual range Sb (1 ms)	actual range Sb (5 ms)
FVDK 67 (standard version)	360 mm (HS)	-	1450 mm (nL)	2350 mm (HP)
FVDK 67 (2 adjustable outputs)	360 mm (HS)	-	1450 mm (nL)	2350 mm (HP)
FVDK 67 (master/slave)	360 mm (HS)	-	1450 mm (nL)	2350 mm (HP)
FVDK 66 (standard version)	-	450 mm (FT)	770 mm (nL)	-
FVDK 66 (master/slave)	-	450 mm (FT)	770 mm (nL)	-
FVDK 22	-	-	680 mm (nL)	-
FVDK 12	-	-	680 mm (nL)	-
FVDK 12 (fast version)	642 mm (HS)	-	-	-
FVDK 10	-	-	300 mm (nL)	-
FWDK 84 (analog output)	-	-	-	-

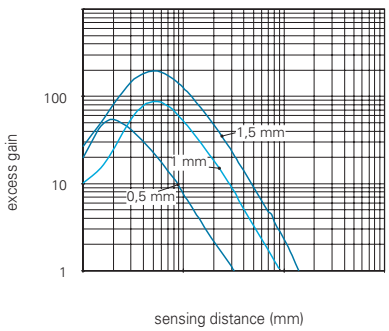
operating modes
HS High Speed
FT fast
nL Standard
HP High Sensitivity

order reference
FWE 200C2Y00

through-beam types	fiber ø	fiber mm²	min. bending radius	part nr. [1]	excess gain curve (2 m cut fiber)
1,1	0,5 mm	≈ 0,2 mm²	8 mm	10114158	
1,0 2,2	1 mm	≈ 0,8 mm²	15 mm	10114157	
1,5 2,2	1,5 mm	≈ 1,8 mm²	25 mm	10123729	

reduction of sensing distance: 4 % per meter
(valid up to 10 m)

Highly flexible version on demand.

reflective types	fiber ø	fiber mm²	min. bending radius	part nr. [1]	excess gain curve (2 m cut fiber)
0,5 1,1 2,2	2 x 0,5 mm	≈ 2 x 0,2 mm²	8 mm	10114594	
1,0 2,2 4,4	2 x 1 mm	≈ 2 x 0,8 mm²	15 mm	10114595	

reduction of sensing distance: 4 % per meter
(valid up to 10 m)

Highly flexible version on demand.

[1] order designation in meters

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product family	FZAM 18	FVDM 15	FZAM 18	FZAM 18	FZAM 30
width / diameter	18 mm	15 mm	18 mm	18 mm	30 mm
actual range Sb	310 mm	1200 mm	800 mm	800 mm	600 mm 1400 mm
sensing distance Tw	60 mm	240 mm	150 mm	150 mm	110 mm 230 mm
response time / release time	< 0,5 ms	< 0,1 ms < 1 ms	< 1 ms	< 1 ms	< 0,25 ms < 2,5 ms
light source	pulsed infrared diode	pulsed infrared diode	pulsed infrared diode	pulsed infrared diode	pulsed infrared diode
adjustment	potentiometer, 15 turn	potentiometer, 20 turn	potentiometer, 270°	Teach-in	potentiometer, 20 turn
output circuit	NPN PNP	NPN PNP	NPN PNP	NPN PNP	NPN PNP
connection types	cable	cable connector	cable connector	cable connector	cable
housing material	metal	metal	metal	metal	metal
page	**536**	**544**	**537**	**538**	**539**

General information

In contrast to plastic fiber optics, glass fiber optics contain hundreds of individual fibers. Each one conveys a part of the emitted light. Depending on the arrangement of the individual fibers, a homogenous light spot or a line can be produced. Also, glass is a high-quality, durable material, which guarantees a long and constant service life. This is only one of the reasons that glass optical fibers are used in the telecommunications industry. The high heat resistance also allows fields of application which are difficult or completely impossible with other sensors.

Typical applications

The wide range of sheath materials and sensing heads make it possible for you to adapt the sensors optimally to your machine concept. A way can always be found to fasten the small fiber optic heads. Due to the different available lengths, the fiber optic sensor can be placed individually at an optimum point.

- Metal-sheathed optical fibers can also be used under harsh conditions
- Detection, differentiation and positioning of different objects
- Monitoring of areas using fiber optic arrays with linear fiber arrangement
- Use at high, low or constantly fluctuating ambient temperatures
- Ranges of up to 1,4 m with fiber optic through beam types

Characteristics and advantages

Independent of the environment
As only light is conveyed, electromagnetic fields or high/low temperatures have no effect on the functional reliability.

(plastic-sheathed: -25 ... +70 °C)
(metal-sheathed: -25 ... +250 °C)

Rugged
Metal-sheathed optical fibers are protected against mechanical effects (chips etc).
All fiber optic sensors are fitted with a rugged metal housing.

Stable operation
High-quality glass fibers ensure stable operation for a long period. All fiber optic sensors are equipped with high-power infrared light sources, which provide sufficient excess gain even with a certain degree of soiling.

Area monitoring
Fiber optic arrays with a linear fiber arrangement permit an area to be monitored or the detection of objects which are not precisely conveyed.

Optimum installation
Apart from the common threaded types, fiber optic sensors with smooth sleeves or side light exit are available.

Fast processes
Fiber optic sensors with response times of only 50 microseconds permit the detection of objects even in very fast processes.

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Technology and operation

By exploiting the so-called total reflection, it is possible to convey light in a medium such as glass without great loss.

Explanation of total reflection

When light waves reflect on a barrier layer between two media with different optical densities, they do not simply carry on in a straight line. When they penetrate from an optically denser medium (e.g. glass fiber core) into an optically thinner medium (e.g. glass sheath), there is a smaller angle, the critical angle, under which total reflection occurs. The light wave is reflected back and remains in the optically denser medium.

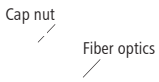
The glass sheath couting the core fiber is decisive for the transmission of light waves almost completely without loss. This ensures an optically consistent density of the sheath and the core and thereby permits a practically constant number of total reflections. This also occurs when the optical fiber is slightly bent. If there would be no core sheath, it would be highly decisive for the total reflection whether the optical fiber is used in an air medium or, for example, water. The critical angle would then change decisively, which could permit an undesired escape of light under certain circumstances.

In the sensing principle, fiber optic solutions are based on intensity differences. With fiber optic through beam types, an object breaking the light beam between the emitter and receiver is detected. With the fiber optic reflective types, the amount of light reflected by an object is evaluated.

For more information, see the section on plastic fiber optics in this chapter.

Mounting and adjustment

Fiber optics series 15



The cap nut to fasten the fiber optics is supplied with every order.

If damaged or lost, the cap nut can be ordered under the following number:

Cap nut	10103230

Fiber optics series 18

The adjusting plate and cap nut are supplied with every order.

If damaged or lost, they can be ordered under the following part numbers:

Adjusting plate	10101958
Cap nut	10101480

Fiber optics series 30

The adapter and the cap nut must be ordered as accessories with every order.

Adapter	10102757
Cap nut	10102801

For installation of the fiber optics, the cover must be removed.

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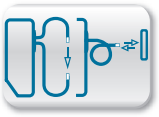
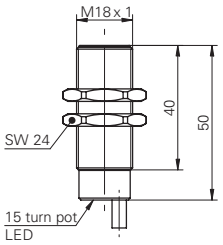


Sb = 310 mm
Tw = 60 mm

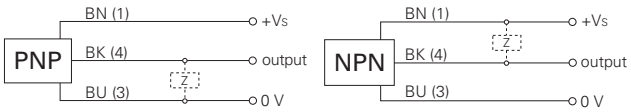
- sensitivity adjustable via potentiometer (axial)
- rugged metal housing
- infrared light source

general data	
actual range Sb	310 mm
sensing distance Tw	60 mm
light source	pulsed infrared diode
light indicator	LED yellow
alignment / soiled lens indicator	LED, flashing
adjustment	potentiometer, 15 turn
wave length	880 nm
suppression of reciprocal influence	yes
electrical data	
response time / release time	< 0,5 ms
voltage supply range +Vs	10 ... 30 VDC
current consumption max. (no load)	45 mA
current consumption typ.	30 mA
voltage drop Vd	< 1,8 VDC
output function	light operate
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	18 mm
height / length	50 mm
type	cylindrical threaded
housing material	brass nickel plated / PC
connection types	cable 3 pin, 2 m
ambient conditions	
operating temperature	-25 ... +55 °C
protection class	IP 65
Accessories	
10151658	Sensofix series 18
10101958	Adjusting plate series 18
10101480	Cap nut (replace) for fiber optics series 18
for details: see accessories section	
remarks	
cap nut and adjusting plate are included with fibre	

dimension drawing



connection diagrams



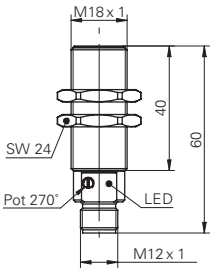
order reference	output circuit
FZAM 18N1155	NPN
FZAM 18P1155	PNP

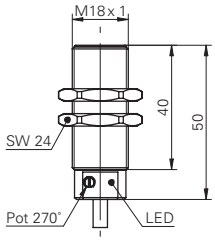
Sb = 800 mm
Tw = 150 mm

- sensitivity adjustable via potentiometer (radial)
- rugged metal housing
- infrared light source

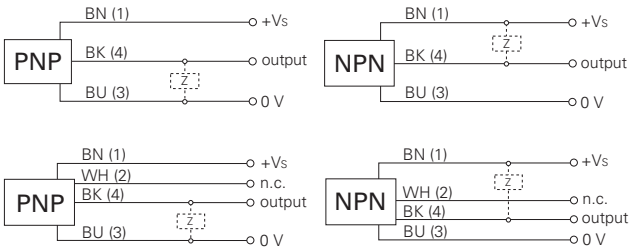
general data	
actual range Sb	800 mm
sensing distance Tw	150 mm
light source	pulsed infrared diode
light indicator	LED yellow
alignment / soiled lens indicator	LED, flashing
adjustment	potentiometer, 270°
wave length	880 nm
suppression of reciprocal influence	yes
electrical data	
response time / release time	< 1 ms
voltage supply range +Vs	10 ... 30 VDC
current consumption max. (no load)	45 mA
current consumption typ.	30 mA
voltage drop Vd	< 1,8 VDC
output function	light operate
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	18 mm
type	cylindrical threaded
housing material	brass nickel plated / PC
ambient conditions	
operating temperature	-25 ... +55 °C
protection class	IP 67
connectors and mating connectors	
ESG 34AH0200	Connector M12, 4 pin, straight, 2 m
ESW 33AH0200	Connector M12, 4 pin, angular, 2 m
additional cable connectors and field wireable connectors: see accessories	
Accessories	
10151658	Sensofix series 18
10101958	Adjusting plate series 18
10101480	Cap nut (replace) for fiber optics series 18
for details: see accessories section	
remarks	
cap nut and adjusting plate are included with fibre	

dimension drawings

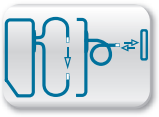




connection diagrams



order reference	height / length	output circuit	connection types
FZAM 18N1150	50 mm	NPN	cable 3 pin, 2 m
FZAM 18N1150/S14	60 mm	NPN	connector M12 4 pin
FZAM 18P1150	50 mm	PNP	cable 3 pin, 2 m
FZAM 18P1150/S14	60 mm	PNP	connector M12 4 pin

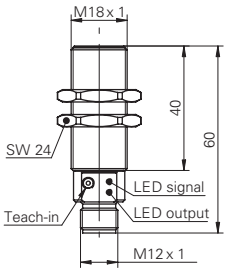


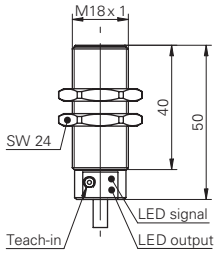
Sb = 800 mm
Tw = 150 mm

- sensitivity adjustable via Teach-in
- light / dark operation programmable
- rugged metal housing

general data	
actual range Sb	800 mm
sensing distance Tw	150 mm
light source	pulsed infrared diode
light indicator	LED green
alignment / soiled lens indicator	LED green, flashing
output indicator	LED yellow
adjustment	Teach-in
wave length	880 nm
suppression of reciprocal influence	yes
electrical data	
response time / release time	< 1 ms
voltage supply range +Vs	10 ... 30 VDC
current consumption max. (no load)	55 mA
current consumption typ.	40 mA
voltage drop Vd	< 1,8 VDC
output function	light / dark operate switchable
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	18 mm
type	cylindrical threaded
housing material	brass nickel plated / PC
ambient conditions	
operating temperature	-25 ... +55 °C
protection class	IP 67
connectors and mating connectors	
ESG 34AH0200	Connector M12, 4 pin, straight, 2 m
ESW 33AH0200	Connector M12, 4 pin, angular, 2 m
additional cable connectors and field wireable connectors: see accessories	
Accessories	
10151658	Sensofix series 18
10101958	Adjusting plate series 18
10101480	Cap nut (replace) for fiber optics series 18
for details: see accessories section	
remarks	
cap nut and adjusting plate are included with fibre	

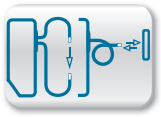
dimension drawings





connection diagrams

order reference	height / length	output circuit	connection types
FZAM 18N6460	50 mm	NPN	cable 4 pin, 2 m
FZAM 18N6460/S14	60 mm	NPN	connector M12 4 pin
FZAM 18P6460	50 mm	PNP	cable 4 pin, 2 m
FZAM 18P6460/S14	60 mm	PNP	connector M12 4 pin

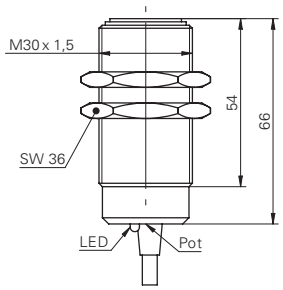


Sb = 1400 mm
Tw = 230 mm

- extended sensing distance
- fast version available
- rugged metal housing

general data	
light source	pulsed infrared diode
light indicator	LED yellow
alignment / soiled lens indicator	LED, flashing
adjustment	potentiometer, 20 turn
wave length	880 nm
electrical data	
voltage supply range +Vs	10 ... 30 VDC
voltage drop Vd	< 2,5 VDC
output function	light / dark operate
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	30 mm
height / length	66 mm
type	cylindrical threaded
housing material	brass nickel plated
connection types	cable 4 pin, 2 m
ambient conditions	
operating temperature	0 ... +65 °C
protection class	IP 65
Accessories	
11200030	Sensofix series 30
ZADAP-M30.STANDARD	Mounting bracket series 30
ZADAP-M30.LONG	Mounting bracket long series 30 (L design)
10102757	Adapter series 30
10106042	Adapter series 30 (angeled fiber optics)
10102801	Cap nut glass cover for sensors series 30
for details: see accessories section	
remarks	
cap nut and adapter has to be ordered separatly	

dimension drawing



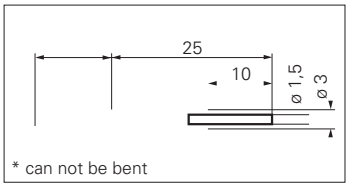
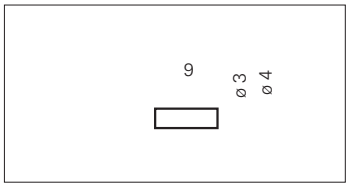
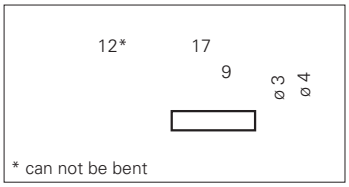
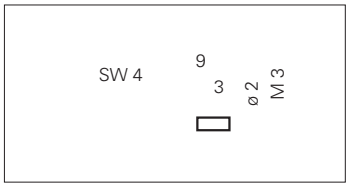
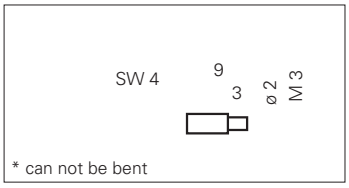
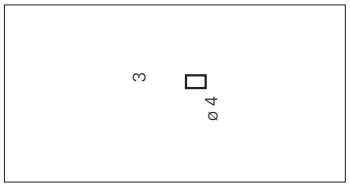
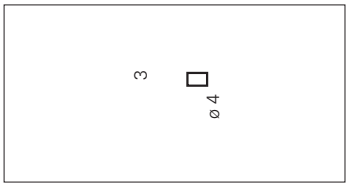
connection diagrams

order reference	actual range Sb	sensing distance Tw	response time / release time	current consumption max. (no load)	current consumption typ.	output circuit
FZAM 30N5004	1400 mm	230 mm	< 2,5 ms	50 mA	33 mA	NPN
FZAM 30P5001	600 mm	110 mm	< 0,25 ms	40 mA	30 mA	PNP
FZAM 30P5004	1400 mm	230 mm	< 2,5 ms	50 mA	33 mA	PNP

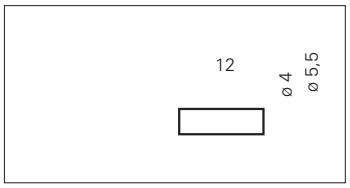
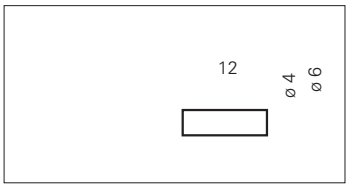
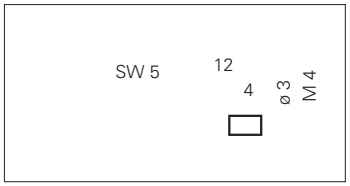
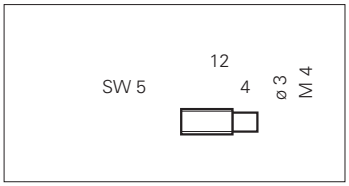
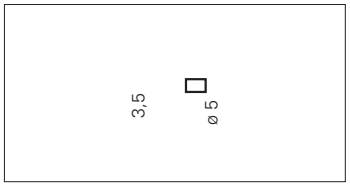
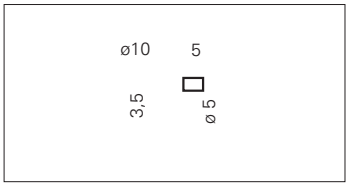
Glass fiber optics for Series 18, 30
Reflective types

Series 18 20-turn pot. | Series 18 Side mounted pot. Teach-in | Series 30 Fast version | Series 30 Extended Tw

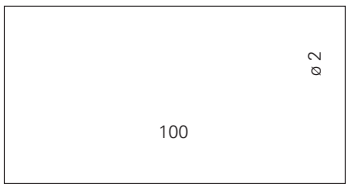
Fiber diameter 2 x 0,5 mm²

Sheath material: PVC ø 2,5 mm (FUE ...)	Sheath material: brass chromium plated ø 4 mm (FUF ...)	Part number	Tw = sensing distance [mm]
	 * can not be bent	**FUE 050A2004** **FUF 050A2004** (length 50 cm)	10 20 15 35
		FUE 100A2004 **FUF 100A2004** (length 100 cm)	5 20 15 30
	 * can not be bent	**FUE 050A2003** **FUF 050A2005** (length 50 cm)	10 20 15 35
		FUE 100A2003 **FUF 100A2005** (length 100 cm)	5 20 15 30
	 * can not be bent	**FUE 050A1003** **FUF 050A1005** (length 50 cm)	10 20 15 35
		FUE 100A1003 **FUF 100A1005** (length 100 cm)	5 20 15 30
		**FUE 050A4004** **FUF 050A4004** (length 50 cm)	10 20 15 35
		FUE 100A4004 **FUF 100A4004** (length 100 cm)	5 20 15 30

Fiber diameter 2 x 1 mm²

Sheath material: PUR ø 4,5 mm (FUE ...)	Sheath material: brass chromium plated ø 5 mm (FUF ...)	Part number	Tw = sensing distance [mm]
		**FUE 050A2002** **FUF 050A2007** (length 50 cm)	15 40 30 70
		FUE 100A2002 **FUF 100A2007** (length 100 cm)	15 40 30 60
		**FUE 050A1002** **FUF 050A1007** (length 50 cm)	15 40 30 70
		FUE 100A1002 **FUF 100A1007** (length 100 cm)	15 40 30 60
		**FUE 050A4005** **FUF 050A4005** (length 50 cm)	15 40 30 70
		FUE 100A4005 **FUF 100A4005** (length 100 cm)	15 40 30 60

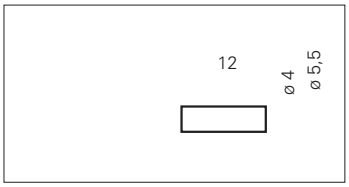
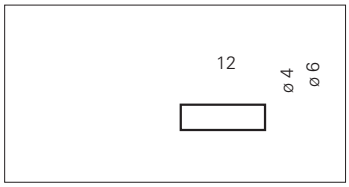
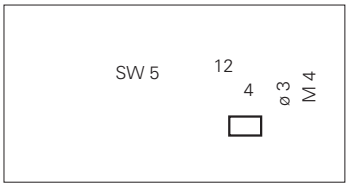
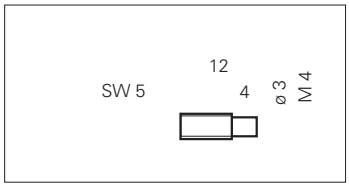
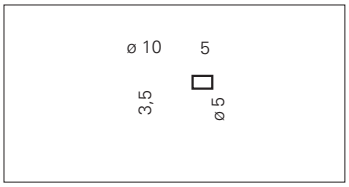
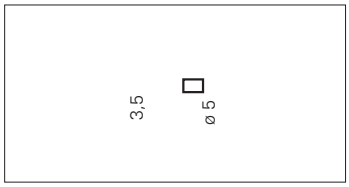
Fiber diameter 2 x 0,5 mm²

Sheath material: Chrome-nickel-steel ø 2 mm FUH 010A2002		Part number	Tw = sensing distance [mm]
		**FUH 010A2002** (length 10 cm)	10 20 15 35

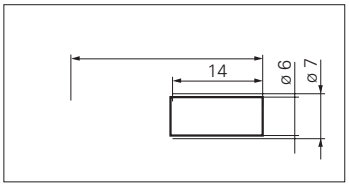
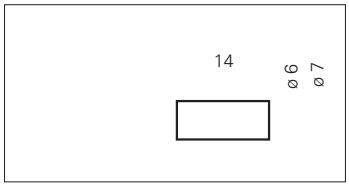
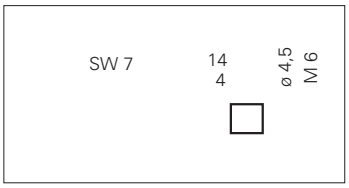
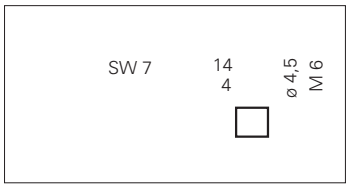
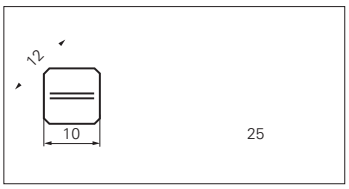
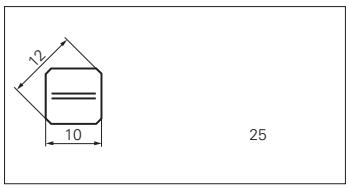
Glass fiber optics for Series 18, 30
Reflective types

Series 18 20-turn pot. | Series 18 Side mounted pot. Teach-in | Series 30 Fast version | Series 30 Extended Tw

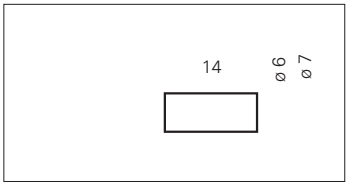
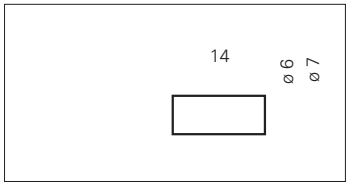
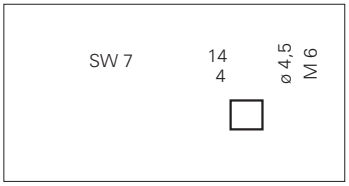
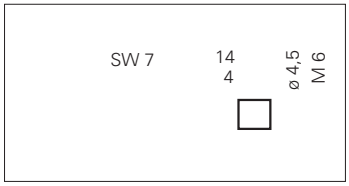
Fiber diameter 2 x 2 mm²

Sheath material: PUR ø 4,5 mm (FUE ...)	Sheath material: brass chromium plated ø 5 mm (FUF ...)	Part number	Tw = sensing distance [mm]
		**FUE 050A2011** **FUF 050A2011** (length 50 cm)	35 80 60 115
		FUE 100A2011 **FUF 100A2011** (length 100 cm)	35 80 60 115
		**FUE 050A1011** **FUF 050A1011** (length 50 cm)	35 80 60 115
		FUE 100A1011 **FUF 100A1011** (length 100 cm)	35 80 60 115
		**FUE 050A4003** **FUF 050A4002** (length 50 cm)	35 80 60 115
		FUE 100A4003 **FUF 100A4002** (length 100 cm)	35 80 60 115

Fiber diameter 2 x 3 mm²

Sheath material: PUR ø 6 mm (FUE ...)	Sheath material: brass chromium plated ø 6 mm (FUF ...)	Part number	Tw = sensing distance [mm]
		**FUE 050A2008** **FUF 050A2003** (length 50 cm)	60 150 100 210
		FUE 100A2008 **FUF 100A2003** (length 100 cm)	55 150 100 200
		**FUE 050A1008** **FUF 050A1003** (length 50 cm)	60 150 100 210
		FUE 100A1008 **FUF 100A1003** (length 100 cm)	55 150 100 200
		**FUE 050A3001** **FUF 050A3001** (length 50 cm)	60 150 100 210
		FUE 100A3001 **FUF 100A3001** (length 100 cm)	55 150 100 200

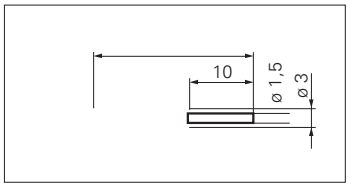
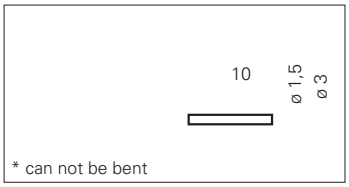
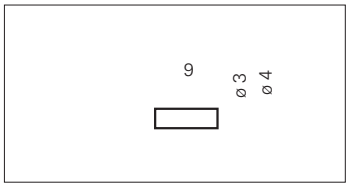
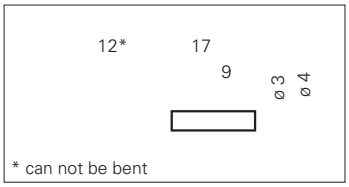
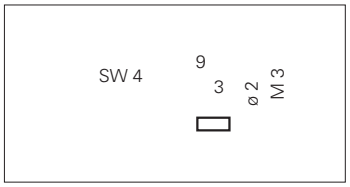
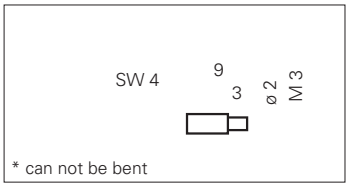
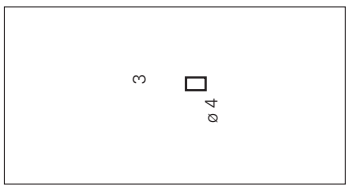
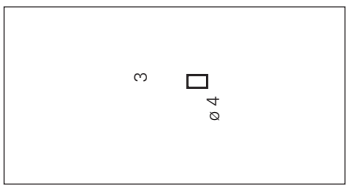
Fiber diameter 2 x 4 mm²

Sheath material: PUR ø 6 mm (FUE ...)	Sheath material: brass chromium plated ø 6 mm (FUF ...)	Part number	Tw = sensing distance [mm]
		**FUE 050A2001** **FUF 050A2001** (length 50 cm)	60 150 110 230
		FUE 100A2001 **FUF 100A2001** (length 100 cm)	60 150 100 220
		**FUE 050A1001** **FUF 050A1001** (length 50 cm)	60 150 110 230
		FUE 100A1001 **FUF 100A1001** (length 100 cm)	60 150 100 220

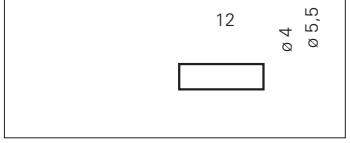
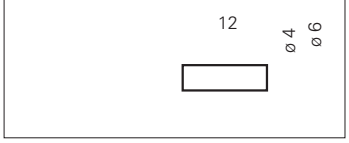
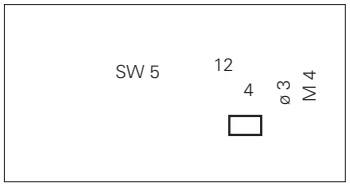
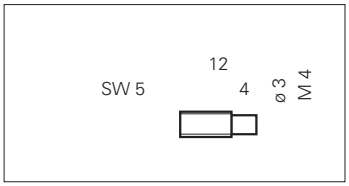
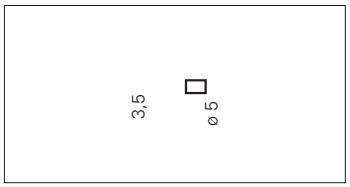
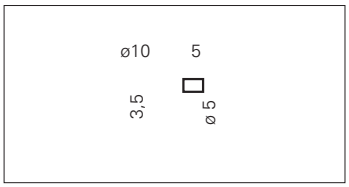
Glass fiber optics for Series 18, 30
Through beam types

Series 18 20-turn pot. | Series 18 Side mounted pot. Teach-in | Series 30 Fast version | Series 30 Extended Sb

Fiber diameter 2 x 1 mm²

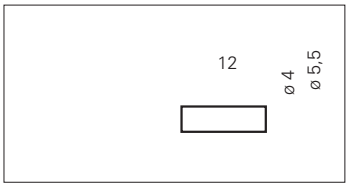
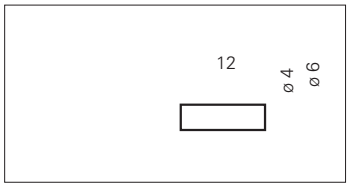
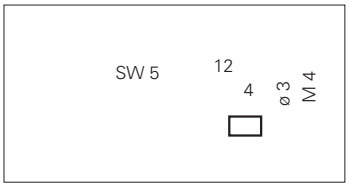
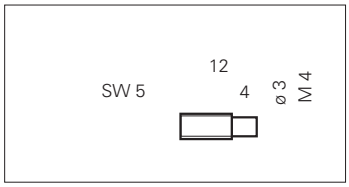
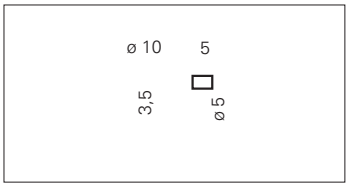
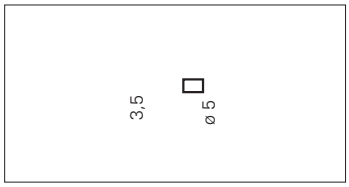
Sheath material: PVC ø 2,5 mm (FSE ...)	Sheath material: brass chromium plated ø 4 mm (FSF ...)	Part number	Sb = actual range [mm]
	 * can not be bent	**FSE 050A2002** **FSF 050A2004** (length 50 cm)	90 270 200 450
		FSE 100A2002 **FSF 100A2004** (length 100 cm)	90 250 190 500
	 * can not be bent	**FSE 050A2001** **FSF 050A2005** (length 50 cm)	90 270 200 450
		FSE 100A2001 **FSF 100A2005** (length 100 cm)	90 250 190 500
	 * can not be bent	**FSE 050A1001** **FSF 050A1005** (length 50 cm)	90 270 200 450
		FSE 100A1001 **FSF 100A1005** (length 100 cm)	90 250 190 500
		**FSE 050A4003** **FSF 050A4003** (length 50 cm)	90 270 200 450
		FSE 100A4003 **FSF 100A4003** (length 100 cm)	90 250 190 500

Fiber diameter 2 x 2 mm²

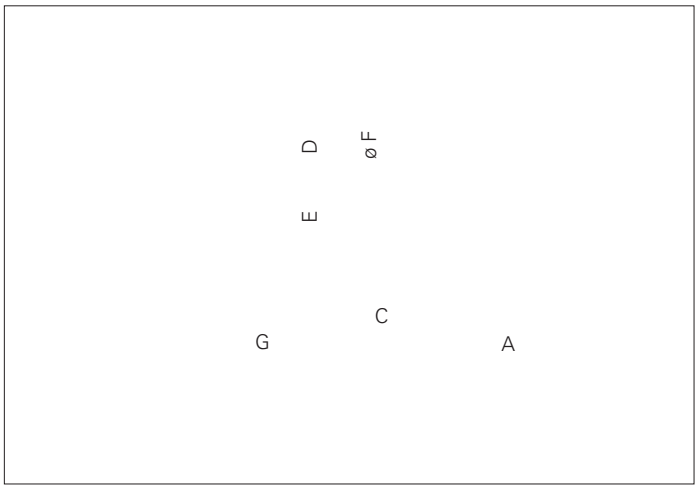
Sheath material: PUR ø 4,5 mm (FSE ...)	Sheath material: brass chromium plated ø 5 mm (FSF ...)	Part number	Sb = actual range [mm]
		**FSE 050A2006** **FSF 050A2002** (length 50 cm)	180 450 380 450
		FSE 100A2006 **FSF 100A2002** (length 100 cm)	170 500 370 860
		**FSE 050A1006** **FSF 050A1002** (length 50 cm)	180 450 380 450
		FSE 100A1006 **FSF 100A1002** (length 100 cm)	170 500 370 860
		**FSE 050A4006** **FSF 050A4002** (length 50 cm)	180 450 380 450
		FSE 100A4006 **FSF 100A4002** (length 100 cm)	170 500 370 860

Glass fiber optics for Series 18, 30
Through beam types

Series 18 20-turn pot. | Series 18 Side mounted pot. Teach-in | Series 30 Fast version | Series 30 Extended Sb

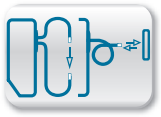
Fiber diameter 2 x 4 mm²		Part number	Sb = actual range [mm]
Sheath material: PVC ø 4 mm (FSE ...)	Sheath material: brass chromium plated ø 5 mm (FSF ...)		
		**FSE 050A2003** **FSF 050A2001** (length 50 cm)	310 500 500 500
		FSE 100A2003 **FSF 100A2001** (length 100 cm)	300 800 600 1400
		**FSE 050A1003** **FSF 050A1001** (length 50 cm)	310 500 500 500
		FSE 100A1003 **FSF 100A1001** (length 100 cm)	300 800 600 1400
		**FSE 050A4004** **FSF 050A4004** (length 50 cm)	310 500 500 500
		FSE 100A4004 **FSF 100A4004** (length 100 cm)	300 800 600 1400

Arrays (for Series 18 only)



Part number	Sb = actual range [mm]
FSF 050A3020 **FSE 050A3020** (length 50 cm)	310 500
FSF 100A3020 **FSE 100A3020** (length 100 cm)	310 800
FSF 050A3021 **FSF 050A3022** (length 50 cm)	350 500
FSF 100A3021 **FSF 100A3022** (length 100 cm)	350 900

flare size s	dimensions mm A	B	C	D	E	F	G	part number
8 mm	10	10	-	-	-	-	25	FSF 050A3020 FSF 100A3020
8 mm	10	10	-	-	-	-	25	FSE 050A3020 FSE 100A3020
20 mm	10	25	9	6.5	12	3,2	40	FSF 050A3021 FSF 100A3021
35 mm	12	40	12	7.5	25	4,2	50	FSF 050A3022 FSF 100A3022
metal sheath (FSF...)								length 50 cm length 100 cm
plastic sheath (FSE...) (PUR)								length 50 cm length 100 cm

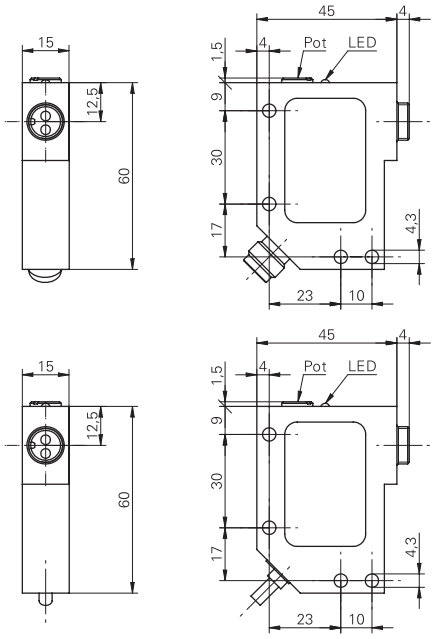


Sb = 1200 mm
Tw = 240 mm

- sensitivity adjustable via potentiometer
- fast version available
- rugged metal housing

general data	
actual range Sb	1200 mm
sensing distance Tw	240 mm
light source	pulsed infrared diode
light indicator	LED yellow
alignment / soiled lens indicator	LED, flashing
adjustment	potentiometer, 20 turn
wave length	880 nm
suppression of reciprocal influence	yes
electrical data	
voltage supply range +Vs	10 ... 30 VDC
voltage drop Vd	< 1,8 VDC
output function	light / dark operate
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
width / diameter	15 mm
height / length	60 mm
depth	45 mm
type	rectangular
housing material	die-cast aluminum
ambient conditions	
operating temperature	-25 ... +65 °C
protection class	IP 65
connectors and mating connectors	
ESG 34AH0200	Connector M12, 4 pin, straight, 2 m
ESW 33AH0200	Connector M12, 4 pin, angular, 2 m
additional cable connectors and field wireable connectors: see accessories	
Accessories	
10103415	Mounting bracket series 15 (L design)
10103230	Cap nut (replace) for fiber optics series 15
for details: see accessories section	

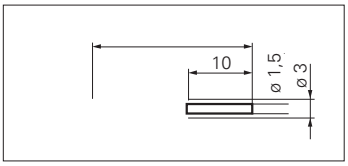
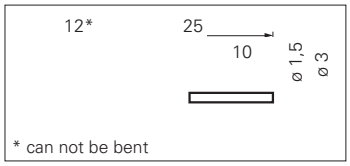
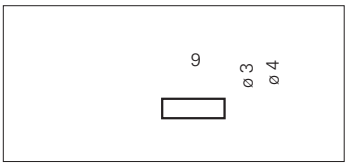
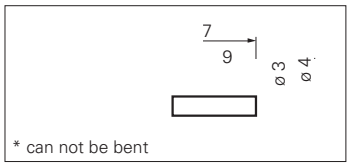
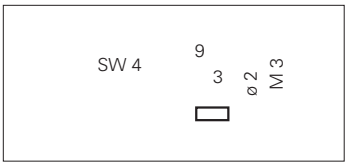
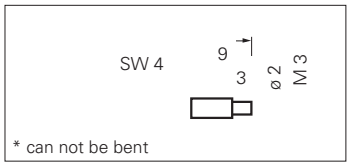
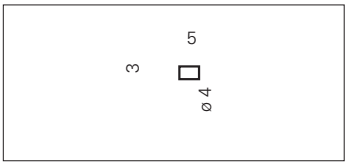
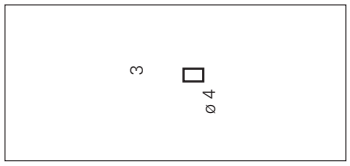
dimension drawings

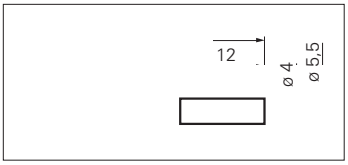
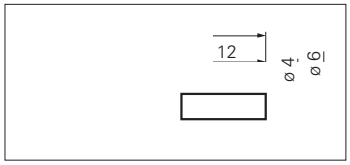
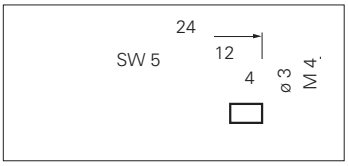
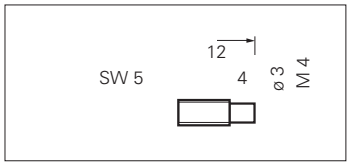
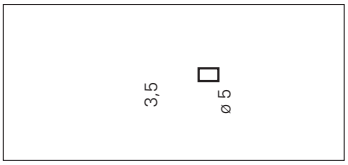
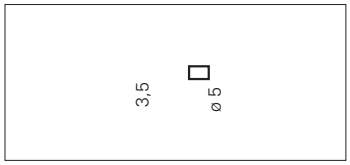


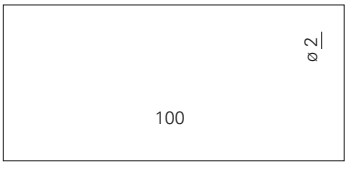
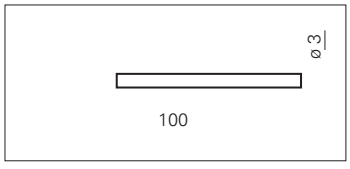
connection diagrams

order reference	response time / release time	current consumption max. (no load)	current consumption typ.	output circuit	connection types
FVDM 15N5103	< 1 ms	46 mA	30 mA	NPN	cable 4 pin, 2 m
FVDM 15N5103/S14	< 1 ms	46 mA	30 mA	NPN	connector M12 4 pin
FVDM 15P5103	< 1 ms	46 mA	30 mA	PNP	cable 4 pin, 2 m
FVDM 15P5103/S14	< 1 ms	46 mA	30 mA	PNP	connector M12 4 pin
FVDM 15P5130	< 0,1 ms	60 mA	50 mA	PNP	cable 4 pin, 2 m
FVDM 15P5130/S14	< 0,1 ms	60 mA	50 mA	PNP	connector M12 4 pin

Glass fiber optics for Series 15
Reflective types

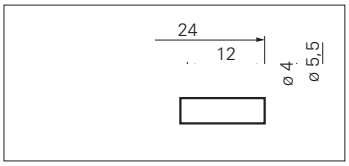
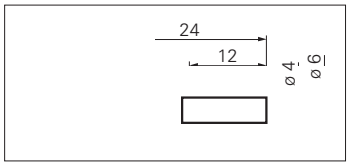
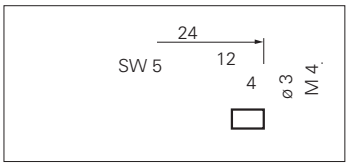
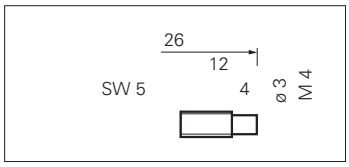
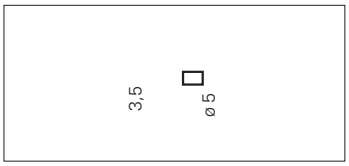
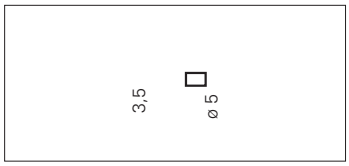
Fiber diameter 2 x 0,5 mm²		Part number	Tw = sensing distance [mm]
Sheath material: PVC ø 2,5 mm (FUE ...)	Sheath material: brass chromium plated ø 4 mm (FUF ...)		
		**FUE 025B2004** **FUF 025B2004** (length 25 cm)	25
		FUE 050B2004 **FUF 050B2004** (length 50 cm)	25
		**FUE 025B2003** **FUF 025B2003** (length 25 cm)	25
		FUE 050B2003 **FUF 050B2003** (length 50 cm)	25
		**FUE 025B1003** **FUF 025B1003** (length 25 cm)	25
		FUE 050B1003 **FUF 050B1003** (length 50 cm)	25
		**FUE 025B4003** **FUF 025B4006** (length 25 cm)	25
		FUE 050B4003 **FUF 050B4006** (length 50 cm)	25

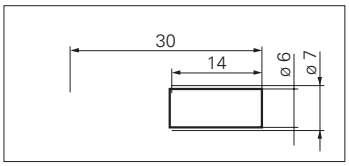
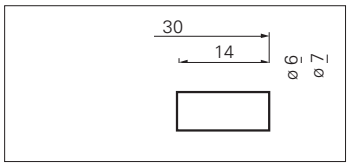
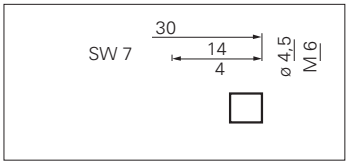
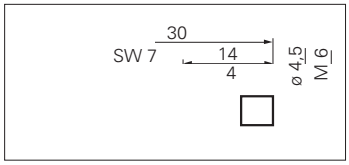
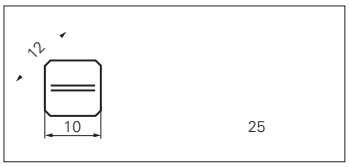
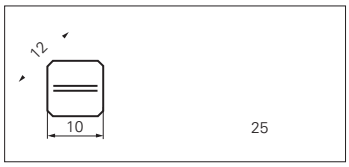
Fiber diameter 2 x 1 mm²		Part number	Tw = sensing distance [mm]
Sheath material: PUR ø 4,5 mm (FUE ...)	Sheath material: brass chromium plated ø 5 mm (FUF ...)		
		**FUE 025B2002** **FUF 025B2005** (length 25 cm)	60
		FUE 050B2002 **FUF 050B2005** (length 50 cm)	60
		**FUE 025B1002** **FUF 025B1005** (length 25 cm)	60
		FUE 050B1002 **FUF 050B1005** (length 50 cm)	60
		**FUE 025B4005** **FUF 025B4008** (length 25 cm)	60
		FUE 050B4005 **FUF 050B4008** (length 50 cm)	60

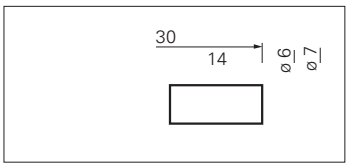
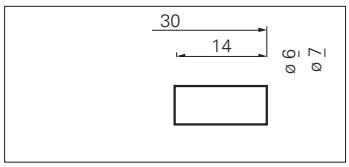
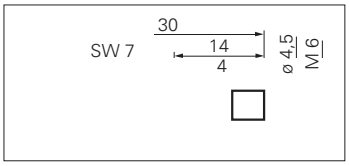
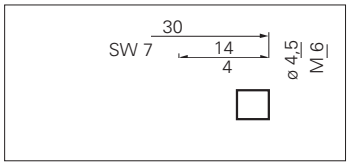
Fiber diameter 2 x 0,5 mm²	Fiber diameter 2 x 1 mm²	Part number	Tw = sensing distance [mm]
Sheath material: Chrome-nickel-steel ø 2 mm FUH 010B2002	Sheath material: Chrome-nickel-steel ø 3 mm FUH 010B2001		
		**FUH 010B2002** (length 10 cm)	25
		FUH 010B2001 (length 10cm)	60

Glass fiber optics for Series 15
Reflective types

Series 15

Fiber diameter 2 x 2 mm²		Part number	Tw = sensing distance [mm]
Sheath material: PUR ø 4,5 mm (FUE ...)	Sheath material: brass chromium plated ø 5 mm (FUF ...)		
		**FUE 025B2011** **FUF 025B2011** (length 25 cm)	110
		FUE 050B2011 **FUF 050B2011** (length 50 cm)	100
		**FUE 025B1011** **FUF 025B1011** (length 25 cm)	110
		FUE 050B1011 **FUF 050B1011** (length 50 cm)	100
		**FUE 025B4004** **FUF 025B4002** (length 25 cm)	110
		FUE 050B4004 **FUF 050B4002** (length 50 cm)	100

Fiber diameter 2 x 3 mm²		Part number	Tw = sensing distance [mm]
Sheath material: PUR ø 6 mm (FUE ...)	Sheath material: brass chromium plated ø 6 mm (FUF ...)		
		**FUE 025B2008** **FUF 025B2002** (length 25 cm)	210
		FUE 050B2008 **FUF 050B2002** (length 50 cm)	200
		**FUE 025B1008** **FUF 025B1002** (length 25 cm)	210
		FUE 050B1008 **FUF 050B1002** (length 50 cm)	200
		**FUE 025B3001** **FUF 025B3001** (length 25 cm)	210
		FUE 050B3001 **FUF 050B3001** (length 50 cm)	200

Fiber diameter 2 x 4 mm²		Part number	Tw = sensing distance [mm]
Sheath material: PUR ø 6 mm (FUE ...)	Sheath material: brass chromium plated ø 6 mm (FUF ...)		
		**FUE 025B2001** **FUF 025B2001** (length 25 cm)	240
		FUE 050B2001 **FUF 050B2001** (length 50 cm)	230
		**FUE 025B1001** **FUF 025B1001** (length 25 cm)	240
		FUE 050B1001 **FUF 050B1001** (length 50 cm)	230

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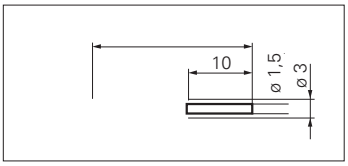
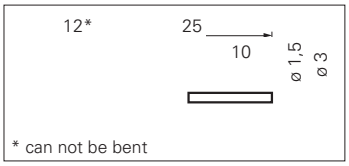
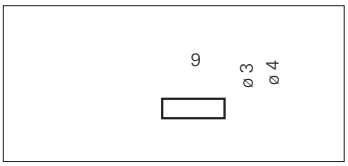
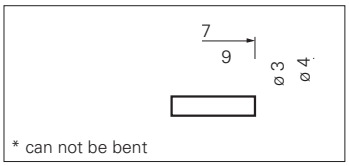
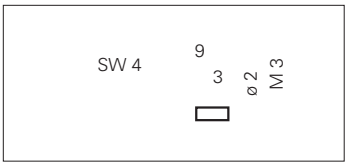
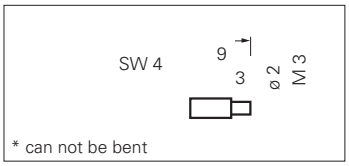
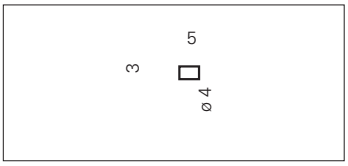
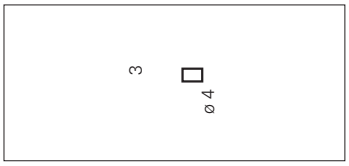
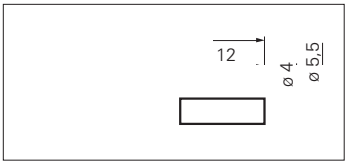
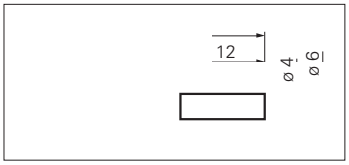
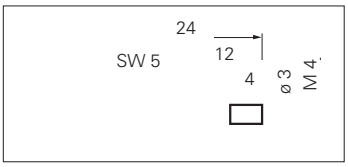
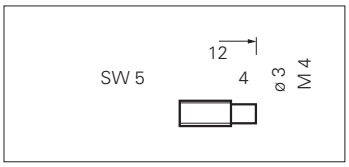
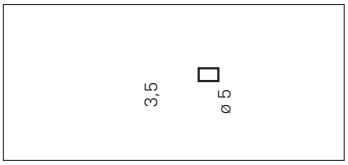
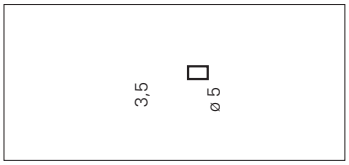
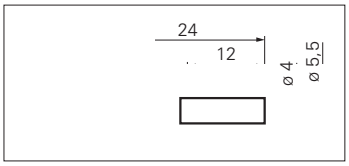
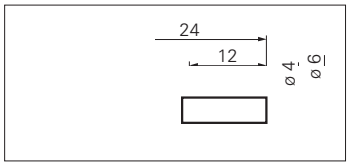
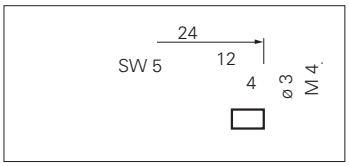
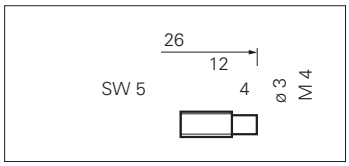
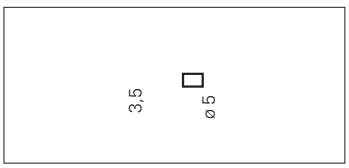
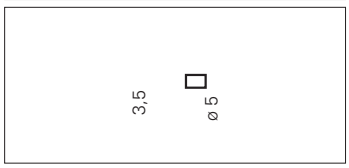
Glass fiber optics for Series 15
Through beam types

Fiber diameter 2 x 1 mm²			
Sheath material: PVC ø 2,5 mm (FSE ...)	Sheath material: brass chromium plated ø 4 mm (FSF ...)	Part number	**Sb** = actual range [mm]
		**FSE 025B2002** **FSF 025B2002** (length 25 cm)	140
		FSE 050B2002 **FSF 050B2002** (length 50 cm)	320
		**FSE 025B2001** **FSF 025B2005** (length 25 cm)	140
		FSE 050B2001 **FSF 050B2005** (length 50 cm)	320
		**FSE 025B1001** **FSF 025B1005** (length 25 cm)	140
		FSE 050B1001 **FSF 050B1005** (length 50 cm)	320
		**FSE 025B4003** **FSF 025B4003** (length 25 cm)	140
		FSE 050B4003 **FSF 050B4003** (length 50 cm)	320

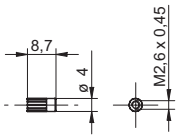
Fiber diameter 2 x 2 mm²			
Sheath material: PUR ø 4,5 mm (FSE ...)	Sheath material: brass chromium plated ø 5 mm (FSF ...)	Part number	**Sb** = actual range [mm]
		**FSE 025B2006** **FSF 025B2006** (length 25 cm)	160
		FSE 050B2006 **FSF 050B2006** (length 50 cm)	450
		**FSE 025B1007** **FSF 025B1007** (length 25 cm)	160
		FSE 050B1007 **FSF 050B1007** (length 50 cm)	450
		**FSE 025B4006** **FSF 025B4002** (length 25 cm)	160
		FSE 050B4006 **FSF 050B4002** (length 50 cm)	450

Glass fiber optics for Series 15
Through beam types

Series 15

Fiber diameter 2 x 4 mm²		Part number	Sb = actual range [mm]
Sheath material: PVC ø 4 mm (FSE ...)	Sheath material: brass chromium plated ø 5 mm (FSF ...)		
		**FSE 025B2003** **FSF 025B2001** (length 25 cm)	160
		FSE 050B2003 **FSF 050B2001** (length 50 cm)	500
		**FSE 025B1003** **FSF 025B1001** (length 25 cm)	160
		FSE 050B1003 **FSF 050B1001** (length 50 cm)	500
		**FSE 025B4004** **FSF 025B4004** (length 25 cm)	160
		FSE 050B4004 **FSF 050B4004** (length 50 cm)	500

Doubling lens M2,6

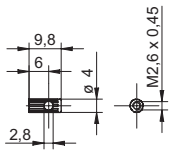


- Increases the actual range Sb by a factor of 6
- Contents: 2 pieces

For fiber optic: FSE 200C1Y00 / FSE 200C2Y00, FSA 200C1Y00, FSG 200C1Y00, FSE 200E1Y00

order reference	
10134541	Doubling lens increases the actual range (paires)

Doubling lens M2,6 (side view version)

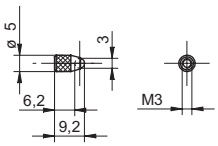


- Side view version
- Increases the actual range Sb by a factor of 6
- Contents: 2 pieces

For fiber optic: FSE 200C1Y00 / FSE 200C2Y00, FSA 200C1Y00, FSG 200C1Y00, FSE 200E1Y00

order reference	
10134540	Doubling lens increases the actual range (paires)

Doubling lens M3

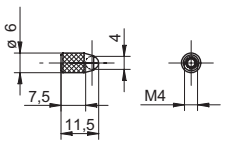


- Material: brass / glass
- Increases the actual range Sb by a factor of 6
- Contents: 2 pieces

For fiber optic: FSE 200C1004

order reference	
10119910	Doubling lens M3 increases the actual range (paires)

Doubling lens M4

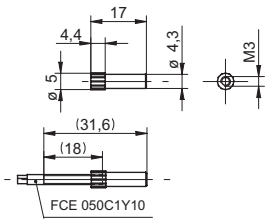


- Material: brass / glass
- Increases the actual range Sb by a factor of 6
- Contents: 2 pieces

For fiber optic: FSE 200C1004

order reference	
10119909	Doubling lens M4 increases the actual range (paires)

Focusing lens M3 ø 0,1 mm

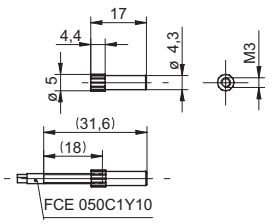


- Light spot Ø 0,1 mm at a distance of 4,6 mm

For fiber optic: FCE 050C1Y10 (empfohlen), FCE 200D1Y00, FCE 200D1Y01, FCE 200E1Y00

order reference	
10134544	Focusing lens M3 ø 0,1 mm

Focusing lens M3 ø 0,4 m

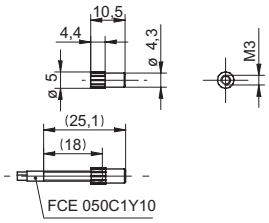


- Light spot Ø 0,4 mm at a distance of 7 mm

For fiber optic: FCE 050C1Y10 (empfohlen), FCE 200D1Y00, FCE 200D1Y01, FCE 200E1Y00

order reference	
10134543	Focusing lens M3 ø 0,4 m

Focusing lens M3 ø 2 mm

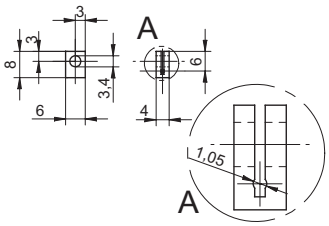


- Light spot Ø 2 mm at a distance of 19 mm

For fiber optic: FCE 050C1Y10 (empfohlen), FCE 200D1Y00, FCE 200D1Y01, FCE 200E1Y00

order reference	
10134542	Focusing lens M3 ø 2 mm

Mounting bracket 1,1 mm

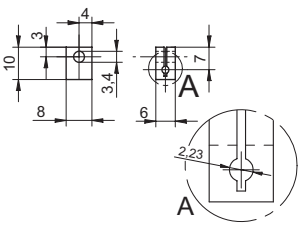


- Material: Aluminum

For fiber optic through beam type with 1,1 mm sheath diameters

order reference	
10119912	Mounting bracket Ø 1,1 mm

Mounting bracket 2,2 mm

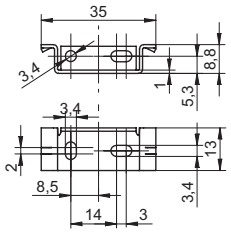


- Material: Aluminum

For fiber optic through beam type with 2,2 mm sheath diameters

order reference	
10119911	Mounting bracket Ø 2,2 mm

Mounting bracket for fiber optic sensors series 12

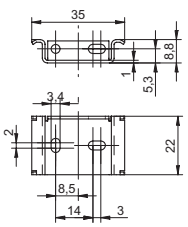


- Material: Steel
- Delivered with every plastic fiber optic sensor series 12

For use with FVDK 12

order reference	
10145702	Mounting bracket for fiber optic sensors series 12

Mounting bracket for fiber optic sensors series 22

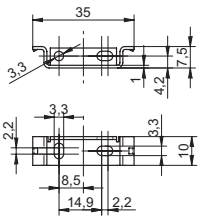


- Material: Steel
- Delivered with every plastic fiber optic sensor series 22

For use with FVDK 22

order reference	
10125534	Mounting bracket for fiber optic sensors series 22

Mounting bracket for fiber optic sensors series 60

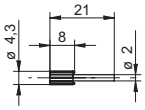


- Material: Steel
- Must be ordered separately for series 66 and series 67sensors

For use with FVDK 66, FVDK 67

order reference	
10159806	Mounting bracket for fiber optic sensors series 60, 66, 67, 80

Reduction tube



- Set of 2
- Delivered with every 1 mm diameter plastic fiber optic

order reference	
10140260	Reduction tube

Fiber optic cable extension

- Reduction in range due to fiber optic extension: 2 m = approx. 25%
- Reduction in range due to fiber optic extension: 5 m = approx. 60%

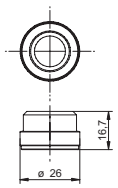
order reference	
10145523	Fiber optic cable extension 5 m hochflexibel
10156738	Fiber optic cable extension 2 m
10158142	Fiber optic cable extension 5 m

Cutting tool

- Delivered with every plastic fiber optic

order reference	
10114652	Cutting tool for plastic fiber optics

Adapter for glass fiber optic sensors 30

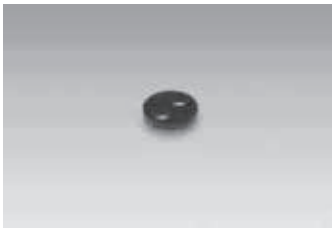


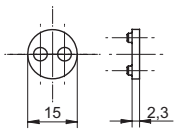
- Material: POM

For use with fiber optic amplifier FZAM 30

order reference	
10102757	Adapter series 30
10106042	Adapter series 30 (angeled fiber optics)

Adjusting plate for glass fiber optic sensors 18 (replace)

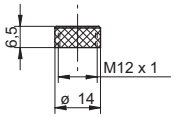




- Material: PETP
- For re-orders when lost
- Enclosed with every glass fiber optic of type A

order reference	
10101958	Adjusting plate series 18

Cap nut for glass fiber optic sensors 15 (replace)

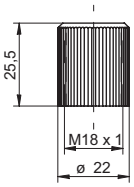


- Material: Nickel-plated brass
- For re-orders when lost
- Enclosed with every glass fiber optic of type B

For use with FVDM 15

order reference	
10103230	Cap nut (replace) for fiber optics series 15

Cap nut for glass fiber optic sensors 18 (replace)



- Material: POM
- For re-orders when lost
- Enclosed with every glass fiber optic of type A

For use with FZAM 18

order reference	
10101480	Cap nut (replace) for fiber optics series 18

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