Волоконно-оптические датчики

Технические характеристики

Fiber optic devices and fiber optics - a solution for your every need!

Fiber optics are used wherever there is no more space available for traditional photoelectric sensors. They are not sensitive to strong vibrations and can be used at maximum temperatures of up to 300 °C. In addition, they are used in areas subject to the risk of explosions since the corresponding evaluation device cannot be placed in the area subject to the risk of explosion.
Depending on the type of fiber optic device, optical fibers or plastic fiber optics can be connected up to several meters. This ensures assembly suitable for the desired function for nearly all types of spaces.
Fiber optic devices themselves are available in a variety of shapes and models depending what is required by the application. The range extends from top hat rail mounting through M18 and M30 threaded designs to compact miniaturized devices with plastic or metal housings featuring a wide range of special features. These include TEACH-IN via membrane keys and programmable timer functions, protection class IP65 and IP67, fixed cable and M8 or M12 connectors as well as PNP or NPN switching and pre-fault outputs. High switching frequencies up to 1500 Hz make it possible to record rapid processes.

The use of fiber optics is especially handy for recording small parts in places that are hard to get to and in harsh environmental conditions.

Sensor type	Sensor type	Features	Page
	**MLV40-LL**	- **Miniature design** - **robust metal housing** - **for glass fiber optics**	**300**
	**VL18-LL**	- **cylindrical design** - **robust M18 threaded metal housing** - **for glass fiber optics**	**306**
	**OJ500-M1K-E23**	- **sensor head adjustable in multiple directions** - **many sensor functions selectable** - **sensor exchangeable separate from base** - **convenient, accessible terminal space** - **for glass fiber optics**	**310**
	**RL5-LL**	- **contrast sensor** - **robust metal housing** - **2 transmitter colors selectable** - **for glass fiber optics**	**314**
	**SU15** **SU15.1**	- **suitable for DIN rail mounting** - **TEACH-IN** - **many sensor functions parameterizable** - **for glass or plastic fiber optics**	**318**
	**GLV30-LL**	- **cylindrical design** - **robust M30 threaded housing** - **for glass fiber optics**	**328**

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Fibre optic device for glass fibre optics — MLV40-LL-...

Features

- **Sturdy aluminium housing**
- **Fibre optic adapter with quick tightening shutter**
- **Less space required**
- **Extensive fibre optic product selection as accessories**

For suitable cable sockets, mounting aids and more, please refer to chapter "Accessories".

MLV40-LL-...

Technical data

Ordering code:	MLV40-LL-IR/47/115	MLV40-LL-IR/47/92	MLV40-LL-IR/48/115	MLV40-LL-IR/49/115	MLV40-LL-IR/49/92	MLV40-LL-RT/48/115	MLV40-LL-RT/49/115
Detection range	depends on the fibre optics being used see selection table for fibre optics	◆	◆	◆	◆	◆	◆	◆
Adjustment range	depends on the fibre optics being used	◆	◆	◆	◆	◆	◆	◆
Light type	infrared, alternating light	◆	◆	◆	◆	◆		
	red, alternating light						◆	◆
Light source	IRED	◆	◆	◆	◆	◆		
	LED						◆	◆
Ambient light limit	50000 Lux	◆	◆	◆	◆	◆	◆	◆
Approvals	CE, cULus	◆	◆	◆	◆	◆	◆	◆
Function display	LED yellow, flashes when falling short of the stability control	◆	◆	◆	◆	◆	◆	◆
Operating elements	sensitivity adjuster	◆	◆	◆	◆	◆	◆	◆
Operating voltage	10 ... 30 V DC	◆	◆	◆	◆	◆	◆	◆
Ripple	10 %	◆	◆	◆	◆	◆	◆	◆
No-load supply current	40 mA	◆	◆	◆	◆	◆	◆	◆
Signal output	1 pnp and 1 npn short-circuit proof, protected against reverse polarity				◆	◆		◆
	2 npn antivalent, short-circuit proof, protected against reverse polarity			◆			◆	
	2 pnp, antivalent, short-circuit proof, protected against reverse polarity	◆	◆					
Switching type	dark ON				◆	◆		◆
	light/dark switching	◆	◆	◆			◆	
Switching voltage	max. 30 V DC	◆	◆	◆	◆	◆	◆	◆
Switching current	max. 200 mA	◆	◆	◆	◆	◆	◆	◆
Switching frequency	100 Hz	◆	◆	◆	◆	◆	◆	◆
Response time	5 ms	◆	◆	◆	◆	◆	◆	◆
Standards	EN 60947-5-2	◆	◆	◆	◆	◆	◆	◆
Ambient temperature	-20 ... 60 °C (253 ... 333 K)	◆	◆	◆	◆	◆	◆	◆
Storage temperature	-20 ... 75 °C (253 ... 348 K)	◆	◆	◆	◆	◆	◆	◆
Protection degree	IP65	◆	◆	◆	◆	◆	◆	◆
Connection	Fixed cable 2 m	◆		◆	◆		◆	◆
	M12 connector, 4-pin		◆			◆		
Material								
Housing	aluminium	◆	◆	◆	◆	◆	◆	◆
Optical face	glass	◆	◆	◆	◆	◆	◆	◆
Mass	100 g	◆	◆	◆	◆	◆	◆	◆

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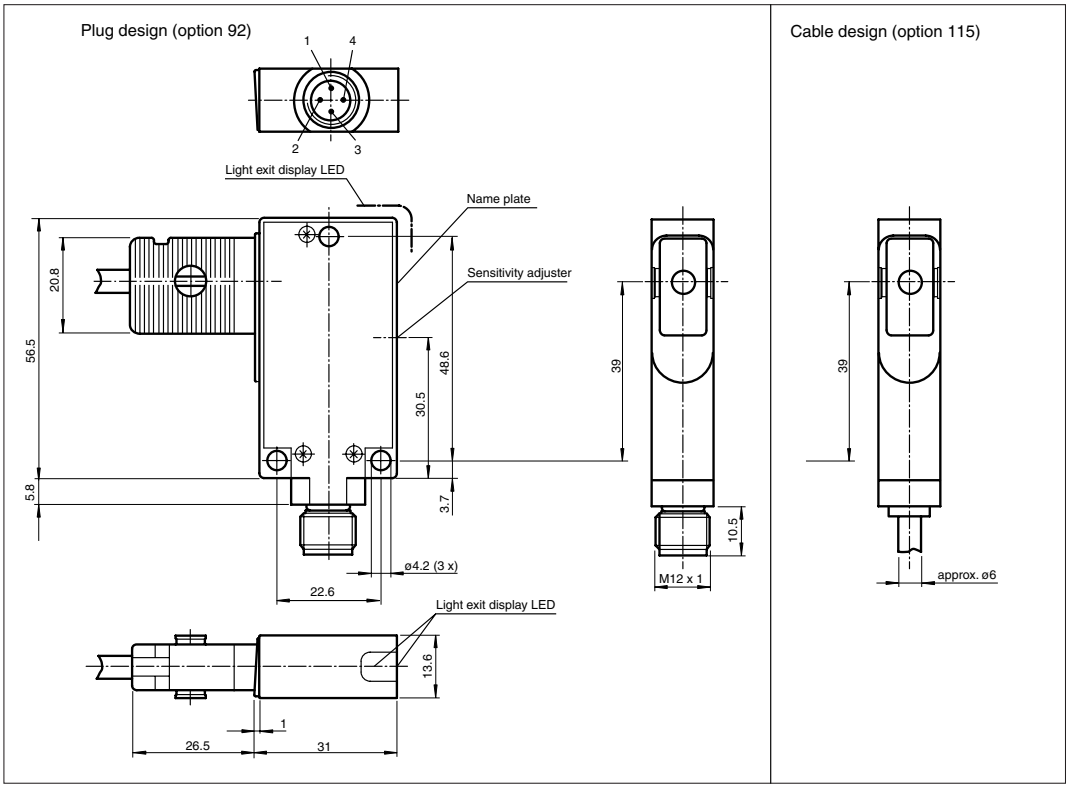
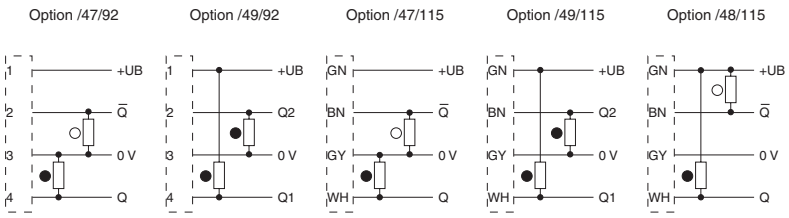
Dimensions

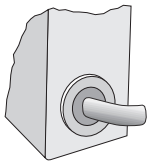
MLV40-LL-...



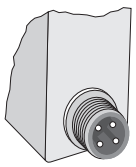
Electrical connection

Connection type





Option 115
fixed cable



Option 92
plug M12, 4 pin

❍ = light on, ● = dark on, for connector pinout see dimensions drawing

Selection table for fibre

	Model number	Detection range in mm with			Figure
		MLV40-LL-IR	MLV40-LL-RT	SU14-LL	
Glass fibre optics single path with PVC coating	LCE04-1,1-0,5-WC3	100	50	100	1
	LCE04-1,1-1,5-WC3	110	60	80	1
	LCE04-1,6-0,5-WC3	280	80	160	2
	LCE04-1,6-1,0-WC3	200	60	120	2
	LCE04-1,6-1,0-Z1	280	80	160	3
	LCE04-1,6-1,0-G	280	80	160	4
Glass fibre optics reflex with PVC coating	LCR04-1,1-0,5-WC3	50	25	40	5
	LCR04-1,6-1,0-WC3	100	50	80	6
	LCR04-1,6-0,5-WC2	50	20	40	7
	LCR04-1,6-0,5-Z1	80	40	80	8
	LCR04-1,6-1,0-Z1	100	50	80	8
	LCR04-1,6-1,0-G	100	50	80	9
Glass fibre optics single path with metal-silicon coating	LLE04-1,6-1,0-G	280	40	160	10
	LLE04-1,6-1,0-Z1	280	40	160	11
	LLE04-1,6-1,0-WC3	280	35	160	12
	LLE04-1,6-1,0-WC15	250	35	140	13
Glass fibre optics reflex with metal-silicon coating	LLR04-1,6-0,5-G	90	40	80	14
	LLR04-1,6-1,0-G	100	50	80	14
	LLR04-1,6-0,5-QW1x4	80	35	60	18
	LLR04-1,6-1,0-QW1x4	60	40	40	18
	LLR04-1,6-0,5-WC3	80	35	60	15
	LLR04-1,6-1,0-WC3	100	50	80	15
	LLR04-1,9-1,0-WC5	100	50	70	16
	LLR04-1,6-1,0-Z1	110	50	80	17
Glass fibre optics single path with metal-coating	LME04-0,8-0,5-Z1	80	40	60	19
	LME04-0,8-1,0-Z1	60	30	40	19
	LME04-1,6-0,5-Z1	160	80	120	20
	LME04-1,9-0,5-Z1	200	100	150	20
	LME04-1,6-1,0-WC3	120	60	80	23
	LME04-0,8-0,5-WC4	70	35	45	21
	LME04-1,6-1,5-WC4	120	60	80	22
Glass fibre optics reflex with metal coating	LMR04-0,5-0,5-WC4	6	5	5	24
	LMR04-0,5-0,5-Z0	7	6	5	26
	LMR04-0,5-0,5-Z1	7	6	5	25
	LMR04-1,6-0,5-Z1	80	35	60	27
	LMR04-1,9-0,5-Z1	90	40	70	28
	LMR04-0,6-0,5-QW0,25/2	5	3	4	29

Other lengths and end pieces available on request

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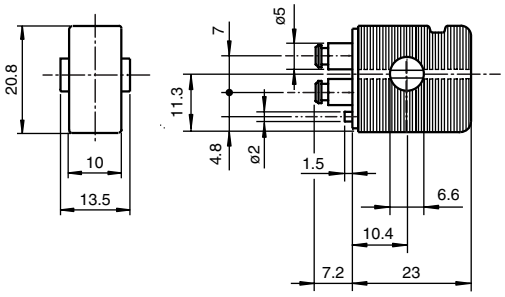
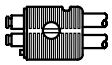
Adapter



Single path



Reflex

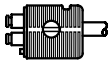


Fig. 1

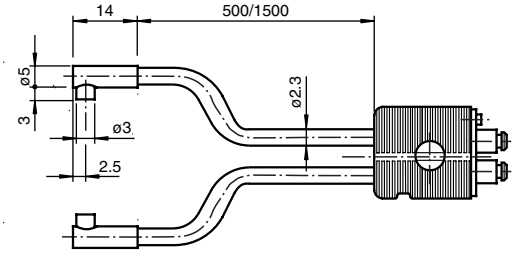


Fig. 2

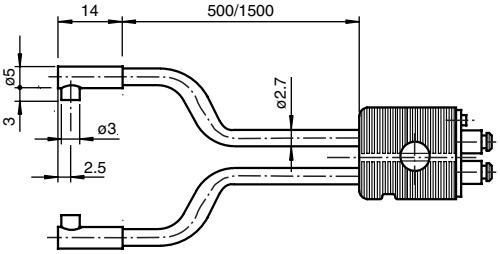


Fig. 3

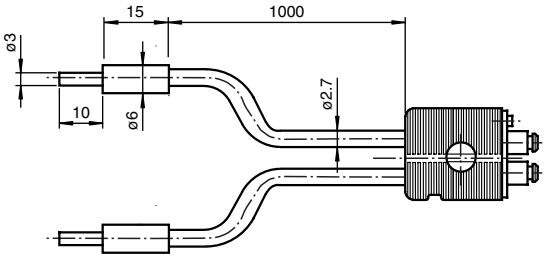


Fig. 4

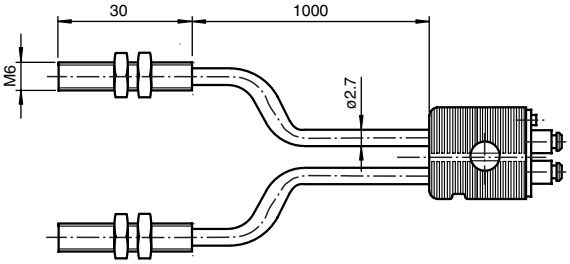
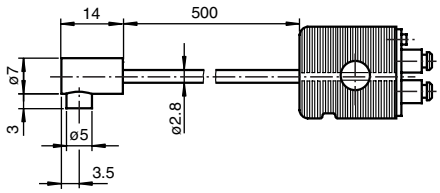


Fig. 5



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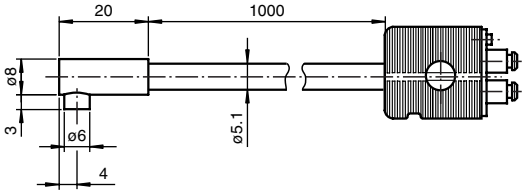

Fig. 7

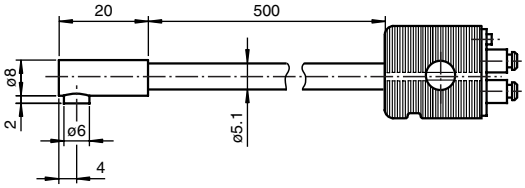

Fig. 8

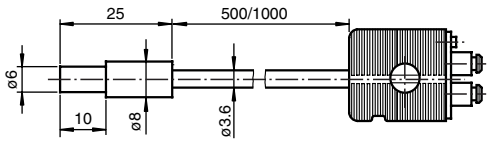

Fig. 9

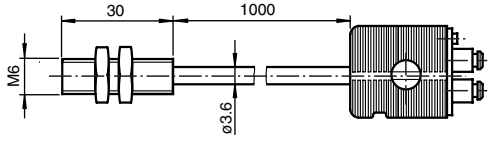

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Fig. 10

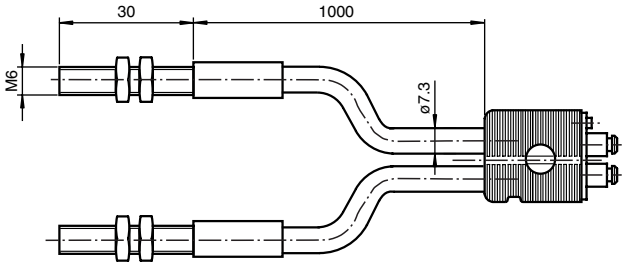


Fig. 11

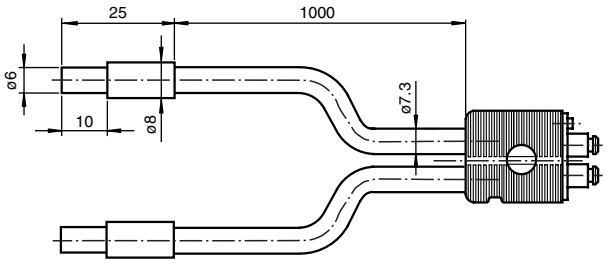


Fig. 12

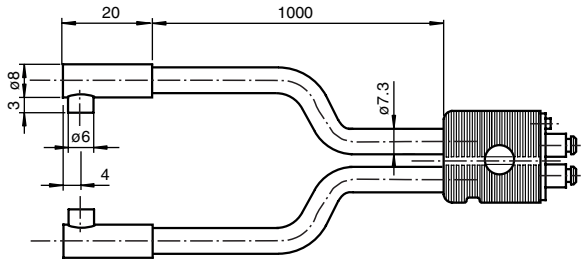


Fig. 13

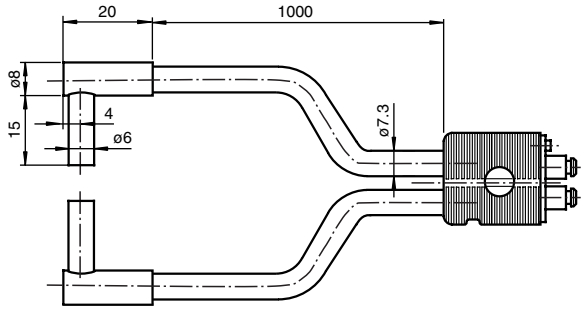


Fig. 14

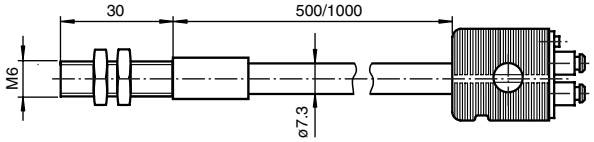


Fig. 15

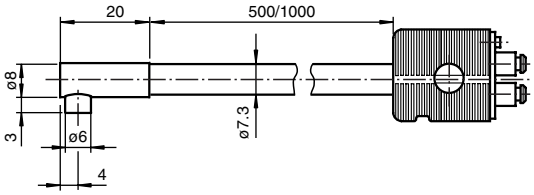


Fig. 16

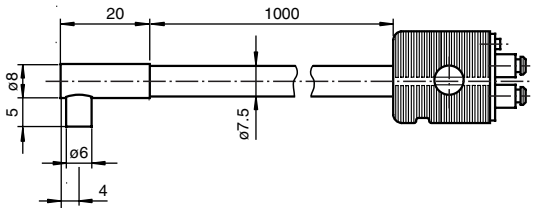
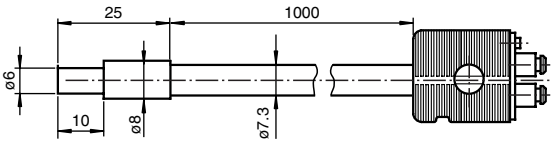


Fig. 17



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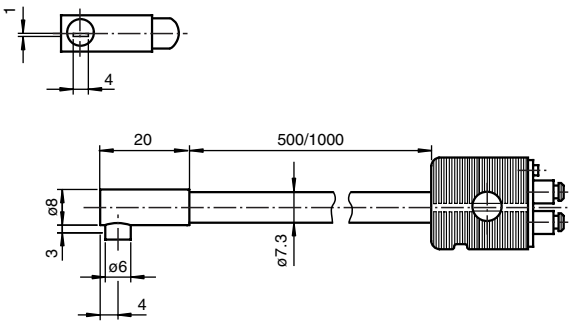

Fig. 19

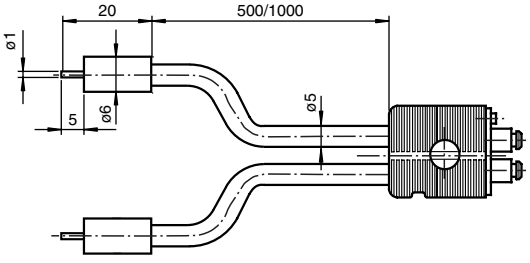

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Fig. 20

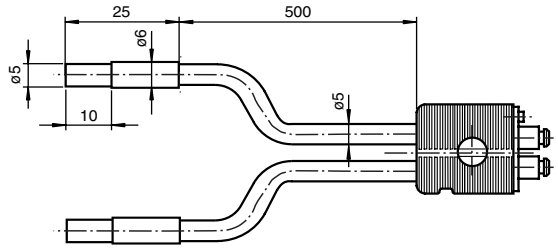
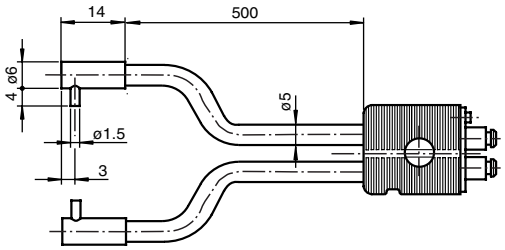


Fig. 21



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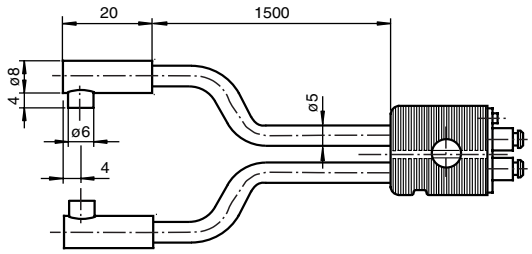


Fig. 23

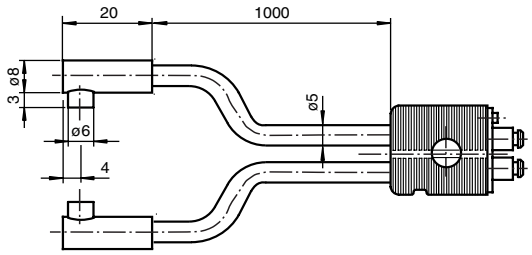
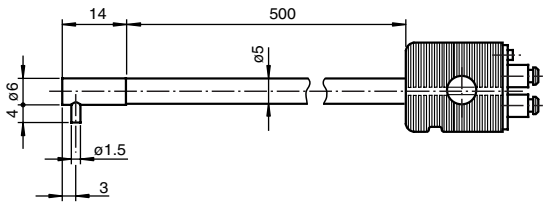


Fig. 24



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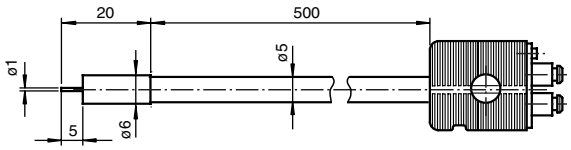
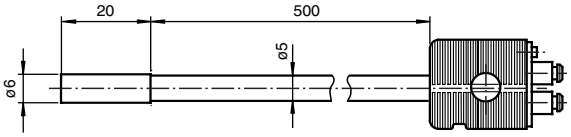


Fig. 26



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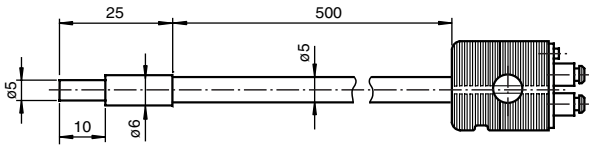

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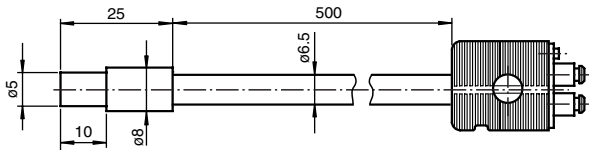
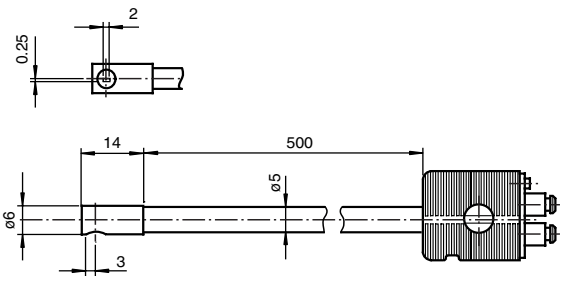


Fig. 29



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Fibre optic device for glass fibre optics

VL18LL-M/40a/118/...

Features

- **Clearly aranged control panel with very light LED display**
- **Flashing power on LED in case of short-circuit**
- **Light/dark switch as potentiometer**
- **Multiple device installation possible, no mutual interference**
- **Not sensitive to ambient light, even with switched energy saving lamps**
- **Protection class 2**
- **Extensive fibre optic product selection as accessories**

For suitable cable sockets, mounting aids and more, please refer to chapter "Accessories".

VL18LL-M/40a/118/...

Technical data

Ordering code:	VL18LL-M/30/40a/118	VL18LL-M/32/40a/118	VL18LL-M/40a/118/128
Detection range: depends on the fibre optics being used see selection table for fibre optics	◆	◆	◆
Light type: red, alternating light	◆	◆	◆
Light source: LED, Red light, 650 nm	◆	◆	◆
Optical face: frontal	◆	◆	◆
Angle of divergence: 26 °	◆	◆	◆
Ambient light limit: 30000 Lux	◆	◆	◆
Hysteresis: < 15 %	◆	◆	◆
Approvals: CE, cULus	◆	◆	◆
Operating display: LED green, flashes in case of short-circuit	◆	◆	◆
Function display: LED yellow, lights up with receiver lit	◆	◆	◆
Operating elements: Sensitivity adjuster, light/dark switch	◆	◆	◆
Operating voltage: 10 ... 30 V DC Reverse polarity protection overvoltage protected	◆	◆	◆
Ripple: 10 %	◆	◆	◆
No-load supply current: < 35 mA	◆	◆	◆
Protection class: II , rated voltage ≤ 300 V AC with degree of pollution 1-2 according to IEC 60664-1	◆	◆	◆
Signal output: Push-pull output short-circuit proof overvoltage protected			◆
1 NPN output, short-circuit proof, protected from reverse polarity, open collector	◆		
1 PNP output, short-circuit proof, protected from reverse polarity, open collector		◆	
Switching type: light/dark ON, switchable	◆	◆	◆
Switching voltage: 30 V DC	◆	◆	◆
Switching current: max. 200 mA	◆	◆	◆
Switching frequency: 500 Hz	◆	◆	◆
Response time: 1 ms	◆	◆	◆
Standards: EN 60947-5-2	◆	◆	◆
Ambient temperature: -25 ... 70 °C (248 ... 343 K)	◆	◆	◆
Storage temperature: -30 ... 70 °C (243 ... 343 K)	◆	◆	◆
Protection degree: IP67	◆	◆	◆
Connection: M12 connector, 4-pin	◆	◆	◆
Material			
Housing: brass, nickel-plated	◆	◆	◆
Optical face: plastic	◆	◆	◆
Mass: 60 g	◆	◆	◆

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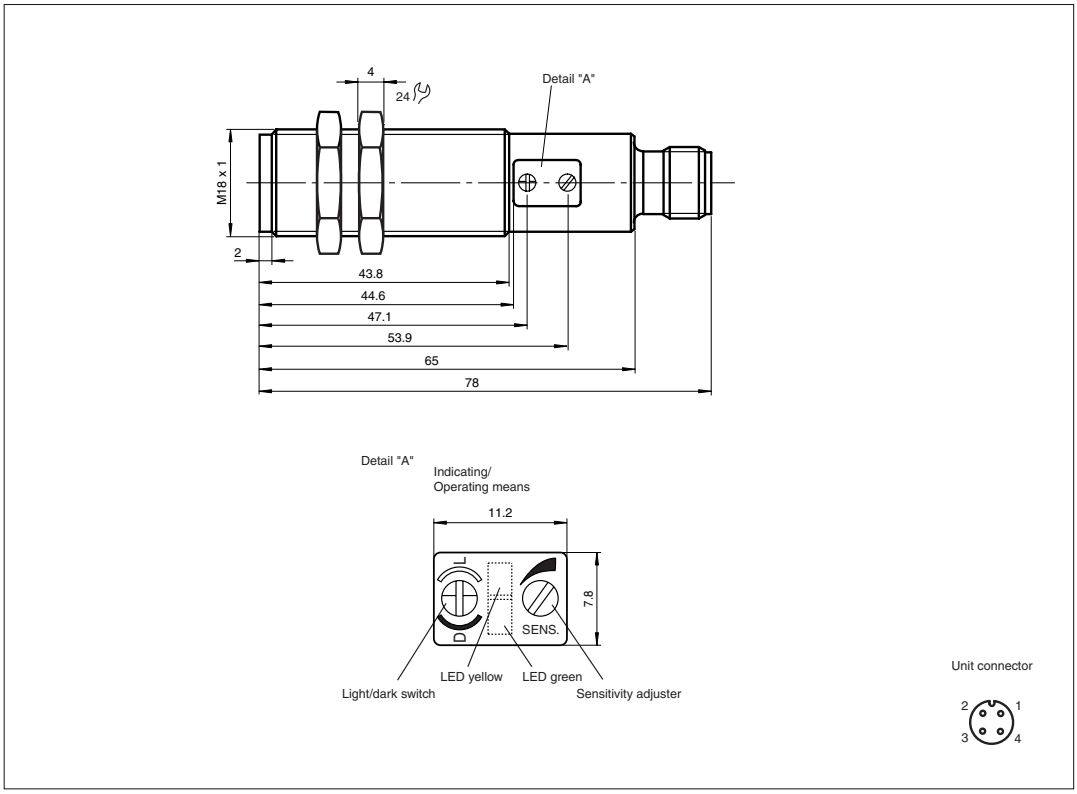
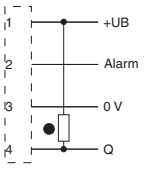
Dimensions

VL18LL-M/40a/118/...

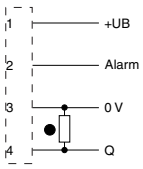


Electrical connection

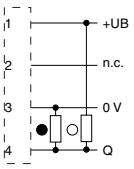
Option 30/40a/118



Option 32/40a/118

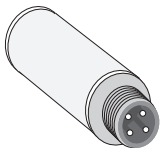


Option 40a/118/128



❍ = light on, ● = dark on, for connector pinout see dimensions drawing

Connection type



Option 118
plug, 4 pin

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Selection table for fibre

	Model number	Range in mm	Detection range in mm	Fig.
fibre optic, single path with PVC coating	LCE 18-2,3-0,5-K2	600		1
	LCE 18-2,3-0,5-K9	600		4
fibre optic, single path with metal coating	LME 18-1,9-0,5-K9	500		4
	LME 18-2,3-0,5-K10	600		5
	LME 18-2,3-0,5-K2	600		1
	LME 18-2,3-0,5-K3	600		2
	LME 18-2,3-0,5-K4	600		3
	LME 18-2,3-1,0-K2	600		1
	LME 18-2,3-2,0-K2	600		1
Glass fibre optics, single path with silicon coating	LSE 18-1,1-0,5-K9	100		4
fibre optic, reflex with PVC coating	LCR 18-2,7-1,0-K9		75	12
	LCR 18-3,2-0,5-K1		100	6
	LCR 18-3,2-0,5-K2		100	7
	LCR 18-3,2-2,0-K2		100	7
	LMR 18-1,1-0,5-K3		10	8
	LMR 18-2,3-0,25-K3		45	8
Glass fibre optics, reflex with metal coating	LMR 18-2,3-0,5-K2		45	7
	LMR 18-2,3-0,5-K3		45	8
	LMR 18-2,3-0,5-K7		45	11
	LMR 18-2,7-0,5-K9		75	12
	LMR 18-3,2-0,5-K1		100	6
	LMR 18-3,2-0,5-K5		100	10
	LMR 18-3,2-1,0-K1		100	6
	LMR 18-3,2-1,0-K5		100	10
	LMR 18-3,2-2,0-K1		100	6
	LMR 18-3,2-2,0-K4		100	9
	LMR 18-3,2-3,0-K1		100	6
fibre optic, reflex with silicon coating	LSR 18-2,3-0,5-K12		45	13
	LSR 18-3,2-0,5-K1		100	6

Other lengths and end pieces available on request

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Fig. 1

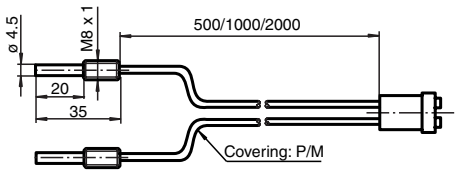


Fig. 2

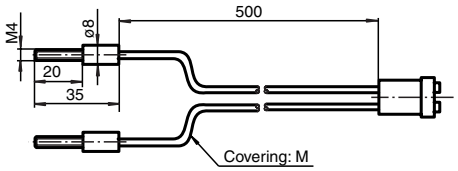


Fig. 3

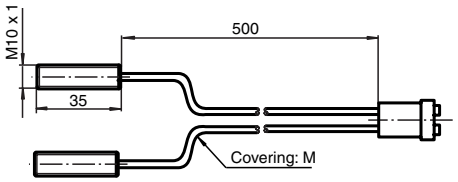


Fig. 4

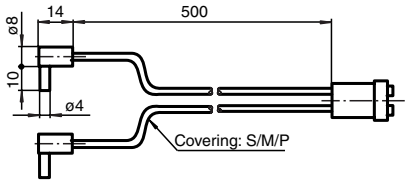


Fig. 5

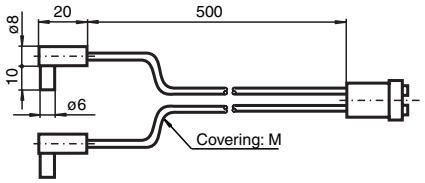


Fig. 6

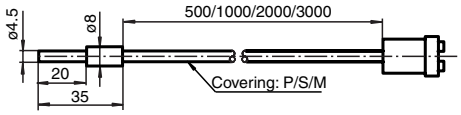


Fig. 7

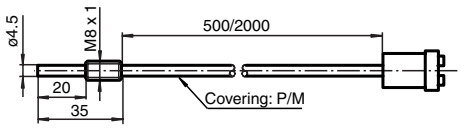


Fig. 8

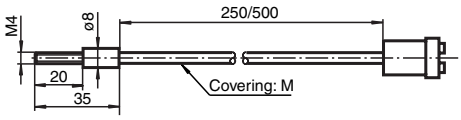


Fig. 9

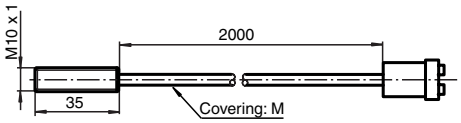


Fig. 10

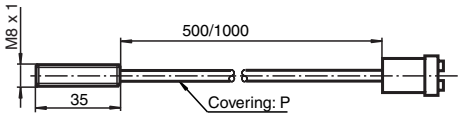


Fig. 11

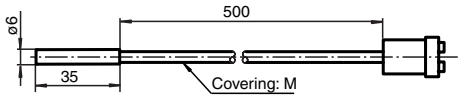


Fig. 12

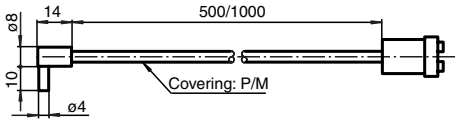
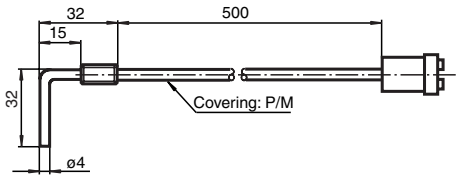
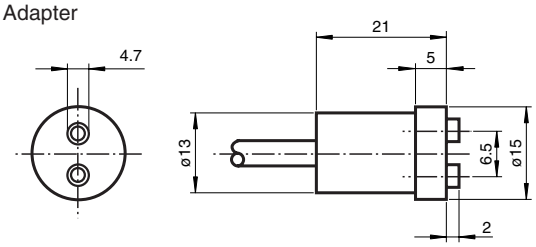


Fig. 13



Adapter



Covering material:
M = metal, P = PVC, S = silicone

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Retroreflective sensor — OJ500-M1K-E23

500 mm

CE

Features

- **Light/dark ON parameterisable**
- **Protected against mutual interference**
- **Position of the sensor head adjustable**
- **For glass fibre light guide**

For suitable cable sockets, mounting aids and more, please refer to chapter "Accessories".

OJ500-M1K-E23

Technical data

Ordering code:	OJ500-M1K-E23
Detection range	without light guide : 0 ... 500 mm , with light guide see selection table for fibre optics ◆
Reference target	standard white 200 mm x 200 mm (only for fibre optics reflex) ◆
Light type	infrared, alternating light ◆
Light source	LED ◆
Ambient light limit	40000 Lux ◆
Temperature influence	≤ 0.5 mm/K ◆
Approvals	CE ◆
Operating display	LED green ◆
Function display	LED yellow: switching state LED red: stability control (flashing) ◆
Operating elements	programming switch: bright/dark changeover switch selection of the operating frequency selection of the switching frequency ◆ pulse extension stability control dynamic/static
	sensing range adjuster ◆
Operating voltage	10 ... 30 V DC ◆
Ripple	10 % ◆
No-load supply current	≤ 35 mA ◆
Signal output	1 PNP output, short-circuit proof, protected from reverse polarity, open collector ◆
Switching type	light/dark switching ◆
Switching voltage	max. 30 V DC ◆
Switching current	≤ 200 mA ◆
Switching frequency	≤ 1.5 kHz / 200 Hz switchable ◆
Response time	≤ 0.3 ms at 1.5 kHz ≤ 2.5 ms at 200 Hz ◆
Timer function	pulse extension 20 ms, switchable ◆
Output of the pre-fault indication	1 pnp, active when falling short of the stability control ◆
Standards	EN 60947-5-2 ◆
Ambient temperature	-25 ... 70 °C (248 ... 343 K) ◆
Storage temperature	-40 ... 80 °C (233 ... 353 K) ◆
Protection degree	IP67 ◆
Connection	terminal compartment M16, core cross-section ≤ 2,5 mm2 ◆
Material	
Housing	PBT ◆
Optical face	Scratch resistant mineral glass lens ◆
Mass	100 g ◆

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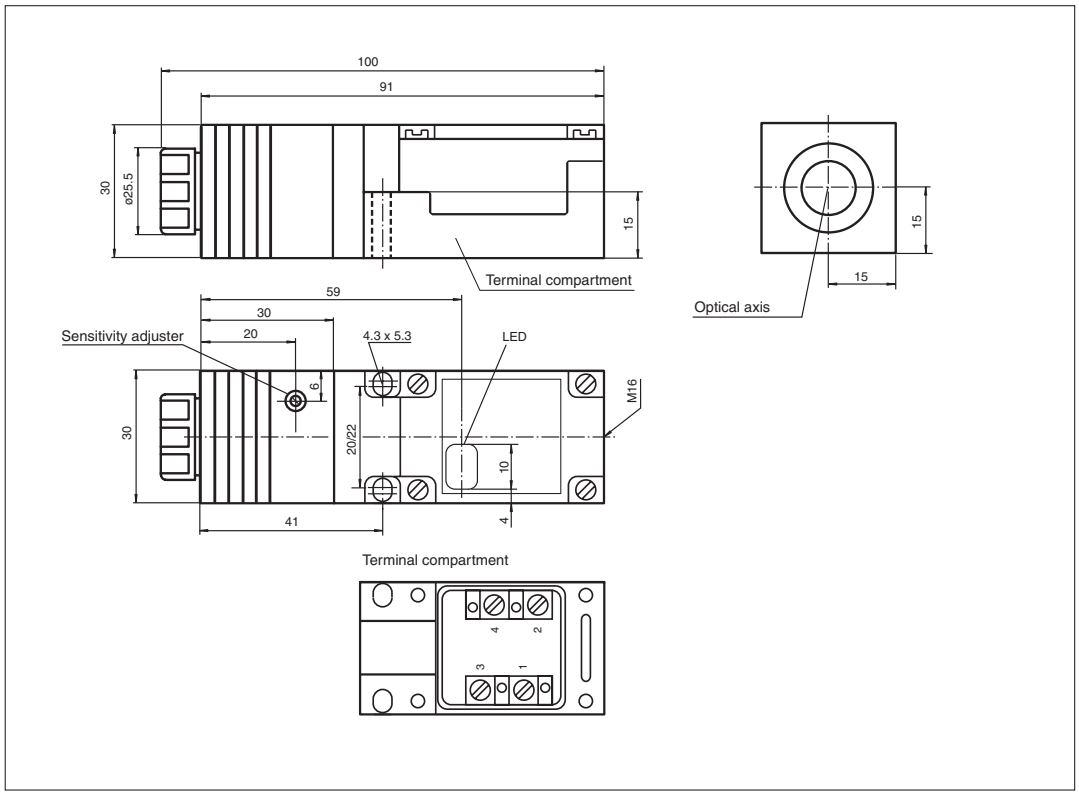
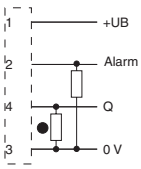
Dimensions

OJ500-M1K-E23

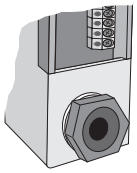


Electrical connection

Option E23



Connection type



terminal compartment

❍ = light on, ● = dark on, for connector pinout see dimensions drawing

Selection table for fibre

	Model number	Range in mm	Detection range in mm	Fig.
fibre optic, single path with PVC coating	LCE 18-2,3-0,5-K2	600		1
	LCE 18-2,3-0,5-K9	600		4
fibre optic, single path with metal coating	LME 18-1,9-0,5-K9	500		4
	LME 18-2,3-0,5-K10	600		5
	LME 18-2,3-0,5-K2	600		1
	LME 18-2,3-0,5-K3	600		2
	LME 18-2,3-0,5-K4	600		3
	LME 18-2,3-1,0-K2	600		1
	LME 18-2,3-2,0-K2	600		1
Glass fibre optics, single path with silicon coating	LSE 18-1,1-0,5-K9	100		4
fibre optic, reflex with PVC coating	LCR 18-2,7-1,0-K9		75	12
	LCR 18-3,2-0,5-K1		100	6
	LCR 18-3,2-0,5-K2		100	7
	LCR 18-3,2-2,0-K2		100	7
	LMR 18-1,1-0,5-K3		10	8
	LMR 18-2,3-0,25-K3		45	8
Glass fibre optics, reflex with metal coating	LMR 18-2,3-0,5-K2		45	7
	LMR 18-2,3-0,5-K3		45	8
	LMR 18-2,3-0,5-K7		45	11
	LMR 18-2,7-0,5-K9		75	12
	LMR 18-3,2-0,5-K1		100	6
	LMR 18-3,2-0,5-K5		100	10
	LMR 18-3,2-1,0-K1		100	6
	LMR 18-3,2-1,0-K5		100	10
	LMR 18-3,2-2,0-K1		100	6
	LMR 18-3,2-2,0-K4		100	9
	LMR 18-3,2-3,0-K1		100	6
fibre optic, reflex with silicon coating	LSR 18-2,3-0,5-K12		45	13
	LSR 18-3,2-0,5-K1		100	6

Other lengths and end pieces available on request

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Fig. 1

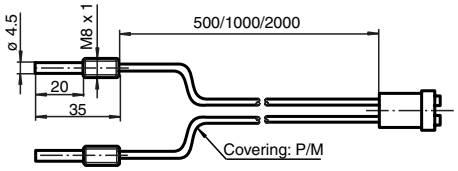


Fig. 2

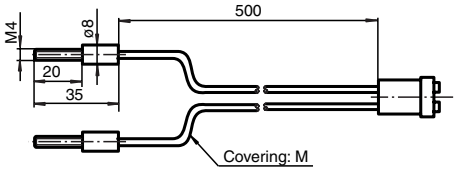


Fig. 3

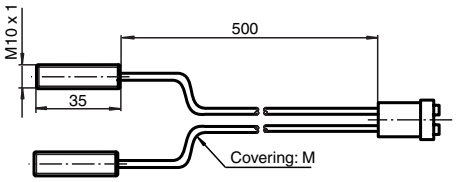


Fig. 4

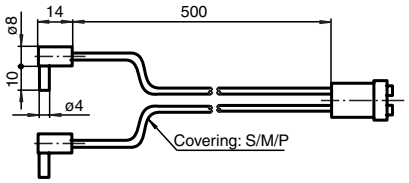


Fig. 5

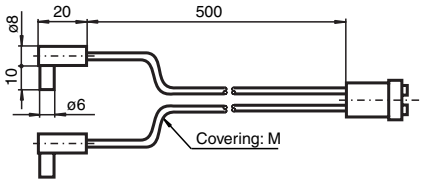


Fig. 6

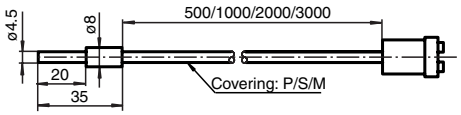


Fig. 7

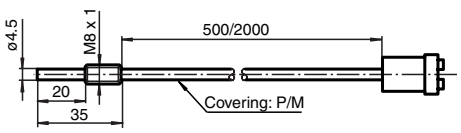


Fig. 8

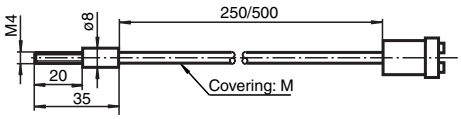


Fig. 9

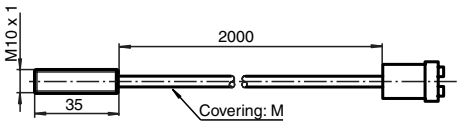


Fig. 10

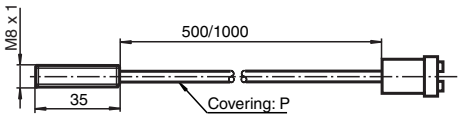


Fig. 11

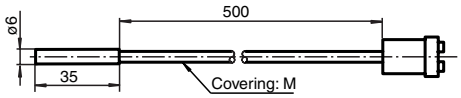


Fig. 12

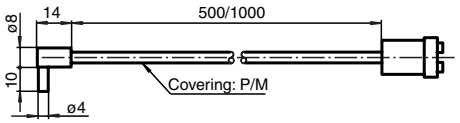
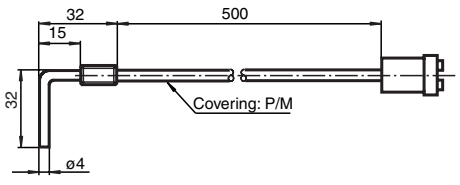
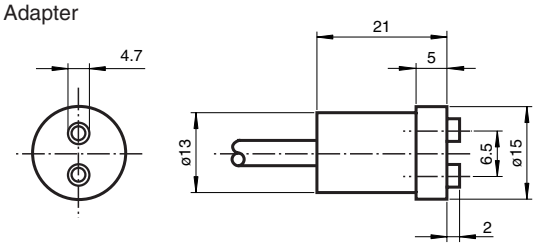


Fig. 13



Adapter



Covering material:
M = metal, P = PVC, S = silicone

Date of issue: 09/11/2006

Print mark contrast scanner for fibre optic connection

RL5-LL/...

Features

- **Reflection light scanner for recording any print mark**
- **For glass fibre optics**
- **Multiturn potentiometer for adjustment of the switching threshold**
- **2 emitter colours, green und red, adjustable by switch**
- **Switch output with 10 kOhm pull-down resistance**
- **Sturdy, waterproof aluminium pressure moulded housing**

For suitable cable sockets, mounting aids and more, please refer to chapter "Accessories".

RL5-LL/...

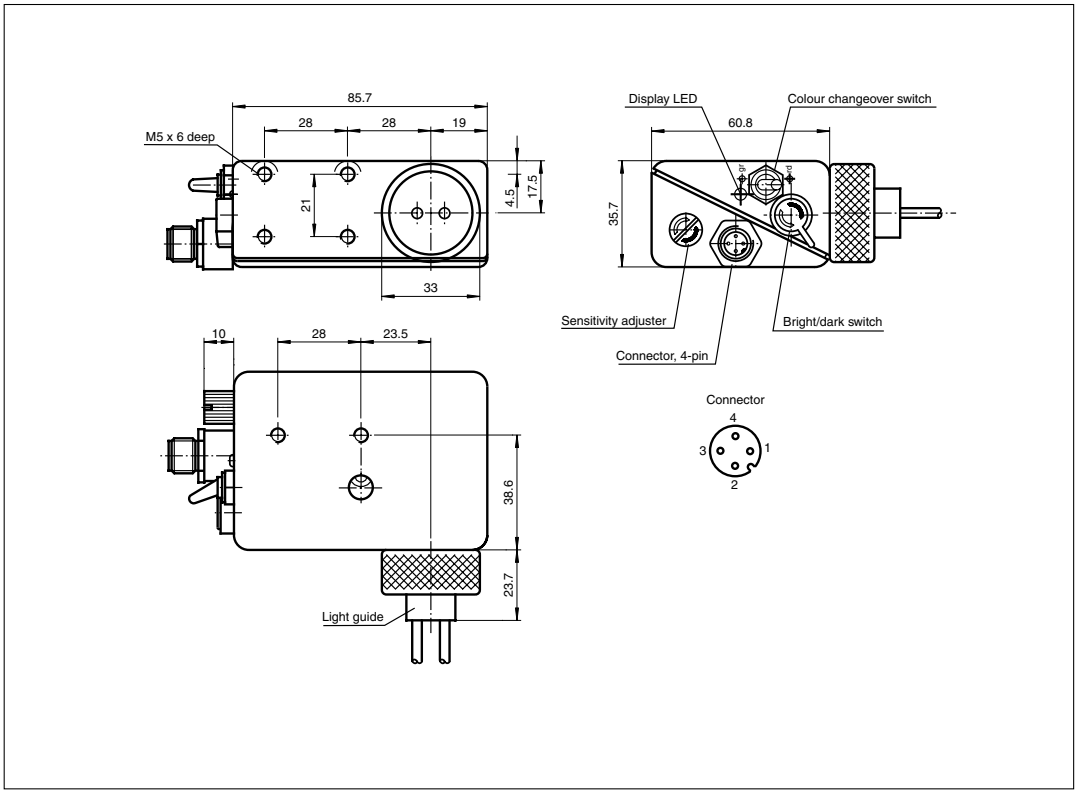
Technical data

Ordering code:		RL5-LL/37/92	RL5-LL-1773
Detection range	see selection table for fibre optics	◆	
Light type	Visible green/red switchable, alternating light	◆	◆
Light source	LED	◆	◆
Approvals	CE	◆	◆
Function display	LED green, lights up with receiver lit	◆	◆
Operating elements	light/dark switch, sensitivity adjuster, colour changeover switch	◆	◆
Operating voltage	10 ... 30 V DC	◆	◆
Ripple	10 %	◆	◆
No-load supply current	85 mA	◆	◆
Signal output	1 pnp, short-circuit proof	◆	
	1 pnp, short-circuit proof, with 10 kOhm pull-down-resistor		◆
Switching type	Light/dark ON, switchable	◆	◆
Switching voltage	max. 30 V DC	◆	◆
Switching current	max. 300 mA	◆	◆
Switching frequency	5 kHz	◆	◆
Response time	100 µs	◆	◆
Measurement output	Analogue output, 1 V ... 8 V DC/≤10 mA		◆
Standards	EN 60947-5-2	◆	◆
Ambient temperature	-20 ... 60 °C (253 ... 333 K)	◆	◆
Storage temperature	-20 ... 75 °C (253 ... 348 K)	◆	◆
Protection degree	IP67	◆	◆
Connection	M12 connector, 4-pin	◆	◆
Material			
Housing	aluminium pressure moulding	◆	◆
Mass	330 g	◆	◆

Date of issue: 09/11/2006

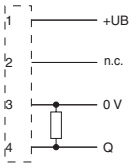
Dimensions

RL5-LL/...

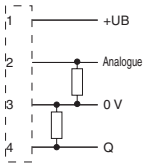


Electrical connection

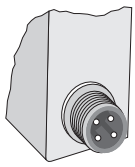
Option /37/92



Option -1773



Connection type



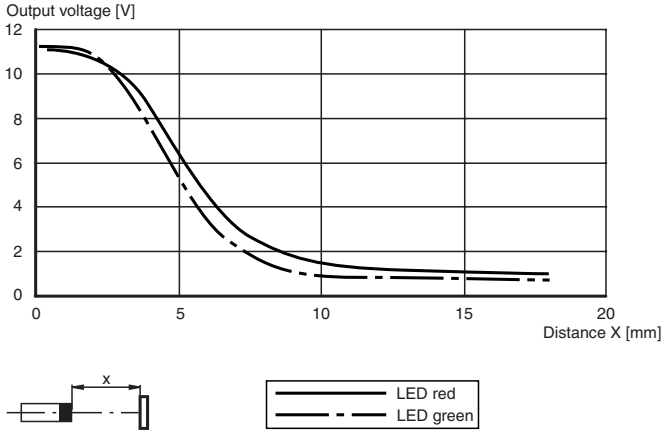
plug M12, 4 pin

❍ = light on, ● = dark on, for connector pinout see dimensions drawing

Diagrams

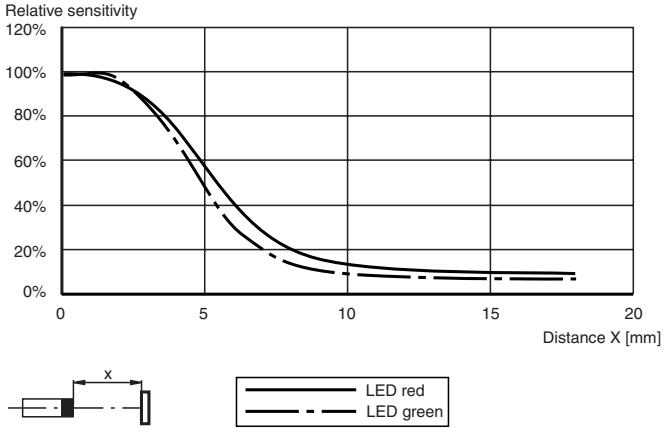
Analogue output

RL5-LL



Relative received light strength

RL5-LL



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Selection table for fibre

	Operating temperature in °C	Model number	Detection range in mm	Figure
Plastic fibre optics reflex with PVC coating	85	LCR30-7/1-1.0-Z1	1.5	1
		LCR30-7/1-1.5-Z1	1.5	1
		LCR30-7/1-0.5-Z1	1.5	1
		LCR30-7/1-3.0-Z1	1.5	2
		LCR30-7/1-0.5-G	1.5	3
		LCR30-7/1-1.5-G	1.5	3

Adapter

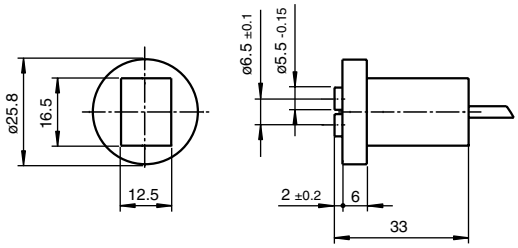


Fig. 1

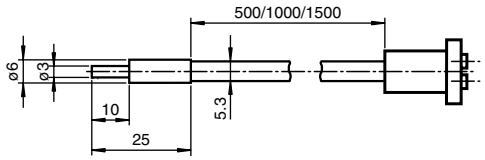


Fig. 2

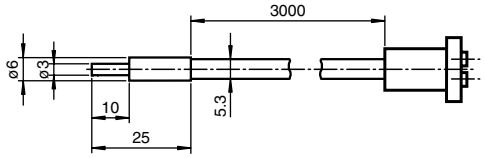
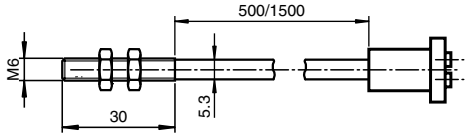


Fig. 3



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Fibre optic device for glass fibre optics — SU15-G/../82f/...

Features

- **Parameterisation via optical communication link (e.g. optional time increments)**
- **Pre-fault indication and output (dynamic and static)**
- **Visible red light**
- **Protected against mutual interference**
- **DIN rail mounting**
- **Extensive fibre optic product selection as accessories**

For suitable cable sockets, mounting aids and more, please refer to chapter "Accessories".

SU15-G/../82f/...

Technical data

Ordering code:		SU15-G/30/82f/115	SU15-G/30/82f/95	SU15-G/32/82f/115	SU15-G/32/82f/95
Effective detection range	depends on the fibre optics being used see selection table for fibre optics	◆	◆	◆	◆
Reference target	standard white, 50 mm x 50 mm (in direct detection)	◆	◆	◆	◆
Light type	red, alternating light	◆	◆	◆	◆
Light source	LED , 660 nm	◆	◆	◆	◆
Ambient light limit	10000 Lux	◆	◆	◆	◆
Approvals	CE	◆	◆	◆	◆
Operating display	LED green	◆	◆	◆	◆
Function display	TEACH-IN: LED green flashing switching state: LED yellow pre-fault indicator: LED red flashing	◆	◆	◆	◆
Operating elements	membrane keys for setting sensitivity and TEACH IN	◆	◆	◆	◆
Operating voltage	10 ... 30 V DC	◆	◆	◆	◆
Ripple	10 %	◆	◆	◆	◆
No-load supply current	≤ 26 mA	◆	◆	◆	◆
Signal output	1 switch output, npn, NC or NO 1 multi-function input/complementary switch output/pre-fault output (npn), parameterisable	◆	◆		
	1 switch output, pnp, NC or NO 1 multi-function input/complementary switch output/pre-fault output (pnp), parameterisable			◆	◆
Switching type	light/dark ON, switchable	◆	◆	◆	◆
Switching voltage	max. 30 V DC	◆	◆	◆	◆
Switching current	max. 200 mA	◆	◆	◆	◆
Voltage drop	≤ 2 V DC	◆	◆	◆	◆
Switching frequency	≤ 1.5 kHz	◆	◆	◆	◆
Response time	≤ 0.33 ms	◆	◆	◆	◆
Timer function	parameterisable	◆	◆	◆	◆
Output of the pre-fault indication	npn, dynamic/static configurable	◆	◆		
	pnp, dynamic/static configurable			◆	◆
Control input	parameterisable	◆	◆	◆	◆
Standards	EN 60947-5-2	◆	◆	◆	◆
Ambient temperature	-25 ... 70 °C (248 ... 343 K)	◆	◆	◆	◆
Storage temperature	-40 ... 80 °C (233 ... 353 K)	◆	◆	◆	◆
Protection degree	IP65	◆	◆	◆	◆
Connection	4-pin, M8 x 1 connector		◆		◆
	2 m cable, 4 x 0,14 mm², PVC	◆		◆	
Material					
Housing	PBT	◆	◆	◆	◆
Mass	30 g	◆	◆	◆	◆

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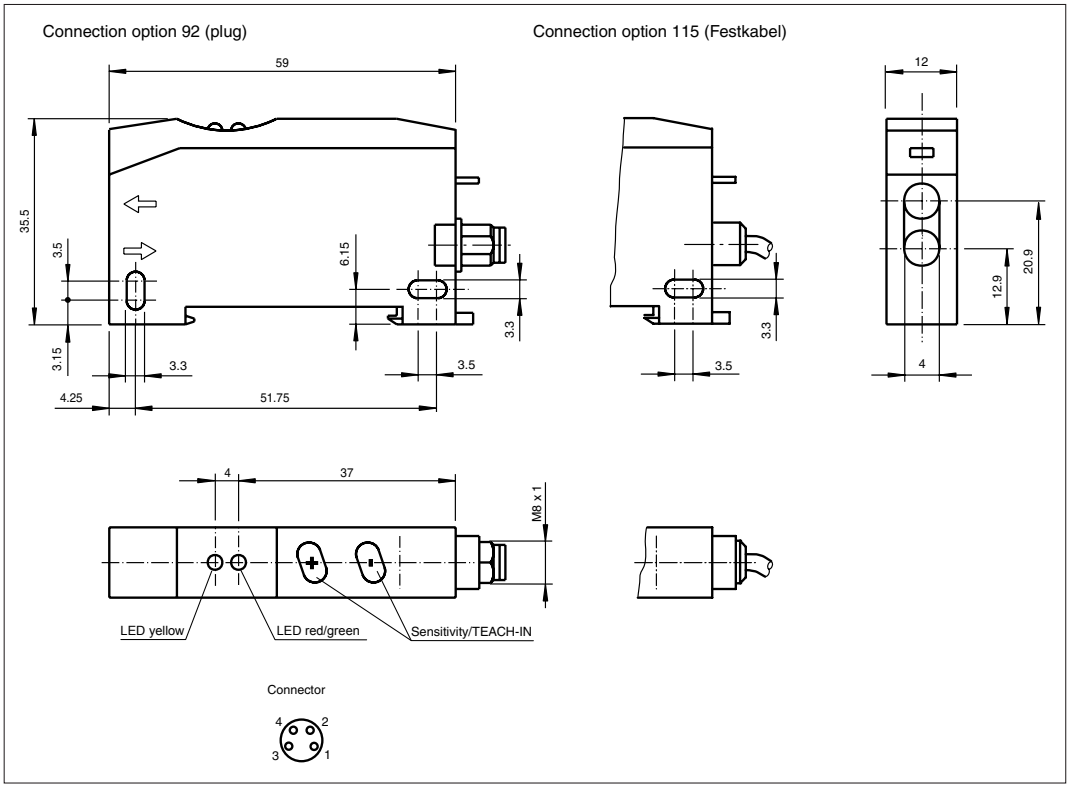
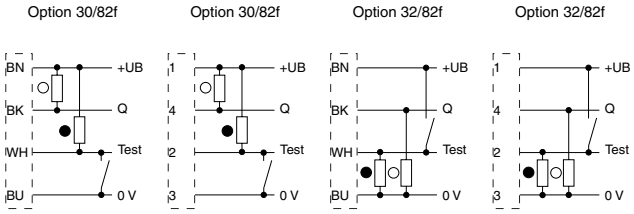
Dimensions

SU15-G/../82f/...

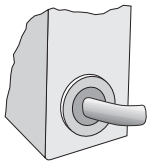


Electrical connection

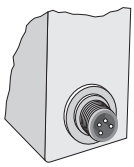


❍ = light on, ● = dark on, for connector pinout see dimensions drawing

Connection type



Option 115
fixed cable



Option 95
plug M8, 4 pin

Selection table for fibre

	Model number	Range in mm	Detection range in mm	Fig.
fibre optics, single path with PVC coating	LCE 06-1,9-0,5-K9	500		4
	LCE 06-2,3-0,5-K2	600		1
fibre optics, single path with metal coating	LME 06-1,9-0,5-K9	500		4
	LME 06-2,3-0,5-K10	600		5
	LME 06-2,3-0,5-K2	600		1
	LME 06-2,3-0,5-K3	600		2
	LME 06-2,3-0,5-K4	600		3
	LME 06-2,3-1,0-K2	600		1
	LME 06-2,3-2,0-K2	600		1
glass fibre optics, single path with silicone coating	LSE 06-1,1-0,5-K9	100		4
fibre optics, reflex with PVC coating	LCR 06-2,7-0,5-K9		75	12
	LCR 06-3,2-0,5-K1		100	6
	LCR 06-3,2-0,5-K2		100	7
	LCR 06-3,2-0,5-K5		100	10
	LCR 06-3,2-1,0-K5		100	10
	LCR 06-3,2-2,0-K2		100	7
glass fibre optics, reflex with metal coating	LMR 06-1,1-0,5-K3		10	8
	LMR 06-2,3-0,25-K3		45	8
	LMR 06-2,3-0,5-K3		45	8
	LMR 06-2,3-0,5-K7		45	11
	LMR 06-2,7-0,5-K9		75	12
	LMR 06-3,2-0,5-K1		100	6
	LMR 06-3,2-1,0-K1		100	6
	LMR 06-3,2-2,0-K1		100	6
	LMR 06-3,2-2,0-K4		100	9
	LMR 06-3,2-3,0-K1		100	6
fibre optics, reflex with silicone coating	LSR 06-2,3-0,5-K12		45	13
	LSR 06-3,2-0,5-K1		100	6

Other lengths and end pieces available on request

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Fig.1

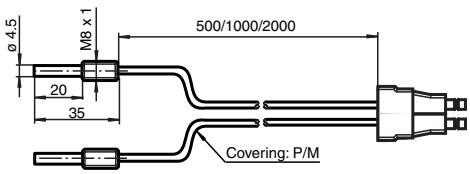


Fig.2

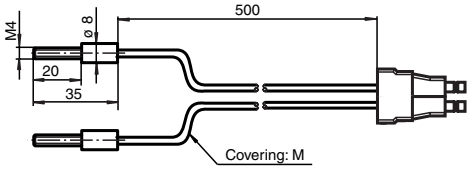


Fig.3

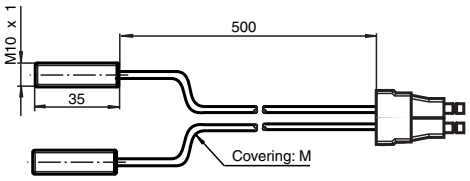


Fig.4

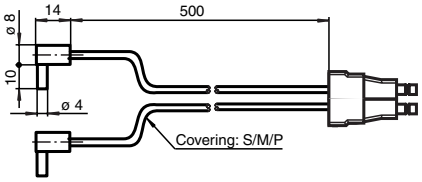


Fig.5

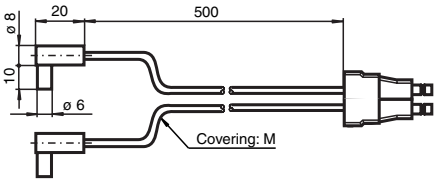


Fig.6

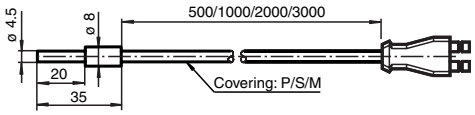
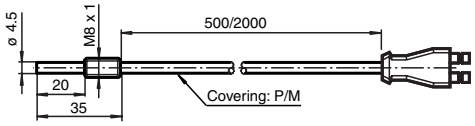


Fig.7



Covering material:
M = metal, P = PVC, S = silicone

Fig.8

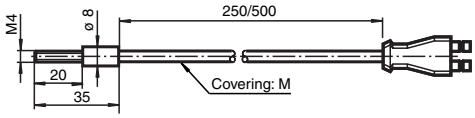


Fig.9

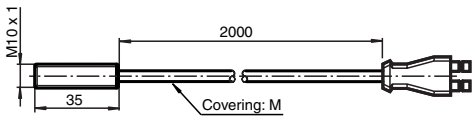


Fig.10

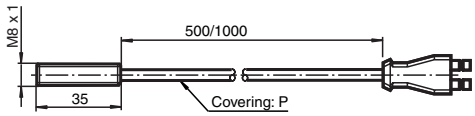


Fig.11

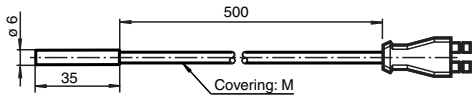


Fig.12

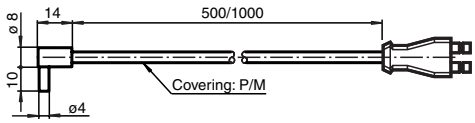
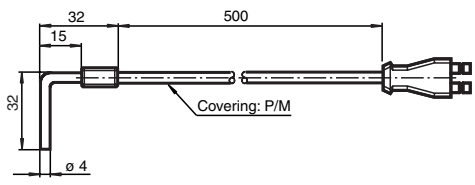
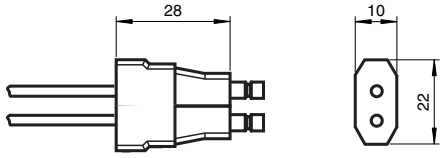
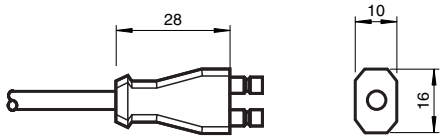


Fig.13







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Fibre optic device for plastic fibre optics — SU15.1-K/...

Features

- **Protected against mutual interference**
- **DIN rail mounting**
- **Extensive fibre optic product selection as accessories**
- **Self diagnosis function**
- **Ergonomic design simplifies the installation and operation**
- **Very powerful red transmission LED**
- **Open collectors output TTL compatible**

For suitable cable sockets, mounting aids and more, please refer to chapter "Accessories".

SU15.1-K/...

Technical data

Ordering code:		SU15.1-K/102/115/123	SU15.1-K/102/115/126f	SU15.1-K/103/115/123	SU15.1-K/82f/103/115	SU15.1-K/82f/95/103	SU15.1-K/95/102/123	SU15.1-K/95/102/126f	SU15.1-K/95/103/123
Effective detection range	depends on the fibre optics being used see selection table for fibre optics	◆	◆	◆	◆	◆	◆	◆	◆
Reference target	standard white, 50 mm x 50 mm (in direct detection)	◆	◆	◆	◆	◆	◆	◆	◆
Light type	red, alternating light	◆	◆	◆	◆	◆	◆	◆	◆
Light source	LED, red	◆	◆	◆	◆	◆	◆	◆	◆
Ambient light limit	10000 Lux	◆	◆	◆	◆	◆	◆	◆	◆
Approvals	CE	◆	◆	◆	◆	◆	◆	◆	◆
Operating display	LED green	◆	◆	◆	◆	◆	◆	◆	◆
Function display	TEACH-IN: Green LED, flashing Switching status: Yellow LED TEACH-IN error, key-press display: Red LED	◆	◆	◆	◆	◆	◆	◆	◆
Operating elements	membrane keys for setting sensitivity and TEACH IN	◆	◆	◆	◆	◆	◆	◆	◆
Operating voltage	10 ... 30 V DC	◆	◆	◆	◆	◆	◆	◆	◆
Ripple	10 %	◆	◆	◆	◆	◆	◆	◆	◆
No-load supply current	≤ 40 mA	◆	◆	◆	◆	◆	◆	◆	◆
Signal output	1 npn, short-circuit proof, open collector	◆	◆				◆	◆	
	1 pnp, short-circuit proof, open collector			◆	◆	◆			◆
Switching type	light/dark ON, switchable	◆	◆	◆	◆	◆	◆	◆	◆
Switching voltage	max. 30 V DC	◆	◆	◆	◆	◆	◆	◆	◆
Switching current	max. 100 mA	◆	◆	◆	◆	◆	◆	◆	◆
Voltage drop	≤ 1 V DC	◆	◆	◆	◆	◆	◆	◆	◆
Switching frequency	≤ 1.5 kHz	◆	◆	◆	◆	◆	◆	◆	◆
Response time	≤ 0.33 ms	◆	◆	◆	◆	◆	◆	◆	◆
Timer function	parameterisable	◆	◆	◆	◆	◆	◆	◆	◆
Output of the pre-fault indication	npn, dynamic		◆					◆	
	pnp, dynamic				◆	◆			
Control input	TEACH-IN input	◆		◆			◆		◆
Standards	EN 60947-5-2	◆	◆	◆	◆	◆	◆	◆	◆
Ambient temperature	-10 ... 55 °C (263 ... 328 K)	◆	◆	◆	◆	◆	◆	◆	◆
Storage temperature	-20 ... 70 °C (253 ... 343 K)	◆	◆	◆	◆	◆	◆	◆	◆
Protection degree	IP65	◆	◆	◆	◆	◆	◆	◆	◆
Connection	4-pin, M8 x 1 connector					◆	◆	◆	◆
	2 m cable, 4 x 0,14 mm², PVC	◆	◆	◆	◆				
Material									
Housing	PBT	◆	◆	◆	◆	◆	◆	◆	◆
Mass	30 g					◆	◆	◆	◆
	70 g	◆	◆	◆	◆				

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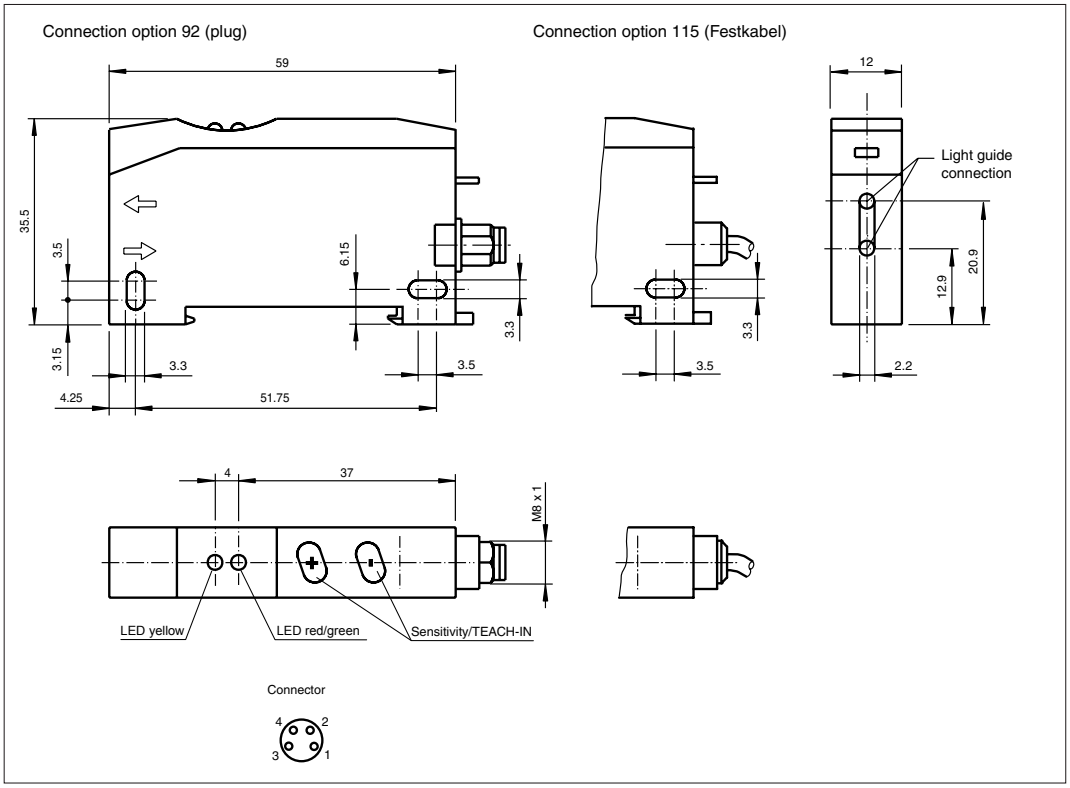
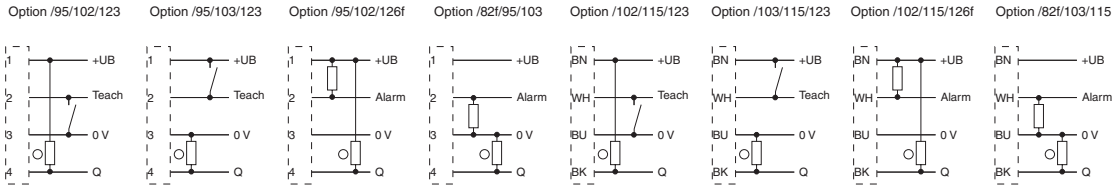
Dimensions

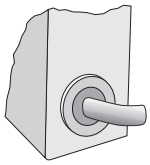
SU15.1-K/...



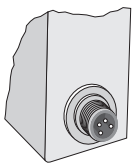
Electrical connection

Connection type





Option 115
fixed cable



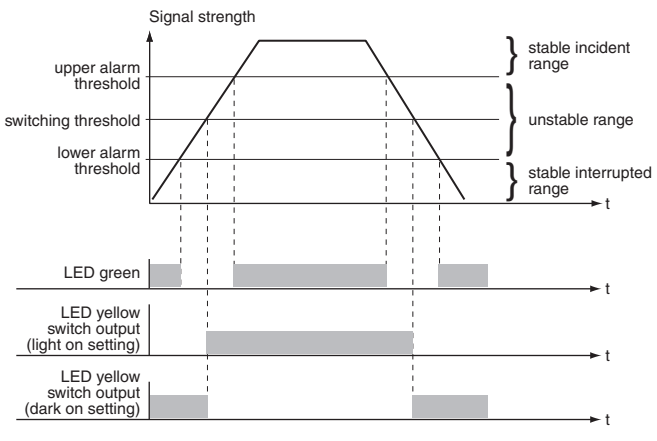
Option 95
plug M8, 4 pin

❍ = light on, ● = dark on, for connector pinout see dimensions drawing

Diagrams

Output function/indicators

SU15...



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Fibre optics selection table

	Model number	Detection range in mm	Minimum object size in mm	Fig.
Plastic fibre - reflection type	KLR-C02-2,2-1,0-K70	80	Ø0.25	1
	KLR-C16-2,2-1,0-K71	85	Ø0.1	2
	KLR-C16-2,2-1,0-K72	100	Ø0.1	3
	KLR-C02-1,25-1,0-K73	4	Ø0.05	4
	KLR-C09-1,25-1,0-K74	40	Ø0.05	5
	KLR-C02-1,25-1,0-K75	4	Ø0.05	6
	KLR-C09-1,25-1,0-K76	35	Ø0.05	7
	KLR-C09-1,25-1,0-K77	35	Ø0.05	8
	KLR-C04-1,25-1,0-K78	8	Ø0.05	9
	KLR-C04-1,25-1,0-K79	8	Ø0.05	10
	KLR-C04-1,25-1,0-K80	8	Ø0.05	11
	KLR-C06-1,25-1,0-K81	22	Ø0.05	12
	KLR-A18-1,3-1,0-K82	36	Ø0.05	13
	KLR-A32-2,2-1,0-K83	35	Ø0.05	14
Plastic fibre - through beam type	KLE-C01-2,2-1,0-K100	300	Ø0.32	15
	KLE-C01-2,2-1,0-K101	300	Ø0.32	16
	KLE-C01-2,2-1,0-K102	300	Ø0.25	17
	KLE-C01-2,2-1,0-K103	300	Ø0.25	18
	KLE-C04-1,0-1,0-K104	80	Ø0.12	19
	KLE-C01-1,25-1,0-K105	20	Ø0.05	20
	KLE-C04-1,0-1,0-K106	80	Ø0.05	21
	KLE-C01-1,0-1,0-K107	20	Ø0.05	22
	KLE-C04-1,0-1,0-K108	80	Ø0.12	23
	KLE-A16-2,2-1,0-K109	100	Ø0.05	24
	KLE-A16-2,2-1,0-K110	250	Ø0.05	25
	KLE-A16-2,2-1,0-K111	250	Ø0.05	26
	KLE-C01-1,3-2,0-K112	300	Ø0.25	27
	KLE-C01-2,2-2,0-K113	300	Ø0.25	28

Other lengths and other end caps on request

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Plastic fibres - reflection type

Fig. 1

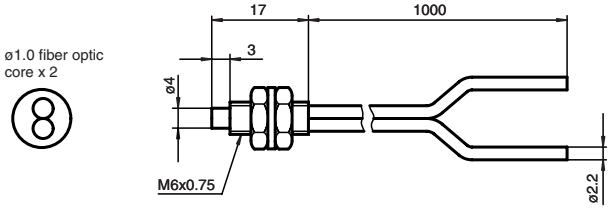


Fig. 2

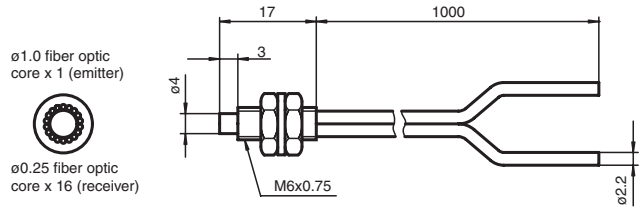


Fig. 3

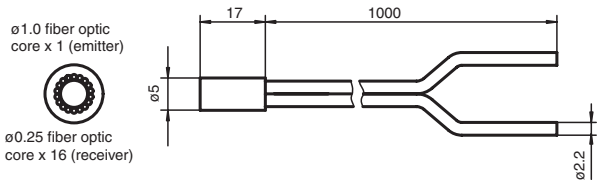


Fig. 4

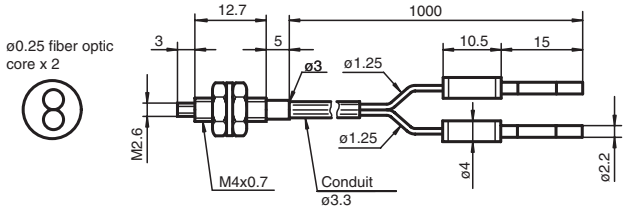


Fig. 5

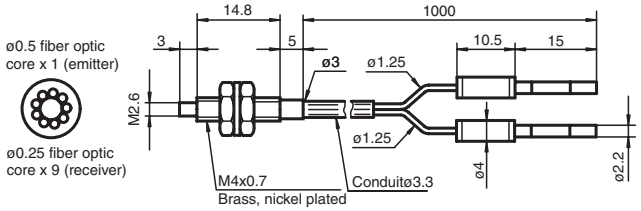


Fig. 6

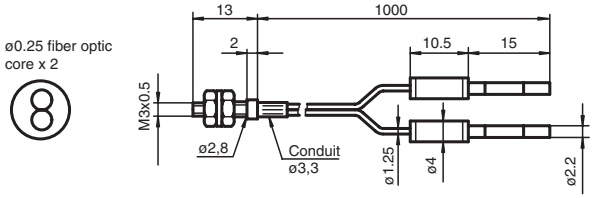


Fig. 7

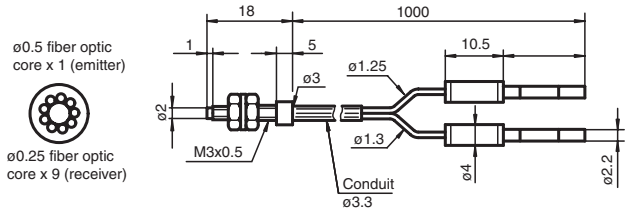


Fig. 8

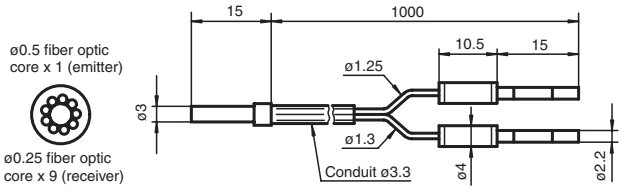


Fig. 9

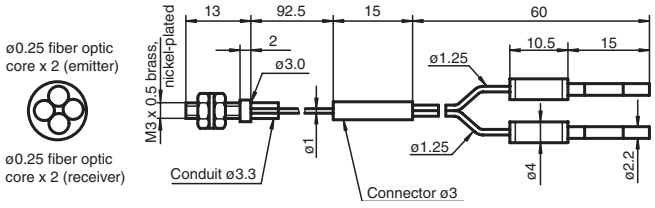


Fig. 10

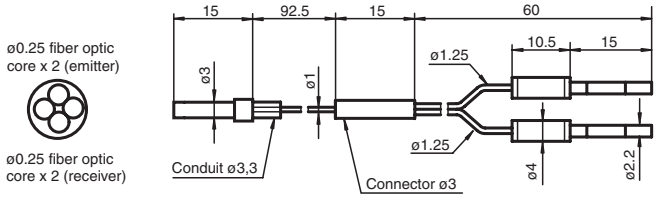


Fig. 11

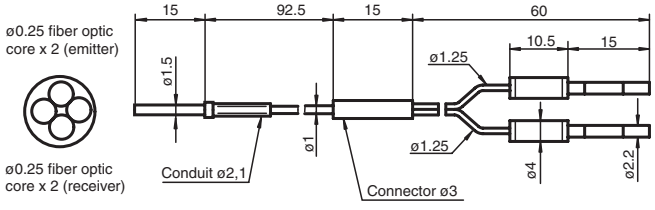


Fig. 12

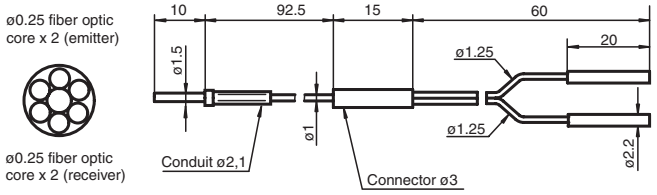


Fig. 13

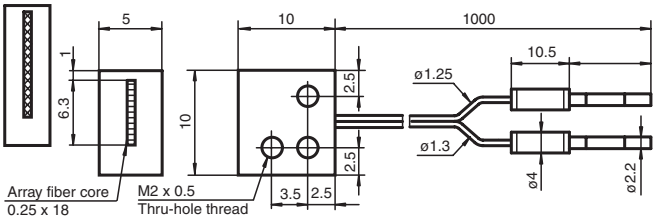
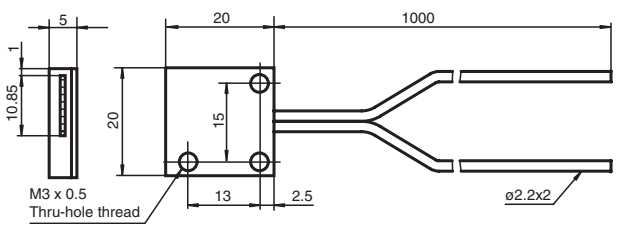


Fig. 14



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Plastic fibres - through beam type

Fig. 15

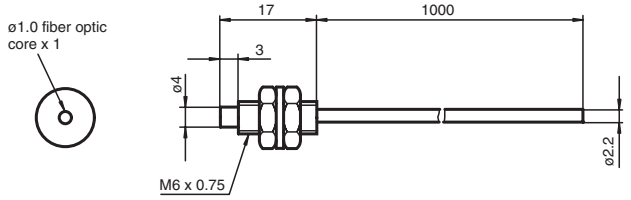


Fig. 16

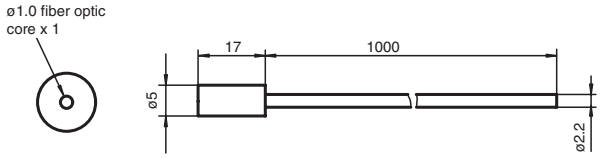


Fig. 17

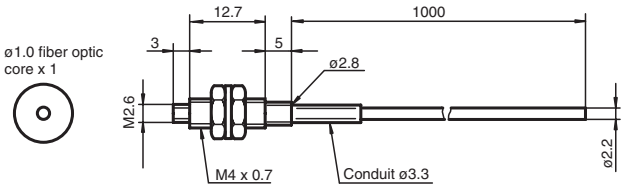


Fig. 18

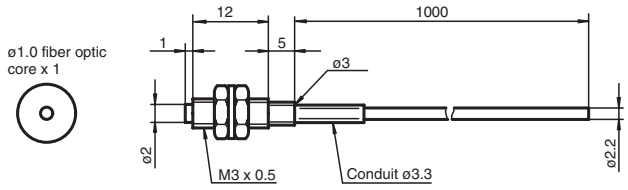


Fig. 19

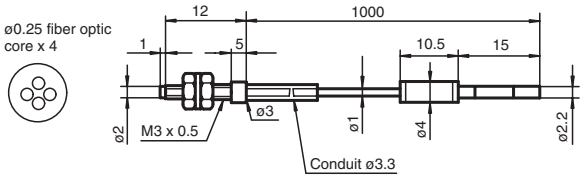


Fig. 20

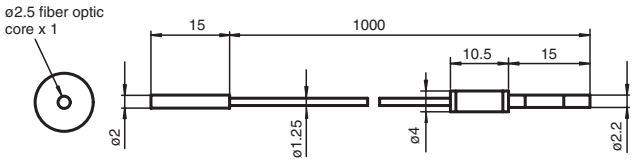


Fig. 21

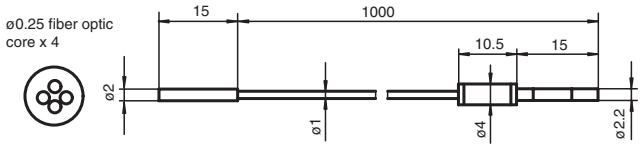


Fig. 22

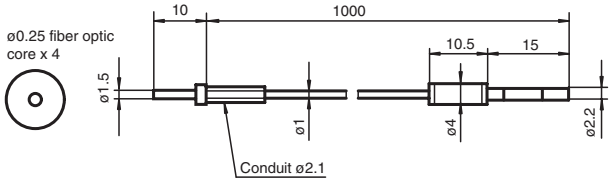


Fig. 23

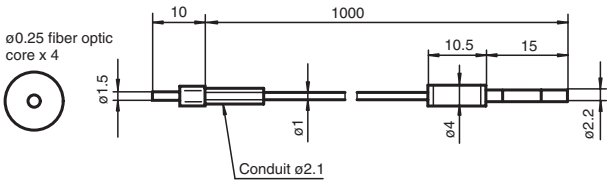


Fig. 24

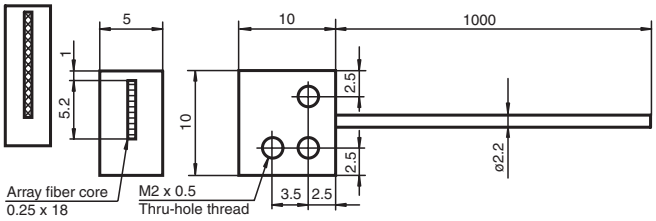


Fig. 25

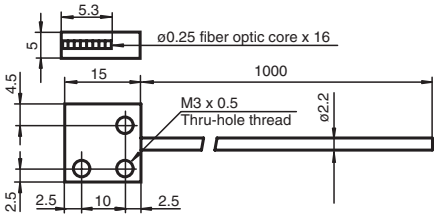


Fig. 26

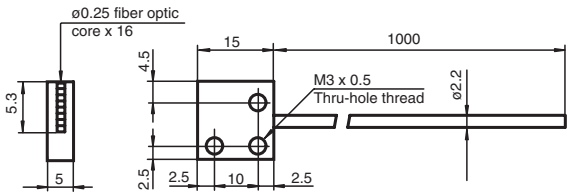


Fig. 27

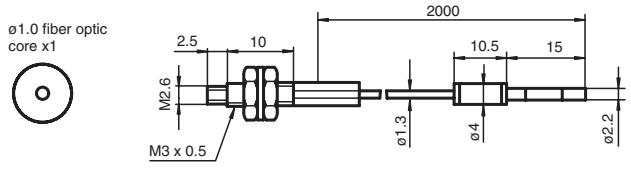
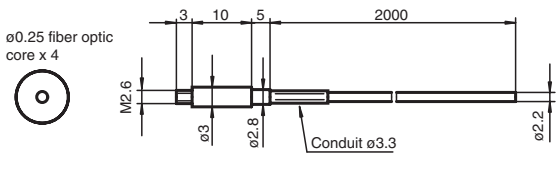


Fig. 28



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Reflection light scanner **GLV30-LL-1227/40a/53/92**

CE

Features

- **M30 housing**
- **Light/dark switching**
- **For glass fibre light guide**
- **Sturdy housing, high grade surface**
- **Extensive fibre optic product selection as accessories**

For suitable cable sockets, mounting aids and more, please refer to chapter "Accessories".

GLV30-LL-1227/40a/53/92

Technical data

Ordering code:	GLV30-LL-1227/40a/53/92
Detection range	without light guide : 0 ... 1700 mm , with light guide see selection table for fibre optics ◆
Adjustment range	250 ... 1700 mm (on use without fibre optics) ◆
Reference target	standard white 200 mm x 200 mm (only for fibre optics reflex) ◆
Light type	infrared, alternating light ◆
Light source	IRED ◆
Angle of divergence	approx. 15 ° ◆
Diameter of the light spot	approx. 400 mm at 1700 mm sensor range ◆
Ambient light limit	50000 Lux ◆
Approvals	CE ◆
Function display	LED yellow, lights up with receiver lit ◆
Operating elements	Sensitivity adjuster, light/dark switch ◆
Operating voltage	10 ... 30 V DC ◆
Ripple	10 % ◆
No-load supply current	40 mA ◆
Signal output	1 pnp, not short-circuit proof ◆
Switching type	light/dark switching ◆
Switching voltage	max. 30 V DC ◆
Switching current	max. 500 mA ◆
Response time	2 ms ◆
De-energised delay	7 ms ◆
Standards	EN 60947-5-2 ◆
Ambient temperature	-20 ... 60 °C (253 ... 333 K) ◆
Storage temperature	-20 ... 75 °C (253 ... 348 K) ◆
Protection degree	IP65 ◆
Connection	Metal connector M12 x 1, 4-pin ◆
Material	
Housing	brass, nickel-plated ◆
Optical face	glass ◆
Mass	370 g ◆

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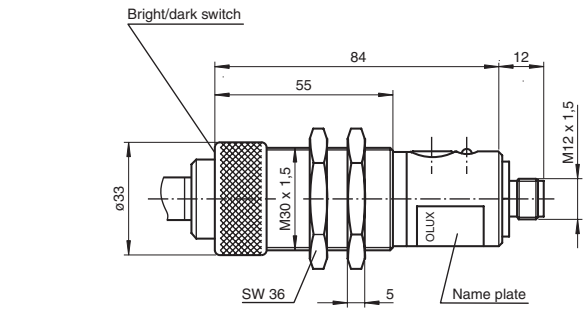
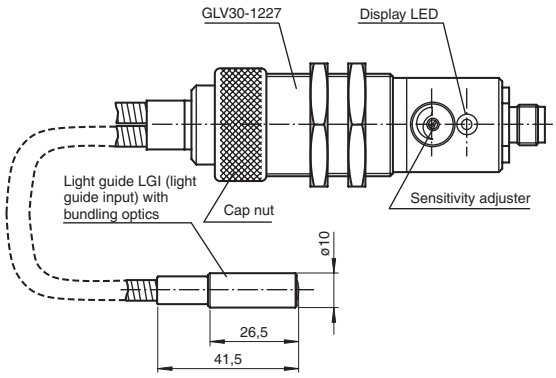
Dimensions

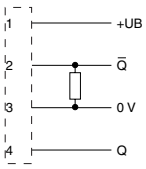
GLV30-LL-1227/40a/53/92



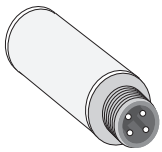


Electrical connection

Option 40a/53/92



Connection type



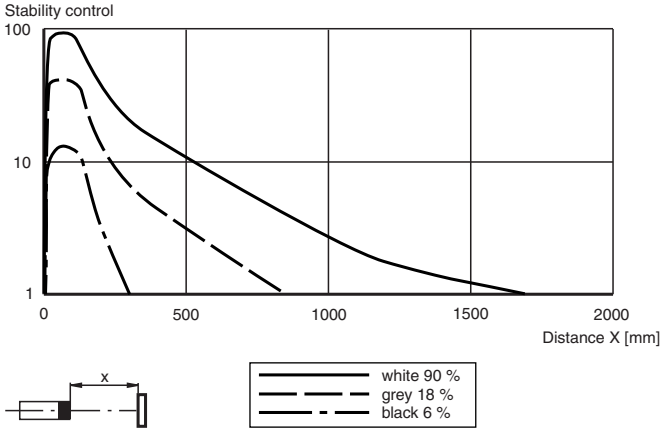
Option 92
plug M12, 4 pin

❍ = light on, ● = dark on, for connector pinout see dimensions drawing

Diagrams

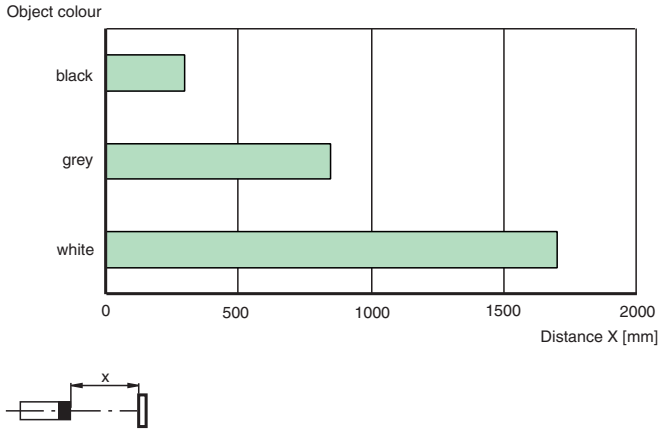
Relative received light strength

GLV30-1227



Detection ranges

GLV30-1227



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Selection table for fibre

	Model number	Max. sensing range/detection range in mm	Figure
glass fibre optics, single path with metal-silicone coating	LLE 18/30-2,3-0,5-Z1	420	1
	LLE 18/30-2,3-1,0-Z 1	300	1
	LLE 18/30-2,3-2.0-Z 1	200	1
	LLE 18/30-2.3-1.0-WR	300	2
	LLE 18/30-2.3-0.5-WC3	400	3
	LLE 18/30-2,3-1,0-WC14	300	4
	LLE 18/30-2,3-1,0-WC32	250	5
	LLE 18/30-2,3-1,0-WC5	300	6
	LLE 18/30-2,3-1,0-WC10	300	7
	LLE 18/30-2,3-1,0-WC0	230	8
	LLE 18/30-2,3-1,0-WC20	250	9
	LLE 18/30-2.3-1.0-WC3	300	3
	LLE 18/30-1,6-0,5-Z1	200	1
	LLE 18/30-1.1-2.0-G	100	10
	LLE 18/30-2.3-1.5-G	250	10
glass fibre optics, reflex with metal-silicone coating	LLE 18/30-1.9-0.5-Z1	130	15
	LLE 18/30-1.9-1.0-Z1	120	15
	LLR 18/30-1.9-0.5-WC0	70	16
	LLR 18/30-1,9-1,0-WC2	90	17
	LLR 18/30-1,9-0,5-WC5	90	18
	LLR 18/30-1.9-1.0-WR	90	19
	LLR 18/30-1.9-1.5-G	100	20
	LLR 18/30-1.6-1.0-QW 1x4	70	21
glass fibre optics single path with metal coating	LME 18/30-2.3-1.0-WC0	230	8
	LME 18/30-2,3-0,5-WC5	400	6
	LME 18/30-2,3-1,0-WC14	300	4
	LME 18/30-1.6-3.0-Z1	70	13
	LME 18/30-2.3-0.5-G	420	14
glass fibre optics reflex with metal coating	LMR 18/30-1.9-1.0-Z1	120	15
	LMR 18/30-1.9-2.0-Z1	90	15
	LMR 18/30-1.9-3.0-Z1	85	15
	LMR 18/30-1.9-1.5-Z1	100	15
	LMR 18/30-1.9-0.5-G	130	20
glass fibre optics reflex with PVC coating	LCR 18/30-1.1-0.5-WC5.5 M30	60	11
	LCR 18/30-1.1-1.5-WC5.5 M18	40	11
	LCR 18/30-1.1-0.5-WC2	60	12
	LCR 18/30-1.1-1.5-WC2	40	12

Other lengths and end pieces available on request

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Fig. 1

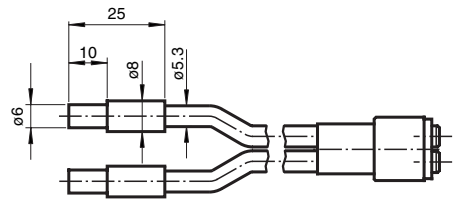

Fig. 2

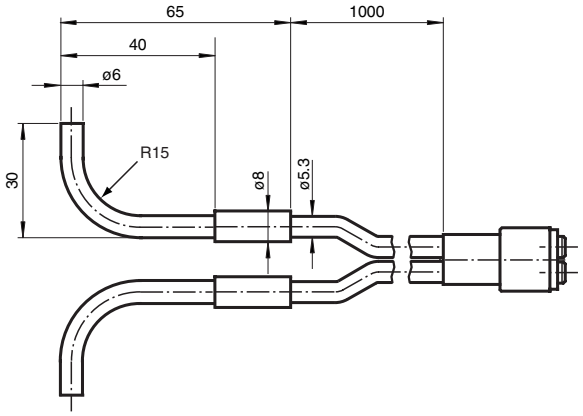

Fig. 3

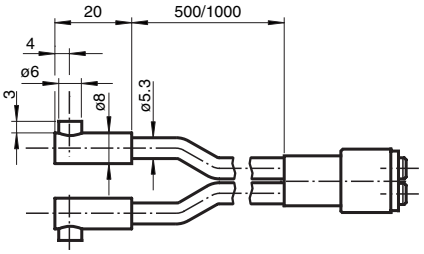

Fig. 4

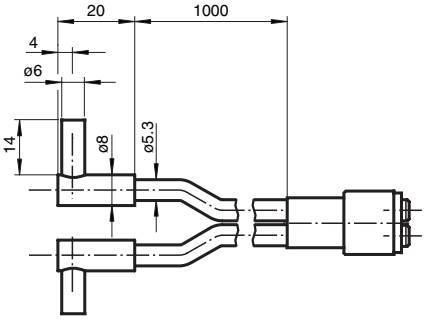

Fig. 5

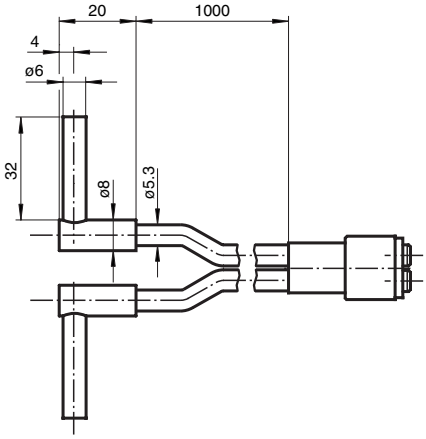

Fig. 6

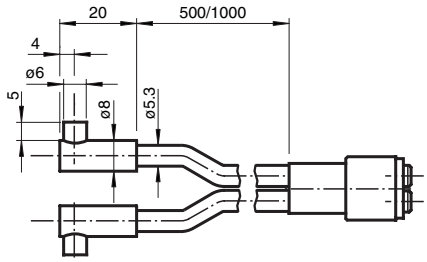

Fig. 7

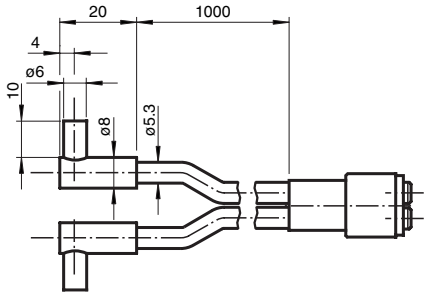

Fig. 8

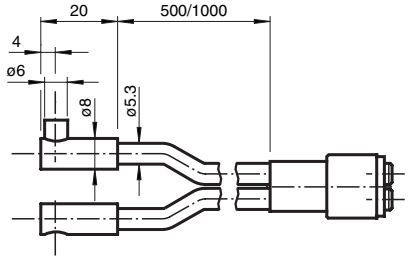

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Fig. 9

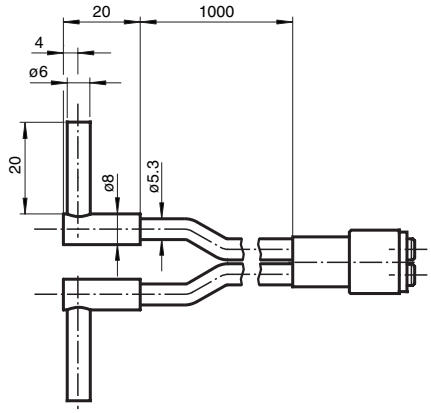


Fig. 10

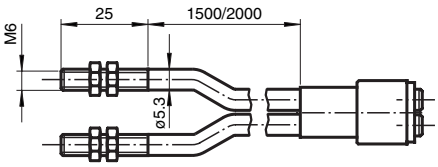


Fig. 11

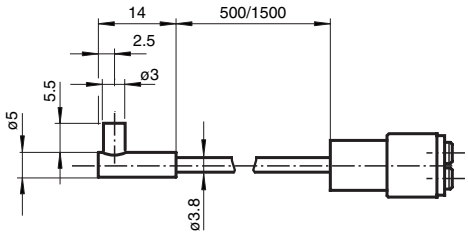
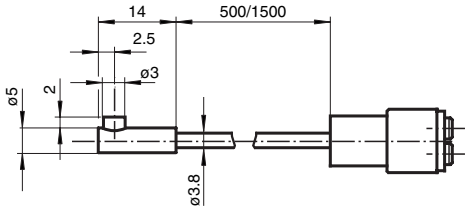


Fig. 12



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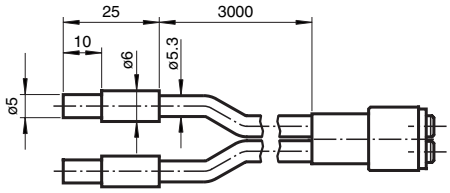

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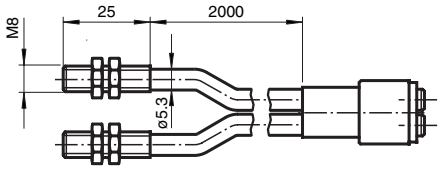

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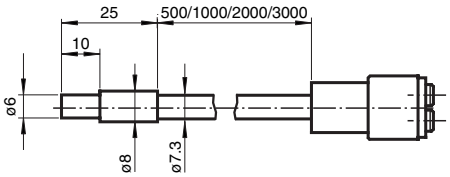

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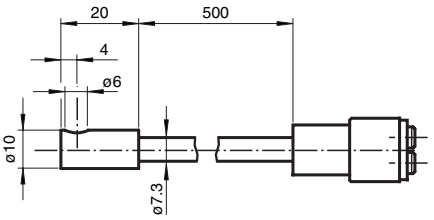

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Fig. 17

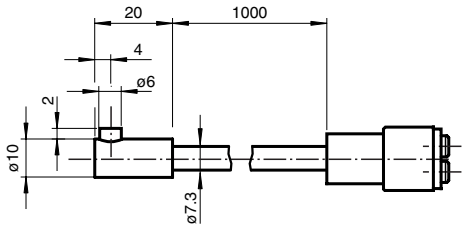


Fig. 18

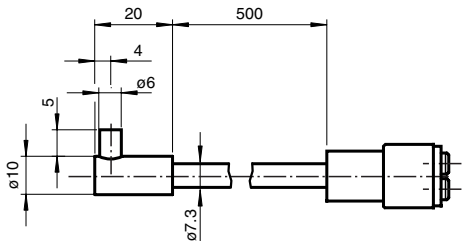


Fig. 19

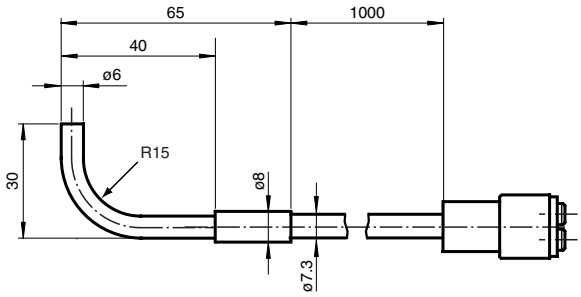


Fig. 20

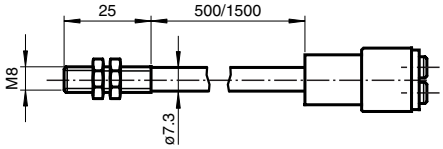
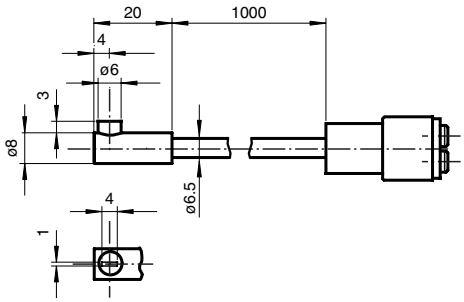


Fig. 21



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