

Lichtschränken und Lichtleitkabelverstärker
light barriers and fibre-optic amplifiers

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Reflexionslichttaster erfassen das von einem Objekt reflektierende Licht. Die Reichweite ist abhängig von der Beschaffenheit und Farbe des zu detektierenden Objekts. Reflexionslichttaster mit Hintergrundaussblendung sind in der Lage dunkle Objekte vor einem hellen Hintergrund zu erfassen.

Reflexionslichtschranken erfassen das Licht, das von einem Reflektor zum Sensor zurückgeworfen wird. Der Sensor reagiert wenn dieser Lichtstrahl unterbrochen wird. Die Funktion ist nicht so stark von der Beschaffenheit und Farbe des detektierenden Objekts abhängig.

Einweglichtschranken bestehen aus zwei Geräten, einem Sender und einem Empfänger. Einweglichtschranken verfügen über eine erheblich höhere Reichweite als Reflexionslichtschranken.

Diffuse-reflective sensors detect the light reflected by a target. The sensing range of these sensors largely depends on the reflectivity of the target. Diffuse mode sensors with fixed or adjustable back-ground suppression are capable of detecting dark objects in front of a light background.

Retro-reflective sensors detect the light reflected by a reflector. The sensor reacts to the interruption of this light beam by the target. The reflectivity factor of the target is subordinate.

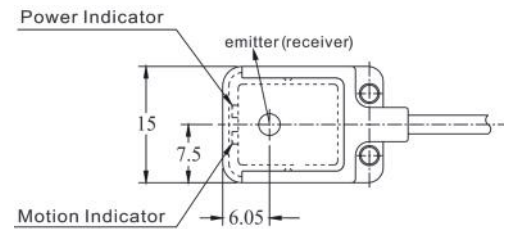
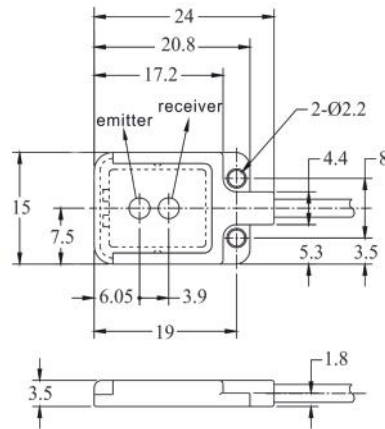
Through beam sensors operate on a similar principle. Two separate devices are used, an emitter and a receiver. Through beam sensors typically have a significantly larger sensing range than retro-reflective sensors.

- + Robuste Gehäuse, integrierte Elektronik *tough housing with integrated electronics*
- + Einfache und schnelle Montage *simple and fast assembling*
- + Hohe Schutzart IP67 *high protection class IP67*
- + Hohe Schaltfrequenz *high switching frequency*
- + Empfindlichkeitseinstellung *sensitivity adjustable*
- + Rot- und Infrarotlichtausführungen *red- and infrared light*
- + Normstecker M8 und M12 *connector M8 and M12*
- + Ausgänge kurzschlußfest *output short circuit proof*
- + Erfassung kleinster Teile *detection of smallest items*
- + Garantie 2 Jahre *warranty 2 years*
- + Anwendungsbezogene Sonderausführungen möglich *special sizes are available on request*

Typenschlüssel *coding*

OLK (T) -40- P S K (X) -ST4

- OLK OLK = Verstärker - LLK *amplifier - LLK (fiber)* LKV = Verstärker - KLLK *amplifier - KLLK (plastic)*
 OTH = Lichttaster mit Hintergrundaussblendung *diffuse reflective sensor with backgr. suppr.*
 OTV = Lichttaster energetisch *diffuse reflective sensor* | ORV = Reflexions-Lichtschranke *retro-reflective sensor* | OEV/OSV = Einweg-Lichtschranke *through beam sensor*
- (T) T = teach | L = Laser
- 40 Bauform *dimension*
- P P = pnp | N = npn | A = analog
- S U = NO-NC | S = NO | O = NC | A = NO+NC | I = Stromausgang *current output* | V = Spannungsausgang *voltage output*
- K K = Kurzschlußfest *short circuit proof*
- (X) I = infrarot *infrared*
- ST4 ST3 = Stecker M8 *plug M8* | ST3-4 Stecker M8 4polig *plug M8 4pole* | ST4 = Stecker M12 *plug M12* | 2m = Kabel 2m *cable* | M8 = Kabelstecker M8 *pigtail M8* | WST4 = Winkelstecker M12 *angled plug M12*

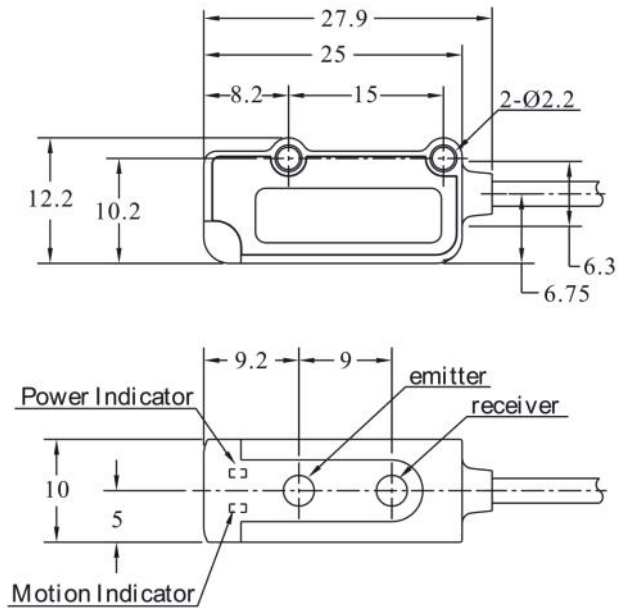


Schaltabstand <i>sensing range</i>	30 mm	1000 mm
Hintergrundausbldung <i>background supress.</i>	-	
Sendelicht <i>emitted light</i>	rotlicht <i>red light</i>	infrarot <i>infrared</i>
Betriebspannung <i>service-voltage</i>	12 - 24 VDC (±10%)	
Gehäusematerial <i>casing material</i>	ABS	
Schalhysterese <i>switching hysteresis</i>	< 15 %	
Reproduzierbarkeit <i>reproducibility</i>	< 1 %	
Eigenstromaufnahme <i>intern. power consumpt.</i>	< 15 mA	
Spannungsabfall <i>voltage drop</i>	< 1,5 V	
Umgebungstemperatur <i>ambient temperature</i>	- 10°C ... + 45°C	
Fremdlichtfestigkeit <i>ambient light immunity</i>		
Schutzart <i>protection class</i>	IP 64	
Schaltfrequenz <i>max. operating frequency</i>	800 Hz	
max. Laststrom <i>max. load current</i>	100 mA / kurzschlußfest <i>short-circuit-proof</i>	

Ausgang* *output - Anschluss *connection***

PNP-NO - 2m Kabel <i>cable 2m</i>	Reflexions-Lichttaster <i>diffuse-reflective sensor</i>	Einweg-Lichtschranke <i>through beam sensor</i>
NPN-NO - 2m Kabel <i>cable 2m</i>	OTV-3,5-PSK-2m	OEV/OSV-3,5-PSKI-2m
	OTV-3,5-NSK-2m	OEV/OSV-3,5-NSKI-2m

10 mm



50 mm | 2000 mm

-
infrarot *infrared*
12 - 24 VDC ($\pm 10\%$)

ABS
< 15 %

< 1 %

< 15 mA

< 1,5 V

- 10°C ... + 45°C

IP 64

800 Hz

100 mA / kurzschlußfest *short-circuit-proof*

Reflexions-Lichttaster *diffuse-reflective sensor*

OTV-10-PSKI-2m

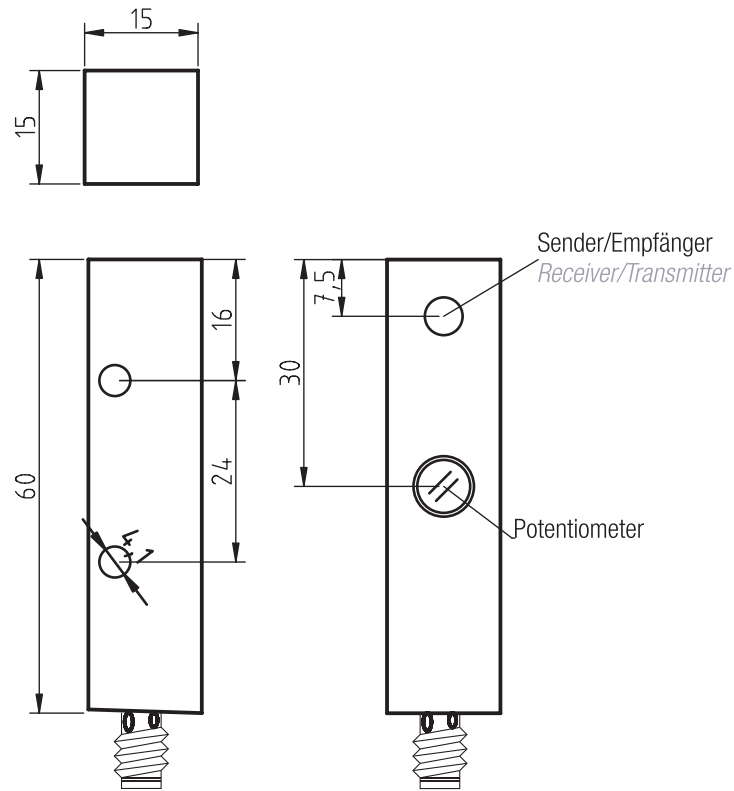
OTV-10-NSKI-2m

| Einweg-Lichtschranke *through beam sensor*

| OEV/OSV-10-PSKI-2m

| OEV/OSV-10-NSKI-2m

15 mm

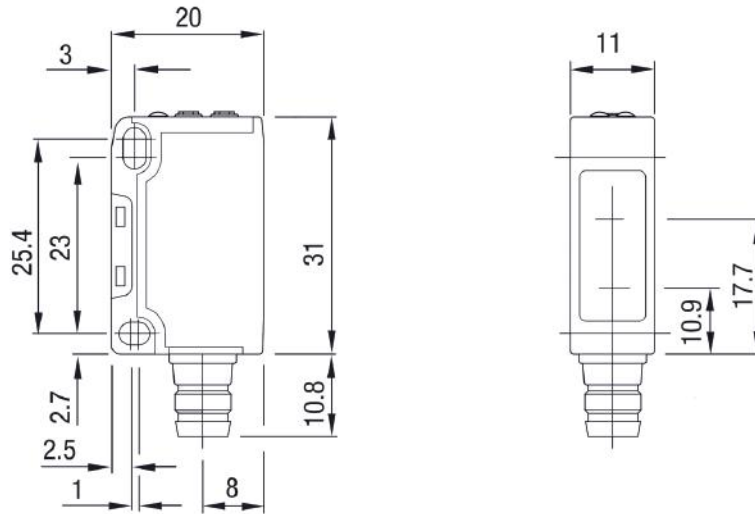


Auflösung <i>resolution</i>	0,1 mm
Schaltabstand <i>sensing range</i>	1000 mm
Hintergrundausbldung <i>background supress.</i>	-
Sendelicht <i>emitted light</i>	Laser (Klasse2) <i>laser (class2)</i>
Betriebsspannung <i>service-voltage</i>	12 - 24 VDC ($\pm 10\%$)
Gehäusematerial <i>casing material</i>	Alu schwarz eloxiert <i>aluminium black anodized</i>
Schalthysterese <i>switching hysteresis</i>	< 15 %
Reproduzierbarkeit <i>reproducibility</i>	< 1 %
Eigenstromaufnahme <i>intern. power consumpt.</i>	< 55 mA (Sender+Empfänger <i>transmitter+receiver</i>)
Spannungsabfall <i>voltage drop</i>	< 2,5 V
Umgebungstemperatur <i>ambient temperature</i>	-10°C...+50°C
Fremdlichtfestigkeit <i>ambient light immunity</i>	2klx
Schutzart <i>protection class</i>	IP 67
Schaltfrequenz <i>max. operating frequency</i>	4 kHz
max. Laststrom <i>max. load current</i>	200 mA / kurzschlußfest <i>short-circuit-proof</i>

Ausgang* *output - Anschluss *connection***

	Einweg-Lichtschranke <i>through beam sensor</i>
PNP-NO - Stecker M8 <i>connector M8</i>	OEVL/OSVL-15-PSK-ST3
PNP-NC - Stecker M8 <i>connector M8</i>	OEVL/OSVL-15-POK-ST3
PNP-NO/NC - Stecker M8 <i>connector M8</i>	
NPN-NO/NC - Stecker M8 <i>connector M8</i>	

17 mm



15 - 500 mm	5 m	15 m
ja yes	-	
rotlicht red-light		
10 - 30 VDC ($\pm 10\%$)		
PC/PBT		
< 15 %		
< 1 %		
< 15 mA		
< 1,5 V		
- 25°C ... + 55°C		
IP 67		
1000 Hz		
100 mA / kurzschlußfest <i>short-circuit-proof</i>		

Reflexions-Lichttaster
diffuse-reflective sensor

Reflexions-Lichtschanke
retro-reflective sensor

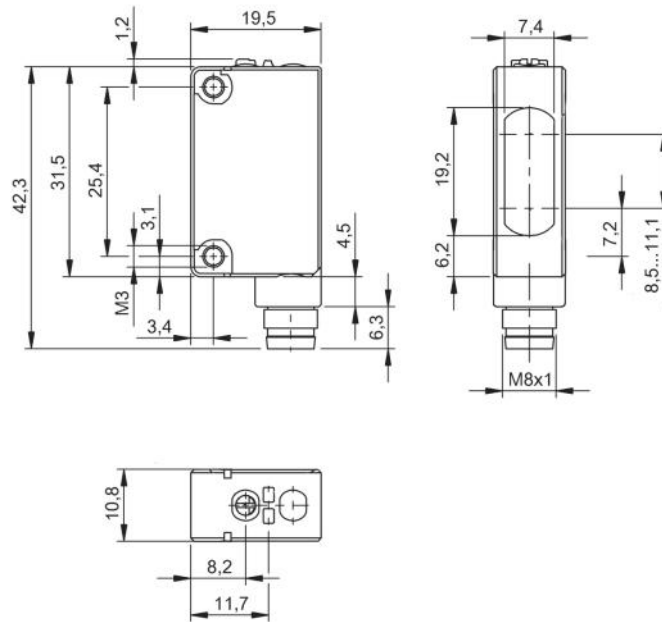
Einweg-Lichtschanke
through beam sensor

OTH-17-PUK-ST3
OTH-17-NUK-ST3

ORV-17-PUK-ST3
ORV-17-NUK-ST3

OEV/OSV-17-PUK-ST3
OEV/OSV-17-NUK-ST3

30 mm

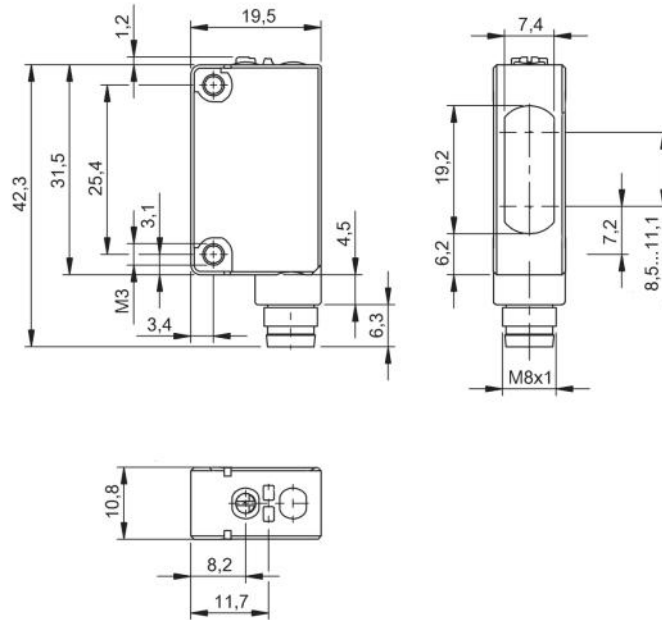


Schaltabstand <i>sensing range</i>	20 - 150 mm	20 - 200 mm	100 - 700 mm
Hintergrundaussblendung <i>background suppress.</i>	-	ja yes	-
Sendelicht <i>emitted light</i>	rotlicht <i>red light</i>		infrarot <i>infrared</i>
Betriebsspannung <i>service-voltage</i>	10 - 30 VDC ($\pm 10\%$)		
Gehäusematerial <i>casing material</i>	ABS		
Schalthysterese <i>switching hysteresis</i>	< 15 %		
Reproduzierbarkeit <i>reproducibility</i>	< 1 %		
Eigenstromaufnahme <i>intern. power consumpt.</i>	< 35 mA		
Spannungsabfall <i>voltage drop</i>	< 2,5 V		
Umgebungstemperatur <i>ambient temperature</i>	- 25°C ... + 55°C		
Fremdlichtfestigkeit <i>ambient light immunity</i>	50 klx		
Schutzart <i>protection class</i>	IP 67		
Schaltfrequenz <i>max. operating frequency</i>	500 Hz		
max. Laststrom <i>max. load current</i>	200 mA / kurzschlußfest <i>short-circuit-proof</i>		

Ausgang* *output - Anschluss *connection***

	Reflexions-Lichttaster <i>diffuse-reflective sensor</i>		
PNP-NO - Stecker M8 <i>connector M8</i>	OTVP-30-PSK-ST3-4	OTH-30-PSK-ST3-4	OTV-30-PSKI-ST3-4
PNP-NO/NC - Stecker M8 <i>connector M8</i>			

30 mm



200 - 2500 mm	200 - 10000 mm	0 - 30000 mm
-		
rotlicht <i>red-light</i>	Laser	infrarot <i>infrared</i>
12 - 24 VDC ($\pm 10\%$)		Laser
ABS		
< 15 %		
< 1 %		
< 15 mA		
< 1,5 V		
- 10°C ... + 45°C		
IP 64		
800 Hz		
100 mA / kurzschlußfest <i>short-circuit-proof</i>		

Reflexions-Lichtschrake *retro-reflective sensor*

ORV-30-PSK-ST3-4

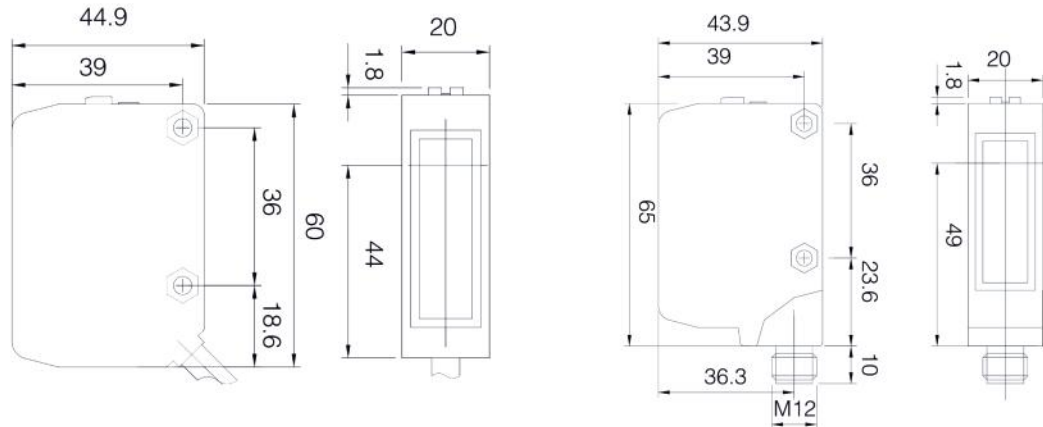
| ORVL-30-PUK-ST3-4

| Einweg-Lichtschrake *through beam sensor*

| OEV/OSV-30-PSKI-ST3-4

| OEVL/OSVL-30-PUK-ST3-4

40 mm

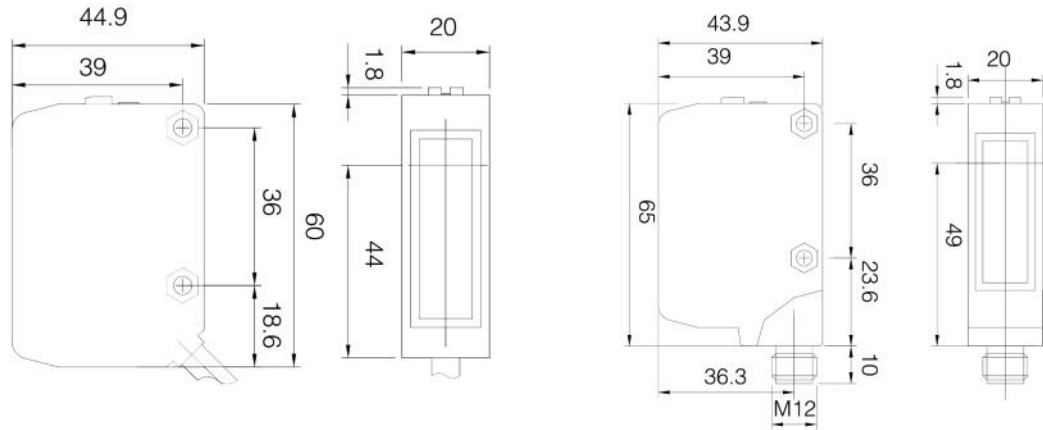


Schaltabstand <i>sensing range</i>	90 - 300 mm	110 - 600 mm	50 mm - 12000 mm
Hintergrundausbldung <i>background supress.</i>	ja yes		-
Sendelicht <i>emitted light</i>	rotlicht <i>red light</i>		
Betriebspannung <i>service-voltage</i>	10 - 30 VDC (±10%)		
Gehäusematerial <i>casing material</i>	ABS		
Schalthyserese <i>switching hysteresis</i>	< 15 %		
Reproduzierbarkeit <i>reproducibility</i>	< 1 %		
Eigenstromaufnahme <i>intern. power consumpt.</i>	< 35 mA		
Spannungsabfall <i>voltage drop</i>	< 2,5 V		
Umgebungstemperatur <i>ambient temperature</i>	- 25°C ... + 55°C		
Fremdlichtfestigkeit <i>ambient light immunity</i>	10 klx		
Schutzart <i>protection class</i>	IP 67		
Schaltfrequenz <i>max. operating frequency</i>	160 Hz		
max. Laststrom <i>max. load current</i>	200 mA / kurzschlußfest <i>short-circuit-proof</i>		

Ausgang* *output - Anschluss *connection***

	Reflexions-Lichttaster <i>diffuse-reflective sensor</i>	Reflexions-Lichtschranke <i>retro-reflective sensor</i>
PNP-NO/NC - Stecker M12 <i>connector M12</i>	OTH-40-PUK-ST4	OTHD-40-PUK-ST4 ORV-40-PUK-ST4
PNP-NO/NC - Kabel 2m <i>cable 2m</i>	OTH-40-PUK-2m	OTHD-40-PUK-2m ORV-40-PUK-2m

40 mm



50 - 50000 mm

-

rotlicht *red-light*

10 - 30 VDC ($\pm 10\%$)

ABS

< 15 %

< 1 %

< 15 mA

< 1,5 V

- 25°C ... + 55°C

10 klx

IP 67

800 Hz

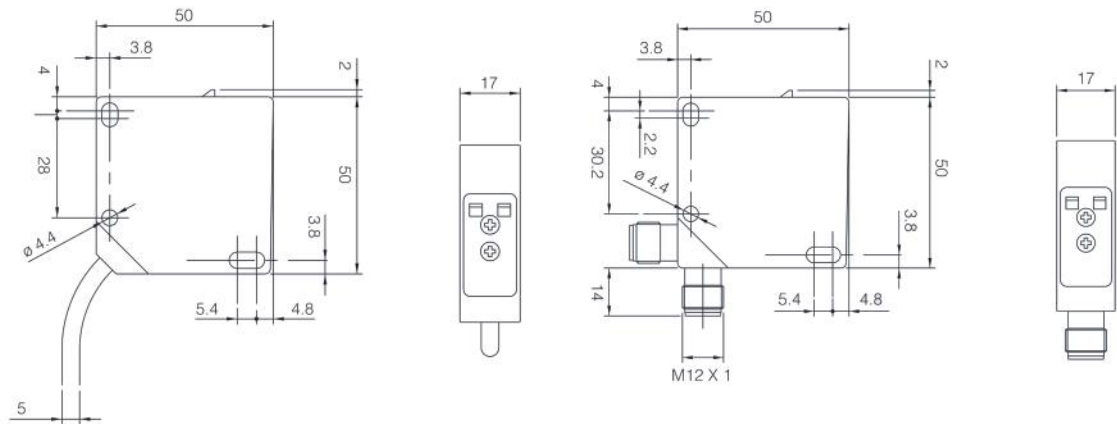
100 mA / kurzschlußfest *short-circuit-proof*

Einweg-Lichtschranke *through beam sensor*

OEV/OSV-40-PUK-ST4

OEV/OSV-40-PUK-2m

50 mm

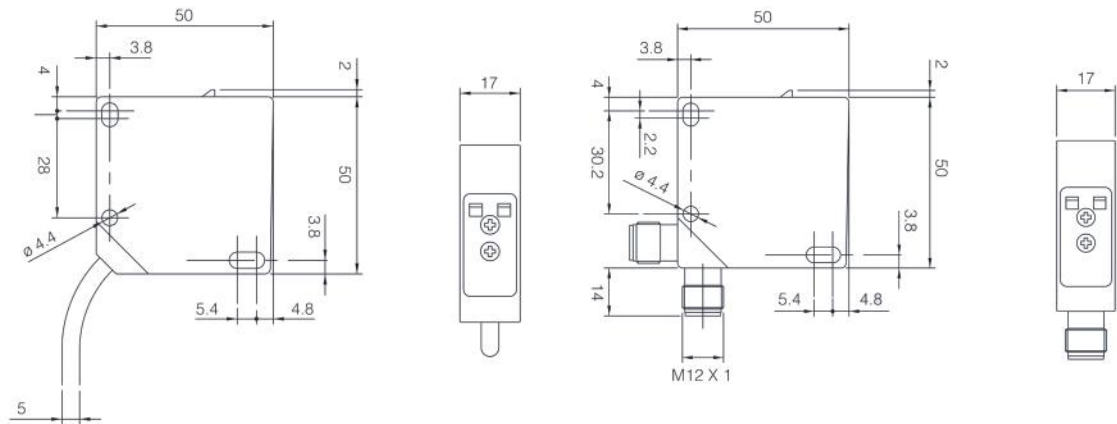


Schaltabstand <i>sensing range</i>	120 - 500 mm	10 - 1000 mm	20 mm - 6000 mm
Hintergrundaussblendung <i>background suppress.</i>	ja yes	-	
Sendelicht <i>emitted light</i>	infrarot infrared		rotlicht red light
Betriebsspannung <i>service-voltage</i>	10 - 30 VDC (±10%)		
Gehäusematerial <i>casing material</i>	PC/ABS		
Schalthyserese <i>switching hysteresis</i>	< 15 %		
Reproduzierbarkeit <i>reproducibility</i>	< 1 %		
Eigenstromaufnahme <i>intern. power consumpt.</i>	< 35 mA		
Spannungsabfall <i>voltage drop</i>	< 2,5 V		
Umgebungstemperatur <i>ambient temperature</i>	- 25°C ... + 55°C		
Fremdlichtfestigkeit <i>ambient light immunity</i>	5 klx		
Schutzart <i>protection class</i>	IP 67		
Schaltfrequenz <i>max. operating frequency</i>	160 Hz		
max. Laststrom <i>max. load current</i>	200 mA / kurzschlußfest <i>short-circuit-proof</i>		

Ausgang* output* - Anschluss connection

	Reflexions-Lichttaster <i>diffuse-reflective sensor</i>	Reflexions-Lichtschranke <i>retro-reflective sensor</i>
PNP+NPN-NO+NC - Stecker M12 <i>con. M12</i>	OTH-51-GAK-ST4 OTV-51-GAK-ST4	ORV-51-GAK-ST4
PNP+NPN-NO+NC - Kabel 2m <i>cable 2m</i>	OTH-51-GAK-2m OTV-51-GAK-2m	ORV-51-GAK-2m

50 mm



20 - 20000 mm

-

infrarot *infrared*

10 - 30 VDC ($\pm 10\%$)

ABS

< 15 %

< 1 %

< 15 mA

< 1,5 V

- 25°C ... + 55°C

5 klx

IP 67

800 Hz

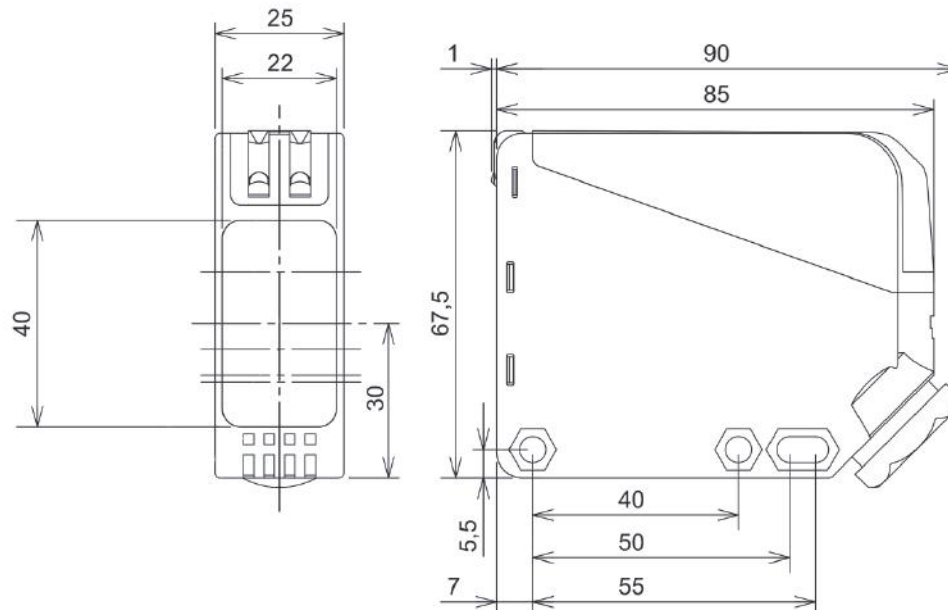
100 mA / kurzschlußfest *short-circuit-proof*

Einweg-Lichtschranke *through beam sensor*

OEV/OSV-51-GAK-ST4

OEV/OSV-51-GAK-2m

90 mm

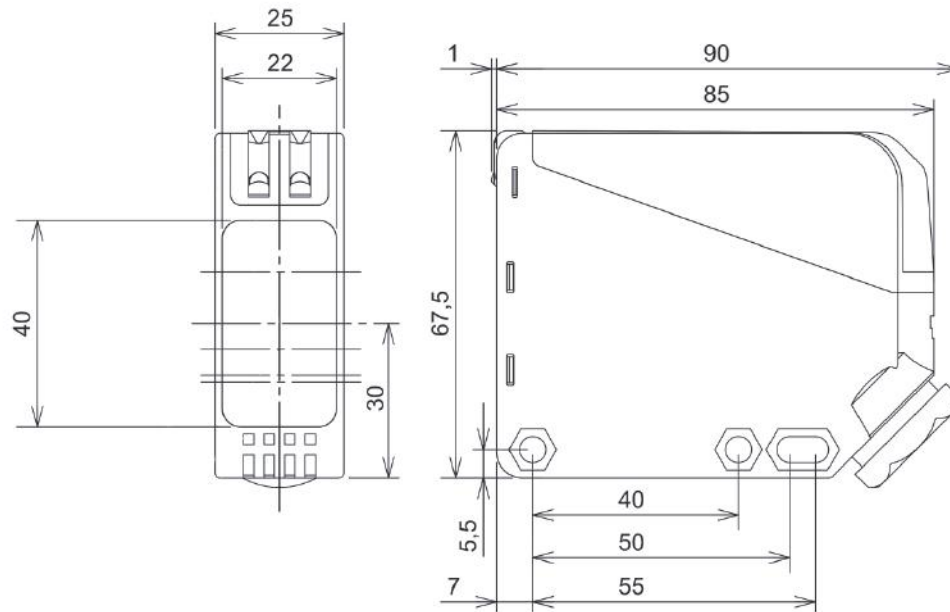


Schaltabstand <i>sensing range</i>	0,2 - 7 m	0,2 - 2 m
Hintergrundaussblendung <i>background supress.</i>	ja yes	-
Sendelicht <i>emitted light</i>	infrarot <i>infrared</i>	rotlicht <i>red light</i>
Betriebsspannung <i>service-voltage</i>	24 - 240 VAC 50-60Hz / 12-240 VDC	
Gehäusematerial <i>casing material</i>	ABS	
Schalthyserese <i>switching hysteresis</i>	< 10x %	
Reproduzierbarkeit <i>reproducibility</i>	1 %	
Eigenstromaufnahme <i>intern. power consumpt.</i>	< 35 mA	
Spannungsabfall <i>voltage drop</i>	< 2,5 V	
Umgebungstemperatur <i>ambient temperature</i>	- 25°C ... + 55°C	
Fremdlichtfestigkeit <i>ambient light immunity</i>	10 klx	
Schutzart <i>protection class</i>	IP 67	
Schaltfrequenz <i>max. operating frequency</i>	160 Hz	
max. Laststrom <i>max. load current</i>	250 VAC 3A / 30 VDC 3A	

Ausgang* output* - Anschluss connection

Relais <i>relay</i> - Klemmraum <i>clamp terminal</i>	Reflexions-Lichttaster <i>diffuse-reflective sensor</i>	Reflexions-Lichtschranke <i>retro-reflective sensor</i>
	OTH-90-RAK-KLR	ORV-90-RAK-KLR

50 mm



max. 50 m

-

infrarot *infrared*

24 - 240 VAC 50-60Hz / 12-240 VDC

ABS

< 10 %

1 %

< 35 mA

< 2,5 V

- 25°C ... + 55°C

10 klx

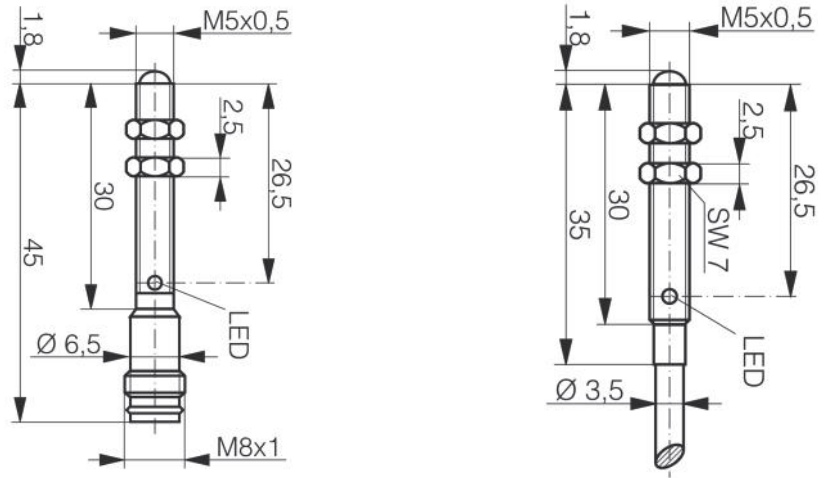
IP 67

160 Hz

250 VAC 3A / 30 VDC 3A

Einweg-Lichtschränke *through beam sensor*

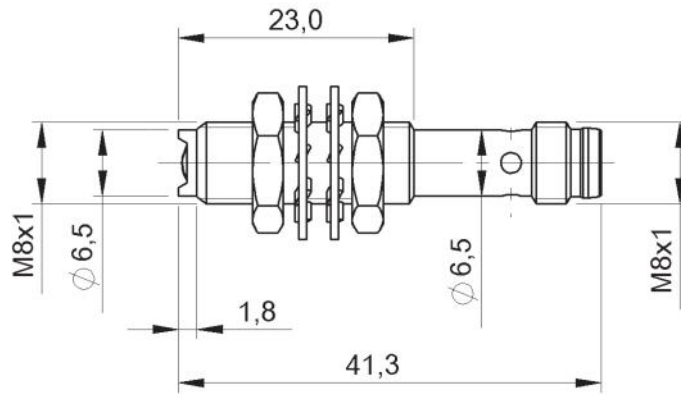
OEV/OSV-90-RAK-KLR



Schaltabstand <i>sensing range</i>	20 mm	250 mm
Hintergrundausbldung <i>background supress.</i>	-	
Sendelicht <i>emitted light</i>	infrarot <i>infrared</i>	
Betriebspannung <i>service-voltage</i>	10 - 30 VDC	
Gehäusematerial <i>casing material</i>	Edelstahl <i>stainless steel</i>	
Schalthyserese <i>switching hysteresis</i>	< 10x %	
Reproduzierbarkeit <i>reproducibility</i>	1 %	
Eigenstromaufnahme <i>intern. power consumpt.</i>	< 35 mA	
Spannungsabfall <i>voltage drop</i>	< 2,5 V	
Umgebungstemperatur <i>ambient temperature</i>	- 25°C ... + 55°C	
Fremdlichtfestigkeit <i>ambient light immunity</i>	10 klx	
Schutzart <i>protection class</i>	IP 67	
Schaltfrequenz <i>max. operating frequency</i>	250 Hz	
max. Laststrom <i>max. load current</i>	100mA	

Ausgang* *output - Anschluss *connection***

	Reflexions-Lichttaster <i>diffuse-reflective sensor</i>	Einweg-Lichtschranke <i>trough-beam sensor</i>
PNP-NO - Stecker M8 <i>connector M8</i>	OTV-5-PSKI-ST3	OEV/OSV-5-PSKI-ST3
NPN-NO - Stecker M8 <i>connector M8</i>	OTV-5-NSKI-ST3	OEV/OSV-5-NSKI-ST3
PNP-NO - Kabel 2m <i>cable 2m</i>	OTV-5-PSKI-2m	OEV/OSV-5-PSKI-2m
NPN-NO - Kabel 2m <i>cable 2m</i>	OTV-5-NSKI-2m	OEV/OSV-5-NSKI-2m



7 - 30 mm

| 1 - 60 mm

| 0 - 1000 mm

ja *yes*

| -

rotlicht *red-light*

12 - 24 VDC ($\pm 10\%$)

Edelstahl *stainless steel*

< 15 %

< 1 %

< 15 mA

< 1,5 V

- 10°C ... + 45°C

5 klx

IP 64

450 Hz

100 mA / kurzschlußfest *short-circuit-proof*

Reflexions-Lichttaster *diffuse-reflective sensor*

OTH-8-PSK-ST3

OTH-8-NSK-ST3

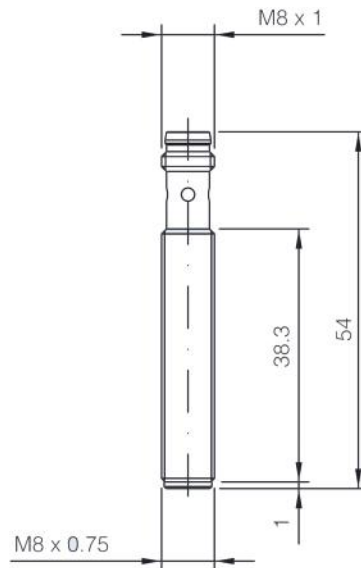
| OTV-8-PSK-ST3

| OTV-8-NSK-ST3

| Reflexions-Lichtschranke *retro-reflective sensor*

| ORV-8-PSK-ST3

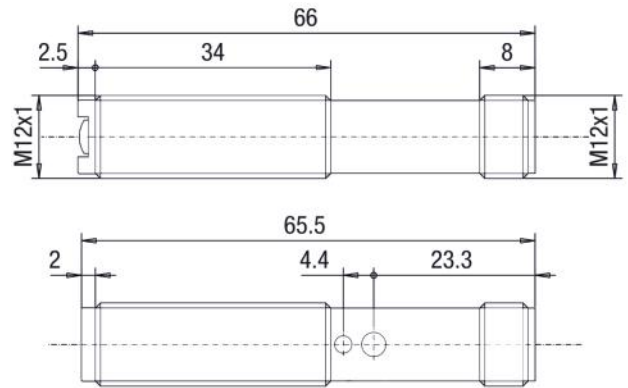
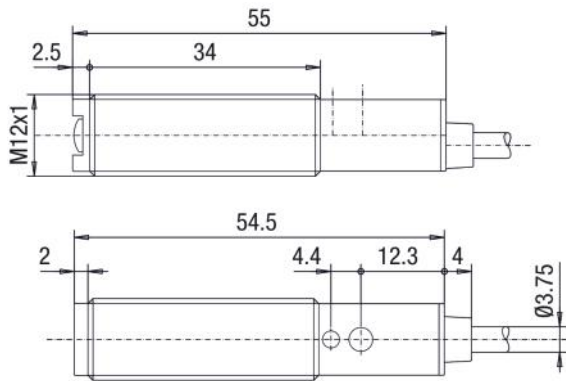
| ORV-8-NSK-ST3



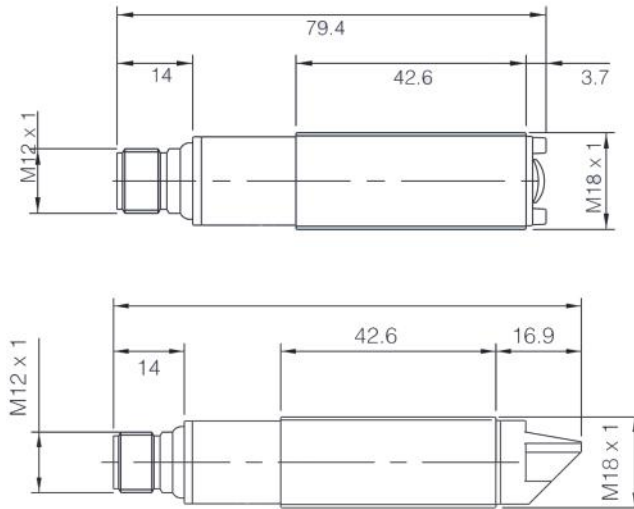
Schaltabstand <i>sensing range</i>	2 m
Hintergrundaussblendung <i>background suppress.</i>	-
Sendelicht <i>emitted light</i>	infrarot <i>infrared</i>
Betriebsspannung <i>service-voltage</i>	10 - 30 VDC
Gehäusematerial <i>casing material</i>	Edelstahl <i>stainless steel</i>
Schalthyserese <i>switching hysteresis</i>	< 10x %
Reproduzierbarkeit <i>reproducibility</i>	1 %
Eigenstromaufnahme <i>intern. power consumpt.</i>	< 35 mA
Spannungsabfall <i>voltage drop</i>	< 2,5 V
Umgebungstemperatur <i>ambient temperature</i>	- 25°C ... + 50°C
Fremdlichtfestigkeit <i>ambient light immunity</i>	5 klx
Schutzart <i>protection class</i>	IP 67
Schaltfrequenz <i>max. operating frequency</i>	1000 Hz
max. Laststrom <i>max. load current</i>	100mA

Ausgang* *output - Anschluss *connection***

	Einweg-Lichtschranke <i>trough-beam sensor</i>
PNP-NO - Stecker M8 <i>connector M8</i>	OEV/OSV-8-PSKI-ST3
NPN-NO - Stecker M8 <i>connector M8</i>	OEV/OSV-8-NSKI-ST3
PNP-NO - Stecker M12 <i>connector M12</i>	



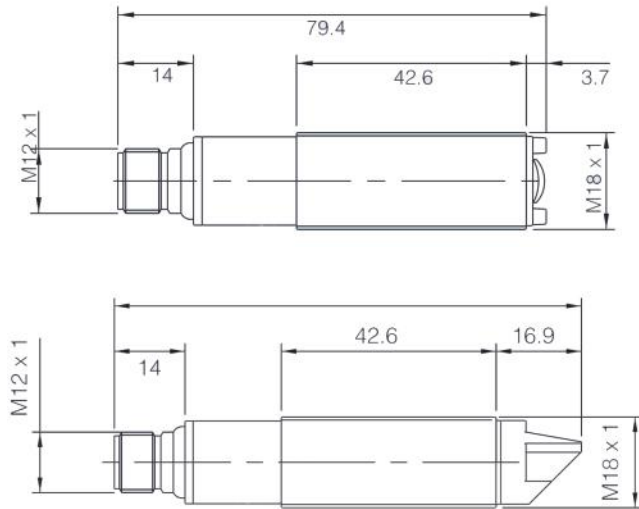
100 mm	300 mm	2 m	4 m
ja <i>yes</i>	-		
infrarot <i>infrared</i>		rotlicht <i>red-light</i>	infrarot <i>infrared</i>
10 - 30 VDC (±10%)			
Edelstahl <i>stainless steel</i>			
< 15 %			
< 1 %			
< 15 mA			
< 1,5 V			
- 10°C ... + 45°C			
5 klx			
IP 67			
400 Hz			250 Hz
100 mA / kurzschlußfest <i>short-circuit-proof</i>			
Reflexions-Lichttaster <i>diffuse-reflective sensor</i>		Reflexions-Lichtschanke <i>retro-reflective sensor</i>	Einweg-Lichtschanke <i>trough-beam sensor</i>
OTH-12-PUKI-ST4	OTV-12-PUKI-ST4	ORV-12-PUK-ST4	OEV/OSV-12-PUKI-ST4



Schaltabstand <i>sensing range (radial optic)</i>	35 - 300mm (100mm)	4m (2,5m)	20m (15m)
Hintergrundaussblendung <i>background supress.</i>	ja <i>yes</i>	-	
Sendelicht <i>emitted light</i>	rotlicht <i>redlight</i>		
Betriebsspannung <i>service-voltage</i>	10 - 30 VDC		
Gehäusematerial <i>casing material</i>	Edelstahl <i>stainless steel</i>		
Schalthyserese <i>switching hysteresis</i>	< 10x %		
Reproduzierbarkeit <i>reproducibility</i>	1 %		
Eigenstromaufnahme <i>intern. power consumpt.</i>	< 35 mA		
Spannungsabfall <i>voltage drop</i>	< 2,5 V		
Umgebungstemperatur <i>ambient temperature</i>	- 25°C ... + 50°C		
Fremdlichtfestigkeit <i>ambient light immunity</i>	5 klx		
Schutzart <i>protection class</i>	IP 67		
Schaltfrequenz <i>max. operating frequency</i>	1000 Hz		
max. Laststrom <i>max. load current</i>	100mA		

Ausgang* <i>output*</i> - Anschluss <i>connection</i>	Reflexions-Lichttaster <i>diffuse-reflective sensor</i>	Reflexions-Lichtschranke <i>retro-reflective sensor</i>	Einweg-Lichtschranke <i>trough-beam sensor</i>
PNP-NO+NC - Stecker M12 <i>connector M12</i>	OTH-18-PAK-ST4	ORV-18-PAK-ST4	OEV/OSV-18-PAK-ST4
Radiale Optik			
PNP-NO+NC - Stecker M12 <i>connector M12</i>	OTHR-18-PAK-ST4	ORVR-18-PAK-ST4	OEVR/OSVR-18-PAK-ST4

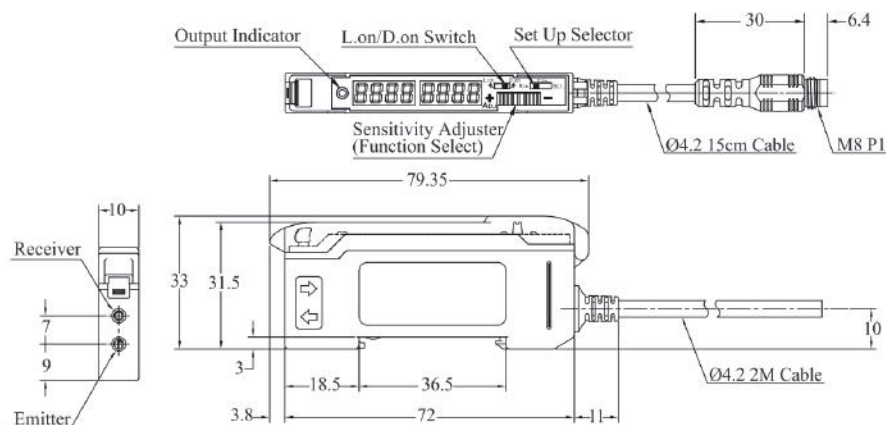
M 18



20 - 300 (200) mm	20 m	50 m
ja <i>yes</i>	-	
laser		
10 - 30 VDC (±10%)		
Messing <i>nicked plating brass</i>		
< 15 %		
< 1 %		
< 15 mA		
< 1,5 V		
- 10°C ... + 45°C		
5 klx		
IP 67		
400 Hz		250 Hz
100 mA / kurzschlußfest <i>short-circuit-proof</i>		

Reflexions-Lichttaster <i>diffuse-reflective sensor</i>	Reflexions-Lichtschanke <i>retro-reflective sensor</i>	Einweg-Lichtschanke <i>trough-beam sensor</i>
OTHL-18-PAK-ST4	ORVL-18-PAK-ST4	OEVL/OSVL-18-PAK-ST4
OTHLR-18-PAK-ST4	ORVLR-18-PAK-ST4	OEVL/OSVLR-18-PAK-ST4

LKV



Reichweite Taster/Einweg sensing range 80 mm / 250 mm

Sendelicht *emitted light* rötlich *redlight*

Betriebsspannung *service-voltage* 12 - 24 VDC

Gehäusematerial *casing material* ABS

Schalthysterese *switching hysteresis* < 10 %

Reproduzierbarkeit *reproducibility* 1 %

Eigenstromaufnahme *intern. power consumpt.* < 35 mA

Spannungsabfall *voltage drop* < 2,5 V

Umgebungstemperatur *ambient temperature* - 10°C ... + 50°C

Fremdlichtfestigkeit *ambient light immunity* 5 klx

Schutzart *protection class* IP 50

Schaltfrequenz *max. operating frequency* 400 Hz

max. Laststrom *max. load current* 100mA

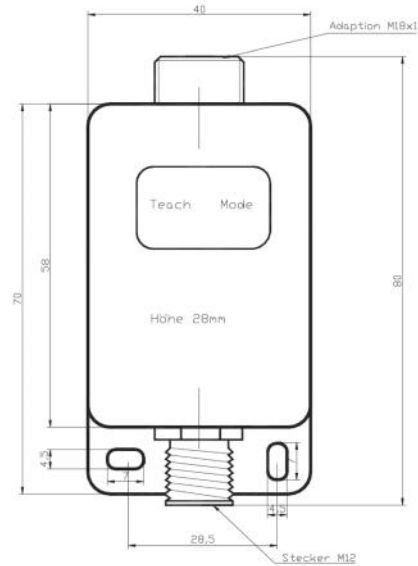
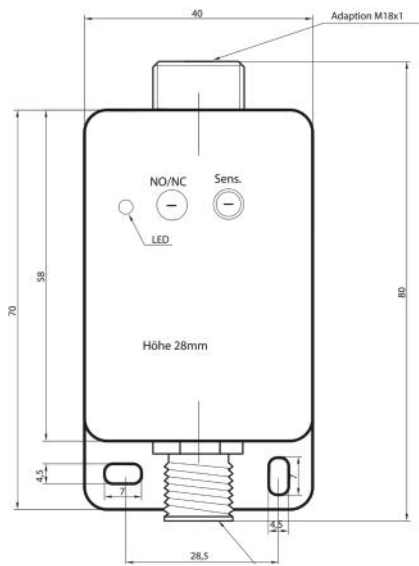
Ausgang* *output** - Anschluss *connection*

PNP-NO - Kabelstecker M8 *pigtail M8* LKV-80-PUK-KST3-4

PNP-NO - Kabel 2m *cable 2m* LKV-80-PUK-2m

PNP-NO/NC - Stecker M12 *connector M12*

OLK



150 mm / 1200 mm abhängig vom Lichtleiter *dependent on optic cable*

infrarot *infrared*

10 - 30 VDC ($\pm 10\%$)

Aluminium

< 15 %

< 1 %

< 15 mA

< 1,5 V

- 10°C ... + 45°C

70 klx

IP 67

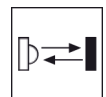
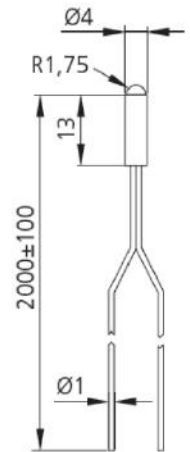
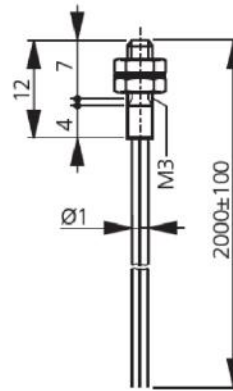
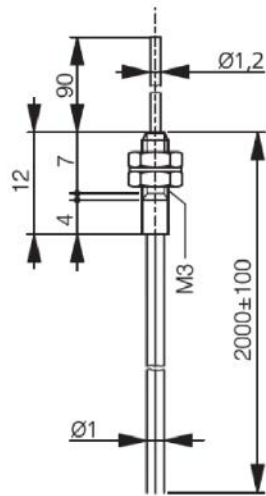
1000 Hz

100 mA / kurzschlußfest *short-circuit-proof*

OLK-40-PUKI-ST4

I OLKT-40-PUKI-ST4

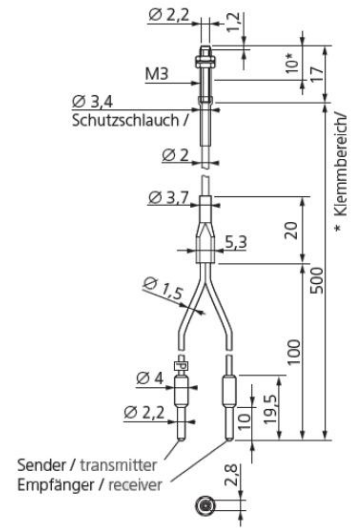
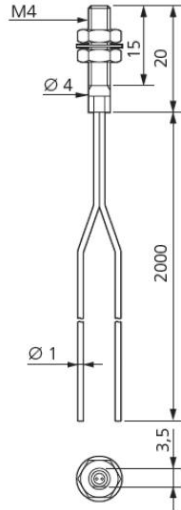
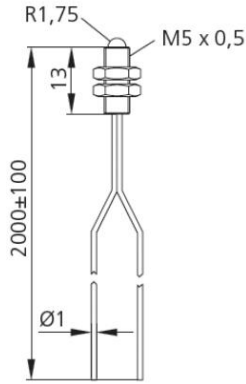
KLLK



Reichweite Taster/Einweg <i>sensing range</i>	70 mm	70 mm	140mm
Lichtleiter <i>fibre optics</i>	Ø 1 mm		
Lichtfaser <i>single fibre</i>	Ø 0,5 mm		
Öffnungswinkel <i>angle of beam</i>	56°		
Schutzart <i>protection class</i>	IP 67		
Biegeradius <i>bending radius</i>	≥15 mm		
Biegeradius Tastkopf <i>bending radius of probe</i>	-		
Material Tastkopf <i>material sensor probe</i>	-		
Material Gewindehülse <i>material thread sleeves</i>	Messing vernickelt <i>brass nickel plated</i>		
Material Faser <i>material fibre</i>	PMMA		
Material Ummantelung <i>material jacket</i>	PE		
Länge Lichtleiter <i>length fibre optic cable</i>	2000 mm		
Vorsatzoptik <i>auxiliary optic</i>	-		
Umgebungstemperatur <i>ambient temperature</i>	-25°C ... + 70°C		

Type <i>type</i>	KLLKT 2000 K-M3-0.5	KLLKT 2000 KB-M3-0.5	KLLKT 2000 K-4-Z8
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KLLK



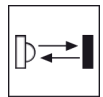
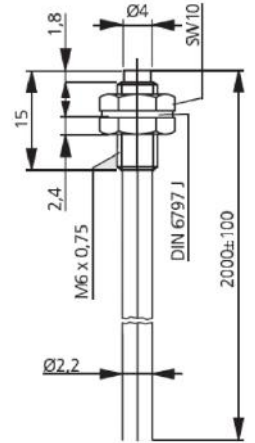
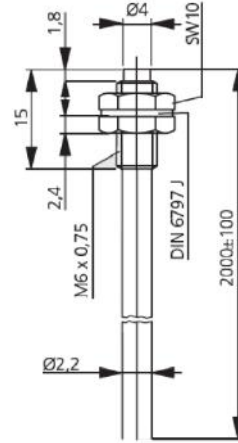
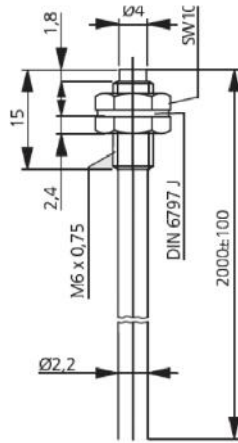
140 mm	80 mm	9 mm /13 mm (V0-M3)
Ø 1 mm		Ø 2,2 mm
Ø 0,5 mm		
56°		
IP 67		
≥15 mm	≥25 mm	
-		
-		
VA	Messing vernickelt <i>brass nickel plated</i>	
PMMA		
PE		
2000 mm		500 mm
-		
-25°C ... + 70°C		

KLLKT 2000 K-M5-Z8

| KLLKT 2000 K-M4-1,0

| KLLKT 500 K-M3-K

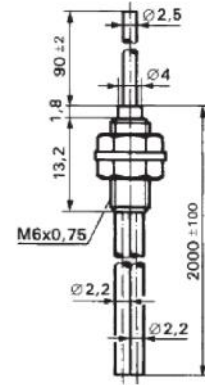
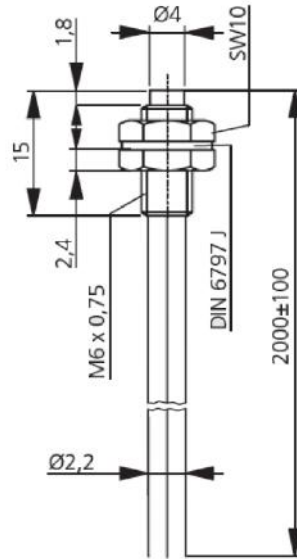
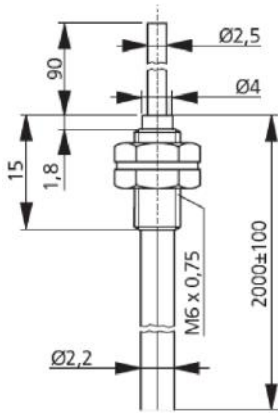
KLLK



Reichweite Taster/Einweg <i>sensing range</i>	200 mm	150 mm	200mm
Lichtleiter <i>fibre optics</i>	Ø 2,2 mm		
Lichtfaser <i>single fibre</i>	Ø 1 mm		
Öffnungswinkel <i>angle of beam</i>	56°		
Schutzart <i>protection class</i>	IP 67		
Biegeradius <i>bending radius</i>	≥25 mm	≥5 mm	≥25 mm
Biegeradius Tastkopf <i>bending radius of probe</i>	-		
Material Tastkopf <i>material sensor probe</i>	-		
Material Gewindehülse <i>material thread sleeves</i>	VA	Messing vernickelt <i>brass nickel plated</i>	
Material Faser <i>material fibre</i>	PMMA		
Material Ummantelung <i>material jacket</i>	PE		
Länge Lichtleiter <i>length fibre optic cable</i>	2000 mm		
Vorsatzoptik <i>auxiliary optic</i>	-		
Umgebungstemperatur <i>ambient temperature</i>	-25°C ... + 70°C		

Type <i>type</i>	KLLKT 2000 K-M6-1,0	KLLKT 2000 KF-M6-1,0	KLLKT 2000 M6x16-1,0
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KLLK



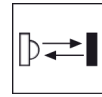
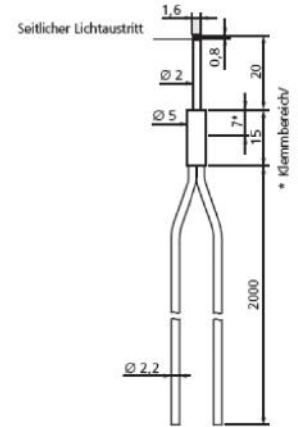
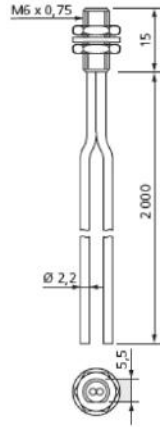
200 mm	150 mm	200 mm
Ø 2,2 mm		
Ø 1 mm		
56°		58°
IP 67		
≥5 mm	≥25 mm	≥25 mm
≥25 mm	-	≥25 mm
VA	-	VA
Messing vernickelt <i>brass nickel plated</i>		
PMMA		
PE		
2000 mm		
-		
-25°C ... + 70°C		

KLLKT 2000 KBF-M6-1,0

| KLLKT 2000 KH-M6-1,0

| KLLK 500 KB-2,5-1,5

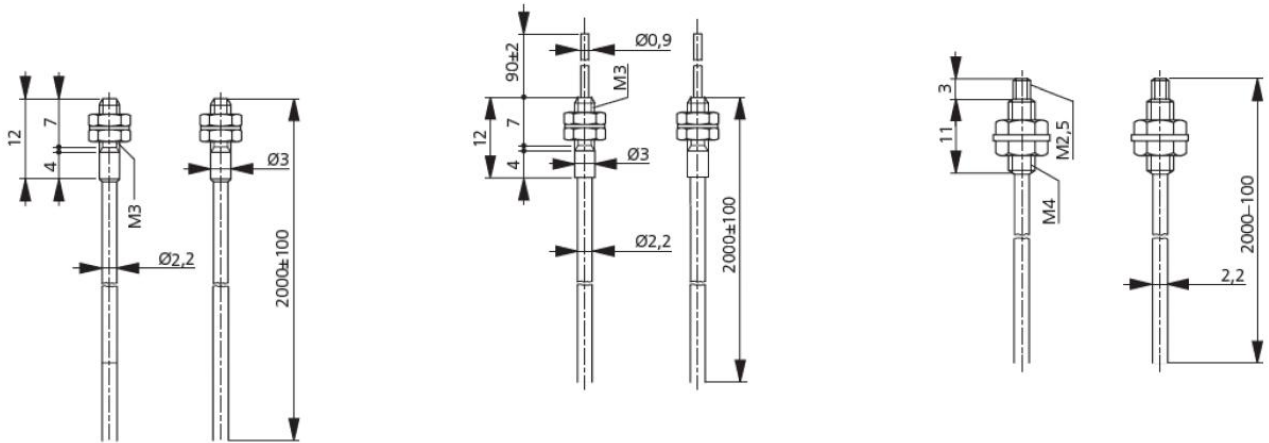
KLLK



Reichweite Taster/Einweg <i>sensing range</i>	250 mm	50 mm
Lichtleiter <i>fibre optics</i>	Ø 2,2 mm	
Lichtfaser <i>single fibre</i>	Ø 1 mm	0,8 mm
Öffnungswinkel <i>angle of beam</i>	56°	58°
Schutzart <i>protection class</i>	IP 67	
Biegeradius <i>bending radius</i>	≥25 mm	
Biegeradius Tastkopf <i>bending radius of probe</i>	-	
Material Tastkopf <i>material sensor probe</i>	-	VA
Material Gewindehülse <i>material thread sleeves</i>	Messing vernickelt <i>brass nickel plated</i>	VA
Material Faser <i>material fibre</i>	PMMA	
Material Ummantelung <i>material jacket</i>	PE	
Länge Lichtleiter <i>length fibre optic cable</i>	2000 mm	
Vorsatzoptik <i>auxiliary optic</i>	-	
Umgebungstemperatur <i>ambient temperature</i>	-25°C ... + 70°C	

Type <i>type</i>	KLLKT 2000 K-M6-1,5	KLLKT 2000 KR-5,0-2,0
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KLLK



200 mm

Ø 2,2 mm

Ø 0,5 mm

56°

IP 67

≥5 mm

≥25 mm

VA

Messing vernickelt *brass nickel plated*

PMMA

PE

2000 mm

-

-25°C ... + 70°C

| 150 mm

| ≥25 mm

| -

| -

| -

| -

| -

| -

| -

| -

| 200 mm

| Ø 1 mm

| 58°

| ≥25 mm

| ≥25 mm

| VA

| VA

| VA

| VA

| VA

| VA

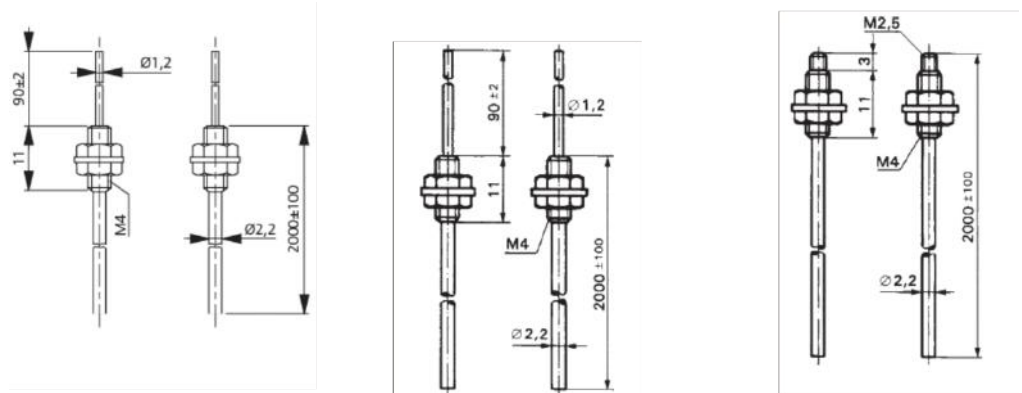
| VOM-2,5 / VOM-2,5-90°

KLLKE 2000 K-M3-1,0

| KLLKE 2000 KB-M3-0,5

| KLLKE 2000 KF-M4-M2,5-1,0

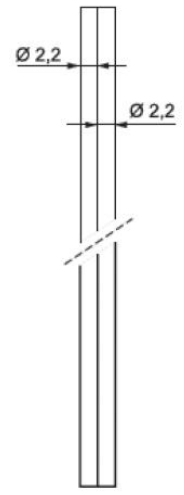
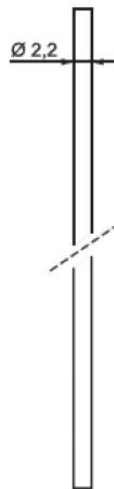
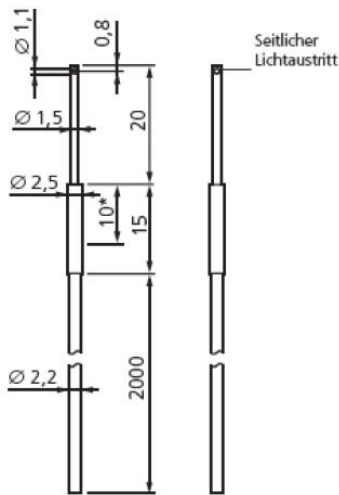
KLLK



Reichweite Taster/Einweg <i>sensing range</i>	250 mm	700 mm
Lichtleiter <i>fibre optics</i>	Ø 2,2 mm	
Lichtfaser <i>single fibre</i>	Ø 1 mm	
Öffnungswinkel <i>angle of beam</i>	56°	58°
Schutzart <i>protection class</i>	IP 67	
Biegeradius <i>bending radius</i>	≥5 mm	≥22 mm
Biegeradius Tastkopf <i>bending radius of probe</i>	≥25 mm	-
Material Tastkopf <i>material sensor probe</i>	VA	-
Material Gewindehülse <i>material thread sleeves</i>	Messing vernickelt <i>brass nickel plated</i>	VA
Material Faser <i>material fibre</i>	PMMA	
Material Ummantelung <i>material jacket</i>	PE	
Länge Lichtleiter <i>length fibre optic cable</i>	2000 mm	
Vorsatzoptik <i>auxiliary optic</i>	-	VOM-2,5 / VOM-2,5-90°
Umgebungstemperatur <i>ambient temperature</i>	-25°C ... + 70°C	

Type <i>type</i>	KLLKE 2000 KBF-M4-1,0	KLLK 250 KB-1,2-1,0	KLLK 250 K-M4-M2,5-1,0
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KLLK



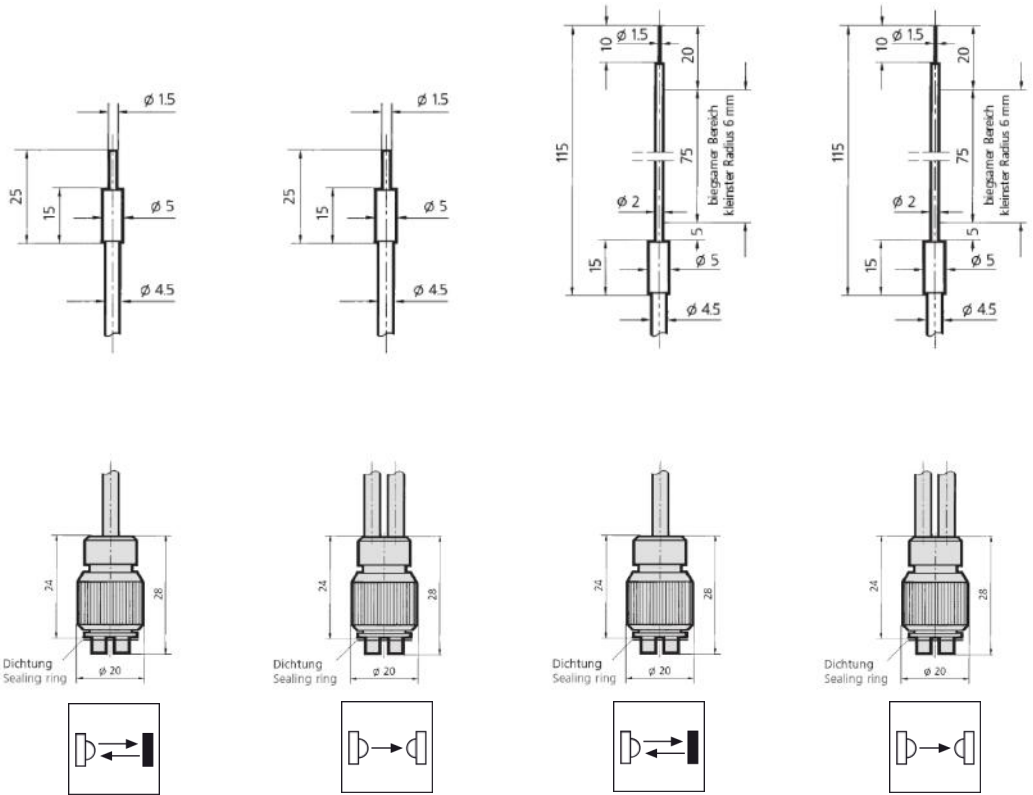
400 mm	-
Ø 2,2 mm	
Ø 1 mm	
58°	-
IP 67	
≥25 mm	
-	
VA	-
VA	-
PMMA	
PE	
2000 mm	wählbar <i>selectable</i>
-	
-25°C ... + 70°C	

KLLKE 2000 KR-2,5-1,5

| KLLK-1

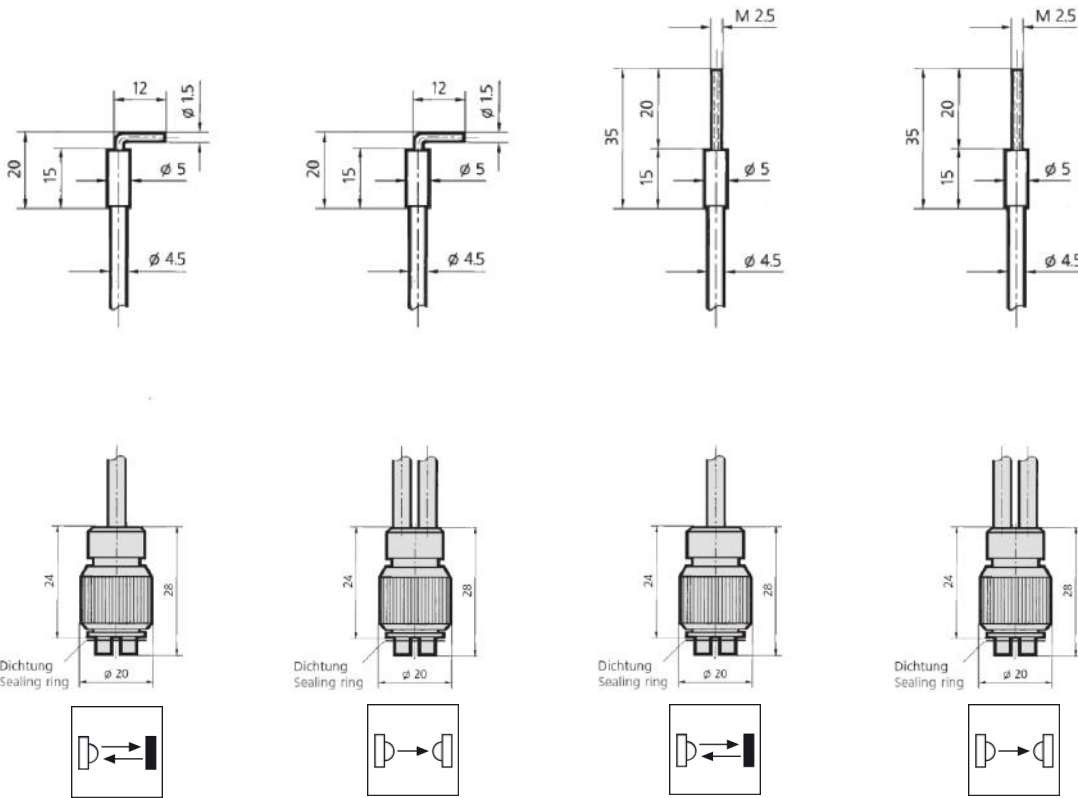
| KLLK-2

LLK



Reichweite <i>sensing range</i>	20 mm	150 mm	20 mm	150 mm
Lichtfaser <i>single fibre</i>	Ø 1,5 mm		Ø 2,5 mm	
Ummantelung / Länge <i>jacket / length</i>				
Silikon / 300 mm	LLK-1030S-1,5-1,0	LLK-2030S-1,5-1,0	LLK-1030SB-2,0-1,0	LLK-2030SB-2,0-1,0
Silikon / 600 mm	LLK-1060S-1,5-1,0	LLK-2060S-1,5-1,0	LLK-1060SB-2,0-1,0	LLK-2060SB-2,0-1,0
Silikon / 1000 mm	LLK-1100S-1,5-1,0	LLK-2100S-1,5-1,0	LLK-1100SB-2,0-1,0	LLK-2100SB-2,0-1,0
Metall / 300 mm	LLK-1030M-1,5-1,0	LLK-2030M-1,5-1,0	LLK-1030MB-2,0-1,0	LLK-2030MB-2,0-1,0
Metall / 600 mm	LLK-1060M-1,5-1,0	LLK-2060M-1,5-1,0	LLK-1060MB-2,0-1,0	LLK-2060MB-2,0-1,0
Metall / 1000 mm	LLK-1100M-1,5-1,0	LLK-2100M-1,5-1,0	LLK-1100MB-2,0-1,0	LLK-2100MB-2,0-1,0

LLK

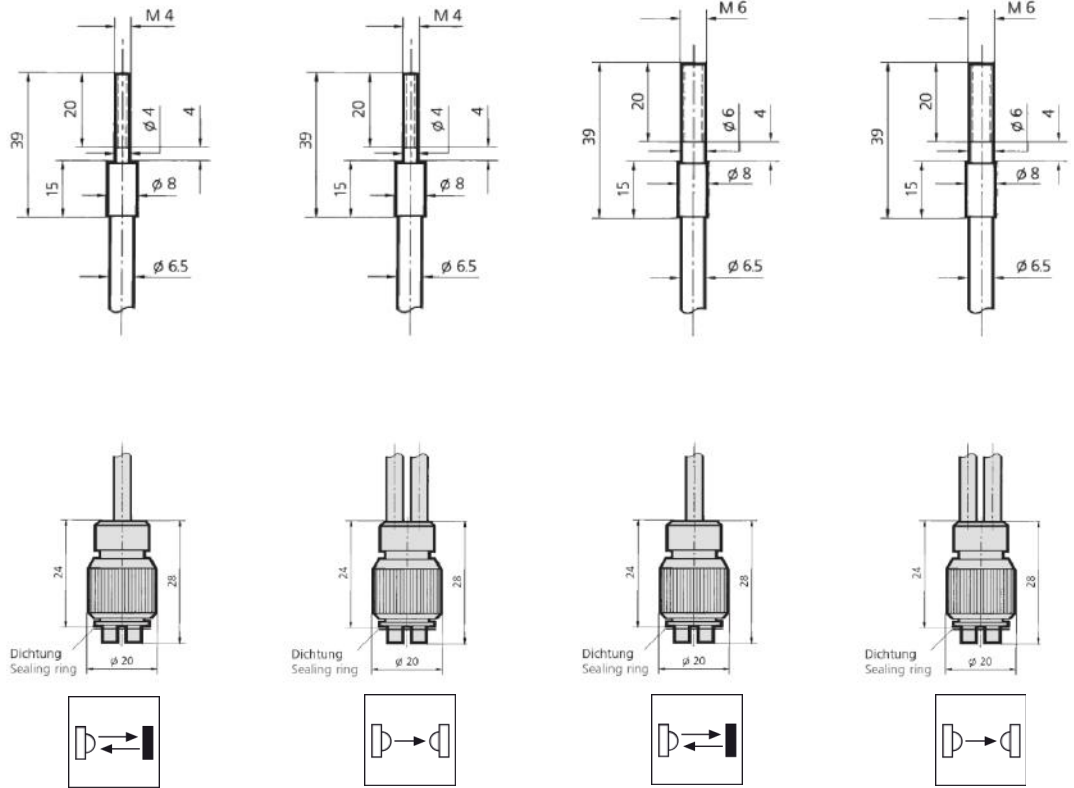


20 mm	150 mm	150 mm	200 mm
Ø 1,0 mm		Ø 1,5 mm	

LLK-1030S-90-1,5-1,0	LLK-2030S-90-1,5-1,0	LLK-1030S-M2,5-1,5	LLK-2030S-M2,5-1,5
LLK-1060S-90-1,5-1,0	LLK-2060S-90-1,5-1,0	LLK-1060S-M2,5-1,5	LLK-2060S-M2,5-1,5
LLK-1100S-90-1,5-1,0	LLK-2100S-90-1,5-1,0	LLK-1100S-M2,5-1,5	LLK-2100S-M2,5-1,5

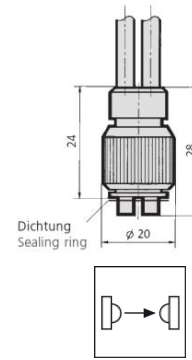
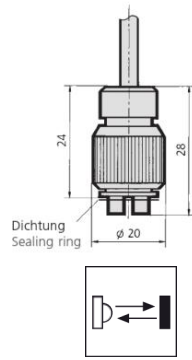
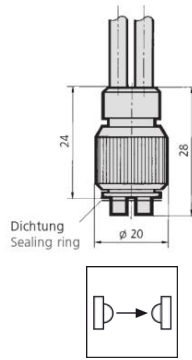
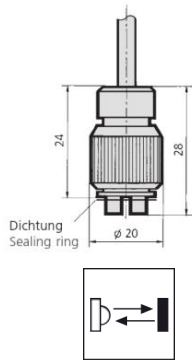
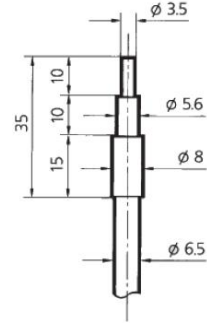
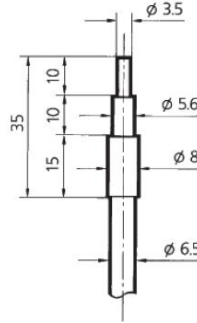
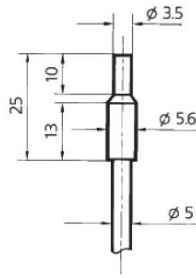
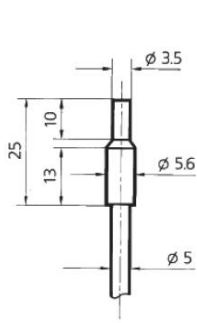
LLK-1030M-90-1,5-1,0	LLK-2030M-90-1,5-1,0	LLK-1030M-M2,5-1,5	LLK-2030M-M2,5-1,5
LLK-1060M-90-1,5-1,0	LLK-2060M-90-1,5-1,0	LLK-1060M-M2,5-1,5	LLK-2060M-M2,5-1,5
LLK-1100M-90-1,5-1,0	LLK-2100M-90-1,5-1,0	LLK-1100M-M2,5-1,5	LLK-2100M-M2,5-1,5

LLK



Reichweite <i>sensing range</i>	80 mm	800 mm	80 mm	800 mm
Lichtfaser <i>single fibre</i>	Ø 2,5 mm			
Ummantelung / Länge <i>jacket / length</i>				
Silikon / 300 mm	LLK-1030SM4-2,5	LLK-2030SM4-2,5	LLK-1030S-M6-2,5	LLK-2030S-M6-2,5
Silikon / 600 mm	LLK-1060SM4-2,5	LLK-2060SM4-2,5	LLK-1060S-M6-2,5	LLK-2060S-M6-2,5
Silikon / 1000 mm	LLK-1100SM4-2,5	LLK-2100SM4-2,5	LLK-1100S-M6-2,5	LLK-2100S-M6-2,5
Metall / 300 mm	LLK-1030MM4-2,5	LLK-2030MM4-2,5	LLK-1030M-M6-2,5	LLK-2030M-M6-2,5
Metall / 600 mm	LLK-1060MM4-2,5	LLK-2060MM4-2,5	LLK-1060M-M6-2,5	LLK-2060M-M6-2,5
Metall / 1000 mm	LLK-1100MM4-2,5	LLK-2100MM4-2,5	LLK-1100M-M6-2,5	LLK-2100M-M6-2,5

LLK



80 mm
Ø 2,5 mm

| 800 mm

| 80 mm

| 800 mm

LLK-1030S-5,6-2,5

| LLK-2030S-5,6-2,5

| LLK-1030S-8,0-2,5

| LLK-2030S-8,0-2,5

LLK-1060S-5,6-2,5

| LLK-2060S-5,6-2,5

| LLK-1060S-8,0-2,5

| LLK-2060S-8,0-2,5

LLK-1100S-5,6-2,5

| LLK-2100S-5,6-2,5

| LLK-1100S-8,0-2,5

| LLK-2100S-8,0-2,5

LLK-1030M-5,6-2,5

| LLK-2030M-5,6-2,5

| LLK-1030M-8,0-2,5

| LLK-2030M-8,0-2,5

LLK-1060M-5,6-2,5

| LLK-2060M-5,6-2,5

| LLK-1060M-8,0-2,5

| LLK-2060M-8,0-2,5

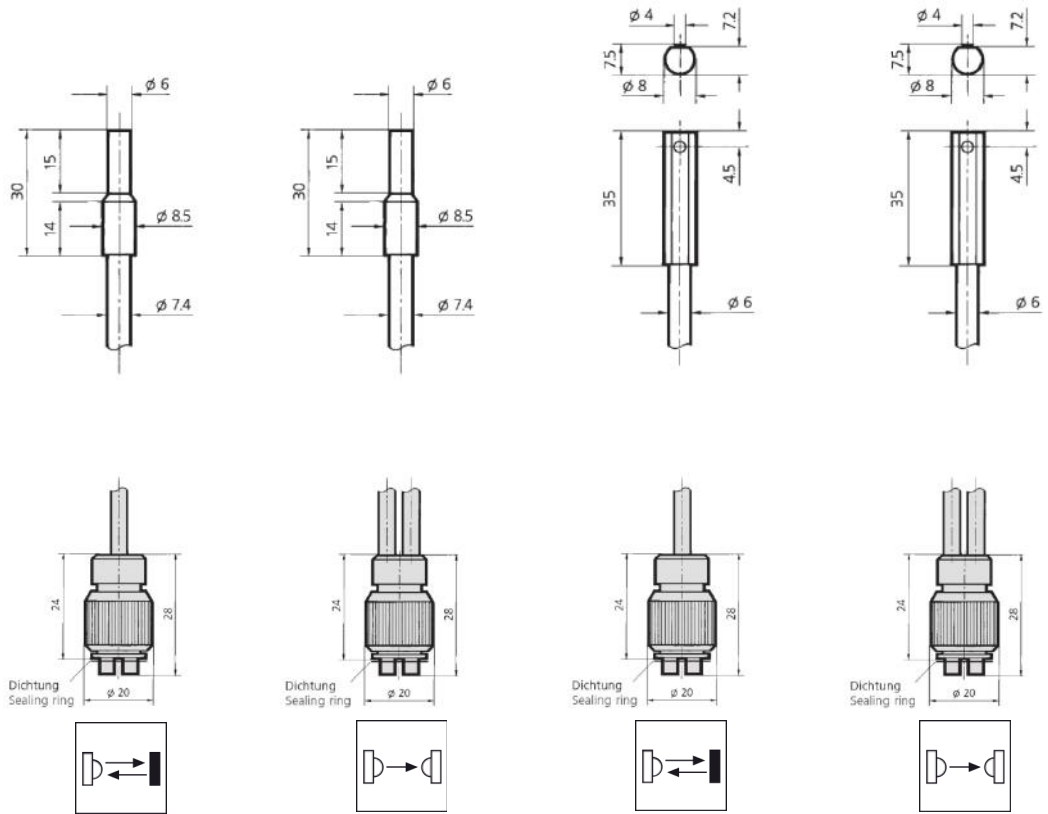
LLK-1100M-5,6-2,5

| LLK-2100M-5,6-2,5

| LLK-1100M-8,0-2,5

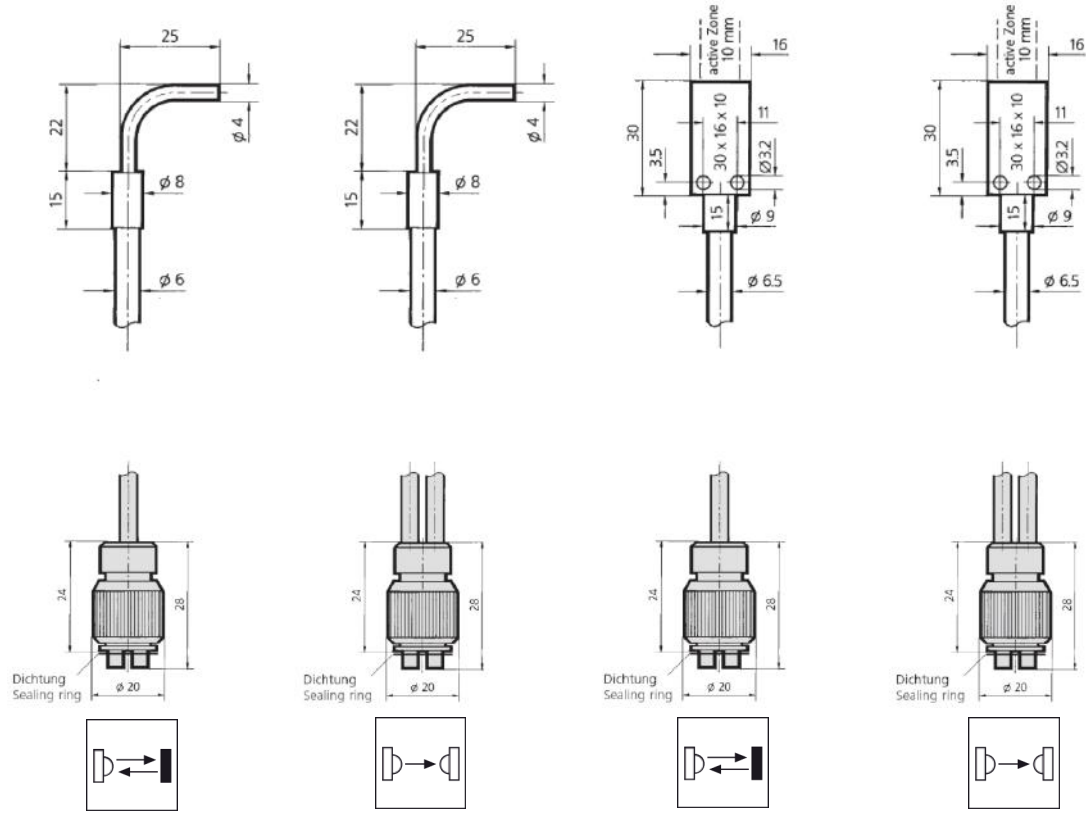
| LLK-2100M-8,0-2,5

LLK



Reichweite <i>sensing range</i>	120 mm	1000 mm	70 mm	700 mm
Lichtfaser <i>single fibre</i>	Ø 4 mm		Ø 2,5 mm	
Ummantelung / Länge <i>jacket / length</i>				
Silikon / 300 mm	LLK-1030S-8,5-4,0	LLK-2030S-8,5-4,0	LLK-1030SR-90-4,0-2,5	LLK-2030SR-90-4,0-2,5
Silikon / 600 mm	LLK-1060S-8,5-4,0	LLK-2060S-8,5-4,0	LLK-1060SR-90-4,0-2,5	LLK-2060SR-90-4,0-2,5
Silikon / 1000 mm	LLK-1100S-8,5-4,0	LLK-2100S-8,5-4,0	LLK-1100SR-90-4,0-2,5	LLK-2100SR-90-4,0-2,5
Metall / 300 mm	LLK-1030M-8,5-4,0	LLK-2030M-8,5-4,0	LLK-1030MR-90-4,0-2,5	LLK-2030MR-90-4,0-2,5
Metall / 600 mm	LLK-1060M-8,5-4,0	LLK-2060M-8,5-4,0	LLK-1060MR-90-4,0-2,5	LLK-2060MR-90-4,0-2,5
Metall / 1000 mm	LLK-1100M-8,5-4,0	LLK-2100M-8,5-4,0	LLK-1100MR-90-4,0-2,5	LLK-2100MR-90-4,0-2,5

LLK

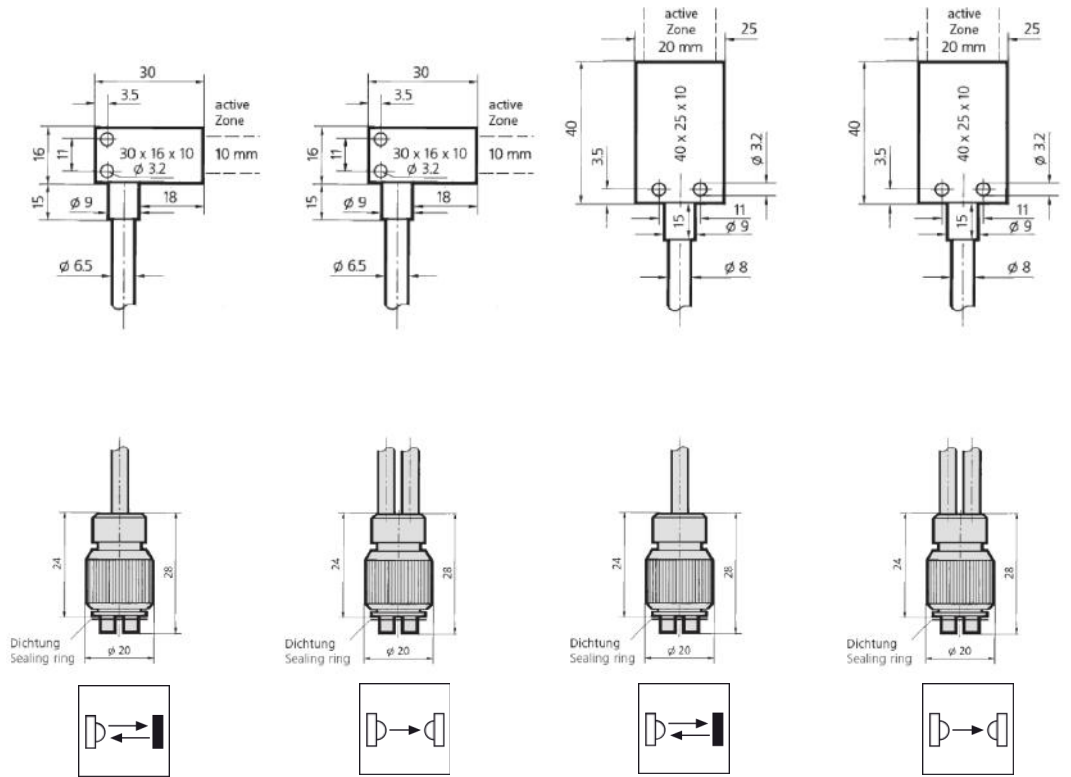


100 mm	1600 mm	120 mm	1200 mm
Ø 2,5 mm		10 x 0,6 mm	

LLK-1030S-90-4,0-2,5	LLK-2030S-90-4,0-2,5	LLK-1030SQ-10-0,6	LLK-2030SQ-10-0,3
LLK-1060S-90-4,0-2,5	LLK-2060S-90-4,0-2,5	LLK-1060SQ-10-0,6	LLK-2060SQ-10-0,3
LLK-1100S-90-4,0-2,5	LLK-2100S-90-4,0-2,5	LLK-1100SQ-10-0,6	LLK-2100SQ-10-0,3

LLK-1030M-90-4,0-2,5	LLK-2030M-90-4,0-2,5	LLK-1030MQ-10-0,6	LLK-2030MQ-10-0,3
LLK-1030M-90-4,0-2,5	LLK-2030M-90-4,0-2,5	LLK-1030MQ-10-0,6	LLK-2030MQ-10-0,3
LLK-1100M-90-4,0-2,5	LLK-2100M-90-4,0-2,5	LLK-1100MQ-10-0,6	LLK-2100MQ-10-0,3

LLK

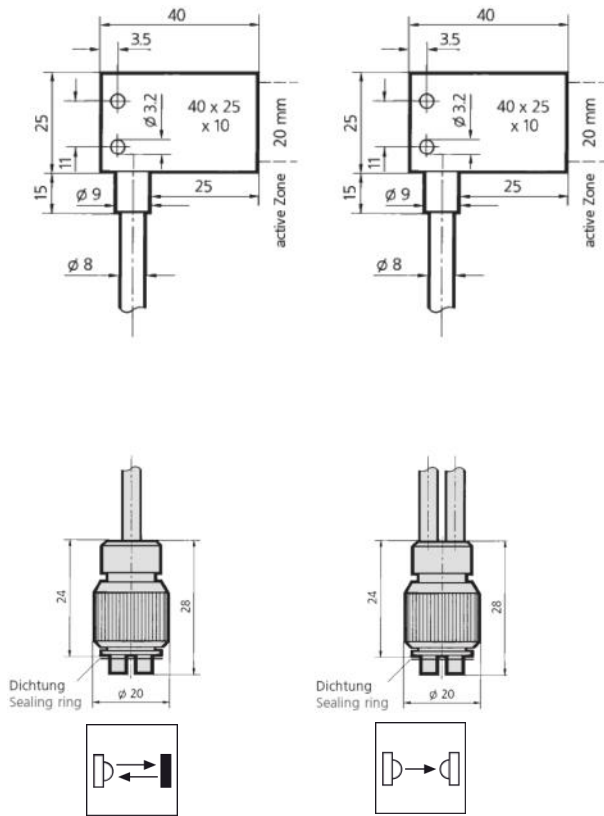


Reichweite <i>sensing range</i>	120 mm	1200 mm	130 mm	1600 mm
Lichtfaser <i>single fibre</i>	10 x 0,6 mm	10 x 0,3 mm	20 x 0,6 mm	20 x 0,3 mm

Ummantelung / Länge *jacket / length*

Silikon / 300 mm	LLK-1030SQ-90-10-0,6	LLK-2030SQ-90-10-0,3	LLK-1030SQ-20-0,6	LLK-2030SQ-20-0,3
Silikon / 600 mm	LLK-1060SQ-90-10-0,6	LLK-2060SQ-90-10-0,3	LLK-1060SQ-20-0,6	LLK-2060SQ-20-0,3
Silikon / 1000 mm	LLK-1100SQ-90-10-0,6	LLK-2100SQ-90-10-0,3	LLK-1100SQ-20-0,6	LLK-2100SQ-20-0,3
Metall / 300 mm	LLK-1030MQ-90-10-0,6	LLK-2030MQ-90-10-0,3	LLK-1030MQ-20-0,6	LLK-2030MQ-20-0,3
Metall / 600 mm	LLK-1060MQ-90-10-0,6	LLK-2060MQ-90-10-0,3	LLK-1060MQ-20-0,6	LLK-2060MQ-20-0,3
Metall / 1000 mm	LLK-1100MQ-90-10-0,6	LLK-2100MQ-90-10-0,3	LLK-1100MQ-20-0,6	LLK-2100MQ-20-0,3

LLK

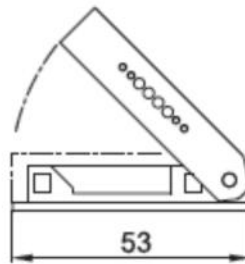


130 mm	1600 mm
20 x 0,6 mm	20 x 0,3 mm

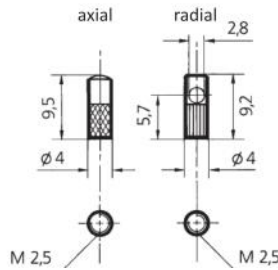
LLK-1030SQ-90-20-0,6	LLK-2030SQ-90-20-0,3
LLK-1060SQ-90-20-0,6	LLK-2060SQ-90-20-0,3
LLK-1100SQ-90-20-0,6	LLK-2100SQ-90-20-0,3

LLK-1030MQ-90-20-0,6	LLK-2030MQ-90-20-0,3
LLK-1060MQ-90-20-0,6	LLK-2060MQ-90-20-0,3
LLK-1100MQ-90-20-0,6	LLK-2100MQ-90-20-0,3

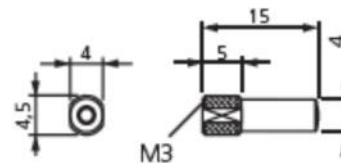
Schneidmesser *cutting tool*
SM-1



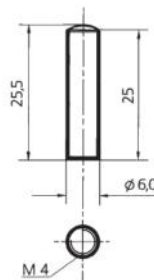
Vorsatzoptik M2,5 *auxiliary optic M2,5*
VOM-2,5
VOM-2,5-90



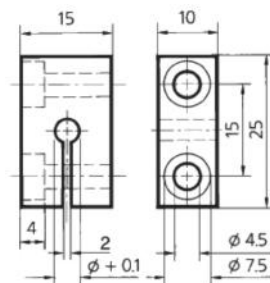
Fokusoptik M3 *focusing optic M3*
VOM-M3



seitl. Lichtaustritt M4 *lateral light emission M4*
VOM-M4



Befestigung von LLK ... *to fix LLK ...*
KB-3,5 (3,5mm)
KB-5 (5,0mm)
KB-5,6 (5,6mm)
KB-6,5 (6,5mm)
KB-8 (8,0mm)
KB-8,5 (8,5mm)





Eickmann Sensoren sind nicht zulässig für Sicherheitsanwendungen, bei denen die Sicherheit von Personen von der Gerätefunktion abhängig ist. Montage und elektrischer Anschluss dürfen nur von Fachpersonal nach geltenden Vorschriften in spannungsfreien Zustand erfolgen. Zur Montage sind Maschinen und Vorrichtungen zu sichern bzw. auszuschalten.

Der Betreiber des übergeordneten Gesamtsystems ist verantwortlich für die Einhaltung der für den speziellen Anwendungsfall geltenden nationalen und internationalen Arbeits-, Sicherheits- und Unfallverhütungsvorschriften wie z.B.

- EN 292 Sicherheit von Maschinen, allgemeine Gestaltungsleitsätze
- EN 60204 Elektrische Ausrüstung von Maschinen
- DIN 57100 Teil 410 Schutz gegen gefährliche Körperströme

Eickmann Sensoren erfüllen sowohl nationale (DIN) wie auch europäische (EN) und internationale (IEC) Normen und werden gemäß DIN ISO 9001 produziert.

Technische Änderungen und Irrtümer vorbehalten!

Eickmann sensors are not to be used for safety applications in which safety of persons depends on proper operation of the instruments .

Only qualified personal may assemble and connect in force of regulations and in voltage-free condition. For assemble the machines and devices have to save and respectively switch off. The operator of the higher ranking complete system is responsible for the compliance by consideration of the national and international operation, safty- and accident regulations and rules of prevention like

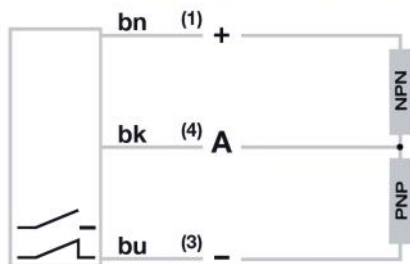
- EN 292 safty of machines, general principles
- EN 60204 electrical equipment of machines
- DIN 57100 part 410 guard against dangerous currents

Eickmann sensors comply national, international and european standards and they are produced under DIN ISO 9001.

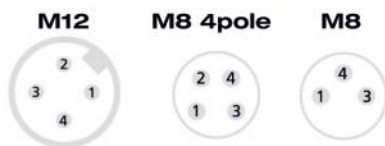
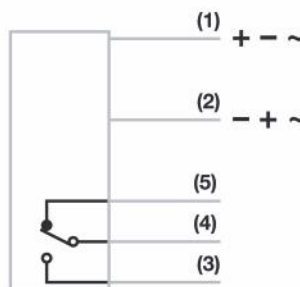
Errors and omissions excepted!

Anschlußschema *diagramm*

PNP/NPN Schließer/Öffner (NO/NC) PNP/NPN closer/opener (NO/NC)



AC / DC Relais Wechsler AC / DC relay two way contact



1 braun / brown	(+)
2 weiß / white	(NC)
3 blau / blue	(-)
4 schwarz / black	(NO)

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