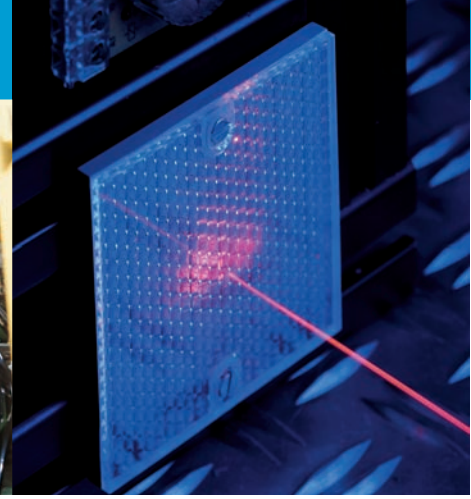


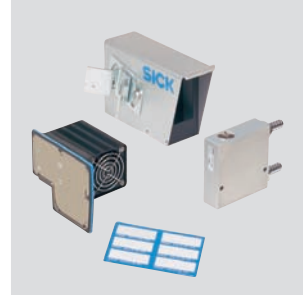
Accessories



An extensive range of practical sensor accessories completes the SENSICK program:

- To facilitate electrical and mechanical installation,
- to finely adapt sensors to their intended application,
- to assist in aligning the sensors,
- to protect the sensors against moisture, dust, heat and cold,
- to enable specified supply voltages to be connected,
- to process output signals and to convert them into logic operations,
- to integrate sensors in bus systems.

▼ Special accessories



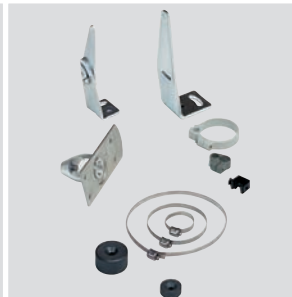
▼ Accessories for encoders



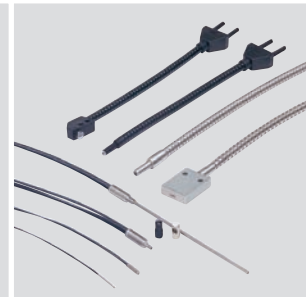
▼ Cables and connectors



▼ Mounting systems



▼ Reflectors



▲ Fibre-optic cables



▲ Power supply units



▲ AS-i Components



Contents

Accessories

Accessories for encoders	page 1376
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Fibre-optic cables	page 1462
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AS-i Components	page 1516

Accessories →

Dimensional drawings and order information

Screw-in system M12, 5-pin for ATM 60 DeviceNet

Cable connector M12 female, 5-pin, straight, screened

Type	Order no.	Contacts
DOS-1205-G	6 027 534	5

Cable connector M12 male, 5-pin, straight, screened

Type	Order no.	Contacts
STE-1205-G	6 027 533	5

Screw-in system M14 for ATM 90 Profibus

Type	Order no.	Explanation
DSC-1507-G	2 029 199	Cable connector male/female, Set 2 x male, 1 x female, M14, 7-pin, straight (screened)
STE-1507-G	6 027 535	Cable connector, M14 male, 7-pin, straight (screened)
DOS-1507-G	6 027 536	Cable connector, M14 female, 7-pin, straight (screened)

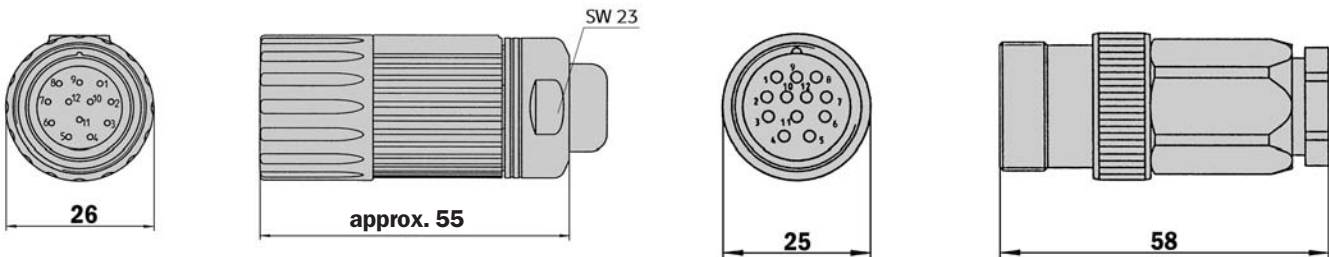
Screw-in system M23, 12-pin for ARS 60, DRS 60, DGS 60, DGS 65, DGS 66, DKV 60, DKS 40, ATM 60, ATM 90, KH 53

Female connector M23, 12-pin, straight, screened

Type	Order no.	Contacts
DOS-2312-G	6 027 538	12

Male connector M23, 12-pin, straight, screened

Type	Order no.	Contacts
STE-2312-G	6 027 537	12



Female connector M23, 12-pin, straight, cable 12-pin, 4 x 2 x 0.25 + 2 x 0.5 + 2 x 0.14 mm² with screening, capable of being dragged cable diameter 7.8 mm for ARS 60

Type	Order no.	Contacts	Cable length
DOL-2312-G1M5MA2	2 029 206	12	1.5 m
DOL-2312-G03MMA2	2 029 207	12	3.0 m
DOL-2312-G05MMA2	2 029 208	12	5.0 m
DOL-2312-G10MMA2	2 029 209	12	10.0 m
DOL-2312-G20MMA2	2 029 210	12	20.0 m
DOL-2312-G30MMA2	2 029 211	12	30.0 m

Screw-in system M23, 12-pin for ATM 60/ATM 90 with SSI interface

Connector M23 female, 12-pin, straight, cable 12 cores, 4 x 2 x 0.25 + 2 x 0.5 + 2 x 0.14 mm² screened, capable of being dragged cable diameter 7.8 mm for ATM 60/ATM 90 with SSI interface and KH 53

Type	Order no.	Contacts	Cable length
DOL-2312-G1M5MA1	2 029 200	12	1.5 m
DOL-2312-G03MMA1	2 029 201	12	3.0 m
DOL-2312-G05MMA1	2 029 202	12	5.0 m
DOL-2312-G10MMA1	2 029 203	12	10.0 m
DOL-2312-G20MMA1	2 029 204	12	20.0 m
DOL-2312-G30MMA1	2 029 205	12	30.0 m

Dimensional drawings and order information

Screw-in system M23, 12-pin

Connector M23 female, 12-pin, straight, cable 12 cores, 4 x 2 x 0.25 + 2 x 0.5 + 2 x 0.14 mm² with screening, capable of being dragged
cable diameter 7.8 mm for DRS 60, DGS 60, DGS 65, DGS 66, DKV 60, DKS 40

Type	Order no.	Contacts	Cable length
DOL-2312-G1M5MA3	2 029 212	12	1.5 m
DOL-2312-G03MMA3	2 029 213	12	3.0 m
DOL-2312-G05MMA3	2 029 214	12	5.0 m
DOL-2312-G10MMA3	2 029 215	12	10.0 m
DOL-2312-G20MMA3	2 029 216	12	20.0 m
DOL-2312-G30MMA3	2 029 217	12	30.0 m

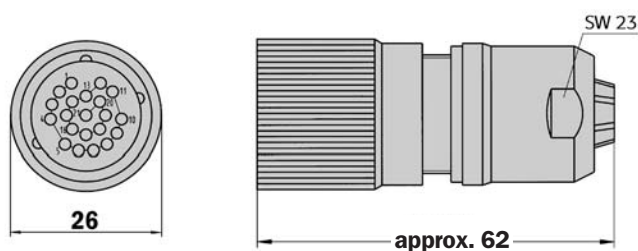
Connector M23 female, 12-pin, straight, cable 11 cores, 4 x 2 x 0.25 + 2 x 0.5 + 1 x 0.14 mm² with screening,
cable diameter 7.8 mm for DKV 60, DKS 40

Type	Order no.	Contacts	Cable length
DOL-2312-G02MLA3	2 030 682	12	2.0 m
DOL-2312-G07MLA3	2 030 685	12	7.0 m
DOL-2312-G10MLA3	2 030 688	12	10.0 m
DOL-2312-G15MLA3	2 030 692	12	15.0 m
DOL-2312-G20MLA3	2 030 695	12	20.0 m
DOL-2312-G25MLA3	2 030 699	12	25.0 m
DOL-2312-G30MLA3	2 030 702	12	30.0 m

Screw-in system M23, 21-pin for ARS 60

Female connector M23, 21-pin, straight, screened, capable of being dragged

Type	Order no.	Contacts
DOS-2321-G	6 027 539	21



Female connector M23, 21-pin, straight, cable 22 core, 20 x 0.14 + 2 x 0.5 mm² with screening, capable of being dragged
cable diameter 7.8 mm for ARS 60

Type	Order no.	Contacts	Cable length
DOL-2321-G1M5PA4	2 029 218	21	1.5 m
DOL-2321-G03MPA4	2 029 219	21	3.0 m
DOL-2321-G05MPA4	2 029 220	21	5.0 m
DOL-2321-G10MPA4	2 029 221	21	10.0 m
DOL-2321-G20MPA4	2 029 222	21	20.0 m

O-ring EPDM (for replacement demand), set (2 pieces)

55.0 x 4.0 mm for DKV 60

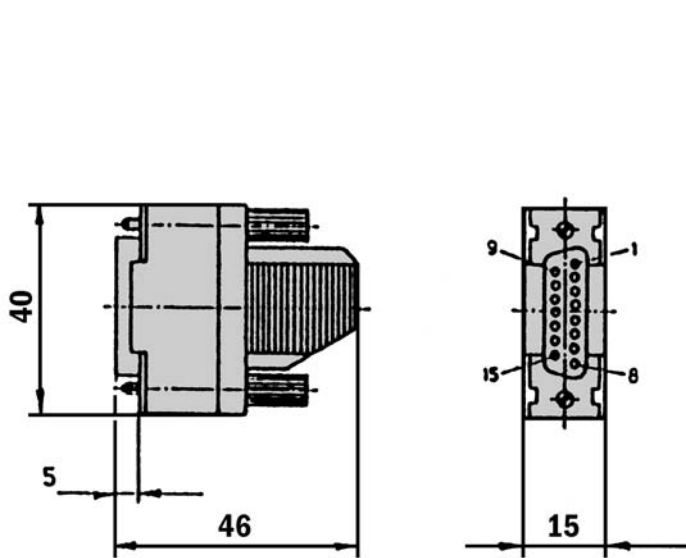
Type	Order no.
O-Ring SET DKV60	6 032 709

Dimensional drawings and order information

Screw-in systems Sub-D for Adaptor modules

Male connector Sub-D, 15-pin, straight, screened for ARS 60, ATM 60, ATM 90, KH 53

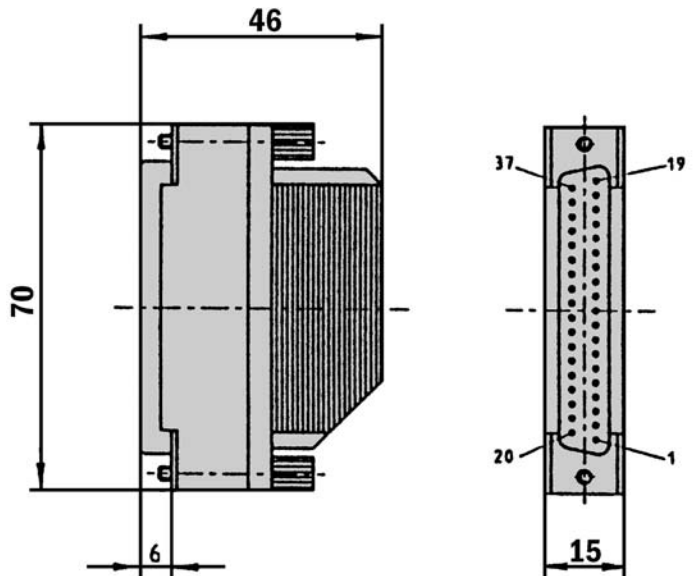
Type	Order no.	Contacts
STE-0D15-G	2 029 223	15



General tolerances according to DIN ISO 2768-mk

Female connector Sub-D, 37-pin, straight, screened for ARS 60, ATM 60, ATM 90, KH 53

Type	Order no.	Contacts
DOS-0D37-G	2 029 224	37



General tolerances according to DIN ISO 2768-mk

Cables, per meter

Cable 8 core, per meter, 4 x 2 x 0.15 mm² with screening, cable diameter 5.6 mm for ARS 60, DRS 60, DGS 60, DGS 65, DGS 66, DKV 60, DKS 40

Type	Order no.	Wires
LTG-2308-MWENC	6 027 529	8

Cable 11 core, per meter, 4 x 2 x 0.25 + 2 x 0.5 + 1 x 0.14 mm² with screening, cable diameter 7.5 mm for ARS 60, DRS 60, DGS 60, DGS 65, DGS 66, DKV 60, DKS 40

Type	Order no.	Wires
LTG-2411-MW	6 027 530	11

Cable 12 core, per meter, 4 x 2 x 0.25 + 2 x 0.5 + 2 x 0.14 mm² with screening, capable of being dragged, cable diameter 7.8 mm for ARS 60, DRS 60, DGS 60, DGS 65, DGS 66, DKV 60, DKS 40, ATM 60, ATM 90, KH 53

Type	Order no.	Wires
LTG-2512-MW	6 027 531	12
LTG-2612-MW*	6 028 516	12

*Resistant to saltwater and uv

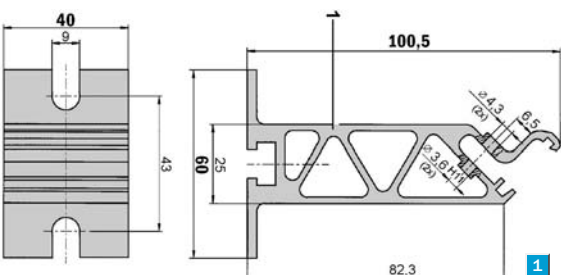
Cable 22 core, per meter, 20 x 0.14 + 2 x 0.5 mm² with screening, cable diameter 7.8 mm for ARS 60

Type	Order no.	Wires
LTG-2622-MW	6 027 532	22

Mounting systems

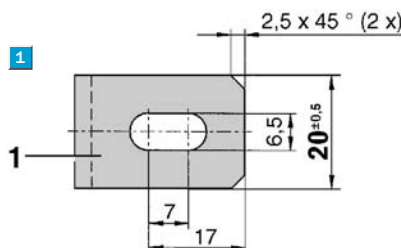
Spacer support, height 100 mm, for KH 53, bored with screws

Type	Order no.
BEF-KHK-KHT53	2 029 158



Fastening clamp for KH 53, screws not included

Type	Order no.
BEF-WK-KHT53	2 029 159



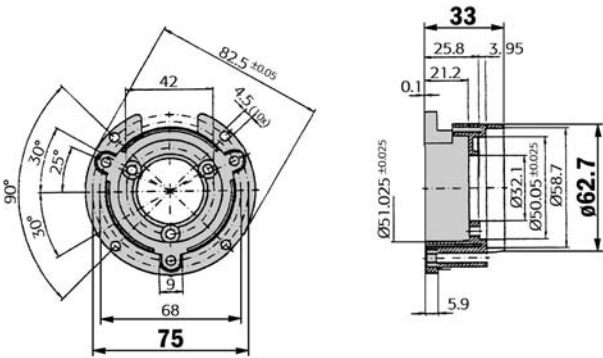
1 General tolerances according to DIN ISO 2768-mk

Dimensional drawings and order information

Mechanical Adaptors

Mounting bell incl. fixing set for encoder with servo flange
for ARS 60, DRS 60, DGS 60, DGS 65, DGS 66, ATM 60

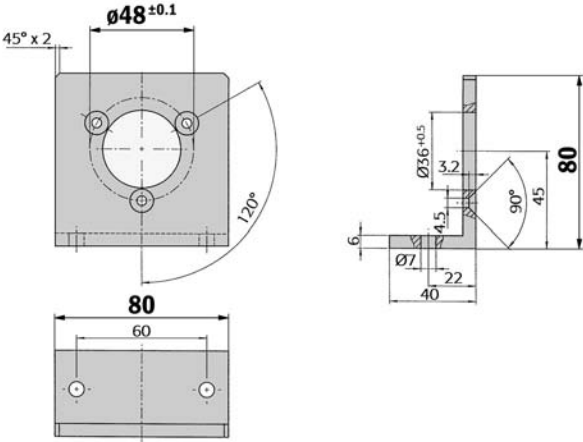
Type	Order no.	Flange spigot
BEF-MG-50	5 312 987	Diameter 50 mm



General tolerances according to DIN ISO 2768-mk

Mounting angle incl. fixing set for encoder with face mount flange
for ARS 60, DRS 60, DGS 60, DGS 65, DGS 66, ATM 60

Type	Order no.	Flange spigot
BEF-WF-36	2 029 164	Diameter 36 mm

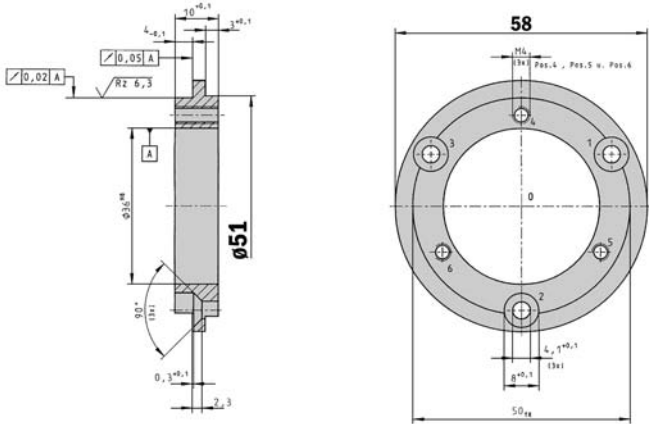


General tolerances according to DIN ISO 2768-mk

Mechanical Adaptors

Adaptor flange of aluminium for face mount flange, spigot 36 mm for ARS 60, DRS 60, DGS 60, DGS 65, DGS 66, ATM 60

Type	Order no.	Adaption
BEF-FA-036-050	2 029 160	To 50 mm servo flange

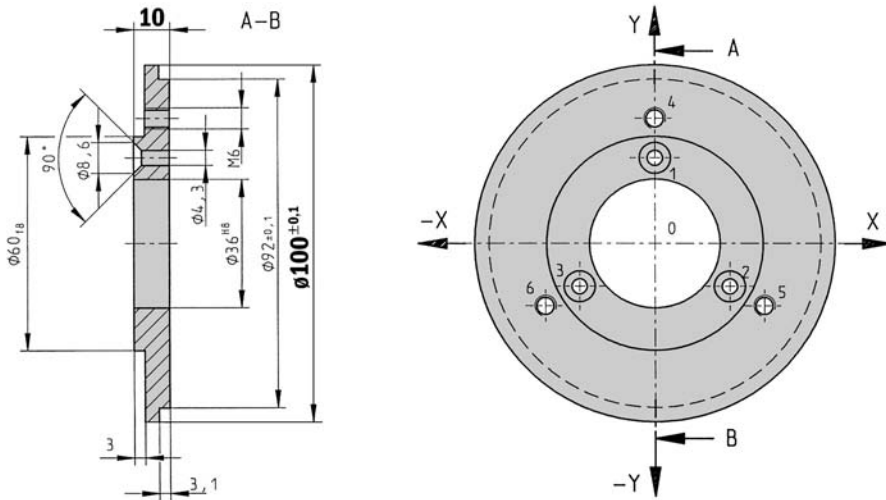


General tolerances according to DIN ISO 2768-mk

Dimensional drawings and order information

Adaptor flange of aluminium for face mount flange, spigot 36 mm for ARS 60, ATM 60

Type	Order no.	Adaption
BEF-FA-036-100	2 029 161	To 100 mm servo flange

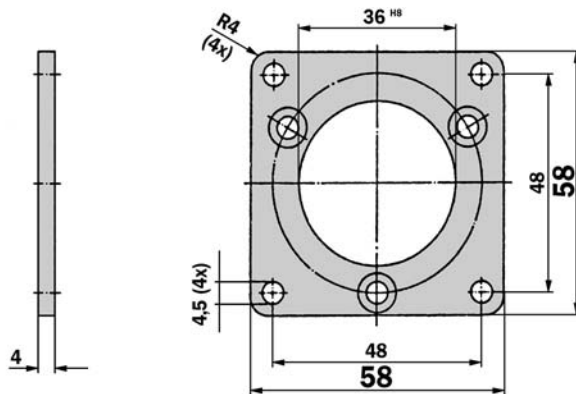


General tolerances according to DIN ISO 2768-mk

Mechanical Adaptors

Adaptor flange of aluminium for face mount flange, spigot 36 mm for ARS 60, DRS 60, DGS 60, DGS 65, DGS 66, ATM 60

Type	Order no.	Adaption
BEF-FA-036-060REC	2 029 162	To 60 mm square mounting plate



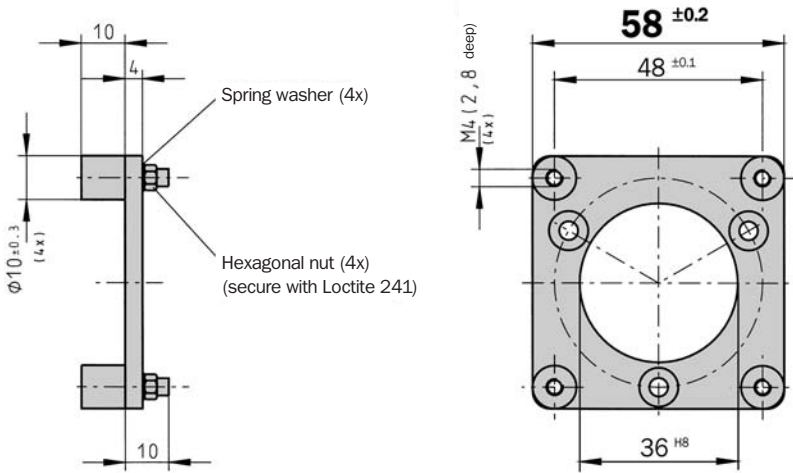
General tolerances according to DIN ISO 2768-mk

Dimensional drawings and order information

Mechanical Adaptors for DRS 60, DGS 60, DGS 65, DGS 66

Adapter flange of aluminium for face mount flange, spigot 36 mm for ARS 60, DRS 60, DGS 60, DGS 65, DGS 66, ATM 60

Type	Order no.	Adaption
BEF-FA-036-060RSA	2 029 163	To 60 mm square mounting plate with shock absorbers

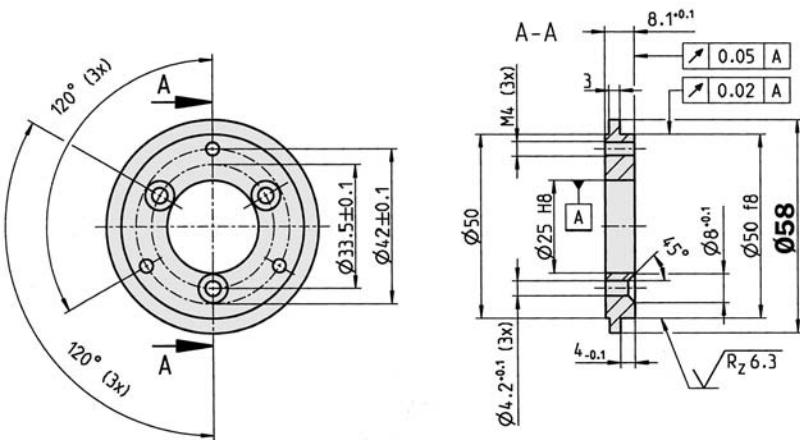


General tolerances according to DIN ISO 2768-mk

Mechanical Adaptors for DKS 40

Adapter flange of aluminium for face mount flange, spigot 25 mm

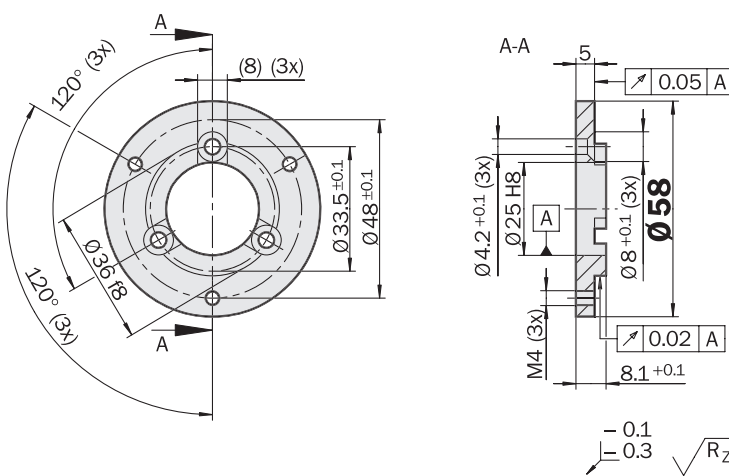
Type	Order no.	Adaption
BEF-FA-025-050	2 032 622	To 50 mm servo flange



General tolerances according to DIN ISO 2768-mk

Adapter flange of aluminium for face mount flange, spigot 36 mm for DKS 40

Type	Order no.	Adaption
BEF-FA-025-036	2 034 226	To 50 mm servo flange

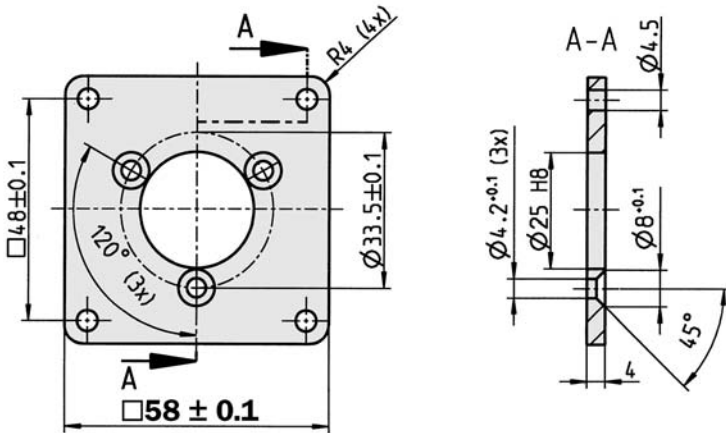


$\sqrt{R_z 16}$ ($\sqrt{R_z 6.3}$)

General tolerances according to DIN ISO 2768-mk

Adaptor flange of aluminium for face mount flange, spigot 25 mm for DKS 40

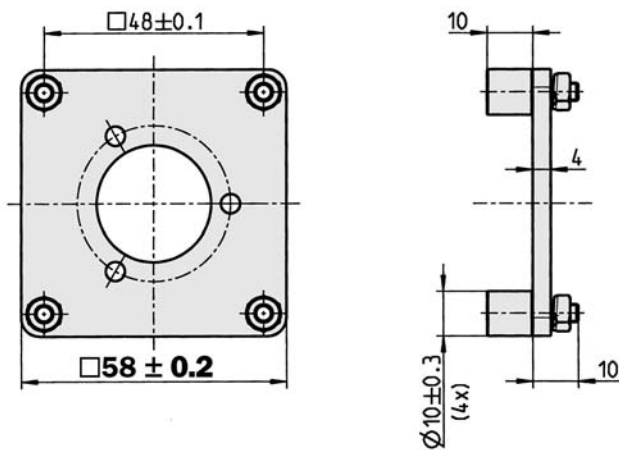
Type	Part no.	Adaption
BEF-FA-025-060RCA	2 032 623	To 60 mm square mounting plate



General tolerances according to DIN ISO 2768-mk

Adaptor flange of aluminium for face mount flange, spigot 25 mm for DKS 40

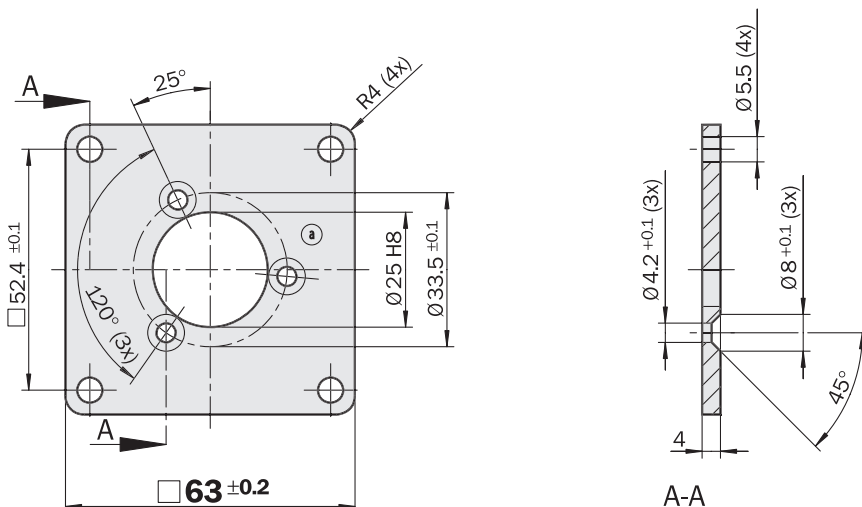
Typ	Part no.	Adaption
BEF-FA-025-060RSA	2 032 624	To 60 mm square mounting plate with shock absorbers



General tolerances according to DIN ISO 2768-mk

Adaptor flange of aluminium for face mount flange, spigot 25 mm for DKS 40

Typ	Part no.	Adaption
BEF-FA-025-063REC	2 033 631	To 63 mm square mounting plate



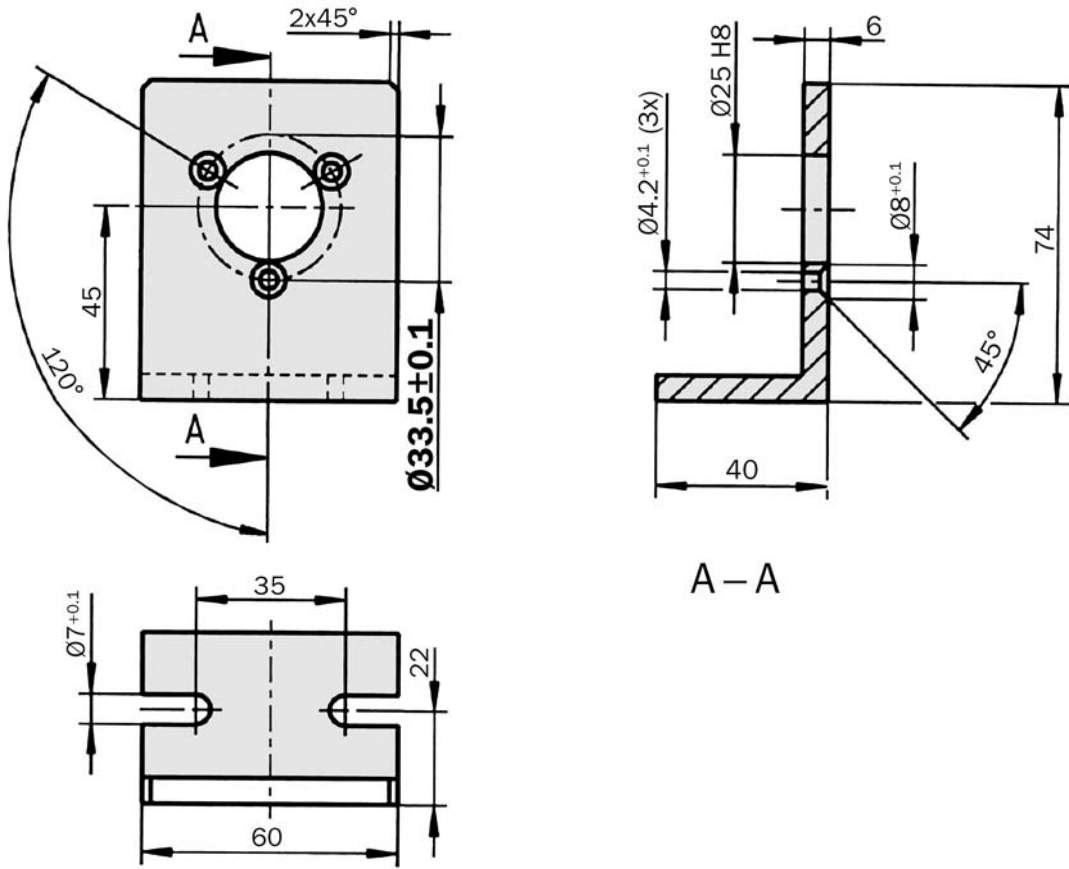
General tolerances according to DIN ISO 2768-mk

Dimensional drawings and order information

Mechanical Adaptors for DKS 40

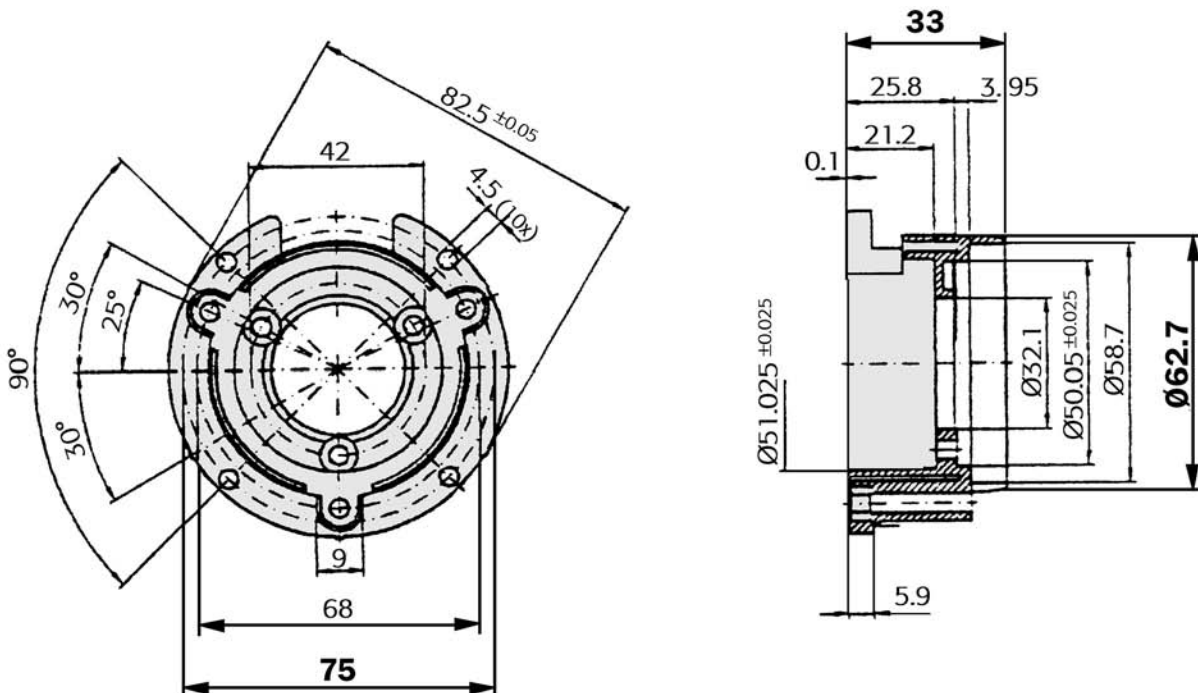
Mounting angle incl. fixing set for encoder with face mount flange

Type	Part no.	Flange spigot
BEF-WF-25	2 032 621	Diameter 25 mm



Mounting bell incl. fixing set for encoder with servo flange for DKS 40

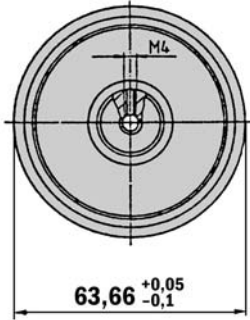
Type	Part no.	Flange spigot
BEF-MG-50	5 312 987	Diameter 50 mm



Dimensional drawings and order information

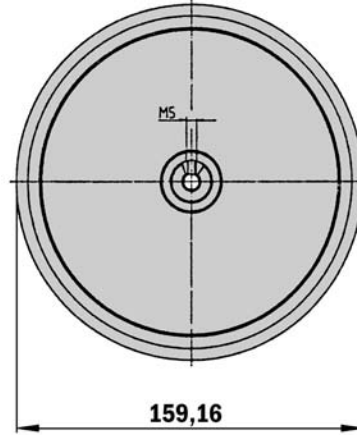
Measuring wheel for encoder shafts with diameter 10 mm, type material plastic (Hytrel), wheel material plastic with aluminium hub

Type	Order no.	Circumference
BEF-MR-010020	5 312 988	0.2 m



Measuring wheel for encoder shafts with diameter 10 mm, type material plastic (Hytrel), wheel material plastic with aluminium hub

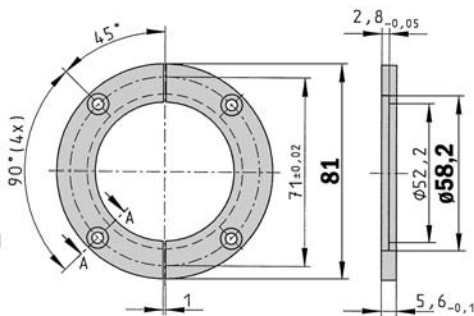
Type	Order no.	Circumference
BEF-MR-010050	5 312 989	0.5 m



Servo clamps

Servo clamps half ring, Set (comprises 2 pieces) for servo flanges with spigot diameter 50 mm for ARS 60, DRS 60, DGS 60, DGS 65, DGS 66, ATM 60

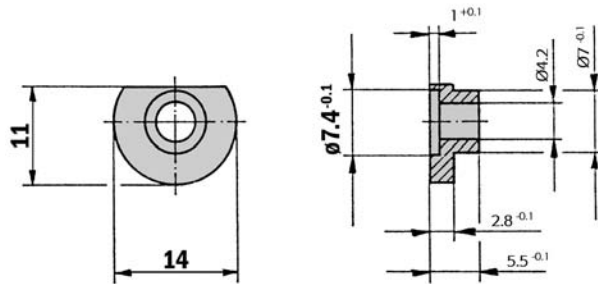
Type	Order no.
BEF-WG-SF050	2 029 165



General tolerances according to DIN ISO 2768-mk

Servo clamps small, Set (comprises 3 pieces) for servo flanges for ARS 60, DRS 60, DGS 60, DGS 65, DGS 66, ATM 60, DKS 40

Type	Order no.
BEF-WK-SF	2 029 166



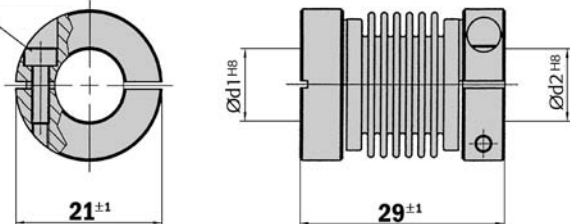
General tolerances according to DIN ISO 2768-mk

Couplings

Bellows coupling, max. shaft offset radial ± 0.3 mm, axial 0.4 mm, angle ± 4 degrees, torsion spring stiffness 120 Nm/rad, bellows of stainless steel, hubs of aluminium. For ARS 60, DRS 60, DGS 60, DGS 65, DGS 66, ATM 60, ATM 90

Type	Order no.	Shaft diameter
KUP-0606-B	5 312 981	6 mm - 6 mm
KUP-0610-B	5 312 982	6 mm - 10 mm
KUP-1010-B	5 312 983	10 mm - 10 mm
KUP-1012-B	5 312 984	10 mm - 12 mm

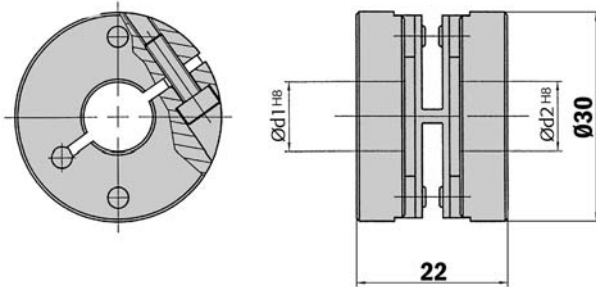
Cheese-head screw
M2,5x8 DIN912 A2



Dimensional drawings and order information

Spring-disc coupling, max. shaft offset radial ± 0.3 mm, axial 0.4 mm, angle ± 2.5 degrees, torsion spring stiffness 50 Nm/rad, flange of stainless steel, spring-discs of glass-fibre-reinforced plastic. For ARS 60, DRS 60, DGS 60, DGS 65, DGS 66, ATM 60, ATM 90

Type	Order no.	Shaft diameter
KUP-0610-F	5 312 985	6 mm - 10 mm
KUP-1010-F	5 312 986	10 mm - 10 mm

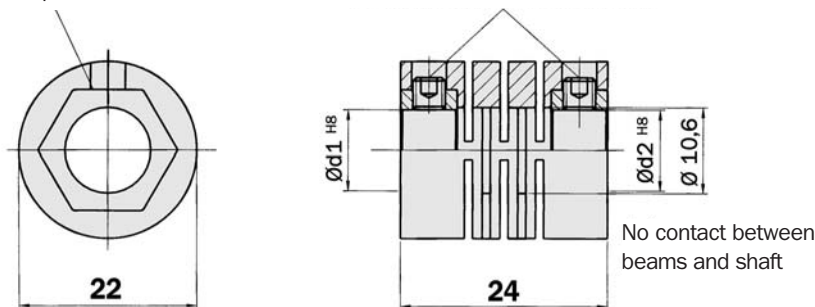


General tolerances according to DIN ISO 2768-mk

Beam coupling max. shaft displacement radially ± 0.3 mm, axially ± 0.2 mm, angular ± 3 degrees, torsional rigidity 38 Nm/rad, body: fibre glass reinforced polyamide, hubs made of brass for DKS 40

Type	Order no.	Type shaft diameter
KUP-0608-S	5 314 179	6 mm ... 8 mm
KUP-0808-S	5 314 177	8 mm ... 8 mm
KUP-0810-S	5 314 178	8 mm ... 10 mm

Shaft clamped around its circumference Cheese-head screw M 4 x 4 DIN916



Collets

Collets for blind hollow shaft for ARS 60, DRS 60, ATM 60		
Type	Order no.	Shaft diameter
SPZ-006-AD-A	2 029 174	6 mm
SPZ-1E4-AD-A	2 029 175	1/4"
SPZ-008-AD-A	2 029 176	8 mm
SPZ-3E8-AD-A	2 029 177	3/8"
SPZ-010-AD-A	2 029 178	10 mm
SPZ-012-AD-A	2 029 179	12 mm
SPZ-1E2-AD-A	2 029 180	1/2"

Collets for through hollow shaft for ARS 60, DRS 60		
Type	Order no.	Shaft diameter
SPZ-006-AD-D	2 029 192	6 mm
SPZ-1E4-AD-D	2 029 193	1/4"
SPZ-008-AD-D	2 029 194	8 mm
SPZ-3E8-AD-D	2 029 195	3/8"
SPZ-010-AD-D	2 029 196	10 mm
SPZ-012-AD-D	2 029 197	12 mm
SPZ-1E2-AD-D	2 029 198	1/2"

Collets for DGS65 blind hollow shaft encoder		
Type	Order no.	Shaft diameter
SPZ-006-DD65-A	2 029 181	6 mm
SPZ-008-DD65-A	2 029 182	8 mm
SPZ-010-DD65-A	2 029 183	10 mm
SPZ-011-DD65-A	2 019 043	11 mm
SPZ-012-DD65-A	2 029 184	12 mm
SPZ-3E8-DD65-A	2 039 227	3/8"

Collets for DGS66 through hollow shaft encoder		
Type	Order no.	Shaft diameter
SPZ-006-DD66-A	2 029 185	6 mm
SPZ-008-DD66-A	2 029 186	8 mm
SPZ-010-DD66-A	2 029 187	10 mm
SPZ-012-DD66-A	2 029 188	12 mm
SPZ-1E2-DD66-A	2 029 189	1/2"
SPZ-014-DD66-A	2 029 190	14 mm
SPZ-015-DD66-A	2 029 191	15 mm

Dimensional drawings and order information

Adaptor modules for SSI Interface

Serial-Parallel Adaptor modules

Type	Order no.	Description
AD-SSIG-PA	1 030 106	SSI-Parallel Adaptor module in plastic housing
AD-SSI-PA	1 030 107	SSI-Parallel Adaptor module without plastic housing
AD-SSIPG-PA	1 030 108	SSI-Parallel Adaptor module, programmable, in plastic housing
AD-SSIPF-PA	1 030 109	SSI-Parallel Adaptor module programmable, without plastic housing, with front plate
AD-SSIP-PA	1 030 110	SSI-Parallel Adaptor module programmable, without plastic housing, without front plate

Adaptor modules for SSI interface

Programming Tool für ATM 60/ATM 90, KH 53

Type	Order no.
PGT-01-S	1 030 111

Programming tool for Serial Parallel Adaptor for ATM 60, ATM 90 and KH 53 with SSI interface

Type	Order no.
PGT-02-S	1 030 112

Programming Tool (USB Version) for DRS 61

Type	Order no.
PGT-05-S	1 035 342



Connectors

Selection table for connector and cable

SENSICK round connector M12 x 1 mm "Food & Beverage", PVC, V4A, IP 69K. Description, Order no., Type. Table listing various connector types and their compatibility with different cable configurations.

SENSICK extension cable M8 x 1 mm, M12 x 1 mm, PVC. Description, Order no., Type. Table listing extension cables with different connector combinations and lengths.

SENSICK extension cable M8 x 1 mm, M12 x 1 mm, PUR-halogenfree. Description, Order no., Type. Table listing halogen-free extension cables with various connector options.

SENSICK extension cable M12 x 1 mm "Food & Beverage", PVC, V4A, IP 69K. Description, Order no., Type. Table listing extension cables for food and beverage applications.

SENSICK splitter boxes. Description. "Food & Beverage", IP 69K, V4A (1.4404/316 L). M12 x 1 mm, IP 67, type of connection: cable. M12 x 1 mm, IP 67, type of connection: plug.

Main compatibility matrix table. Columns: Connector/Cable types (IM 05, IM 08, IM 08 (ZC 1), IM 08 (ZC 1) Opener, IM 12, IM 12 (ZT 1), IM 12 (ZT 1) Opener, IM 12 DC-2 conductors, IM 12 Multitalent, IM 12 harsh environments, IM 18, IM 18 Opener, IM 18 DC-2 conductors, IM 18 Multitalent, IM 18 raue Umgebung, IM 30, IM 30 Opener, IM 30 DC-2 conductors, IH 04, IH 06, IQ 08, IQ 10, IQ 12, IQ 40 DC-3 conductors, IQ 40 DC-4 conductors, IQ 80, CM 18, CM 30, CO 35, MM 08, MM 12, MM 18, MQ 10, MZN 1/RZN 1, MZT 1/RZT 1, MZF 6/RZF 6, MZF 1 (KF 0), MZF 1 (KQ 0), MZR 1, MZR 2, MZU 2, MZU 1, MZZ 1, MZZ 2, MZP 3, MZP 4, MZK 1, MZK 3, W 2, W 4-3 (Q), W 4-3 (closer/opener), W 100/W 130, W 140-2, W 150, W 160). Rows: Various connector types (WLL 160, W 170, WLL 170, W 190, WLL 190, W 9-2, W 11, W 12-2, W 12 L2, W 12-G, W 12-2 ASI, W 14-2, W 18-3, W 23-2, W 24-2, W 24-2 Exi, W 250, W 260, W 27-3, W 27-2 ASI, W 32, W 34, WTR, V 12, V 18, V 180, WF, WLG, KT 2, KT 3, KT 5-2, KT 10-2, LUT 8, LUT 1/2, LUT 3-6, LUT 3-8/9, CMS, CS 1/CS 8, DS 60, DT 60, WTA 24, DT 2, DT 10/20, DME 3000, ISD 260/280, WLG 12, ELG, MLG, ICS).

Continuation of the compatibility matrix table from the previous block, showing the same columns and rows.

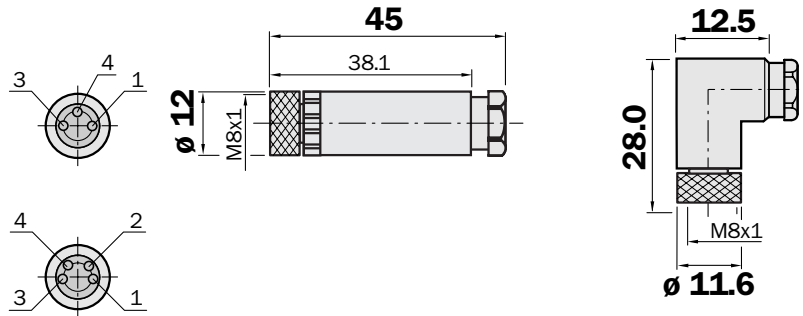
**M8, M12
terminal screwed**

Round connectors

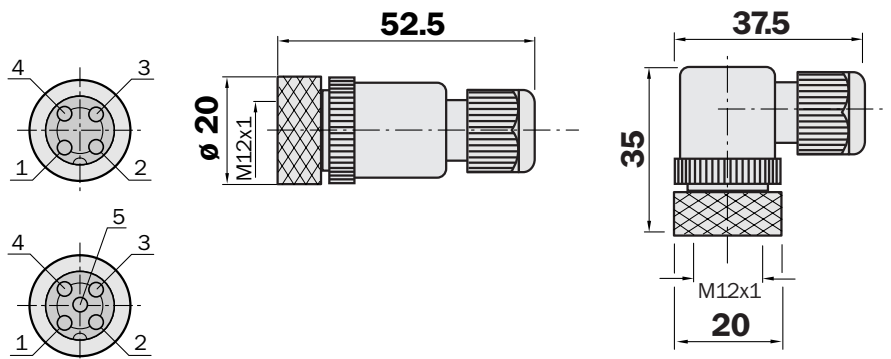
- Terminal screwed
- Enclosure rating IP 67
(only in fully locked position with its plugs)
- Good resistance to oil and chemicals
- Housing material PA
- Locking nut V4A
(only DOS-...N, STE-...N)

Dimensional drawings

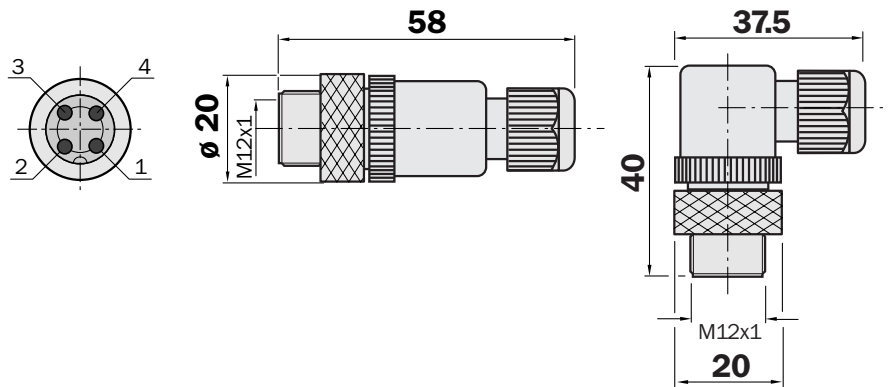
DOS-08...



DOS-12...



STE-1204...



(Except M8-connectors)

Technical data

Nominal voltage U_b	60 V AC/75 V DC (M8-connector)
	125 V AC/150 V DC (M12 4-pin-connector)
	30 V AC/36 V DC (M12, 5-pin-connector)
Nominal power	4 A
Testvoltage	1.5 kV eff./60 s. (M8-connector)
	1.25 kV eff./60 s. (M12, 4-pin-connector)
	1.0 kV eff./60 s. (M12, 5-pin-connector)
Insulation group	C acc. VDE 0110
Insulation resistance	> 10 ⁹ Ω
Max. wire section	Max. 0.5 mm ² (M8-connector)
	Max. 0.75 mm ² (M12-connector)
Temperature range	-25 °C ... +90 °C
Enclosure rating	IP 67 ¹⁾
Locking nut	CuZn, brass nickeled V4A (1.4404) (DOS-12...N, STE-12...N)
Housing	PA, black (self-extinguishing)

¹⁾ Only in fully locked position with its plugs

Order information

Round connectors M8 terminal screwed

Type	Order no.	Description		Contacts	Locking nut	Cable Ø [mm]
DOS-0803-G	7 902 077	Female connector	straight	3	CuZn	3.5 ... 5.0
DOS-0803-W	7 902 078	Female connector	angled	3	CuZn	3.5 ... 5.0
DOS-0804-G	6 009 974	Female connector	straight	4	CuZn	3.5 ... 5.0
DOS-0804-W	6 009 975	Female connector	angled	4	CuZn	3.5 ... 5.0

Round connectors M12 terminal screwed

Type	Order no.	Description		Contacts	Locking nut	Cable Ø [mm]
DOS-1204-G	6 007 302	Female connector	straight	4	CuZn	3 ... 6.5
DOS-1204-W	6 007 303	Female connector	angled	4	CuZn	3 ... 6.5
STE-1204-G	6 009 932	Male connector	straight	4	CuZn	3 ... 6.5
STE-1204-W	6 022 084	Male connector	angled	4	CuZn	3 ... 6.5
DOS-1204-GN	6 028 357	Female connector	straight	4	V4A	3 ... 6.5
DOS-1204-WN	6 028 358	Female connector	angled	4	V4A	3 ... 6.5
STE-1204-GN	6 028 359	Male connector	straight	4	V4A	3 ... 6.5
STE-1204-TN	6 028 360	Duo-male connector	straight	4	V4A	3 ... 6.5 (2 x)
DOS-1205-G	6 009 719	Female connector	straight	5	CuZn	3 ... 6.5
DOS-1205-W	6 009 720	Female connector	angled	5	CuZn	3 ... 6.5

Connecting cables PVC

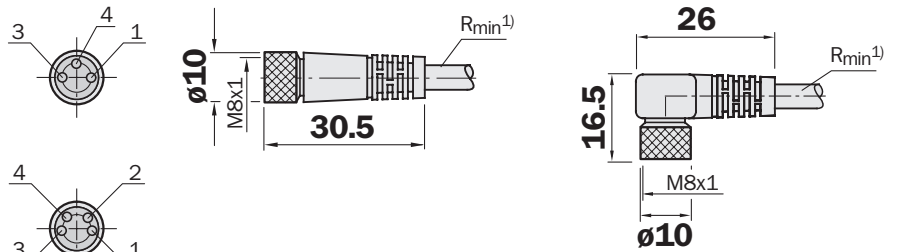
Round connectors

- Gold plated pins
- Self locking threaded
- Conditional resistance to chemicals and oils
- Especially suitable for use in assembly, packaging and production lines
- Enclosure rating IP 68 (M12)/IP 67 (M8) (only in fully locked position with its plugs)

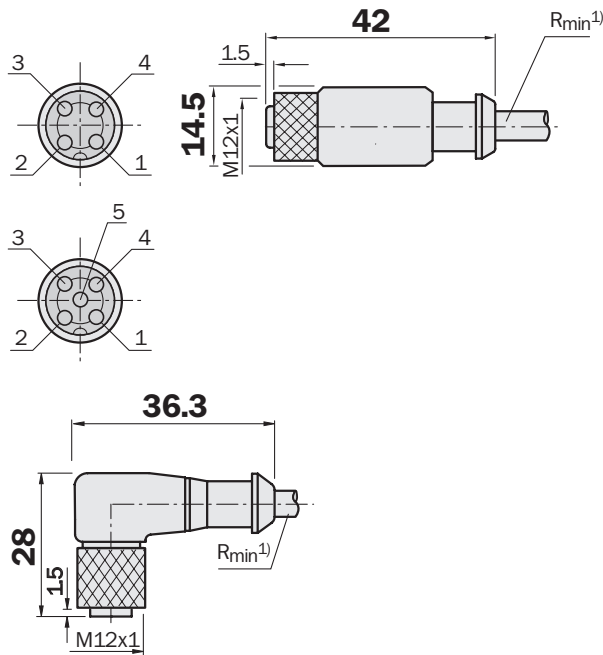


Dimensional drawings

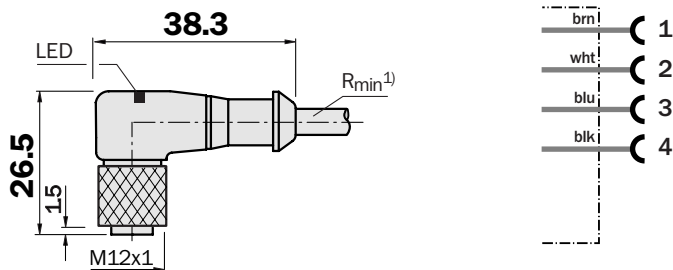
DOL-08...



DOL-12...



DOL-1204-L...



Contacts	Wire colour
1	brown
2	white
3	blue
4	black
5	grey

1) Minimum bend radius in dynamic use
 $R_{min} = 20 \times \text{cable diameter}$



(for M8-connector in preparation)

Technical data

Nominal voltage U_b	60 V AC/75 V DC (M8-connector)
	250 V AC/300 V DC (M12, 4-pin-connector)
	30 V AC/36 V DC (M12, 5-pin-connector)
	10 ... 30 V DC (M12, LED-indicator)
Contact resistance	≤ 5 mΩ
Nominal power	4 A (CSA = 3 A)
Testvoltage	2.0 kV eff./60 s. (M12, 4-pin-connector)
	1.5 kV eff./60 s. (M8-connector and M12, 5-pin)
Insulation group	C acc. VDE 0110
Insulation resistance	> 10 ⁹ Ω
Temperature range	In fixed position -40 °C ... +80 °C
	In flexible motion +5 °C ... +80 °C
Bending radius	> 10 x diameter of cable (in flexible motion)
	5 x diameter of cable (in fixed position)
Contact	CuZn, 0.3 μm gold plated
Locking nut	CuZn, brass nickeled
Cable	PVC, colour orange
Conductor diameter	3 x 0.34 mm ²
	4 x 0.25 mm ²
	5 x 0.5 mm ²
Connector	TPU, colour orange

Order information

Round connectors M8 connecting cable, PVC

Type	Order no.	Description	Contacts	Cable length [m]
DOL-0803-G02M	6 010 785	Female connector straight	3	2
DOL-0803-G05M	6 022 009	Female connector straight	3	5
DOL-0803-G10M	6 022 011	Female connector straight	3	10
DOL-0803-W02M	6 008 489	Female connector angled	3	2
DOL-0803-W05M	6 022 010	Female connector angled	3	5
DOL-0803-W10M	6 022 012	Female connector angled	3	10
DOL-0804-G02M	6 009 870	Female connector straight	4	2
DOL-0804-G05M	6 009 872	Female connector straight	4	5
DOL-0804-G10M	6 010 754	Female connector straight	4	10
DOL-0804-W02M	6 009 871	Female connector angled	4	2
DOL-0804-W05M	6 009 873	Female connector angled	4	5
DOL-0804-W10M	6 010 755	Female connector angled	4	10

Round connectors M12 connecting cable, PVC

Type	Order no.	Description	Contacts	Cable length [m]
DOL-1204-G02M	6 009 382	Female connector straight	4	2
DOL-1204-G05M	6 009 866	Female connector straight	4	5
DOL-1204-G10M	6 010 543	Female connector straight	4	10
DOL-1204-G15M	6 010 753	Female connector straight	4	15
DOL-1204-W02M	6 009 383	Female connector angled	4	2
DOL-1204-W05M	6 009 867	Female connector angled	4	5
DOL-1204-W10M	6 010 541	Female connector angled	4	10
DOL-1204-L02M	6 027 945	Female connector angled LED (PNP)	4	2
DOL-1204-L05M	6 027 944	Female connector angled LED (PNP)	4	5
DOL-1204-L10M	6 027 946	Female connector angled LED (PNP)	4	10
DOL-1205-G02M	6 008 899	Female connector straight	5	2
DOL-1205-G05M	6 009 868	Female connector straight	5	5
DOL-1205-G10M	6 010 544	Female connector straight	5	10
DOL-1205-W02M	6 008 900	Female connector angled	5	2
DOL-1205-W05M	6 009 869	Female connector angled	5	5
DOL-1205-W10M	6 010 542	Female connector angled	5	10
DOL-1205-G05MX	6 010 474	Female connector straight (shielded PIN 5)	5	5

Connecting cables PUR halogenfree

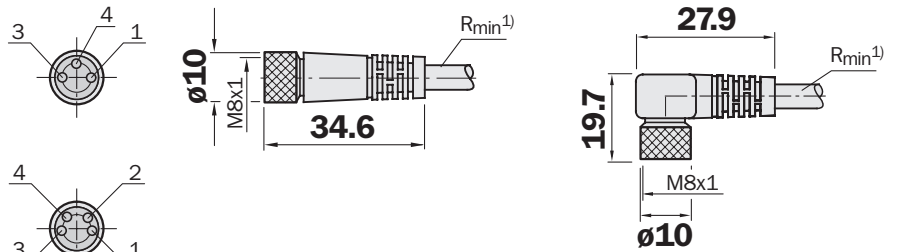
Round connectors

- Gold plated pins
- Halogenfree, PVC-free, silicone-free-cable
- Flame-retardant IEC 332-2
- Resisting to coolants and lubricants
- Suitable for use with drag chains
- Resistant against hydrolysis
- Enclosure rating IP 67 (M8)/IP 68 (M12) (only in fully locked position with its plugs)

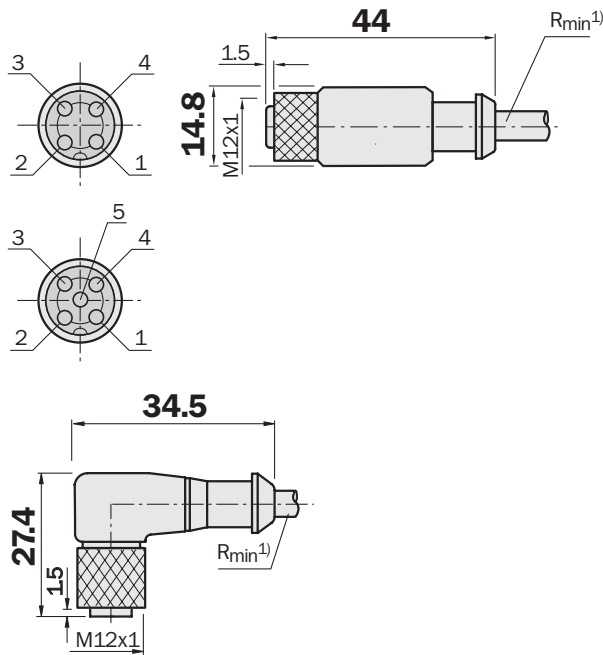


Dimensional drawings

DOL-08...



DOL-12...



Contacts	Wire colour
1	brown
2	white
3	blue
4	black
5	grey

1) Minimum bend radius in dynamic use
 $R_{min} = 20 \times \text{cable diameter}$



Technical data

Nominal voltage U_b	60 V AC/75 V DC (M8-connector)
	250 V AC/300 V DC (M12, 4-pin-connector)
	30 V AC/36 V DC (M12, 5-pin-connector)
Contact resistance	≤ 5 mΩ
Nominal power	4 A (CSA = 3 A)
Insulation group	C acc. VDE0110
Insulation resistance	> 10 ⁹ Ω
Temperature range	In fixed position -50 °C ... +80 °C
	In flexible motion -25 °C ... +80 °C
Bending radius	> 10 x diameter of cable
Guaranteed bending cycles	≤ 2 million (at bend radius r = 60 mm)
Max. allowed speed up	8.6 m/sec ²
Max. speed	90 m/min (for 2 m horizontal path)
Contact	CuZn, gold plated
Cable	Colour black, PUR halogenfree
Conductor diameter	3 x 0.25 mm ² (M8)
	4 x 0.25 mm ² (M8), 4 x 0.34 mm ² (M12)
	5 x 0.34 mm ²
Connector	Colour black, TPU

Order information

Round connectors M8 connecting cable PUR halogenfree

Type	Order no.	Description	Contacts	Cable length [m]
DOL-0803-G02MC	6 025 888	Female connector straight	3	2
DOL-0803-G05MC	6 025 889	Female connector straight	3	5
DOL-0803-G10MC	6 025 890	Female connector straight	3	10
DOL-0803-W02MC	6 025 891	Female connector angled	3	2
DOL-0803-W05MC	6 025 892	Female connector angled	3	5
DOL-0803-W10MC	6 025 893	Female connector angled	3	10
DOL-0804-G02MC	6 025 894	Female connector straight	4	2
DOL-0804-G05MC	6 025 895	Female connector straight	4	5
DOL-0804-G10MC	6 025 896	Female connector straight	4	10
DOL-0804-W02MC	6 025 897	Female connector angled	4	2
DOL-0804-W05MC	6 025 898	Female connector angled	4	5
DOL-0804-W10MC	6 025 899	Female connector angled	4	10

Round connectors M12 connecting cable PUR halogenfree

Type	Order no.	Description	Contacts	Cable length [m]
DOL-1204-G02MC	6 025 900	Female connector straight	4	2
DOL-1204-G05MC	6 025 901	Female connector straight	4	5
DOL-1204-G10MC	6 025 902	Female connector straight	4	10
DOL-1204-W02MC	6 025 903	Female connector angled	4	2
DOL-1204-W05MC	6 025 904	Female connector angled	4	5
DOL-1204-W10MC	6 025 905	Female connector angled	4	10
STL-1204-G02MC	6 028 077	Male connector straight	4	2
DOL-1205-G02MC	6 025 906	Female connector straight	5	2
DOL-1205-G05MC	6 025 907	Female connector straight	5	5
DOL-1205-G10MC	6 025 908	Female connector straight	5	10
DOL-1205-W02MC	6 025 909	Female connector angled	5	2
DOL-1205-W05MC	6 025 910	Female connector angled	5	5
DOL-1205-W10MC	6 025 911	Female connector angled	5	10

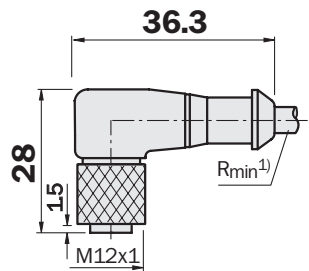
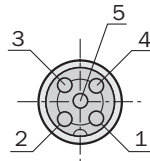
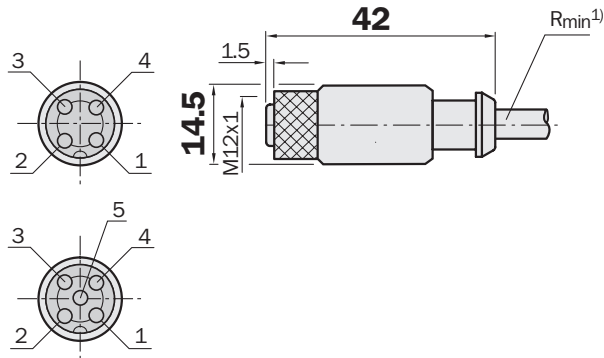
Connecting cables “Food & Beverage”

Round connectors

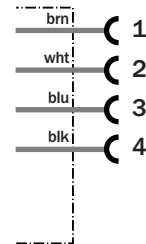
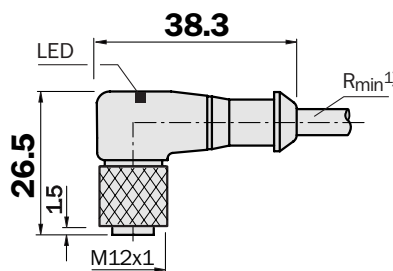
- Especially suitable for use in the “Food & Beverage”-branch
- Gold plated pins
- Improved resistance to chemicals, acids and cleaning agent
- Enclosure rating IP 69K (only in fully locked position with its plugs)
- Stainless steel locking nut (V4A)

Dimensional drawings

DOL-12...



DOL-1204-L...



Contacts	Wire colour
1	brown
2	white
3	blue
4	black
5	grey

1) Minimum bend radius in dynamic use
 $R_{min} = 20 \times \text{cable diameter}$



Technical data

Nominal voltage U_b	250 V AC/300 V DC (M12, 4-pin-connector)
	30 V AC/36 V DC (M12, 5-pin-connector)
	10 ... 30 V DC (M12, LED-indicator)
Contact resistance	≤ 5 mΩ
Nominal power	4 A (CSA = 3 A)
Testvoltage	2.0 kV eff./60 s. (4-pin)
	1.5 kV eff./60 s. (5-pin)
Insulation group	C acc. VDE 0110
Insulation resistance	> 10 ⁹ Ω
Temperature range	In fixed position -25 °C ... +90 °C
	In flexible motion +5 °C ... +90 °C
Bending radius	> 10 x diameter of cable
Contact	CuZn, 0.3 μm gold plated
Locking nut	Stainless steel V4A
Cable	PVC, colour orange
Conductor diameter	4 x 0.25 mm ²
	5 x 0.5 mm ²
Connector	PVC, colour orange

Order information

Round connectors M12 connecting cable "Food & Beverage"

Type	Order no.	Description	Contacts	Cable length [m]
DOL-1204-G02MN	6 028 128	Female connector straight	4	2
DOL-1204-G05MN	6 028 130	Female connector straight	4	5
DOL-1204-G10MN	6 028 132	Female connector straight	4	10
DOL-1204-G25MN	6 028 134	Female connector straight	4	25
DOL-1204-W02MN	6 028 129	Female connector angled	4	2
DOL-1204-W05MN	6 028 131	Female connector angled	4	5
DOL-1204-W10MN	6 028 133	Female connector angled	4	10
DOL-1204-W25MN	6 028 135	Female connector angled	4	25
DOL-1204-L02MN	6 028 136	Female connector angled LED (PNP)	4	2
DOL-1204-L05MN	6 028 137	Female connector angled LED (PNP)	4	5
DOL-1204-L10MN	6 028 138	Female connector angled LED (PNP)	4	10
DOL-1204-L25MN	6 028 139	Female connector angled LED (PNP)	4	25
DOL-1205-G02MN	6 028 140	Female connector straight	5	2
DOL-1205-G05MN	6 028 141	Female connector straight	5	5
DOL-1205-G10MN	6 028 142	Female connector straight	5	10
DOL-1205-G25MN	6 028 143	Female connector straight	5	25

**Extension cable
PVC**

Round connectors

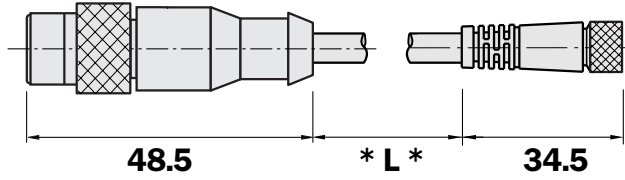
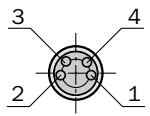
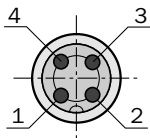
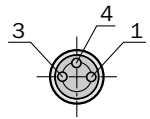
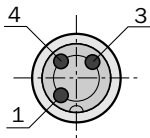
- Gold plated pins
- Self locking threaded
- Conditional resistance to chemicals and oils
- Especially suitable for use in assembly, packaging and production lines
- Enclosure rating IP 68 (M12)/IP 67 (M8) (only in fully locked position with its plugs)



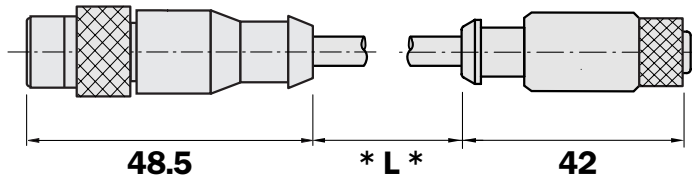
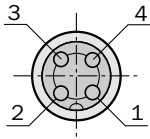
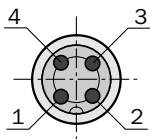
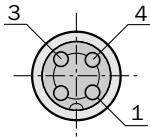
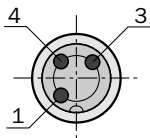
(for M8-connector in preparation)

Dimensional drawings

DSL-82...



DSL-12...



Technical data

Nominal voltage U_b	60 V AC/75 V DC (M8-connector) 250 V AC/300 V DC (M12-connector)
Contact resistance	≤ 5 mΩ
Nominal power	4 A (CSA = 3 A)
Testvoltage	2.0 kV eff./60 s. (M12-connector) 1.5 kV eff./60 s. (M8-connector)
Insulation group	C acc. VDE 0110
Insulation resistance	> 10 ⁹ Ω
Temperature range	In fixed position -40 °C ... +80 °C In flexible motion +5 °C ... +80 °C
Bending radius	> 10 x diameter of cable (in flexible motion) 5 x diameter of cable (in fixed position)
Contact	CuZn, 0.3 μm gold plated
Locking nut	CuZn, brass nickeled
Cable	PVC, colour orange
Conductor diameter	3 x 0.34 mm ² 4 x 0.25 mm ²
Connector	TPU, colour orange

Order information

Round connectors, extension cable PVC, female connector M8 (straight), male connector M12 (straight)

Type	Order no.	Contacts Female connector	Contacts Male connector	Cable length [m]
DSL-8203-G0M6	6 022 570	3	3	0.6
DSL-8203-G02M	6 022 572	3	3	2
DSL-8204-G0M6	6 022 571	4	4	0.6
DSL-8204-G02M	6 022 573	4	4	2

Round connectors M12, extension cable PVC, female connector M12 (straight), male connector M12 (straight)

Type	Order no.	Contacts Female connector	Contacts Male connector	Cable length [m]
DSL-1203-G0M6	6 022 564	4 (3 connected)	3	0.6
DSL-1203-G02M	6 022 566	4 (3 connected)	3	2
DSL-1203-G05M	6 022 568	4 (3 connected)	3	5
DSL-1204-G0M6	6 022 565	4	4	0.6
DSL-1204-G02M	6 022 567	4	4	2
DSL-1204-G05M	6 022 569	4	4	5

**Extension cable
PUR halogenfree**

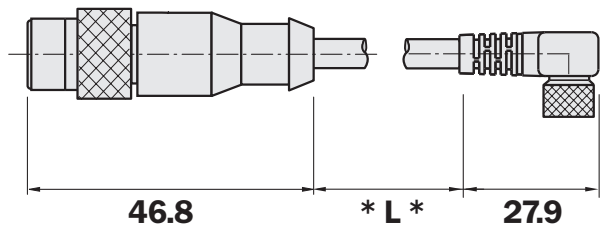
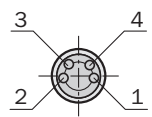
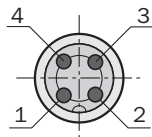
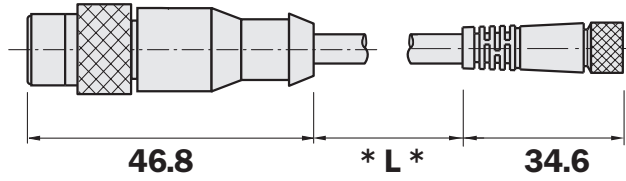
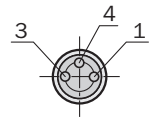
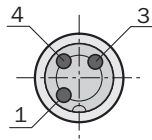
Round connectors

- Gold plated pins
- Halogenfree, PVC-free, silicone-free-cable
- Flame-retardant IEC 332-2
- Resisting to coolants and lubricants
- Suitable for use with drag chains
- Resistant against hydrolysis
- Enclosure rating IP 67 (M8)/IP 68 (M12) (only in fully locked position with its plugs)

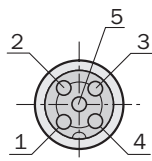
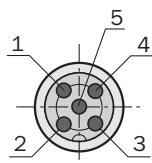
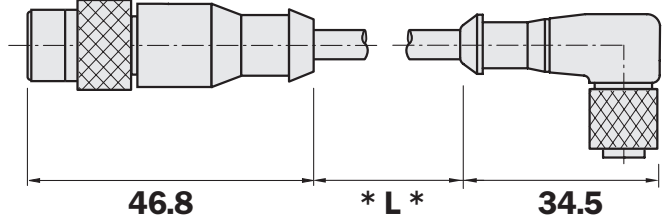
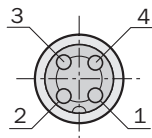
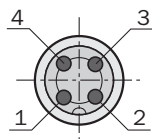
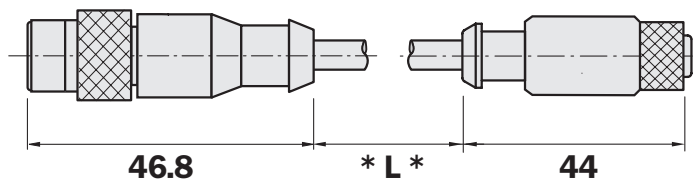
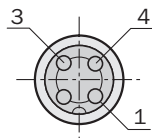
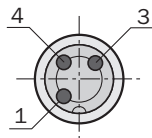


Dimensional drawings

DSL-82...



DSL-12...



Technical data

Nominal voltage U_b	60 V AC/75 V DC (M8-connector)
	250 V AC/300 V DC (M12, 4-pin-connector)
	30 V AC/36 V DC (M12, 5-pin-connector)
Contact resistance	≤ 5 mΩ
Nominal power	4 A (CSA = 3 A)
Insulation group	C acc. VDE 0110
Insulation resistance	> 10 ⁹ Ω
Temperature range	In fixed position -50 °C ... +80 °C
	In flexible motion -25 °C ... +60 °C
Bending radius	> 10 x diameter of cable
Guaranteed bending cycles	≤ 2 million (at bend radius r = 60 mm)
Max. allowed speed up	8.6 m/sec ²
Max. speed	90 m/min (for 5 m horizontal path)
Contact	CuZn, gold plated
Cable	Colour black, PUR halogenfree
Conductor diameter	3 x 0.25 mm ² (M8), 3 x 0.34 mm ² (M12)
	4 x 0.25 mm ² (M8), 4 x 0.34 mm ² (M12)
	5 x 0.34 mm ²
Connector	Colour black, TPU

Order information

Round connectors extension cable PUR halogenfree, female connector M8, male connector M12 (straight)

Type	Order no.	Description	Contacts Female connector	Contacts Male connector	Cable length [m]
DSL-8203-G0M6C	6 025 914	Female connector straight	3	3	0.6
DSL-8203-G02MC	6 025 915	Female connector straight	3	3	2
DSL-8203-B0M6C	6 025 916	Female connector angled	3	3	0.6
DSL-8203-B02MC	6 025 917	Female connector angled	3	3	2
DSL-8204-G0M6C	6 025 918	Female connector straight	4	4	0.6
DSL-8204-G02MC	6 025 919	Female connector straight	4	4	2
DSL-8204-B0M6C	6 025 920	Female connector angled	4	4	0.6
DSL-8204-B02MC	6 025 921	Female connector angled	4	4	2

Round connectors extension cable PUR halogenfree, female connector M12, male connector M12 (straight)

Type	Order no.	Description	Contacts Female connector	Contacts Male connector	Cable length [m]
DSL-1203-G0M6C	6 025 922	Female connector straight	4 (3 connected)	3	0.6
DSL-1203-G02MC	6 025 923	Female connector straight	4 (3 connected)	3	2
DSL-1203-B0M6C	6 025 924	Female connector angled	4 (3 connected)	3	0.6
DSL-1203-B02MC	6 025 925	Female connector angled	4 (3 connected)	3	2
DSL-1204-G0M6C	6 025 926	Female connector straight	4	4	0.6
DSL-1204-G02MC	6 025 927	Female connector straight	4	4	2
DSL-1204-B0M6C	6 025 928	Female connector angled	4	4	0.6
DSL-1204-B02MC	6 025 929	Female connector angled	4	4	2
DSL-1205-G0M6C	6 025 930	Female connector straight	5	5	0.6
DSL-1205-G02MC	6 025 931	Female connector straight	5	5	2

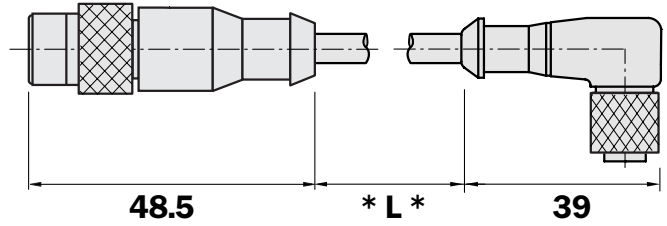
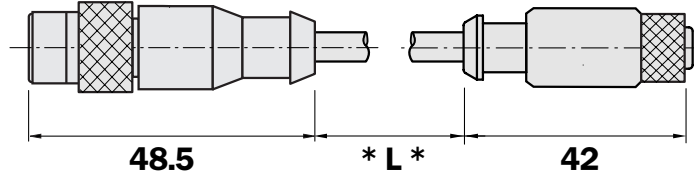
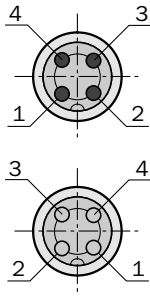
Extension cable
"Food & Beverage"

Round connectors

- Especially suitable for use in the "Food & Beverage"-branch
- Gold plated pins
- Improved resistance to chemicals, acids and cleaning agent
- Enclosure rating IP 69K (only in fully locked position with its plugs)
- Stainless steel locking nut (V4A)

Dimensional drawings

DSL-1204-...



Technical data

Nominal voltage U_b	250 V AC/300 V DC	
Contact resistance	$\leq 5 \text{ m}\Omega$	
Nominal power	4 A (CSA = 3 A)	
Test voltage	2.0 kV eff./60 s.	
Insulation group	C acc. VDE 0110	
Insulation resistance	$> 10^9 \Omega$	
Temperature range	In fixed position	$-25 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$
	In flexible motion	$+5 \text{ }^\circ\text{C} \dots +90 \text{ }^\circ\text{C}$
Bending radius	$> 10 \times$ diameter of cable	
Contact	CuZn, 0.3 μm gold plated	
Locking nut	Stainless steel (V4A)	
Cable	PVC, colour orange	
Conductor diameter	4 x 0.25 mm ²	
Connector	PVC, colour orange	

Order information

Round connectors extension cable "Food & Beverage", female connector M12, male connector M12 (straight)

Type	Order no.	Description		Contacts	Contacts	Cable length [m]
				Female connector	Male connector	
DSL-1204-G0M6N	6 028 194	Female connector	straight	4	4	0.6
DSL-1204-G02MN	6 028 195	Female connector	straight	4	4	2
DSL-1204-G05MN	6 028 196	Female connector	straight	4	4	5
DSL-1204-B0M6N	6 028 197	Female connector	angled	4	4	0.6
DSL-1204-B02MN	6 028 198	Female connector	angled	4	4	2
DSL-1204-B05MN	6 028 199	Female connector	angled	4	4	5

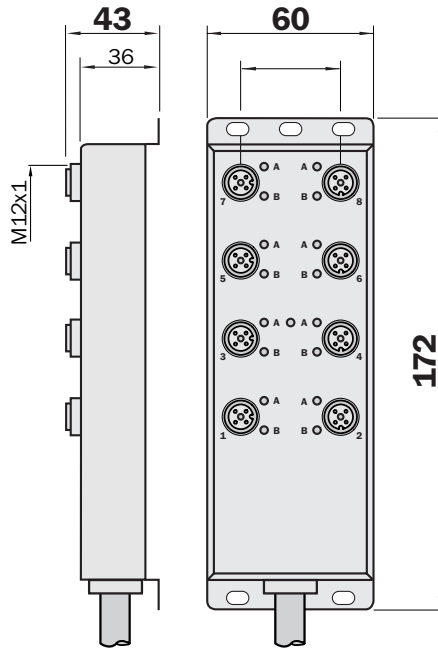
**"Food & Beverage"
IP 69K, V4A**

Sensor splitter-box

- Enclosure rating IP 69K (only in fully locked position with its plugs or dust covers)
- Housing & thread material: stainless steel V4A
- Especially suitable for use in the "Food & Beverage"-branch
- Improved resistance to chemicals, acids and cleaning agent

Dimensional drawings

SNL-08...



M12-Contacts	Wire colour	Signal/outlet
1	brown	+
3	blue	-
2	grey/pink	1
	red/blue	2
	white/green	3
	brown/green	4
	white/yellow	5
	yellow/brown	6
	white/grey	7
	grey/brown	8
4	white	1
	green	2
	yellow	3
	grey	4
	pink	5
	red	6
	black	7
	violet	8
5	green/yellow	PE

Technical data

Temperature range	0 °C ... +60 °C
Materials	
Housing	V4A-stainless steel
Moulded body	PVC
Contact	CuZn, pre-nickeled and 0.8 µm gold plated
Threaded sleeve	V4A-stainless steel
O-Ring	EPDM
Mechanical data	
Enclosure rating	IP 69 K (only in fully locked position with its plugs)
Electrical data	
Contact resistance	≤ 5 mΩ
Nominal power	4 A per outlet/11 A max. total at 30 °C (refer to correction factors EN 60204-1)
Nominal voltage U _b	10 ... 30 V DC
Reference voltage	32 V ~ eff.
Insulation resistance	> 10 ⁹ Ω
Pollution grade	2 acc. VDE 0110
Cable	PVC, colour black, 3 x 1.0 mm ² /16 x 0.5 mm ² (appropriate for drag cable use)
Accessories	4 dust covers for unused sockets

Order information
Sensor splitter-box "Food & Beverage", IP 69 K, V4A (1.4404/316 L), M12 x 1 mm (5-pin), 8 x female connector, type of connection, cable

Type	Order no.	Connecting cable		
		Length [m]	Lead [mm ²]	Cable
SNL-08D12-KA05	6 027 586	5	3 x 1.0/16 x 0.5	PVC black
SNL-08D12-KA10	6 027 587	10	3 x 1.0/16 x 0.5	PVC black
SNL-08D12-KA15	6 027 588	15	3 x 1.0/16 x 0.5	PVC black

Sensor splitter-box, M12 x 1, IP 67, TPU housing

M12 x 1, IP 67

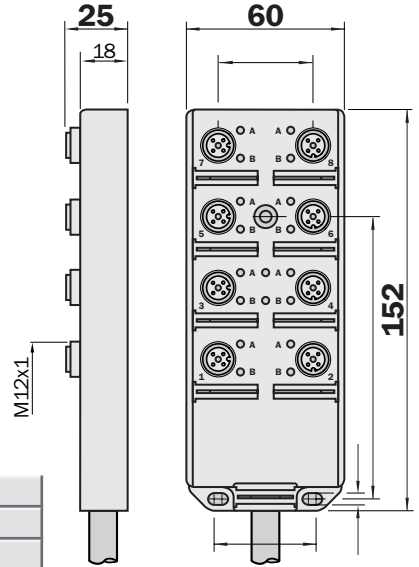
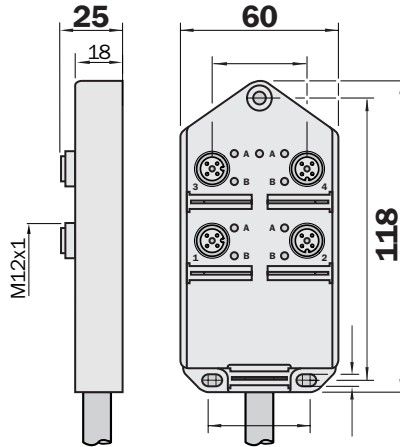
Sensor splitter-box

- Enclosure rating IP 67 (only in fully locked position with its plugs)
- TPU housing, self-extinguishing, moulded
- Shock and vibration resistant
- Gold plated pins
- 2 signale per M12-socket
- LED indication

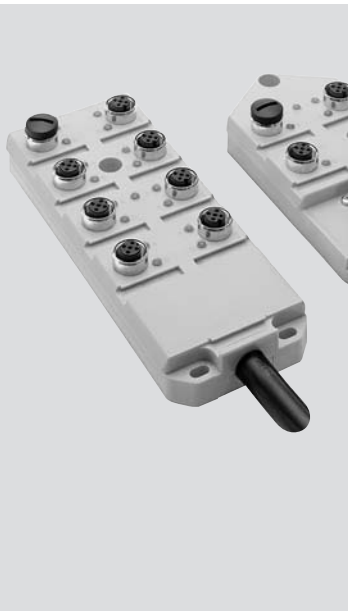
Dimensional drawings

SBL-04D12-KC...

SBL-08D12-KC...



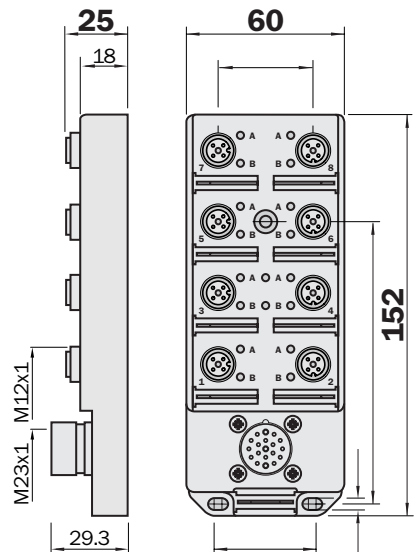
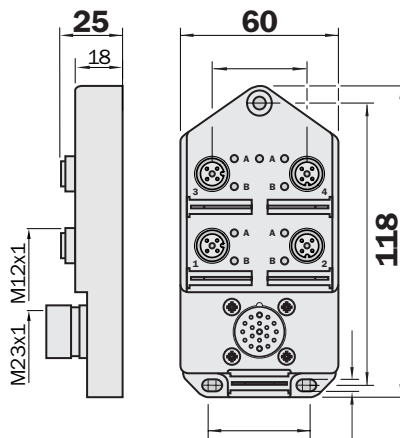
M12-Contacts	Wire colour	Signal/outlet
1	brown	+
3	blue	-
2	grey/pink	1
	red/blue	2
	white/green	3
	brown/green	4
	white/yellow	5
	yellow/brown	6
	white/grey	7
	grey/brown	8
4	white	1
	green	2
	yellow	3
	grey	4
	pink	5
	red	6
	black	7
	violet	8
5	green/yellow	PE



M12-Contacts	Signal/outlet
1 = 19	+
2 = 1	7
2	4
3	8
4	14
5	9
6	13
7	10
8	18
3 = 6	-
4 = 1	15
2	5
3	16
4	3
5	17
6	2
7	11
8	1
5 = 12	PE

SBL-04D12-SE...

SBL-08D12-SE...



Technical data

Temperature range	-15 °C ... +90 °C
Materials	
Housing	TPU, self-extinguishing
Moulded body	PA 6.6 GF, self-extinguishing, colour orange
Contact	CuZn, pre-nickeled and 0.8 µm gold plated
Threaded sleeve	CuZn, brass nickeled
Mechanical data	
Enclosure rating	IP 67 (only in fully locked position with its plugs)
Electrical data	
Contact resistance	≤ 5 mΩ
Nominal power	2 A per outlet/11 A max. total at 30 °C (refer to correction factors EN 60204-1)
Nominal voltage U _b	10 ... 30 V DC
Reference voltage	32 V ~ eff.
Insulation resistance	> 10 ⁹ Ω
Pollution grade	2 acc. VDE 0110
Cable	PUR colour black, 4-way box x 1.0 mm ² /8-way box 16 x 0.5 mm ²
Accessories	2 dust covers for unused sockets, 10 attachable molds

Order information
Sensor splitter-box M12 x 1 mm, 5-pin, type of connection, cable

Type	Order no.	Connecting cable		
		Length [m]	Lead [mm ²]	Cable
SBL-04D12-KC05	6 028 394	5	3 x 1.0/8 x 0.5	PUR halogenfree
SBL-04D12-KC10	6 028 395	10	3 x 1.0/8 x 0.5	PUR halogenfree
SBL-08D12-KC05	6 028 396	5	3 x 1.0/16 x 0.5	PUR halogenfree
SBL-08D12-KC10	6 028 397	10	3 x 1.0/16 x 0.5	PUR halogenfree

Sensor splitter-box M12 x 1 mm, 5-pin, type of connection, M23-connector

Type	Order no.	Connection plug	
		Type	Description
SBL-04D12-SE	6 028 398	M23 x 1	Male connector, 19 contacts
SBL-08D12-SE	6 028 399	M23 x 1	Male connector, 19 contacts

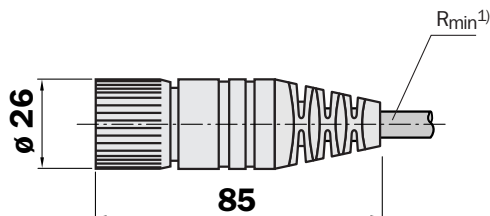
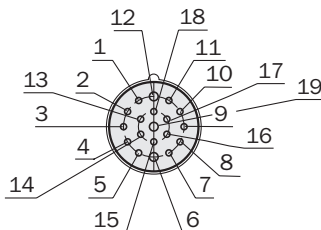
M23 x 1 mm, PUR

Connecting cables

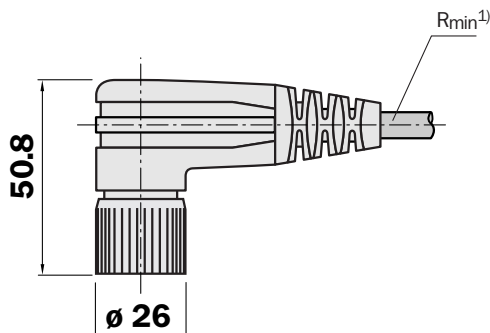
- Gold plated pins
- Enclosure rating IP 68
- Connector for connection on sensor splitter-box SBL-...D12-SE
- Colour connector/cable: black

Dimensional drawings

DOL-2319-G...MB



DOL-2319-W...MB



Contacts	Wire colour	Contacts	Wire colour
1	violet	11	black
2	red	12	yellow/green
3	grey	13	yellow/brown
4	red/blue	14	brown/green
5	green	15	white
6	blue	16	yellow
7	grey/pink	17	pink
8	white/green	18	grey/brown
9	white/yellow	19	brown
10	white/grey		

Technical data

Temperature range	-25 °C ... +110 °C
Materials	
Moulded body	PBTP
Contact	CuZn, pre-nickeled and 0.8 µm gold plated
Body	PUR
Locking nut	CuZn, brass nickeled
Mechanical data	
Enclosure rating	IP 68 (only in fully locked position with its plugs)
Electrical data	
Contact resistance	≤ 5 mΩ
Nominal power	19-pin 8 A pin ø 1 mm, 10 A Spin ø 1.5 mm
Reference voltage	19-pin 160 V eff.
Testvoltage	19-pin 1.5 kV eff./60 s.
Insulation resistance	> 10 ⁹ Ω
Pollution grade	IIIa acc. VDE 0110
Cable	PUR, colour black, 3 x 1.0 mm ² /16 x 0.5 mm ² (appropriate for drag cable use)

Order information

Connecting cables M23 x 1 PUR for sensor splitter-boxes SBL..D12-SE

Type	Order no.	Description	Contacts	Cable length [m]
DOL-2319-G05MB	6 028 400	Female connector straight	19	5
DOL-2319-G10MB	6 028 401	Female connector straight	19	10
DOL-2319-G15MB	6 028 402	Female connector straight	19	15
DOL-2319-W05MB	6 028 403	Female connector angled	19	5
DOL-2319-W10MB	6 028 405	Female connector angled	19	10
DOL-2319-W15MB	6 028 404	Female connector angled	19	15

Round connectors M12, 8-pin, shielded

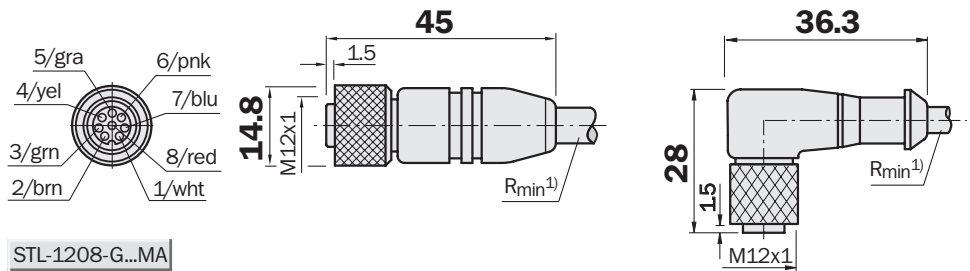
M12, 8-pin, shielded

Round connectors

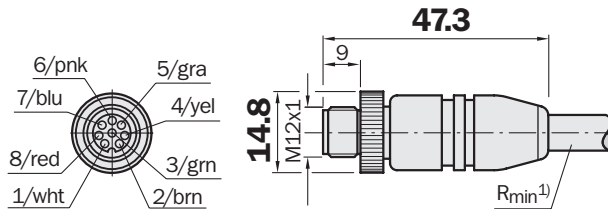
- Gold plated pins
- Especially suitable for use in shielded applications
- 360° shield on locking nut
- Shield on PIN 8
- Enclosure rating IP 67 (only in fully locked position with its plugs)

Dimensional drawings

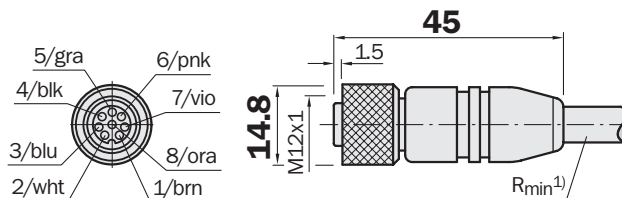
DOL-1208-...MA



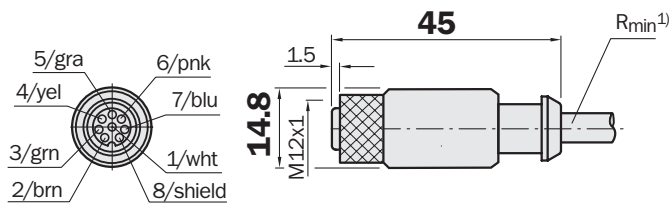
STL-1208-G...MA



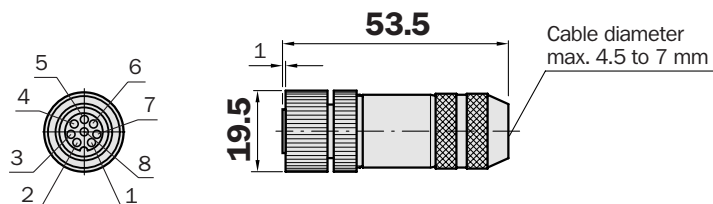
DOL-1208-...MF



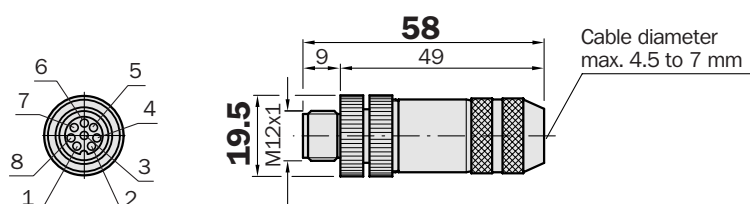
DOL-1208-...MB



DOS-1208-G.



STE-1208-G.



1) Minimum bend radius in dynamic use
 $R_{min} = 20 \times \text{cable diameter}$



Technical data

Nominal voltage U_b		30 V AC/36 V DC
Contact resistance		≤ 5 mΩ
Nominal power		1.5 A
Insulation group		C acc. VDE0110
Insulation resistance		> 10 ⁹ Ω
Temperature range		In fixed position -25 °C ... +105 °C
Temperature range	DOL-1208-...MF	In fixed position -25 °C ... +80 °C
Molded cable		
Bending radius		> 20 x diameter of cable
Contact		CuZn, 0.3 μm gold plated
Connector diameter	DOS-1208-GA, STE-1208-GA	Max. 0.75 mm ²
Cable		
		PVC, colour black (8 x 0.25 mm ²)
		PUR, colour black (7 x 0.25 mm ² and shield)
Connector		TPU, colour black
Terminal screwed connector		
Contact		CuZn, pre-nickeled, 2 ... 4 μm CuSnZn
Connection type		Connector
Housing		CuZn, brass nickeled

Order information

Round connectors M12, 8-pin shielded

Type	Order no.	Description	Shield	Cable length [m]	Cable
DOS-1208-G	6 028 422	Female connector	straight		terminal screwed 4 ... 8 mm
DOS-1208-GA	6 028 369	Female connector	straight	360° on locking nut	terminal screwed 4 ... 8 mm
STE-1208-GA	6 028 370	Male connector	straight	360° on locking nut	terminal screwed 4 ... 8 mm
STL-1208-G02MA	6 029 330	Male connector	straight	360° on locking nut	2 PVC
STL-1208-G05MA	6 029 331	Male connector	straight	360° on locking nut	5 PVC
STL-1208-G10MA	6 032 324	Male connector	straight	360° on locking nut	10 PVC
DOL-1208-G02MA	6 020 633	Female connector	straight	360° on locking nut	2 PVC
DOL-1208-G05MA	6 020 993	Female connector	straight	360° on locking nut	5 PVC
DOL-1208-G10MA	6 022 152	Female connector	straight	360° on locking nut	10 PVC
DOL-1208-G15MA	6 022 153	Female connector	straight	360° on locking nut	15 PVC
DOL-1208-W02MA	6 020 992	Female connector	angled	360° on locking nut	2 PVC
DOL-1208-W05MA	6 021 033	Female connector	angled	360° on locking nut	5 PVC
DOL-1208-G02MB	6 010 748	Female connector	straight	On PIN 8	2 PUR
DOL-1208-G02MF	6 020 663	Female connector	straight	360° on locking nut	2 PVC spec. core colour
DOL-1208-G05MF	6 020 664	Female connector	straight	360° on locking nut	5 PVC spec. core colour

Round connectors M12, 8-pin, shielded, female connector (straight) and male connector (straight)

Type	Order no.	Shield	Cable length [m]	Cable
DSL-1208-G01MA	6 026 625	360° on locking nut	1	PVC
DSL-1208-G02MC	6 030 121	360° on locking nut	2	PUR halogenfree
DSL-1208-G05MC	6 032 325	360° on locking nut	5	PUR halogenfree

T-Junction M12, M8

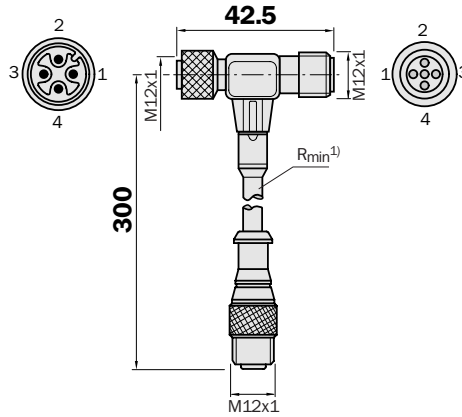
M12, M8

T-Junction

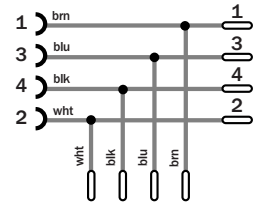
- Gold plated pins
- T-Junction for connection on splitter-box (SBO-02C.../SBO-02D...)
- Housing material TPU
- Enclosure rating IP 67 (only in fully locked position with its plugs)

Dimensional drawings

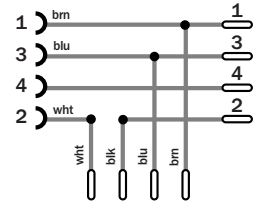
DSL-.04-TOM3



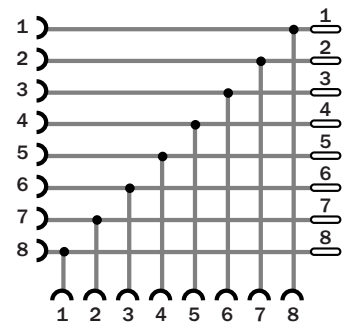
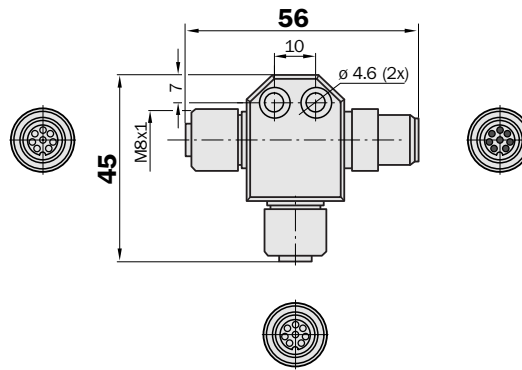
DSL-1204-TOM3



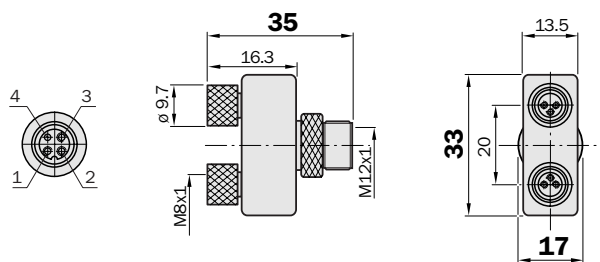
DSL-1104-TOM3



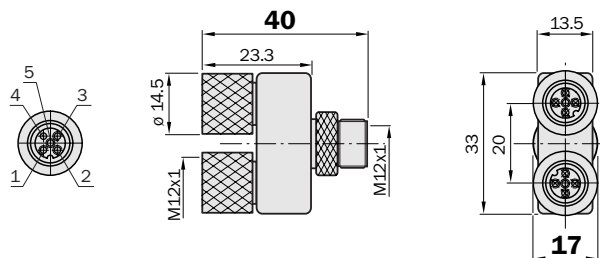
SBO-02F12-SF



SBO-02C08-SF



SBO-02D12-SF



Technical data

Nominal voltage U_b	60 V AC/75 V DC (M8, connector)
	250 V AC/300 V DC (M12, 4-pin, connector)
	30 V AC/36 V DC (M12, 5-pin, connector and M12, 8-pin, connector)
Contact resistance	≤ 5 mΩ
Nominal power	4 A (CSA = 3 A)
Testvoltage	2.0 kV eff./60 s. (M12, 4-pin, connector)
	1.5 kV eff./60 s. (M12, 5-pin, 8-pin, connector and M8, connector)
Insulation group	C acc. VDE 0110
Insulation resistance	> 10 ⁹ Ω
Molding	TPU, self-extinguishing
Contact	0.8 μm gold plated
Locking nut	CuZn, brass nickeled

Order information

T-Junction M12, M8

Type	Order no.	"T" splitter, line	T-Junction 2 x connector	Specification
DSL-1204-TOM3	6 011 682	Male connector M12, 4-pin, straight + 0.3 m PVC	1 x female M12/1 x male connector M12, 4-pin, angled	Power supply signal
DSL-1104-TOM3	6 011 683	Male connector M12, 4-pin, straight + 0.3 m PVC	1 x female M12/1 x male connector M12, 4-pin, angled	Power supply signal and logic interrupt
SBO-02F12-SF	6 026 503	Male connector M12, 8-pin, straight	2 x female connector M12, 8-pin, angled	Parallel connected
SBO-02C08-SF	6 028 393	Male connector M12, 4-pin, straight	2 x female connector M8, 3-pin, straight	PIN 2, 4 split
SBO-02D12-SF	6 028 392	Male connector M12, 5-pin, straight	2 x female connector M12, 5-pin, straight	PIN 2, 4 split

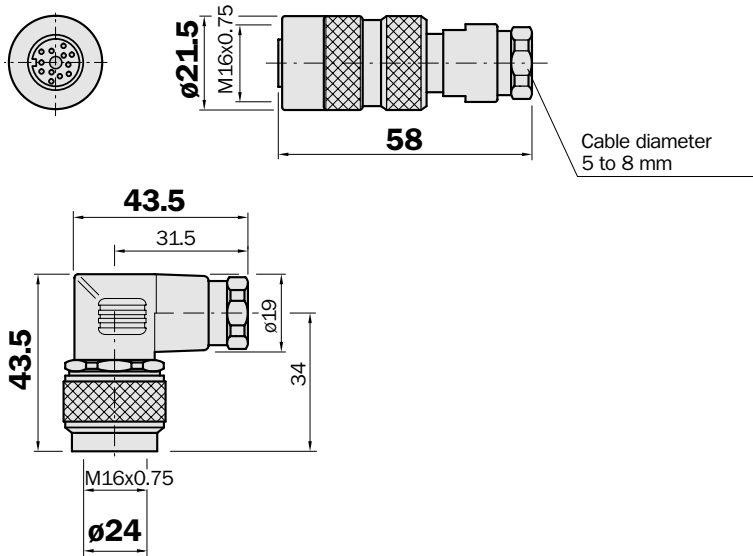
M16 x 0.75 connection for DME

Round connectors

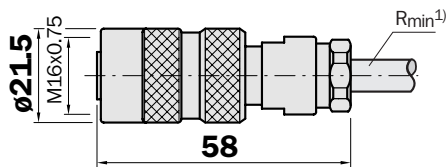
- Gold plated pins
- Enclosure rating IP 67
- Connection type – solder

Dimensional drawings

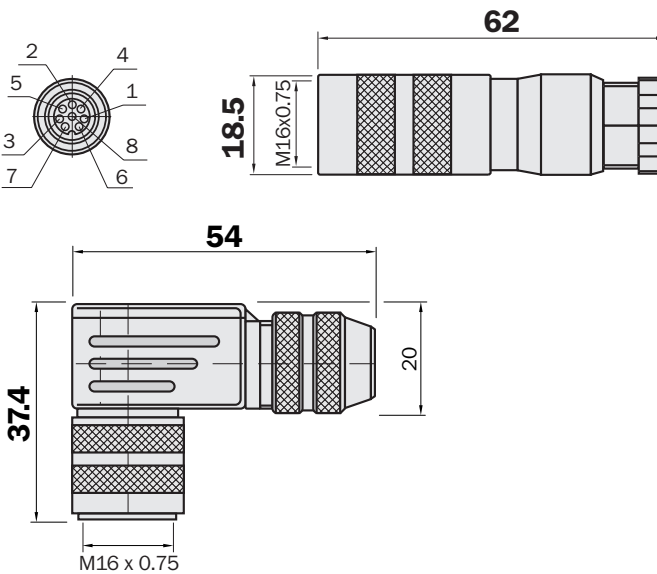
DOS-1612-....



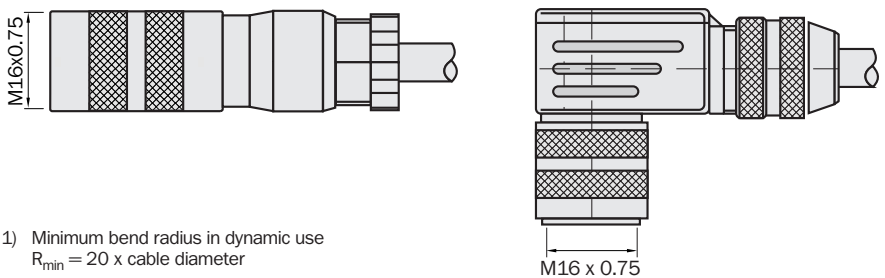
DOL-1612-....



DOS-1608-....



DOL-1608-....



1) Minimum bend radius in dynamic use
 $R_{min} = 20 \times \text{cable diameter}$



Technical data

Nominal voltage U_b		60 V DC
Transit resistance		$\leq 5 \text{ m}\Omega$
Nominal power (40 °C)		5 A (8-pin) 3 A (12-pin)
Test voltage		550 V
Insulation resistance		$\geq 10^{10} \Omega$
Temperature range	DOS-16...	-30 °C ... +95 °C
	LTG-1812-MW/LTG-2010-MW	In fixed position -30 °C ... +80 °C In flexible motion -5 °C ... +70 °C
	LTG-2308-MW	In fixed position -40 °C ... +80 °C In flexible motion -5 °C ... +70 °C
Connector diameter	DOS-1608	Max. 0.75 mm ²
	DOS-1612	Max. 0.25 mm ²
Cable	LTG-1812-MW	PVC, 12 x 0.5 mm ²
	LTG-2010-MW	PVC, 10 x 0.25 mm ² + shield
	LTG-2308-MW	PUR halogenfree (grey), 2 x 0.5 mm ² /6 x 0.25 mm ²
Enclosure rating		IP 67
Contact		CuZn, gold plated
Housing connector		Zinc die-cast housing, Brass, chrome plated

Order information

Round connectors M16 x 0.75 mm for DME

Type	Order no.	Description	Contacts	Cable	Cable length [m]
DOS-1612-G	6 007 092	Female connector straight	12	5 ... 8 mm	terminal screwed
DOS-1612-W	6 007 988	Female connector angled	12	5 ... 8 mm	terminal screwed
DOL-1612-5M-2	2 013 353	Female connector straight	12	PVC (LTG-1812-MW)	5
DOL-1612-5M-3	2 017 568	Female connector straight	12 (10)	PVC (LTG-2010-MW)	5
DOS-1608-GA	6 025 726	Female connector straight	8	6 ... 8 mm	terminal screwed
DOS-1608-WA	6 025 727	Female connector angled	8	6 ... 8 mm	terminal screwed
DOL-1608-G05MA	2 026 742	Female connector straight	8	PUR (LTG-2308-MW)	5
DOL-1608-G10MA	2 027 193	Female connector straight	8	PVC (LTG-2308-MW)	10
DOL-1608-W05MA	2 026 743	Female connector angled	8	PUR (LTG-2308-MW)	5
DOL-1608-W10MA	2 027 194	Female connector angled	8	PVC (LTG-2308-MW)	10

Connecting cables for round connectors M16 x 0.75 mm for DME

Type	Order no.	Description	Cable sheathing	Cable length [m]
LTG-1812-MW	6 009 219	For DME 2000, 12 wire	PVC	by the metre
LTG-2010-MW	6 008 596	For DME 3000, 10 leads paired and shielded	PVC	by the metre
LTG-2308-MW	6 026 292	For DME 5000, 8 leads paired and shielded	PUR (grey)	by the metre

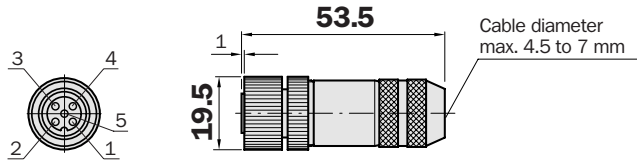
For DME 3000 and DME 5000

Profibus connector

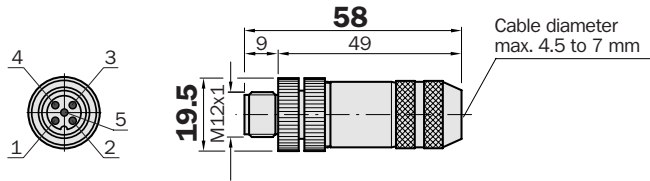
- Gold plated pins
- Profibus-DP signal cable
- Enclosure rating IP 67 (only in fully locked position with its plugs)
- Shielded connection
- Improved resistance to oil and chemicals

Dimensional drawings

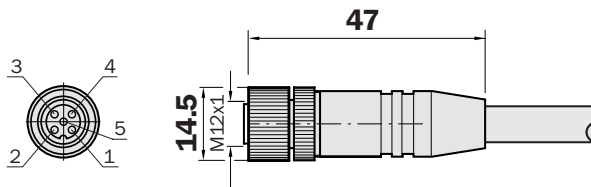
PR-DOS-1205-G



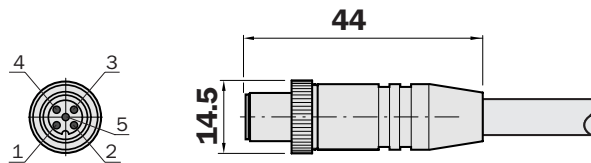
PR-STE-1205-G



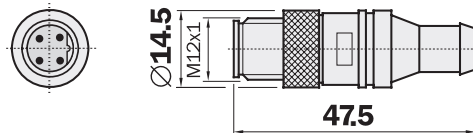
DOL-12PR-G..M



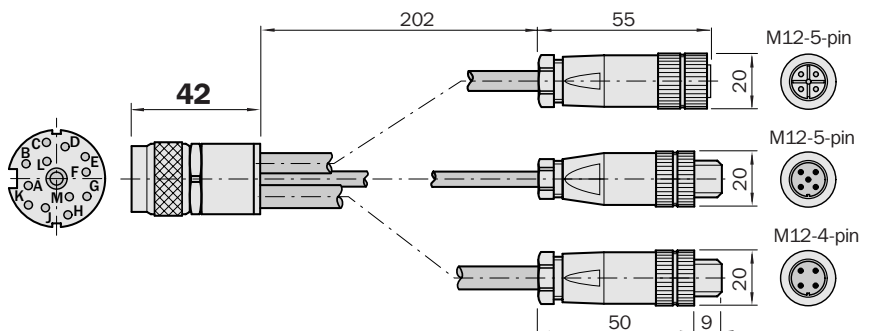
STL-12PR-G..M



PR-STE-END



PR-ADPT-DME



Technical data

Nominal voltage U_b	≤ DC 250 V DC (cable Profibus) 30 V AC/36 V DC (M12, 5-pin)
Transit resistance	≤ 5 mΩ
Nominal power	4 A/3 A (M16 x 0.75)
Testvoltage	2.0 kV eff./60 s. (cable Profibus) 1.5 kV eff./60 s. (M12, 5-pin)
Insulation group	C acc. VDE 0110
Insulation resistance	≥ 2.5 x 10 ⁹ Ω/km
Operating capacity	≤ 25 pF/m, 800/s (A/A)
Wave impedance	160 Ω ±10 %
Temperature range	In fixed position -40 °C ... +80 °C In flexible motion -5 °C ... +80 °C
Bending radius	> 100 mm (appropriate for drag cable use)
Cable	PUR halogenfree, colour violett (2 x 0.34 mm ² + secondary sheathed flex wire + shield)
Screening	AL-PT film (core screening) C screen tin-plated (overall shield)
Contact	CuZn, gold plated
Connector	Molding TPU, colour black
Housing connector terminal screwed	CuZn, brass nickeled
Connector diameter	Max. 0.75 mm ² (screw terminals)

Order information

Profibus connector, M12 (B-coded), straight for DME 3000 and DME 5000

Type	Order no.	Description	Contacts	Specification	Cable	Cable length [m]
PR-DOS-1205-G	6 021 353	Female connector	5	360° shield on locking nut	4 ... 8 mm	terminal screwed
PR-STE-1205-G	6 021 354	Male connector	5	360° shield on locking nut	4 ... 8 mm	terminal screwed
DOL-12PR-G05M	6 026 006	Female connector	5	360° shield on locking nut	PUR-violet (Profibus)	5
DOL-12PR-G10M	6 026 008	Female connector	5	360° shield on locking nut	PUR-violet (Profibus)	10
STL-12PR-G05M	6 026 005	Male connector	5	360° shield on locking nut	PUR-violet (Profibus)	5
STL-12PR-G10M	6 026 007	Male connector	5	360° shield on locking nut	PUR-violet (Profibus)	10
PRE-STE-END	6 021 156	Male connector	4	Profibus terminal-resistor		

Profibus connector for DME 3000, connection adapter/male connector

Type	Order no.	Connection adapter, female connector	Male (2 x)/female connector	Cable length [m]
PR-ADPT-DME	2 021 463	M16 x 0.75 mm, 12-pin	M12 x 1 mm, 4-/5-pin	0.2

Profibus connector for DME 3000 and DME 5000, cable

Type	Order no.	Description	Cable sheathing	Cable length [m]
LTG-2102-MW	6 021 355	Profibus specification (signal cable)	PUR (violet)	by the metre

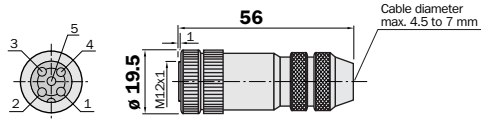
For DME 5000

Devicenet connector

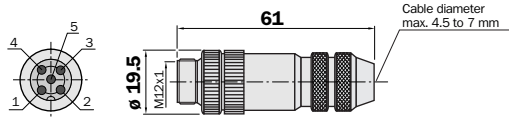
- Gold plated pins
- Device Net specification
(Connection 7/8" and M12 x 1)
- Enclosure rating IP 67 (only in fully locked position with its plugs)
- Cable conforming to DeviceNet specification
- Improved resistance to oil and chemicals

Dimensional drawings

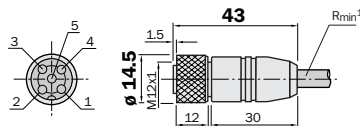
DOS-1205-GA



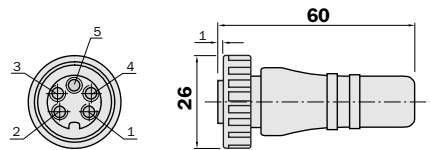
STE-1205-GA



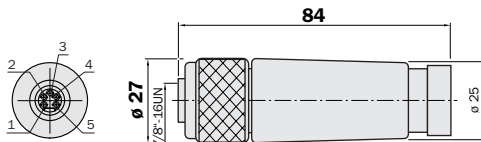
DOL-1205-G06MK



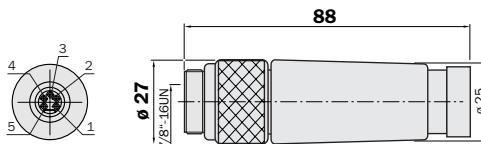
DOS-7805-GKEND



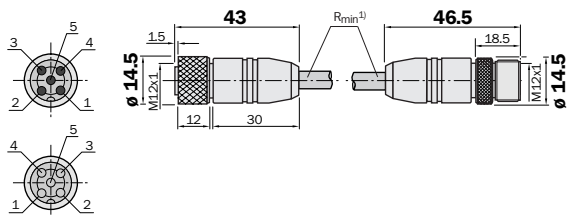
DOS-7805-GK



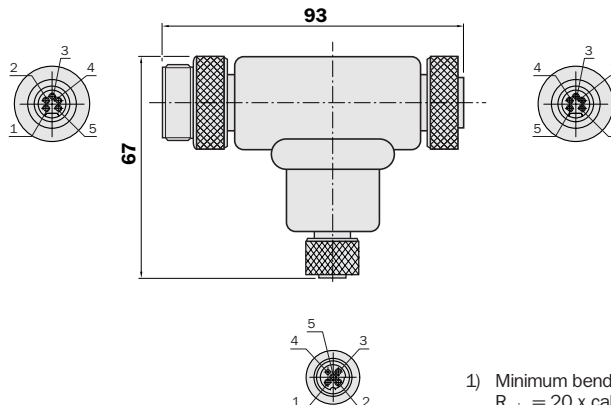
STE-7805-GK



DSL-1205-G06MK



SDO-02D78-SF



1) Minimum bend radius in dynamic use
 $R_{min} = 20 \times \text{cable diameter}$



Technical data	
Nominal voltage U_b	30 V AC/36 V DC (M12, 5-pin) 250 V AC (7/8")
DeviceNet	30 V AC/36 V DC
Transit resistance	≤ 5 mΩ
Nominal power	4 A (M12) 9 A (7/8", 5-pin)
DeviceNet	8 A (Trunk)/4 A (Drop)
Testvoltage	1.2 kV eff.
Conductor resistance	≤ 57.4 Ω/km (voltage supply) ≤ 91.9 Ω/km (data cable)
Insulation resistance	> 10 ¹² Ω/km
Temperature range	In fixed position -40 °C ... +70 °C In flexible motion -10 °C ... +70 °C
Bending radius	> 100 mm (appropriate for drag cable use)
Cable (DeviceNet Dropcable)	2 x 0.34 mm ² (22 AWG)/2 x 0.25 mm ² (24 AWG), stranded together in pairs
Secondary sheathed flex wire	0.34 mm ² (22 AWG)
Screening	AL-PT film (core screening) C screen tin-plated (overall shield)
Connector	Molding TPU, colour black
Connector diameter	Max. 0.75 mm ² (M12-screw terminals) Max. 1.5 mm ² (7/8"-screw terminals)
Housing connector (terminal screwed)	CuZn, brass nicked (M12) PA 6.6, self-extinguishing (7/8")

Order information

DeviceNet connector for DME 5000, 5-pin, straight

Type	Order no.	Description	Specification	Cable	Cable length [m]
DOS-1205-GA	6 027 534	Female connector, M12	360° shield on locking nut	4 ... 8 m	terminal screwed
STE-1205-GA	6 027 533	Male connector, M12	360° shield on locking nut	4 ... 8 m	terminal screwed
DOL-1205-G06MK	6 028 326	Female connector, M12	360° overall shield on locking nut	Dropcable (PUR black)	6
DOS-7805-GKEND	6 028 329	Female connector, 7/8"	DeviceNet terminalresistor, 7/8"		
DOS-7805-GK	6 028 331	Female connector, 7/8"	PG16	12.0 ... 14.0 mm	terminal screwed
STE-7805-GK	6 028 332	Male connector, 7/8"	PG16	12.0 ... 14.0 mm	terminal screwed

DeviceNet connector for DME 5000, female connector M12, 5-pin, straight and male connector, straight, M12, 5-pin, straight

Type	Order no.	Shield	Cable	Cable length [m]
DSL-1205-G06MK	6 028 327	360° overall shield on locking nut	Dropcable (PUR-black)	6

DeviceNet connector for DME 5000, T-Junction, female connector (Drop). M12, 5-pin

Type	Order no.	T-Junction, female connector (Drop)	Female/male connector (Trunk)	Molding
SDO-02D78-SF	6 028 330	M12 x 1 mm, 5-pin	7/8", 5-pin	TPU

DeviceNet connector for DME 5000, cable

Type	Order no.	Description	Cable sheathing	Cable length [m]
LTG-2804-MW	6 028 328	DeviceNet Spezifikation (Dropcable)	PUR (black)	by the metre

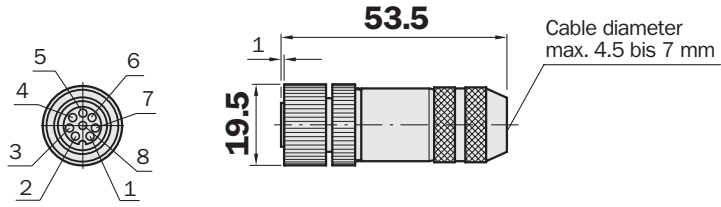
For Hiperface interface

Hiperface connectors

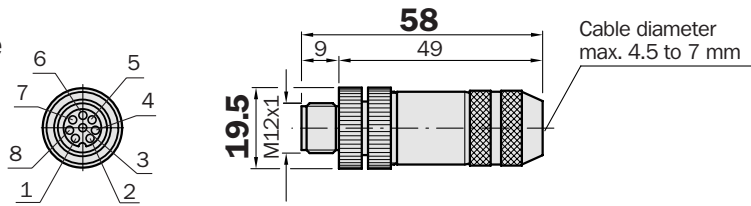
- Gold plated pins
- Especially suitable for use of Hiperface interfaces
- 360° shield on locking nut
- PUR cable, stranded together in pairs, shielded
- Enclosure rating IP 67 (only in fully locked position with its plugs)
- Halogenfree, PVC-free, silicone-free cable
- Resistant to coolants and lubricants

Dimensional drawings

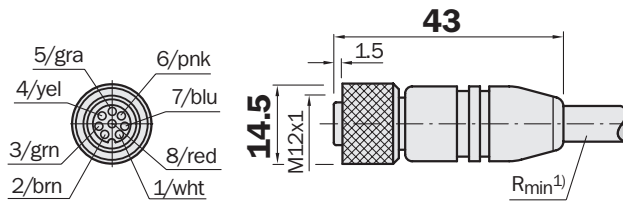
DOS-1208-GA



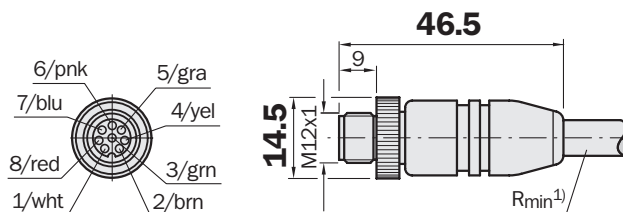
STE-1208-GA



DOL-1208-G...MAC1



STL-1208-G...MAC1



Technical data	
Nominal voltage U_b	30 V AC/36 V DC
Contact resistance	$\leq 5 \text{ m}\Omega$
Nominal power	1.5 A
Test voltage	1.5 kV eff./60 s
Insulation group	C acc. VDE0110
Insulation resistance	$> 10^9 \Omega \cdot \text{km}$
Temperature range	In fixed position $-40^\circ\text{C} \dots +80^\circ\text{C}$ In flexible motion $-20^\circ\text{C} \dots +80^\circ\text{C}$
Molded cable	
Bending radius	$> 20 \times$ Cable diameter
Contact	CuZn, 0.3 μm gold plated
Locking nut	CuZn, brass nickeled
Connector diameter	DOS-1208-GA, STE-1208-GA max. 0.75 mm ²
Cable	PUR halogenfree, colour black, (4 x 2 x 0.25 mm ²)
Connector	TPU, colour black
Terminal screwed connector	
Contact	CuZn, pre-nickeled, 2 ... 4 μm CuSnZn
Connection type	Connector
Housing	CuZn, brass nickeled

Order information

Hiperface round connector M12, 8-pin, leads paired and shielded

Type	Order no.	Description	Shield	Cable length [m]	Cable
DOS-1208-GA	6 028 369	Female connector straight	360° shield on locking nut	terminal screwed	4 ... 8 mm
STE-1208-GA	6 028 370	Male connector straight	360° shield on locking nut	terminal screwed	4 ... 8 mm
DOL-1208-G02MAC1	6 032 448	Female connector straight	360° shield on locking nut	2	PUR halogenfree
DOL-1208-G05MAC1	6 032 449	Female connector straight	360° shield on locking nut	5	PUR halogenfree
DOL-1208-G10MAC1	6 032 450	Female connector straight	360° shield on locking nut	10	PUR halogenfree
DOL-1208-G20MAC1	6 032 451	Female connector straight	360° shield on locking nut	20	PUR halogenfree
STL-1208-G02MAC1	6 032 452	Male connector straight	360° shield on locking nut	2	PUR halogenfree
STL-1208-G05MAC1	6 032 453	Male connector straight	360° shield on locking nut	5	PUR halogenfree
STL-1208-G10MAC1	6 032 454	Male connector straight	360° shield on locking nut	10	PUR halogenfree
STL-1208-G20MAC1	6 032 455	Male connector straight	360° shield on locking nut	20	PUR halogenfree

Hiperface round connector M12, 8-pin, leads paired and shielded

Type	Order no.	Description	Cable length [m]	Cable
LTG-3108-MW	6 032 456	leads paired and shielded (4 x 2 x 0.25 mm ²) (Hiperface signal cable)	by the metre	PUR halogenfree (black)

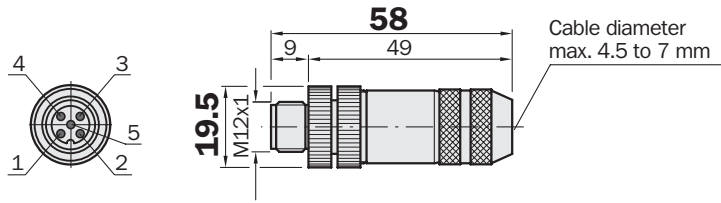
For Ethernet interface

Ethernet connectors

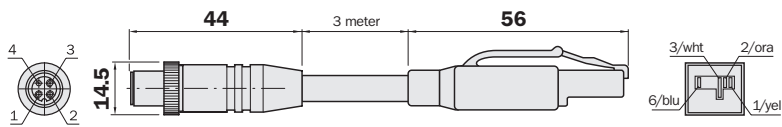
- Gold plated pins
- Ethernet CAT 5 and CAT 6 signal cable
- Enclosure rating IP 20 to IP 67 (RJ45), IP 67 (M12), (connected/fully locked position)
- Shielded connection (M12-D-coded)
- Cable conforming to Ethernet specification

Dimensional drawings

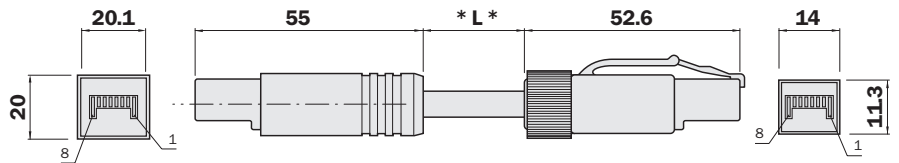
STE-1204-GE



SSL-2J04-G03ME



SSL-2J04-G03ME



Technical data

Nominal voltage U_b	36 V DC 3
Test voltage	700 V
Cable resistance	Acc. CAT 5 resp. CAT 6, Ethernet Spec.
Cable impedance	Acc. CAT 5 resp. CAT 6, Ethernet Spec.
Temperature range	-40 °C ... +70 °C
Bending radius	> 8 x Cable diameter
Cable	PVC, green
Screening	AL-PT film (core screening) C- screen tin-plated (overall shield)
Contact	CuZn, gold plated
Connector	Polycarbonate, colour black
Housing connector terminal screwed	CuZn, brass nickeled
Connector diameter	Max. 0.75 mm ² (screw terminals)
Cable	8-wired, CAT 6, AWG 27/7, double-shielded 4-wired, CAT 5, AWG 22/7, shielded

Order information

Ethernet connector, M12 (D-coded), 4-pin, straight, (IP67), terminal screwed

Type	Order no.	Description	Shield	Connection
STE-1204-GE	6 032 802	Male connector (D-coded) straight	360° shield on locking nut	terminal screwed

Ethernet Patch connector (CAT 5), male connector (IP 67), M12 (D-coded), 4-pin, straight and male connector RJ45 (IP 20)

Type	Order no.	Description	Shield	Cable length [m]	Cable
SSL-2J04-G03ME	6 029 630	Male connector/ male connector straight	360° shield on locking nut M12	3	Ethernet Patch PVC green

Ethernet Gigabit connector (CAT 6), male connector RJ45 (IP 67, Push-Pull) and male connector RJ45 (IP 20), 8-pin

Type	Order no.	Description	Cable length [m]	Cable
SSL-OJ08-G05ME	6 032 321	Male connector/ male connector straight	5	Ethernet Gigabit PVC green
SSL-OJ08-G10ME	6 032 322	Male connector/ male connector straight	10	Ethernet Gigabit PVC green
SSL-OJ08-G20ME	6 032 323	Male connector/ male connector straight	20	Ethernet Gigabit PVC green

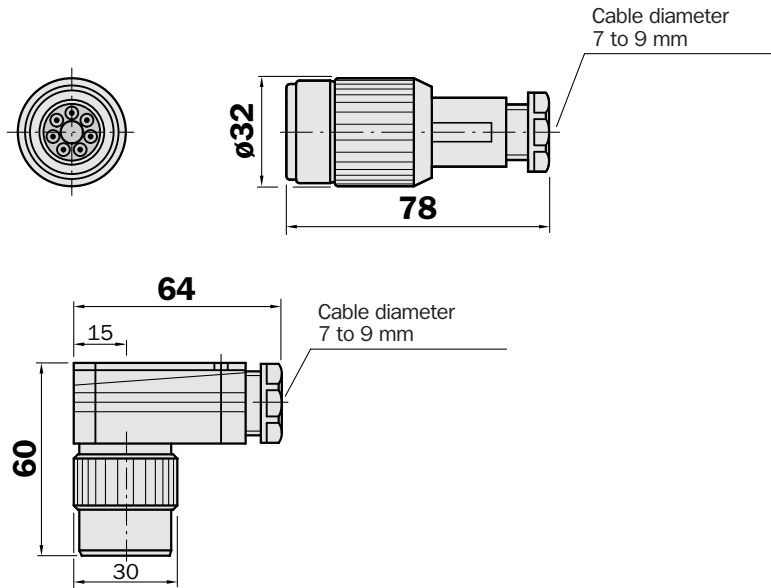
Terminal screwed

Round connectors

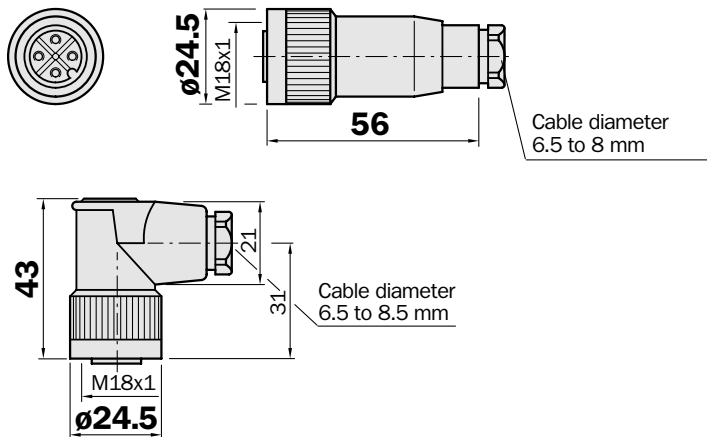
- Silver-plated contacts
- Enclosure rating
 - IP 65 (DOS-0606...)
 - IP 65 (DOS-1804...)
 - IP 66 (DOS-2606...)
 (only in fully locked position with its plugs)
- Utilisation of round plug connectors for connecting special sensors

Dimensional drawings

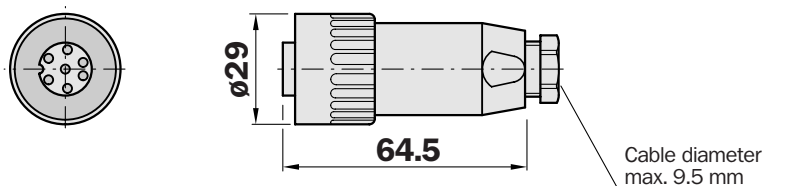
DOS-0606-



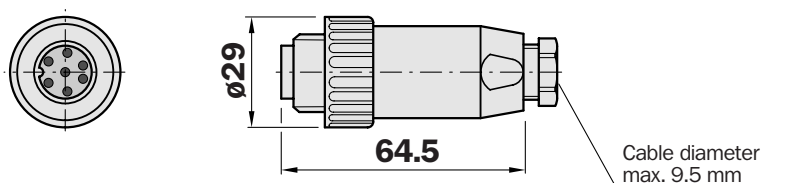
DOS-1804-



DOS-2606-G



STE-2606-G



Technical data

Nominal voltage U_b		250 V AC/300 V DC
Transit resistance		≤ 5 mΩ
		≤ 8 mΩ (DOS-1804...)
Nominal power	DOS-0606..., DOS-2606...	10 A (45 °C)
	DOS-1804...	16 A (40 °C)
Insulation resistance	DOS-0606..., DOS-2606...	≥ 10 ¹⁰ Ω
	DOS-1804...	≥ 10 ¹⁰ Ω
Connector diameter	DOS-0606	0.5 ... 1.5 mm ² (crimping)
	DOS-1804	max. 1.5 mm ² (screw connection)
	DOS/STE-2606	max. 0.75 mm ² (solder)
Housing material	DOS-0606...	Plastic, fibre glass reinforced
	DOS-1804..., DOS-2606...	PA 6.6
Contact		CuZn, Silver-plated

Order information

Round connectors terminal screwed, DIN 43651, M26

Type	Order no.	Description	Contacts	Wire section [mm ²]	Screw joint for cable [mm]	
DOS-0606-G	6 006 612	Female connector	straight	6 + PE	0.5 ... 1.5	7 ... 9
DOS-0606-W	6 006 613	Female connector	angled	6 + PE	0.5 ... 1.5	7 ... 9

Round connectors terminal screwed, M18

Type	Order no.	Description	Contacts	Wire section [mm ²]	Screw joint for cable [mm]	
DOS-1804-G	6 009 436	Female connector	straight	4	max. 1.5	6.5 ... 8.5
DOS-1804-W	6 009 437	Female connector	angled	4	max. 1.5	6.5 ... 8.5

Round connectors terminal screwed, R16, M24

Type	Order no.	Description	Contacts	Wire section [mm ²]	Screw joint for cable [mm]	
STE-2606-G	6 004 193	Male connector	straight	6 + PE	max. 0.75	max. 9.5
DOS-2606-G	6 004 194	Female connector	straight	6 + PE	max. 0.75	max. 9.5

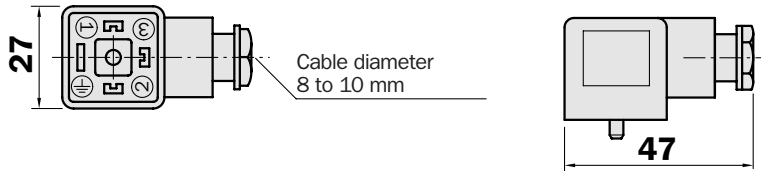
DIN 43650, 43652

Rectangular connector

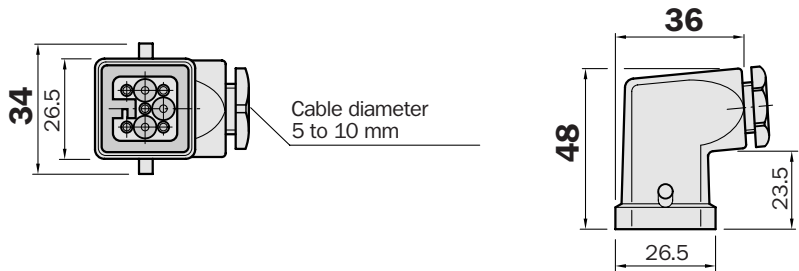
- Enclosure rating IP 65
- Connectors for connection of special sensors
- Connector acc. DIN 43650 (Design A) DIN 43652

Dimensional drawings

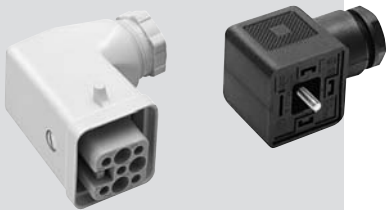
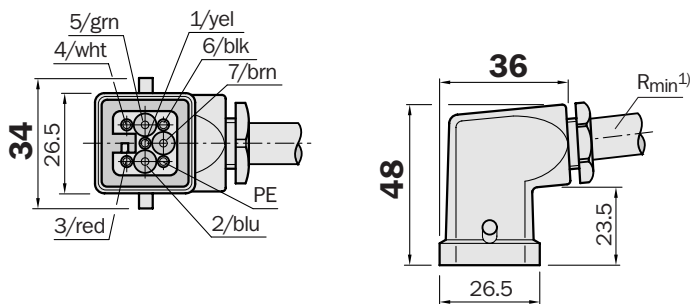
DOS-0303-W



DOS-2707-W



DOL-2706-...M



1) Minimum bend radius in dynamic use
 $R_{min} = 20 \times \text{cable diameter}$

Technical data

Nominal voltage U_b		250 V AC/300 V DC
Transit resistance	DOS-0303...	≤ 15 mΩ
Nominal power	DOS-0303...	10 A
Insulation resistance	DOS-0303	> 10 ¹⁰ Ω
Connector diameter		Max. 1.5 mm ²
Housing material	DOS-0303	PA6
Contact		CuZn, brass nickeled
Cable (DOL-2706...)		PVC (3 x 0.75 mm ² /4 x 0.5 mm ²)

Order information

Rectangular connector, DIN 43650 (Design A)

Type	Order no.	Description	Contacts	Cable	Cable length [m]
DOS-0303-W	6 005 698	Female connector	3 + PE	8 ... 10 mm	terminal screwed

Rectangular connector, DIN 43652 (26.5 x 26.5 mm²)

Type	Order no.	Description	Contacts	Cable	Cable length [m]
DOS-2707-W	2 007 901	Female connector	7 + PE	5 ... 10 mm	terminal screwed
DOL-2706-02M	2 006 545	Female connector	7 + PE	PVC	2
DOL-2706-06M	2 006 860	Female connector	7 + PE	PVC	6
DOL-2706-10M	2 007 595	Female connector	7 + PE	PVC	10

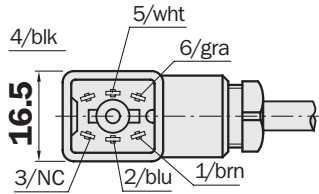
Q6, Q7, DC/AC-coding

Rectangular connector

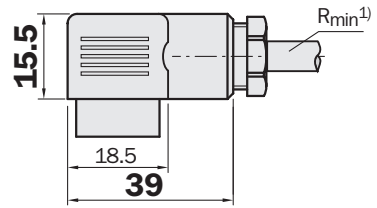
- Enclosure rating IP 65
- Connectors specifically for DC/AC voltage supply
- Connectors for connection of special sensors

Dimensional drawings

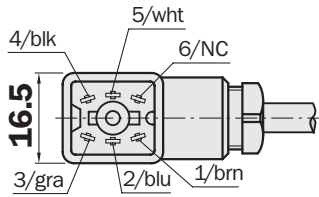
DO-1306-.....



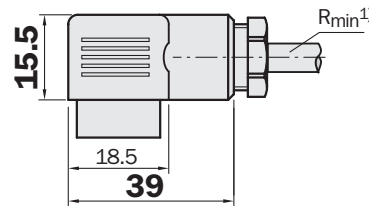
16.5



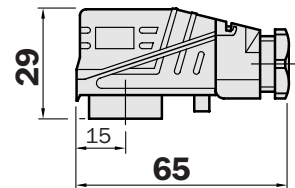
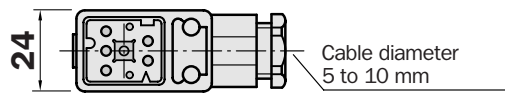
DO-1406-.....



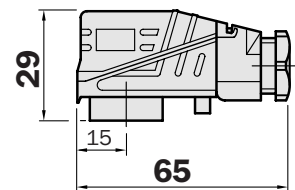
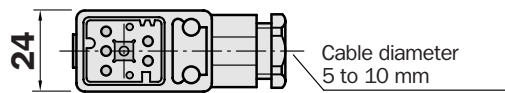
16.5



DOS-2107-W



DOS-2207-W



(DOL-1306, DOL-1406)

1) Minimum bend radius in dynamic use
 $R_{min} = 20 \times \text{cable diameter}$

Technical data

Nominal voltage U_b	250 V AC/300 V DC
Nominal power	6 A
Insulation group	C acc. VDE 0110
Temperature range	-40 °C ... +90 °C (connector)
Connector diameter	Max. 0.5 mm ² (Q6 connector), solder Max. 1.0 mm ² (Q7 connector), screw connection
Cable	PVC (5 x 0.25 mm ² , DC-coding) (5 x 0.5 mm ² , AC-coding)

Order information

Rectangular connector Q6 (16.5 x 18.5 mm²), DC-/AC-coding

Type	Order no.	Description	Contacts	Specification	Cable	Cable length [m]
DOS-1306-W	6 006 710	Female connector	6	DC-coding	5 ... 8 mm	terminal screwed
DOL-1306-W02M	6 030 217	Female connector	6	DC-coding	PVC	2
DOL-1306-W03M	6 030 218	Female connector	6	DC-coding	PVC	3
DOL-1306-W05M5	6 030 219	Female connector	6	DC-coding	PVC	5.5
DOL-1306-W10M	6 030 220	Female connector	6	DC-coding	PVC	10
DOS-1406-W	6 006 685	Female connector	6	AC-coding	5 ... 8 mm	terminal screwed
DOL-1406-W02M	6 030 221	Female connector	6	AC-coding	PVC	2
DOL-1406-W03M	6 030 222	Female connector	6	AC-coding	PVC	3
DOL-1406-W05M5	6 030 223	Female connector	6	AC-coding	PVC	5.5
DOL-1406-W10M	6 030 224	Female connector	6	AC-coding	PVC	10

Rectangular connector Q7 (24 x 30 mm²), DC-/AC-coding

Type	Order no.	Description	Contacts	Specification	Cable	Cable length [m]
DOS-2107-W	6 006 823	Female connector	7	DC-coding	5 ... 10 mm	terminal screwed
DOS-2207-W	6 006 821	Female connector	7	AC-coding	5 ... 10 mm	terminal screwed

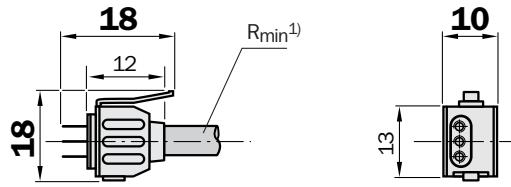
For WLL 190T

Connector

- Connectors for connection of WLL 190T sensors
- Gold plated pins
- Master-/Slave connector

Dimensional drawings

DOL-LL19...M



1) Minimum bend radius in dynamic use
 $R_{min} = 20 \times \text{cable diameter}$

Technical data

Nominal voltage U_b	10 ... 30 V DC
Nominal power	100 mA (see sensor WLL 190 T)
Temperature range	-20 °C ... +50 °C
Contact	CUZn, gold plated
Cable	PVC, colour grey
	(3 x 0.14 mm ² , master-cable)
	(1 x 0.14 mm ² , slave-cable)

Order information

Connector for WLL 190 T

Type	Order no.	Description	Contacts	Specification	Cable	Cable length [m]
DOL-LL1903-02M	6 026 578	Male connector	3	Master, 3 active pins	PVC	2
DOL-LL1903-05M	6 028 379	Male connector	3	Master, 3 active pins	PVC	5
DOL-LL1901-02M	6 026 579	Male connector	3 (1)	Slave, 1 active pin	PVC	2
DOL-LL1901-05M	6 028 380	Male connector	3 (1)	Slave, 1 active pin	PVC	5

Bus connector for WLL 190 T/WI 130L

Type	Order no.	Description	Contacts	Specification
STE-WLL190-03P	6 026 581	Male connector	3	Software bus
STE-WLL190-05P	6 026 580	Male connector	5	Hardware bus for wire-saving

Selection table for mounting brackets, clamps and articulated mountings

Sensor	Description	Type	Order no.
ST 130-S13, -S19, -S23, -S29	Mounting bracket	BEF-130-SM	5 306 246
ST 130-S33	Mounting bracket	BEF-130-SP	5 306 245
SS/SE 130-S33	Mounting bracket	BEF-130-ST	5 306 244
SI 130	Mounting bracket	BEF-WLL160	5 305 400
W 4-2	Mini ball joint bracket	BEF-GH-MINI01	2 023 160
W 150	Mounting bracket, horizontal*)	BEF-W150-A	5 306 217
W 150	Mounting bracket, vertical*)	BEF-W150-B	5 306 279
W 160	Mounting bracket	BEF-W160	5 305 197
WLL 160	Mounting bracket	BEF-WLL16	5 305 400
W 170	Mounting bracket	BEF-W170	5 305 686
WLL 170/WLL 190	Mounting bracket	BEF-WLL170	5 306 574
W 9-2	Mounting bracket	BEF-WN-W9-2	2 022 855
W 12-2, W 12L-2	Clamp	BEF-KH-W12	2 013 285
W 12-2, W 12L-2	Double clamp	BEF-DKH-W12	2 013 947
W 12-2, W 12L-2	Clamp for top-hat rail	BEF-HPS-W12	2 018 060
W 12-2, W 12L-2	Mounting bracket, large	BEF-WG-W12	2 013 942
W 12-2, W 12L-2	Mounting bracket, small	BEF-WK-W12	2 012 938
W 14-2, W 18-3	Mounting bracket	BEF-WN-W14	2 019 084
W 14-2, W 18-3	Mounting bracket	BEF-WN-W18	2 009 317
W 23-2, W 27-3	Mounting bracket	BEF-WN-W23	2 019 085
W 23-2, W 27-3	Mounting bracket	BEF-WN-W27	2 009 122
WTA 24, W 24-2, W 24 Exi, W 34	Mounting bracket, large	BEF-WG-W24	4 026 324
W 24-2, W 24 Exi, W 34	Mounting bracket, small	BEF-WK-W24	4 027 532
W 250	Mounting bracket	BEF-W250	5 305 850
W 260	Mounting bracket	BEF-W260	5 304 819
W 30, W 32, W 34	Mounting bracket	BEF-WN-W32	2 005 806
W 45	Universal joint, complete	BEF-KK-W45	2 011 436
W 45	Mounting bracket	BEF-WN-W45	2 011 480
V 12, IM 12, MM 12	Mounting bracket	BEF-WN-M12	5 308 447
V 18, IM 18, MM 18, CM 18	Mounting bracket	BEF-WN-M18	5 308 446
IM 30, CM 30	Mounting bracket	BEF-WN-M30	5 308 445
V 18, IM 18, MM 18, CM 18	Mounting bracket with ball-joint	BEF-WN-M18-ST02	5 312 973
WTR, WLR	Mounting bracket	BEF-WN-WTR	2 017 417
WLG 12	Mounting bracket	BEF-WN-WLG12	2 017 567
KT 2	Clamp	BEF-KH-W12	2 013 285
KT 2	Double clamp	BEF-DKH-W12	2 013 947
KT 2	Mounting bracket, large	BEF-WG-W12	2 013 942
KT 2	Mounting bracket, small	BEF-WK-W12	2 012 938
KT 3	Mounting bracket	BEF-WN-W9-2	2 022 855
DS 60	Mounting bracket	BEF-WN-DS60	4 032 937
DME 2000/3000	Articulated mounting	BEF-GH-DME	2 015 229
DMH/DMP	Articulated mounting	BEF-GH-DMH2	2 020 796
DMT/DML	Articulated mounting	BEF-GH-DMT	5 309 130
LUT	Articulated mounting	BEF-GH-LUT1-5	1 005 580
ISD 230/260/280	Three-point mounting	BEF-KH-ISD	5 306 369

*) including mounting material

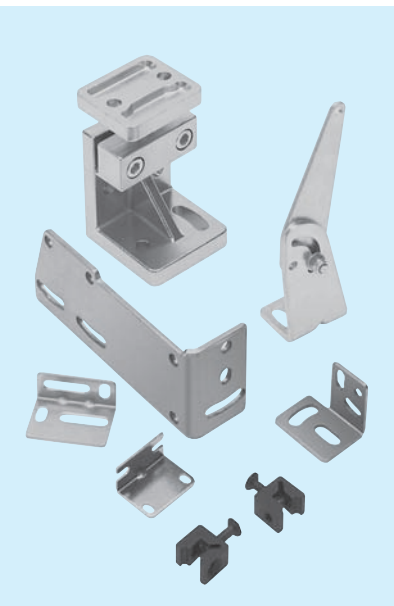


Table of adapters for pneumatic cylinders

For unit	Description	Type	Order no.
MZT 6/RZT 6, MZT 1/RZT 1	Mounting bracket for profile-/tie-rod cylinders	BEF-KHZ-PT1	2 022 702
MZT 6/RZT 6, MZT 1/RZT 1	Mounting bracket for round body cylinder/piston diameters of 8 ... 25 mm	BEF-KHZ-RT1-25	5 311 171
MZT 6/RZT 6, MZT 1/RZT 1	Mounting bracket for round body cylinder/piston diameters of 8 ... 63 mm	BEF-KHZ-RT1-63	5 311 172
MZT 6/RZT 6, MZT 1/RZT 1	Mounting bracket for cylinders with a dovetail slot	BEF-KHZ-ST1	2 022 703
MZU 2	Clamping piece for cylinder with "T" slot/dovetail slot	BEF-KS-U2-T1	2 019 822
MZU 2	Clamping piece for tie-rod cylinder	BEF-KS-U2-S1	4 030 922
MZU 2	Clamping piece for tie-rod cylinder (Teflon)	BEF-KS-U2-S1T	4 031 632
MZU 2	Clamping piece for profile rod cylinders up to a rod width 13 mm	BEF-KS-U2-P1	2 019 824
MZU 2	Clamping piece for profile rod cylinders up to a rod width 18 mm	BEF-KS-U2-P2	2 019 823

Table of mounting clamps for magnetic cylinder sensors MZR 1 on round body cylinders

For unit	Description	Type	Order no.
MZR 1	Cylinders with piston diameter 8 mm	BEF-S-R1-08	7 902 337
MZR 1	Cylinders with piston diameter 10 mm	BEF-S-R1-10	7 901 753
MZR 1	Cylinders with piston diameter 12 mm	BEF-S-R1-12	7 901 754
MZR 1	Cylinders with piston diameter 16 mm	BEF-S-R1-16	7 901 755
MZR 1	Cylinders with piston diameter 20 mm	BEF-S-R1-20	7 901 756
MZR 1	Cylinders with piston diameter 25 mm	BEF-S-R1-25	7 901 757
MZR 1	Cylinders with piston diameter 32 mm	BEF-S-R1-32	7 901 758
MZR 1	Cylinders with piston diameter 40 mm	BEF-S-R1-40	7 901 759
MZR 1	Cylinders with piston diameter 50 mm	BEF-S-R1-50	7 901 760
MZR 1	Cylinders with piston diameter 63 mm	BEF-S-R1-63	7 901 761

Table of clamping bands for magnetic cylinder sensors MZR 2 on round body cylinders

For unit	Description	Type	Order no.
MZR 2	Cylinders with piston diameter 8 ... 16 mm	BEF-S-R2-16	7 901 762
MZR 2	Cylinders with piston diameter 20 or 25 mm	BEF-S-R2-25	7 901 763
MZR 2	Cylinders with piston diameter 32 mm	BEF-S-R2-30	7 901 764
MZR 2	Cylinders with piston diameter 40 mm	BEF-S-R2-40	7 901 765
MZR 2	Cylinders with piston diameter 50 mm	BEF-S-R2-50	7 901 766
MZR 2	Cylinders with piston diameter 63 mm	BEF-S-R2-63	7 901 767
MZR 2	Cylinders with piston diameter 80 mm	BEF-S-R2-80	7 901 768
MZR 2	Cylinders with piston diameter 100 mm	BEF-S-R2-100	7 901 769

Selection table for clamps
Universal clamps, rod mounting

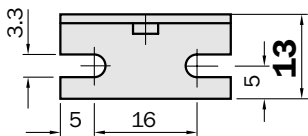
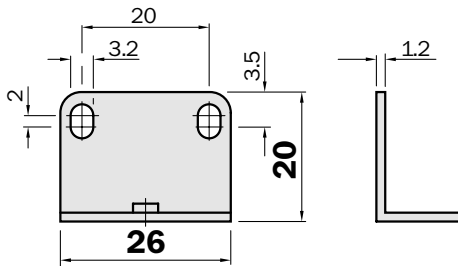
For equipment	Description	Type	Order no.**
Bar clamps			
W 23-2, W 27-3	Universal clamp/plate A	BEF-KHS-A01	2 022 458
P 250, P 250 F, PL 30 A, PL 40 A, PL 50 A, PL 80 A, C 110	Universal clamp/plate B	BEF-KHS-B01	2 022 459
W 14-2, W 18-3	Universal clamp/plate C	BEF-KHS-C01	2 022 460
W 11, W 12-2, W 12L-2, KT 2	Universal clamp/plate D	BEF-KHS-D01	2 022 461
W 30, W 32, W 34, W 36	Universal clamp/plate E	BEF-KHS-E01	2 022 462
PL 20 A, PL 20 F, P 250, P 250 F, W 260, W 280	Universal clamp/plate F	BEF-KHS-F01	2 022 463
W 24-2, W 24 Exi, WTA 24, KT 5, KT 10, CS 1/3, LUT 3	Universal clamp/plate G	BEF-KHS-G01	2 022 464
V 18, W 4-2, IM 18, MM 18, CM 18, UM 18	Universal clamp/plate H	BEF-KHS-H01	2 022 465
PL 20 A, PL 20 F, PL 40 A, PL 50 A, P 250, P 250 F, C 110	Universal clamp/plate J	BEF-KHS-J01	2 022 719
W 11, W 12-2, W 12L-2, W 14-2, W 18-3, W 23-2, W 24-2, W 27-3	Universal clamp/plate K	BEF-KHS-K01	2 022 718
W 30, W 32, W 34, W 36, KT 5, KT 10, CS, LUT 3, DS 60, PL 20 A, PL 20 F, PL 30 A, PL 40 A, PL 50 A, PL 80 A, P 250, P 250 F, C 110, W 280			
W 9-2, KT 3, P 250, P 250 F, W 250, W 140-2, W 150, W 160	Universal clamp/plate L	BEF-KHS-L01	2 023 057
Clamp without mounting plate		BEF-KHS-KH1	2 022 726

**) Order No. includes bar clip and installation material

Dimensional drawings and order information

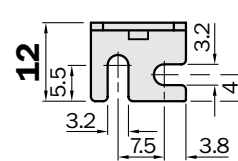
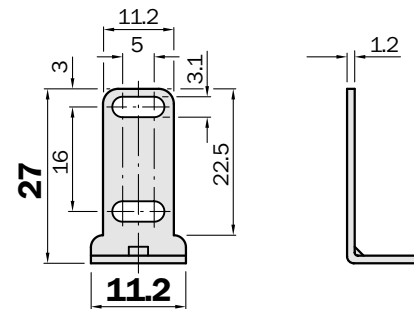
Mounting bracket for ST 130-S13, -S19, -S23, -S29 *)

Type	Order no.
BEF-130-SM	5 306 246



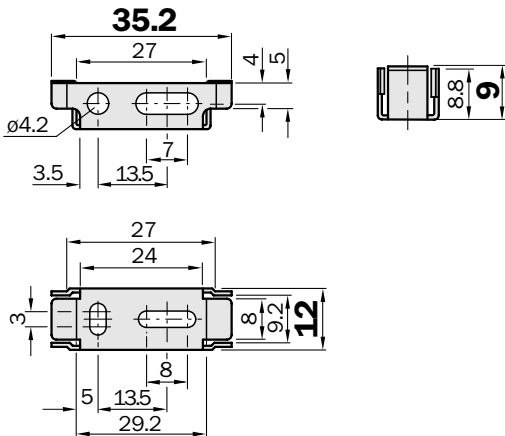
Mounting bracket for ST 130-S33*)

Type	Order no.
BEF-130-SP	5 306 245



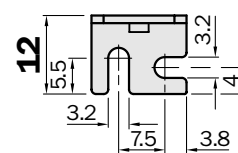
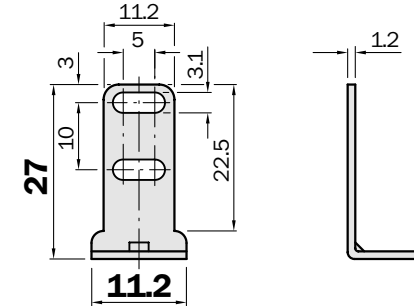
Mounting bracket for SI 130*), WLL 160*)

Type	Order no.
BEF-WLL 160	5 305 400



Mounting bracket for SS/SE 130-S33*)

Type	Order no.
BEF-130-ST	5 306 244

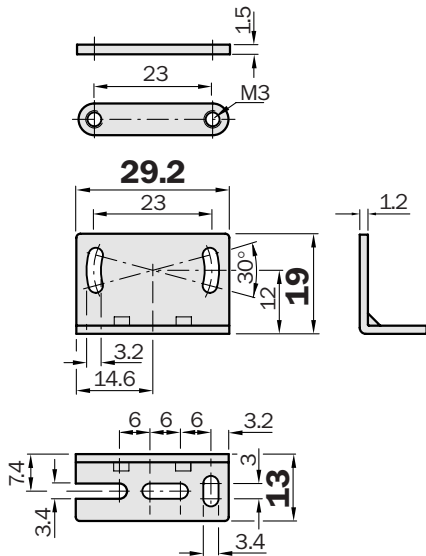


*) Included with delivery

Dimensional drawings and order information

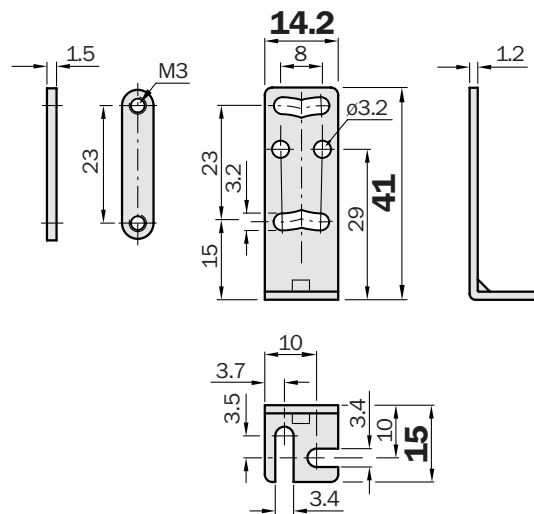
Mounting bracket, horizontal for W 150*)

Type	Order no.
BEF-W150-A	5 306 217



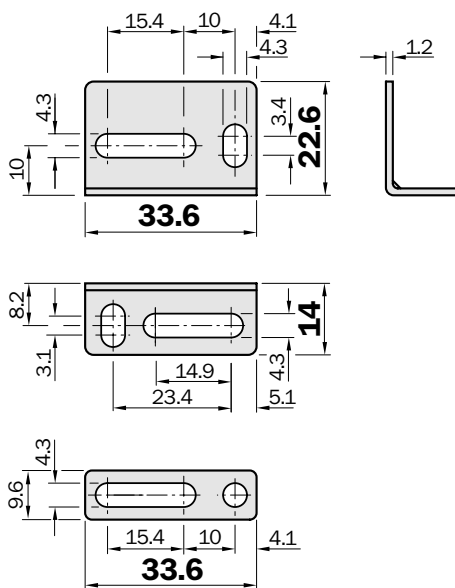
Mounting bracket, vertical for W 150*)

Type	Order no.
BEF-W150-B	5 306 279



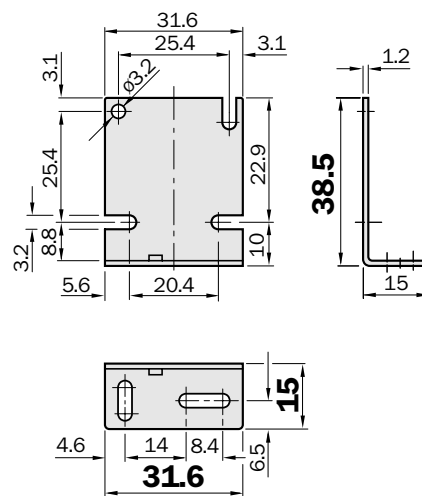
Mounting bracket for W 160*)

Type	Order no.
BEF-W160	5 305 197



Mounting bracket for W 170*)

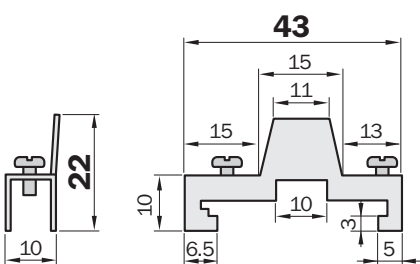
Type	Order no.
BEF-W170	5 305 686



Endcap for block installation WLL 190T/WI130L on DIN-RAIL mounting 1)

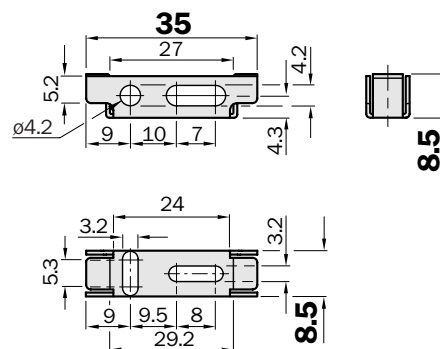
Type	Order no.
BF-EB01-W190	5 313 011

1) 2 pieces included with delivery WLL190T



Mounting bracket for WLL 170*), WLL 190*)

Type	Order no.
BEF-WLL170	5 306 574

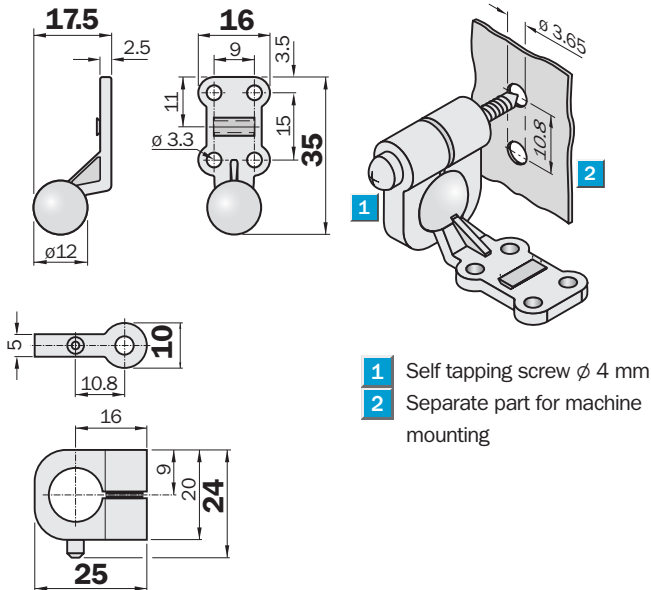


*) Included with delivery

Dimensional drawings and order information

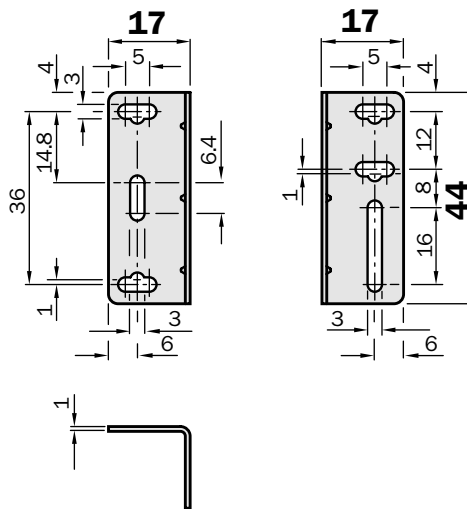
Mini ball joint bracket for W 4-2

Type	Order no.
BEF-GH-MINI01	2 023 160



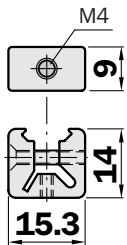
Mounting bracket for W 9-2, KT 3

Type	Order no.
BEF-WN-W9-2	2 022 855



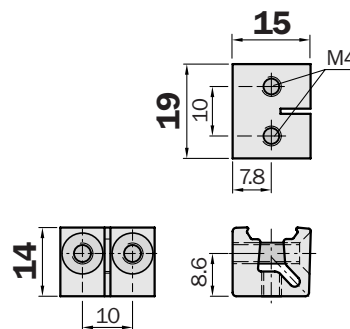
Clamp for W 12-2, W 12L-2, KT 2

Type	Order no.	Notes
BEF-KH-W12	2 013 285	Countersunk screw M4 x 15 mm included with delivery



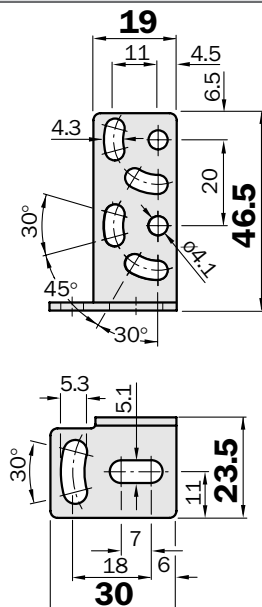
Double clamp for W 12-2, W 12L-2, KT 2

Type	Order no.	Notes
BEF-DKH-W12	2 013 947	2 countersunk screws M4 x 15 mm included with delivery



Mounting bracket, large (stainless steel) for W 12-2, W 12L-2, KT 2

Type	Order no.
BEF-WG-W12	2 013 942

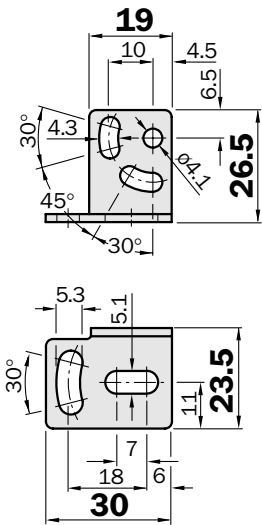


*) TS 32 acc. to EN 50022

Dimensional drawings and order information

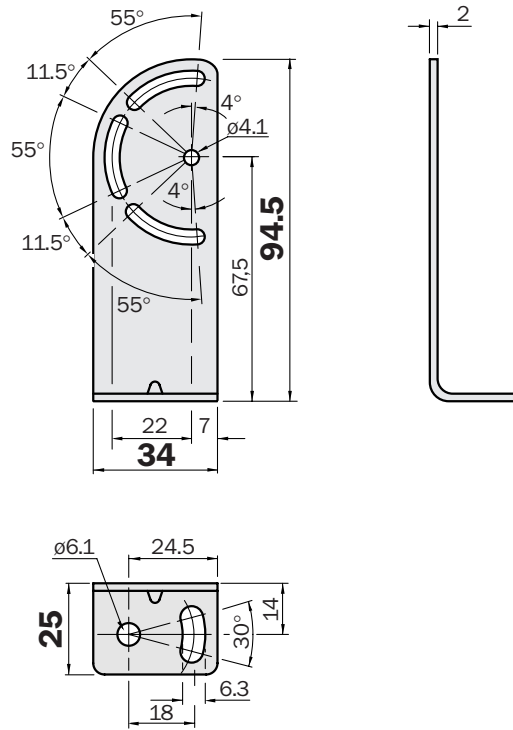
Mounting bracket, small (stainless steel) for W 12-2, W 12L-2, KT 2

Type	Order no.
BEF-WK-W12	2 012 938



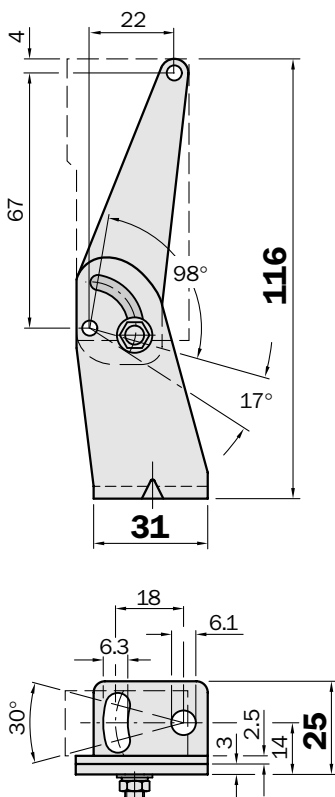
Mounting bracket for W 14-2, W 18-3

Type	Order no.
BEF-WN-W14	2 019 084



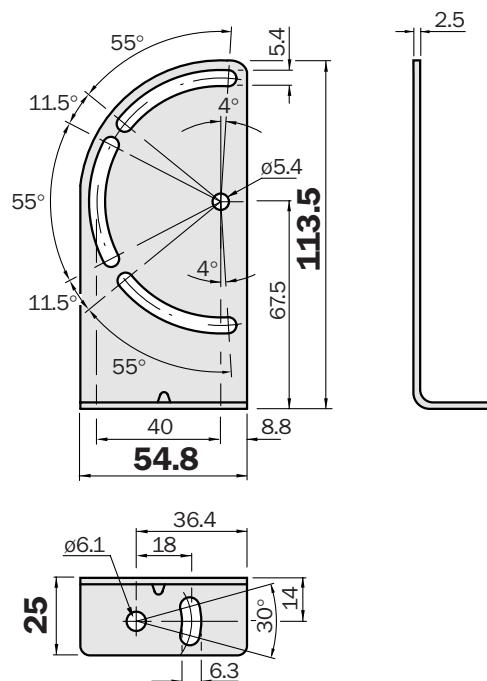
Mounting bracket for W 14-2, W 18-3

Type	Order no.
BEF-WN-W18	2 009 317



Mounting bracket for W 23-2, W 27-3

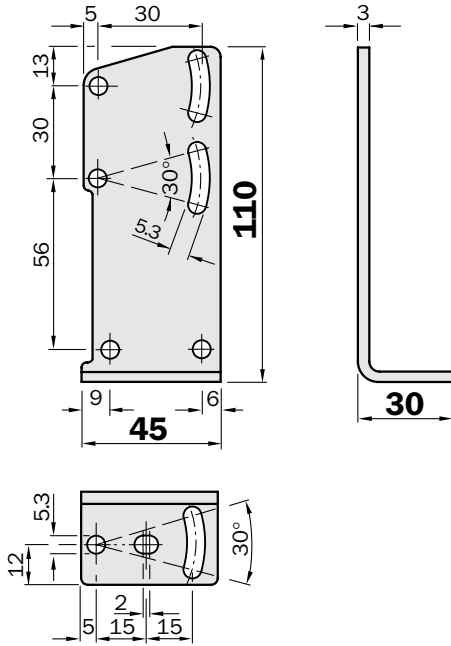
Type	Order no.
BEF-WN-W23	2 019 085



Dimensional drawings and order information

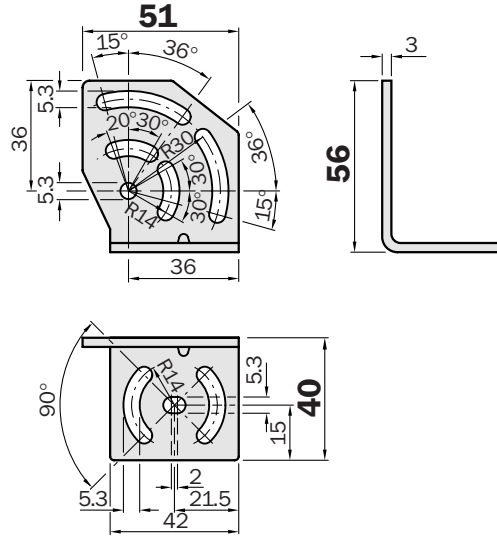
Mounting bracket, large (stainless steel) for W 24-2, W 24 Exi, WTA 24, W 34

Type	Order no.
BEF-WG-W24	4 026 324



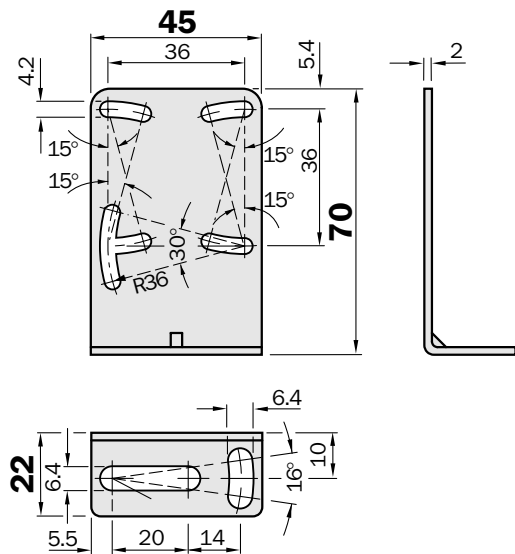
Mounting bracket, small (stainless steel) for W 24-2, W 24 Exi, WTA 24, W 34

Type	Order no.
BEF-WK-W24	4 027 532



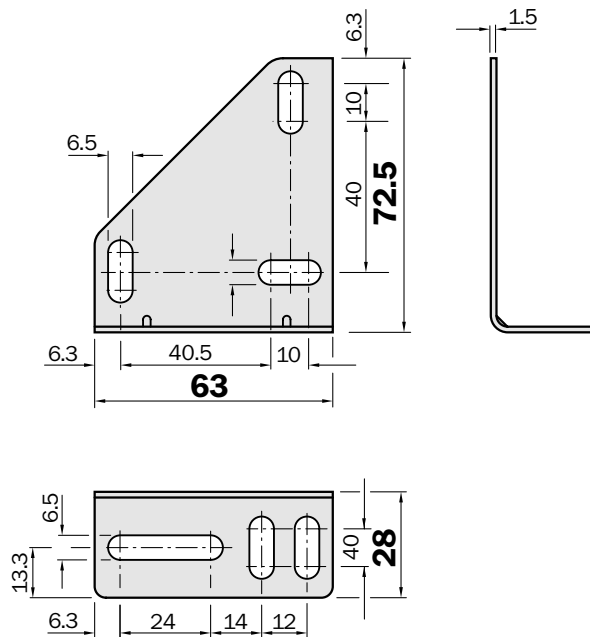
Mounting bracket for W 250*)

Type	Order no.
BEF-W250	5 305 850



Mounting bracket for W 260*)

Type	Order no.
BEF-W260	5 304 819

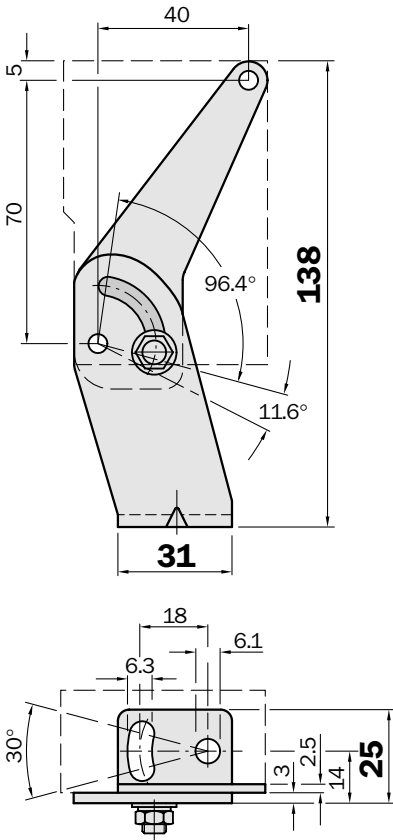


*) Included with delivery

Dimensional drawings and order information

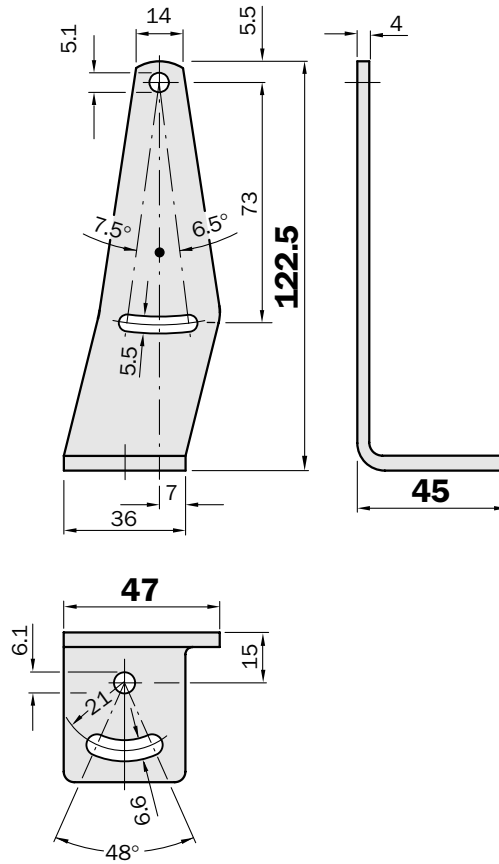
Mounting bracket for W 27-3, W 23-2

Type	Order no.
BEF-WN-W27	2 009 122



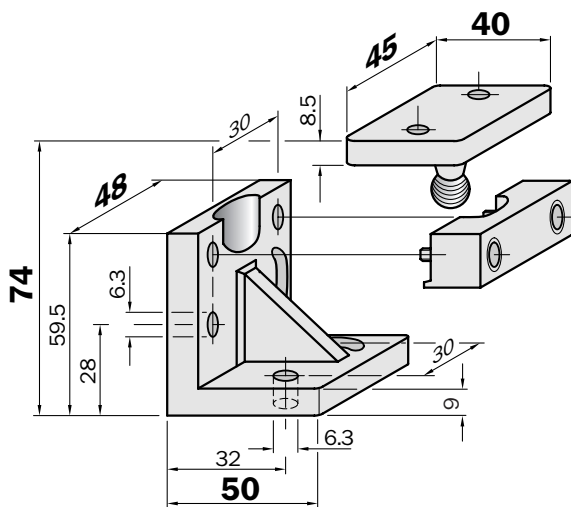
Mounting bracket for WT 30, WT 32, W 34

Type	Order no.
BEF-WN-W32	2 005 806



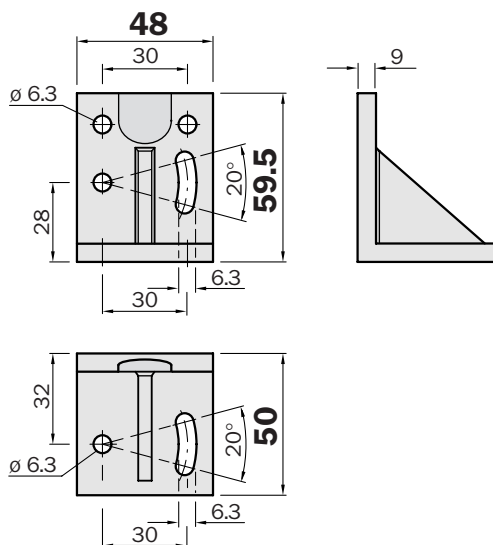
Universal joint, complete, for W 45

Type	Order no.
BEF-KK-W45	2 011 436



Mounting bracket for W 45

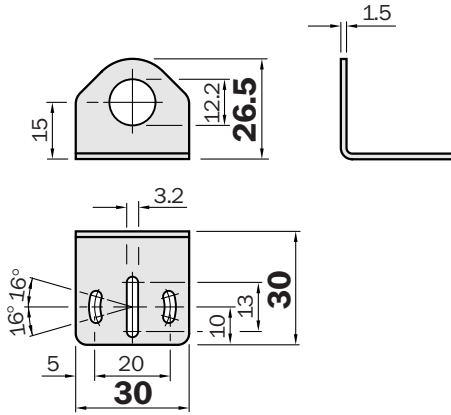
Type	Order no.
BEF-WN-W45	2 011 480



Dimensional drawings and order information

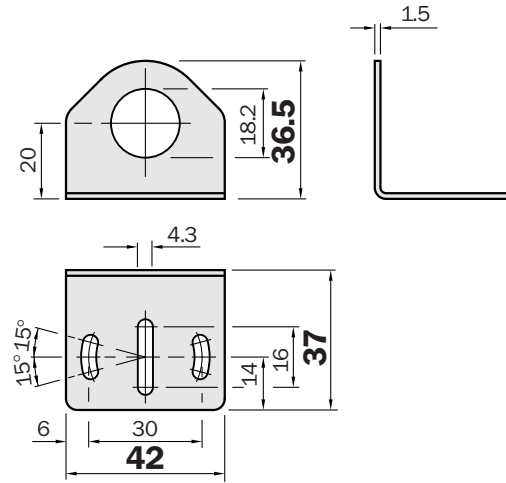
Mounting bracket for V 12, IM 12, MM 12

Type	Order no.
BEF-WN-M12	5 308 447



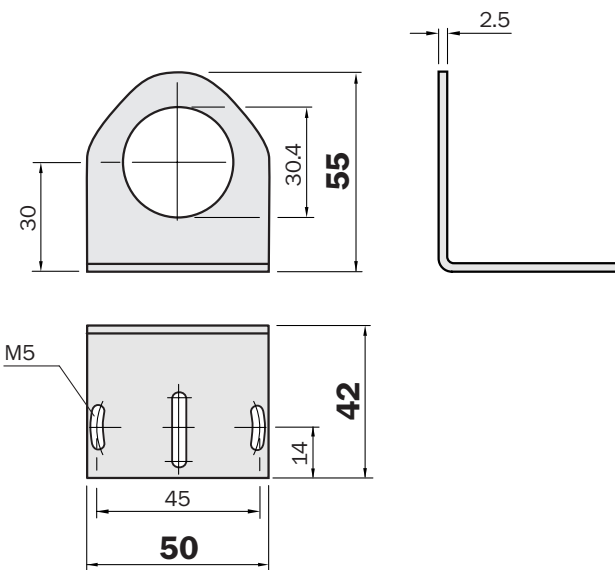
Mounting bracket for V 18, IM 18, MM 18, CM 18

Type	Order no.
BEF-WN-M18	5 308 446



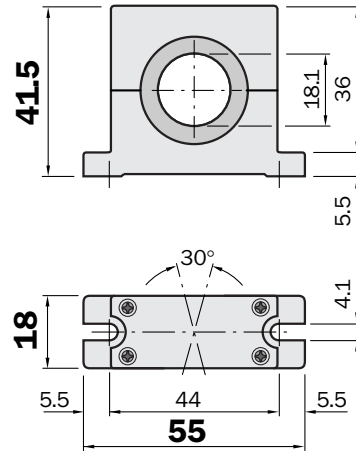
Mounting bracket for IM 30, CM 30

Type	Order no.
BEF-WN-M30	5 308 445



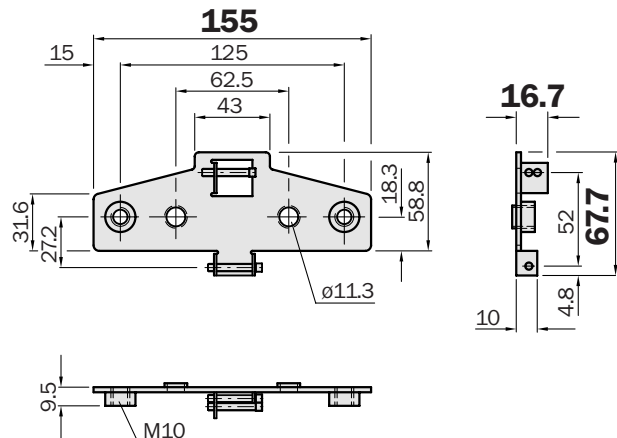
Mounting bracket with ball-joint for V 18, IM 18, MM 18, CM 18

Type	Order no.
BEF-WN-M18-ST02	5 312 973



Mounting bracket for WTR

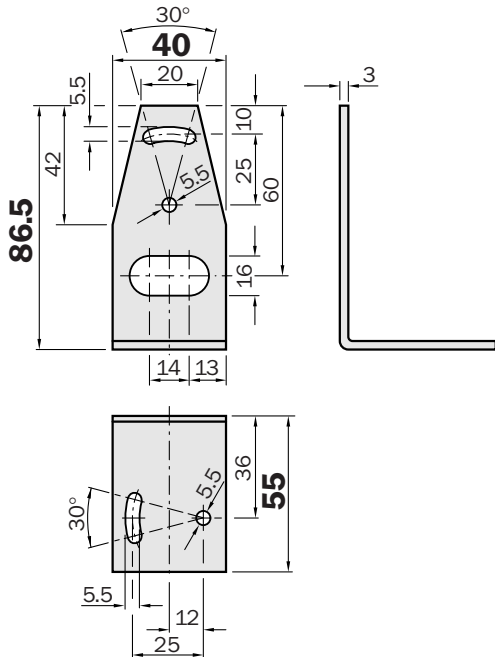
Type	Order no.
BEF-WN-WTR	2 017 417



Dimensional drawings and order information

Mounting bracket for WLG 12

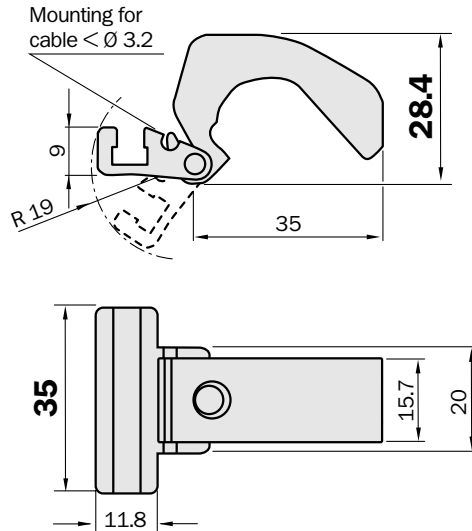
Type	Order no.
BEF-WN-WLG12	2 017 567



Mounting bracket for profile-/tie-rod cylinders

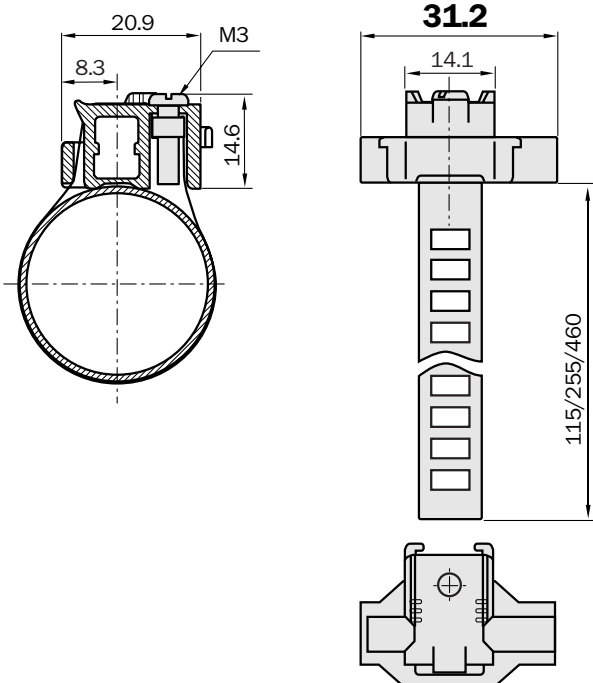
MZT 6/RZT 6, MZT 1/RZT 1

Type	Order no.
BEF-KHZ-PT1	2 022 702



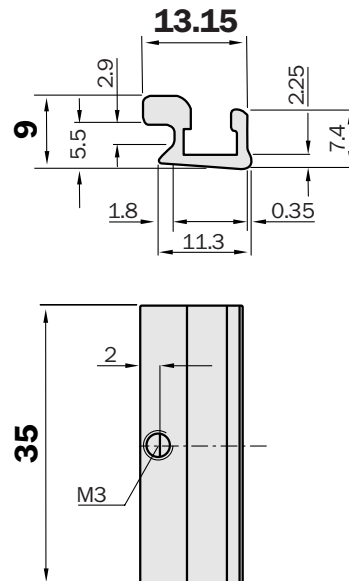
Mounting bracket for round body cylinder/piston diameters of 8 ... 25 mm for MZT 6/RZT 6, MZT 1/RZT 1

Type	Order no.
BEF-KHZ-RT1-25	5 311 171
BEF-KHZ-RT1-63	5 311 172



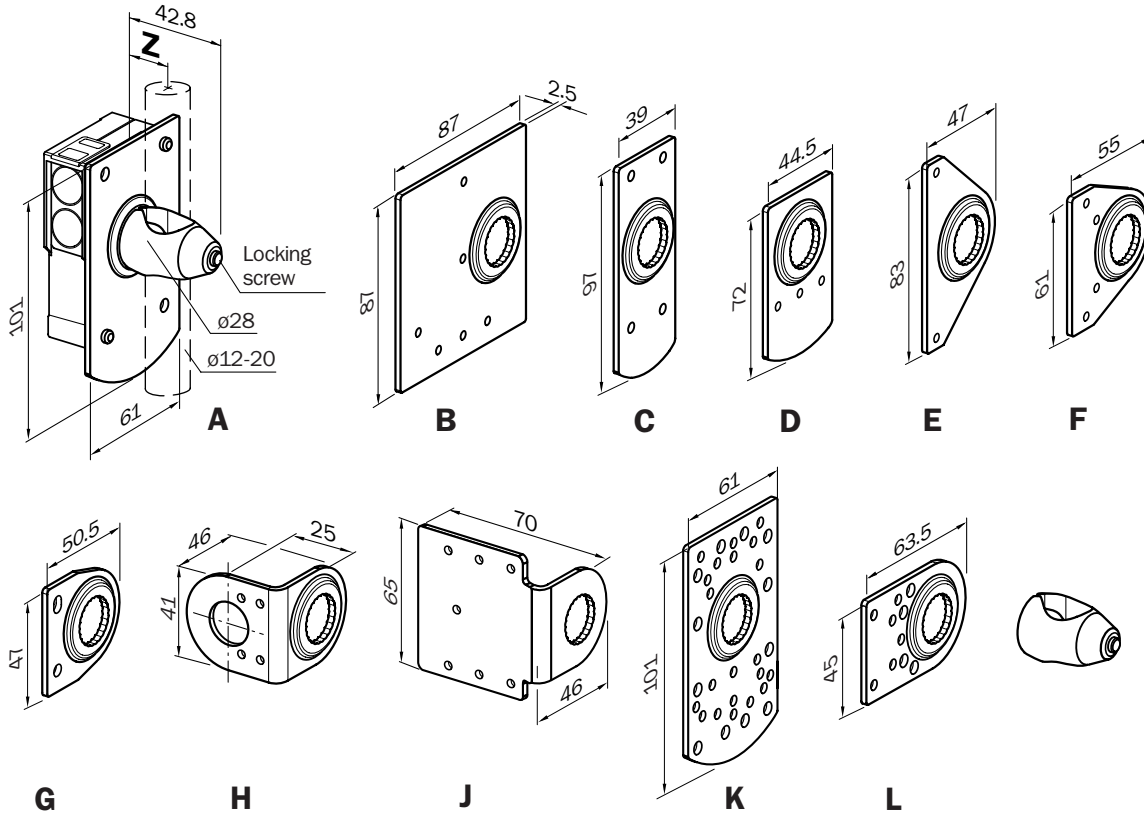
Mounting bracket for cylinders with a dovetail slot for MZT 6/RZT 6, MZT 1/RZT 1

Type	Order no.
BEF-KHZ-ST1	2 022 703



Dimensional drawings and order information

Universal bar clamps for sensors and reflectors



Distance Z	
Bar centre – inner plate surface	
Bar- ϕ in mm	Distance Z in mm
12	15.0
14	16.4
15	17.1
18	19.2
20	20.7

Mounting plates*	Type	Order no.**	for device/reflector type
A	BEF-KHS-A01	2 022 458	W 23-2, W 27-3
B	BEF-KHS-B01	2 022 459	P 250, P 250 F, PL 30 A, PL 40 A, PL 50 A, PL 80 A, C 110
C	BEF-KHS-C01	2 022 460	W 14-2, W 18-3
D	BEF-KHS-D01	2 022 461	W 11, W 12-2, W 12L-2, KT 2
E	BEF-KHS-E01	2 022 462	W 30, W 32, W 34, W 36
F	BEF-KHS-F01	2 022 463	PL 20 A, PL 20 F, P 250, P 250 F, W 260, W 280
G	BEF-KHS-G01	2 022 464	W 24-2, W 24 Exi, WTA 24, KT 5, KT 10, CS 1/3, LUT 3
H	BEF-KHS-H01	2 022 465	V 18, W 4-2, IM 18, MM 18, CM 18, UM 18
J	BEF-KHS-J01	2 022 719	PL 20 A, PL 20 F, PL 40 A, PL 50 A, P 250, P 250 F, C 110
K	BEF-KHS-K01	2 022 718	W 11, W 12-2, W 12L-2, W 14-2, W 18-3, W 23-2, W 24-2, W 27-3, W 30, W 32, W 34, KT 2, KT 5, KT 10, CS 1/3, LUT 3, DS 60, PL 20 A, PL 20 F, PL 30 A, PL 40 A, PL 50 A, PL 80 A, P 250, P 250 F, C 110, W 280
L	BEF-KHS-L01	2 023 057	W 9-2, KT 3, P 250, P 250 F, W 250, W 140-2, W 150, W 160
	BEF-KHS-KH1	2 022 726	Klemmhalter ohne Befestigungsplatte

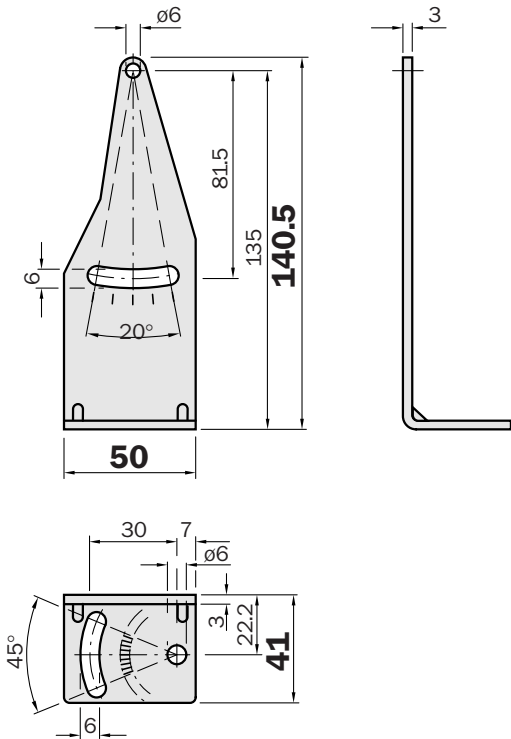
* Further plates available on request

** Order no. includes bar support and mounting material

Dimensional drawings and order information

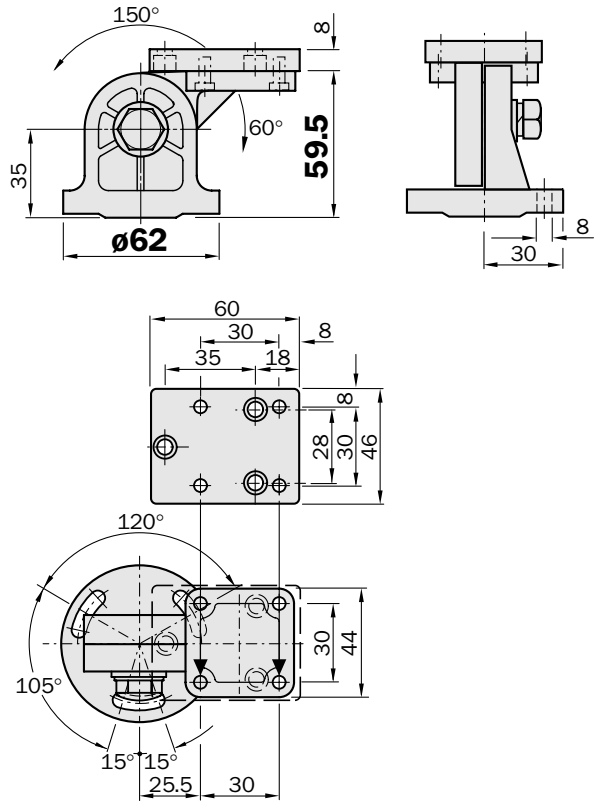
Mounting bracket for DS 60

Type	Order no.
BEF-WN-DS60	4 032 937



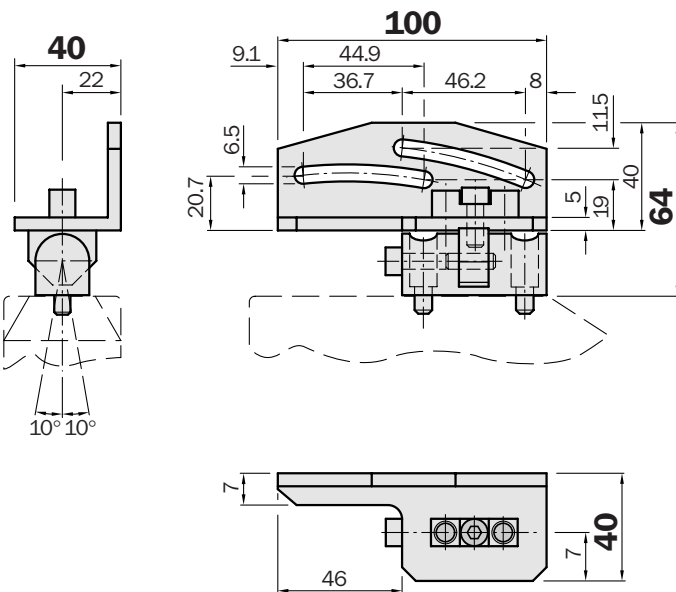
Articulated mounting for DME 2000/3000

Type	Order no.
BEF-GH-DME	2 015 229



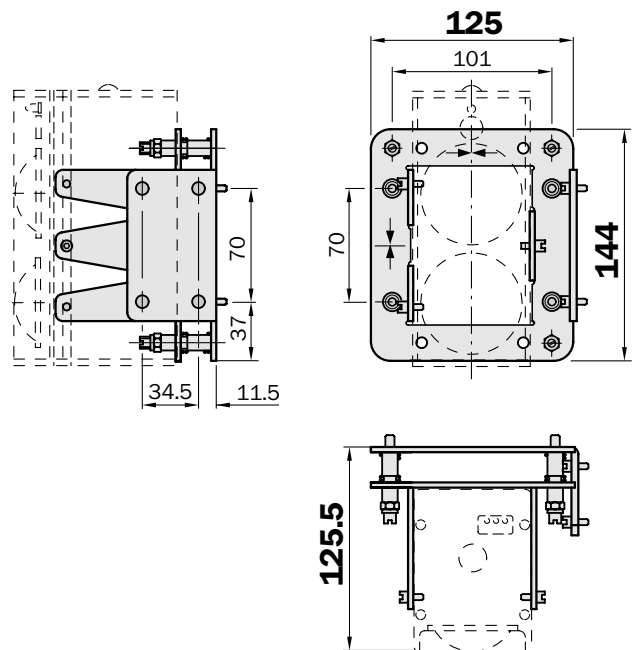
Articulated mounting for DMH/DMP

Type	Order no.
BEF-GH-DMH2	2 020 796



Three-point mounting for ISD 230, 260, 280

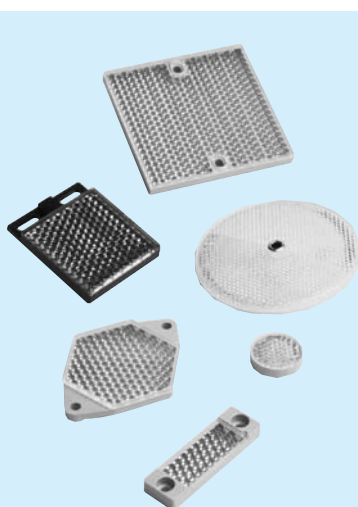
Type	Order no.
BEF-KH-ISD	5 306 369



Reflectors

Selection table, reflectors

Description	Type	Order no.	Page
Plastic reflectors for temperatures up to 65 °C			
Reflector, \varnothing 22 mm, plug-in	PL 22-1	1 003 546	1453
Reflector, \varnothing 22 mm, self-adhesive	PL 22-2	1 003 621	1453
Reflector, \varnothing 22 mm, plug-in, for sheet metal	PL 22-3	1 004 488	1453
Reflector, \varnothing 25.2 mm, mounting bolt M4	P 25	5 315 172	1453
Reflector, \varnothing 34.5 mm, plane	P 34	5 313 922	1453
Reflector, \varnothing 84 mm, centre hole mounting	C 110 A	5 304 549	1453
Reflector 32.8 x 8.4 mm ²	P 45	5 308 002	1454
Reflector 20 x 40 mm ²	PL 20 A	1 012 719	1454
Reflector 20 x 40 mm ² , self-adhesive	PL 21 A	1 015 172	1454
Reflector 30 x 50 mm ²	PL 30 A	1 002 314	1454
Reflector 30 x 50 mm ² , self-adhesive	PL 31 A	1 002 315	1454
Reflector 40 x 60 mm ²	PL 40 A	1 012 720	1454
Reflector, 6-sided, width across flats 48 mm	PL 50 A	1 000 132	1454
Reflector, 6-sided, width across flats 48 mm, self-adhesive	PL 51 A	1 001 628	1454
Reflector 47 x 47 mm ²	P 250	5 304 812	1454
Reflector 34 x 35 mm ²	P 42	5 314 825	1455
Reflector 32 x 48 mm ²	P 32	5 314 001	1455
Reflector 28 x 29 mm ²	P 40	5 313 923	1455
Reflector 70 x 51 mm ² , with mounting bolt M6	PL 72	5 304 145	1455
Reflector 80 x 80 mm ²	PL 80 A	1 003 865	1455
Reflector 40 x 180 mm ²	PL 180 E01	1 013 289	1455
Reflector 18 x 150 mm ² , self-adhesive	PL 150	5 315 548	1455
Reflector 20 x 20 mm ² , micro triple	PL 10 F	5 311 210	1456
Reflector 10 x 50 mm ² , plane, micro triple	PL 15 F	5 313 849	1456
Reflector 20 x 40 mm ² , micro triple	PL 20 F	5 308 844	1456
Reflector 47 x 47 mm ² , micro triple	P 250 F	5 308 843	1456
Reflector, width across flats 52 mm, micro triple	P 55 F	5 313 924	1456
Special reflectors			
Reflector, 6-sided, width across flats 48 mm, oil-tight	PL 53 A	1 000 382	1456
Combi-reflector, 3 x 3 PL 80 A, reflective foil centre, for DME	PL 240 F	1 013 784	1458
Reflector, 280 x 280 mm ² , Diamond Grade, for DME	PL 240 DG	1 017 910	1458
Reflector, 280 x 280 mm ² , High Grain, for DME	PL 240-7610	1 019 012	1458
Combi-reflector, 7 x 7 PL 80 A, reflective foil centre, for DME	PL 560 F	1 013 785	1458
Reflector, 605 x 605 mm ² , Diamond Grade, for DME	PL 560 DG	1 016 806	1458
Combi-reflector, 11 x 11 PL 80 A, centre reflectivity reduced, for DME	PL 880 F	1 013 786	1459
Reflector, 914 x 914 mm ² , Diamond Grade, for DME	PL 880 DG	1 018 975	1459
Reflector, 928 x 928 mm ² , 11 x 11 PL 80 A, able to be linked in a row, for DME	PL 880 FS01	1 017 865	1459
Triple reflector, glass, \varnothing 60 mm, $f = \infty$	OP 60- ∞	1 000 141	1456
Triple reflector, glass, \varnothing 60 mm, $f = 20$ m	OP 60-20	1 000 136	1456
Reflectors with heating, 24 V UC; 1.4 W			
Reflector, 6-sided, width across flats 48 mm, continuous heating	PL 50 HK	1 011 545	1457
Reflector, 6-sided, width across flats 48 mm, regulated heating	PL 50 HS	1 009 871	1457
Triple reflectors, glass, for temperatures up to 300 °C			
Reflector, \varnothing 50 mm	SW 50	1 000 131	1457
Triple reflector, glass, \varnothing 60 mm, hightemperature resistant seals	OP 61- ∞	1 002 627	1457
Plastic reflectors for temperatures up to 110 °C			
Reflector 47 x 47 mm ²	P 250 H	5 315 124	1457



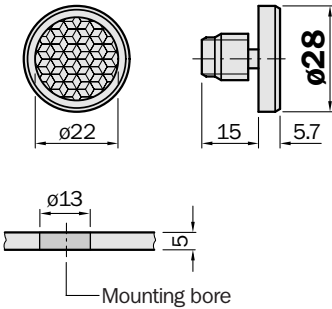
Selection table, reflectors

Description	Type	Order no.	Page
Self-adhesive reflective tape for photoelectric switches with polarisation filter			
Reflective tape DG, sheet 749 x 914 mm ²	REF-DG	5 304 334	1460
Reflective tape DG, cut to size	REF-DG-K	4 019 634	1460
Reflective tape DG, roll 51 mm x 22.8 m	REF-DG-R51	5 315 090	1460
Reflective tape DG, roll 25 mm x 22.8 m	REF-DG-R25	5 314 423	1460
Self-adhesive reflective tape for photoelectric switches without polarisation filter			
Reflective tape, width 9.14 cm, length of roll 4.57 m, cut to size	REF-3290-K	4 018 696	1460
Reflective tape, width 7.6 cm, length of roll 45.7 m, cut to size	REF-5870-K	4 018 616	1460
Reflective tape, width 61 cm, length of roll 4.57 m, cut to size	REF-7610-K	4 018 617	1460

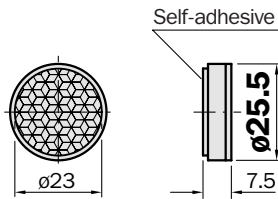
Dimensional drawings and order information

SENSICK reflectors plastic design, round for temperatures up to 65 °C

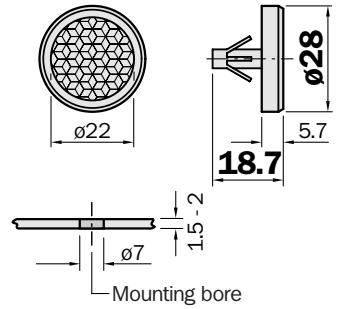
Reflector, \varnothing 28 mm	
plug-in	
Type	Order no.
PL 22-1	1 003 546



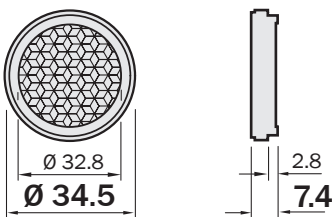
Reflector, \varnothing 25.5 mm	
self-adhesive	
Type	Order no.
PL 22-2	1 003 621



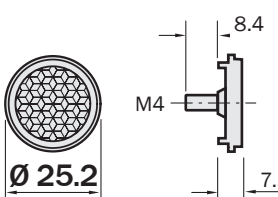
Reflector, \varnothing 28 mm	
plug-in, for sheet metal	
Type	Order no.
PL 22-3	1 004 488



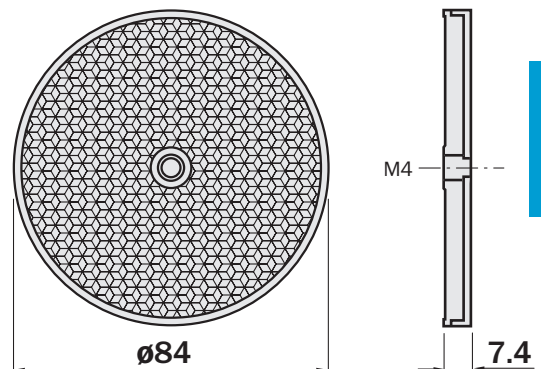
Reflector, \varnothing 34.5 mm	
plane	
Type	Order no.
P 34	5 313 922



Reflector, \varnothing 25.2 mm	
screwable, M4 screw	
Type	Order no.
P 25	5 315 172



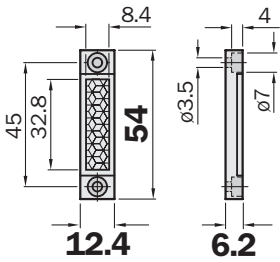
Reflector, \varnothing 84 mm	
screwable	
Type	Order no.
C 110 A	5 304 549



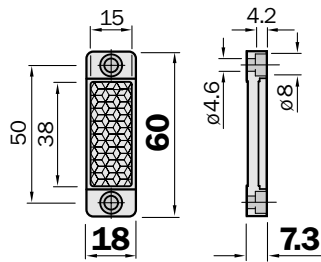
Dimensional drawings and order information

SENSICK reflectors plastic design, angular for temperatures up to 65 °C

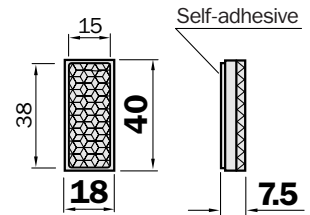
Reflector 32.8 x 8.4 mm ²	
screwable	
Type	Order no.
P 45	5 308 002



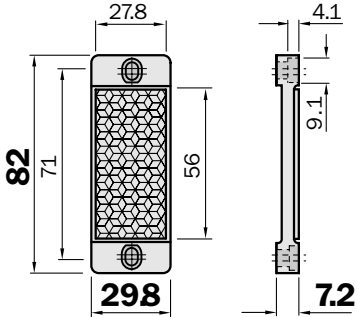
Reflector 20 x 40 mm ²	
screwable	
Type	Order no.
PL 20 A	1 012 719



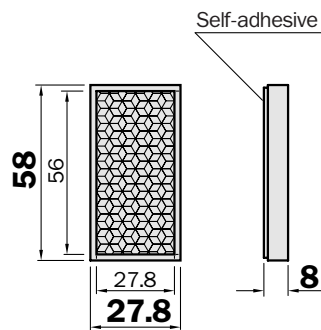
Reflector 20 x 40 mm ²	
self-adhesive	
Type	Order no.
PL 21 A	1 015 172



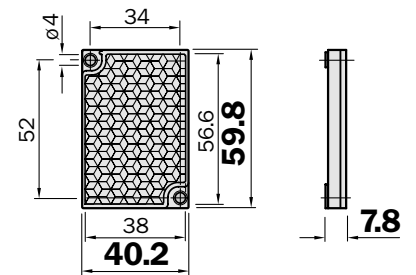
Reflector 30 x 50 mm ²	
screwable	
Type	Order no.
PL 30 A	1 002 314



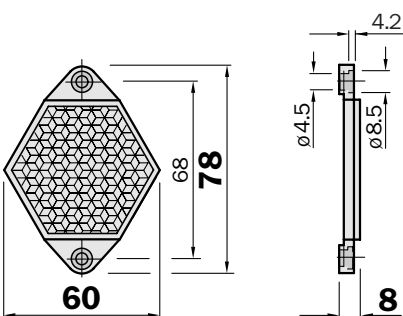
Reflector 30 x 50 mm ²	
self-adhesive	
Type	Order no.
PL 31 A	1 002 315



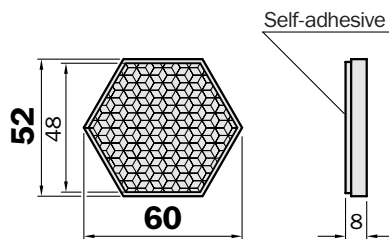
Reflector 40 x 60 mm ²	
screwable	
Type	Order no.
PL 40 A	1 012 720



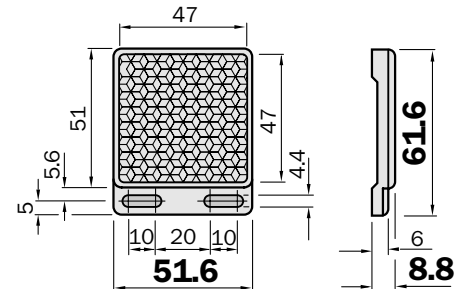
Reflector, 6-sided	
Width across flats 52 mm	
screwable	
Type	Order no.
PL 50 A	1 000 132



Reflector, 6-sided	
Width across flats 52 mm	
self-adhesive	
Type	Order no.
PL 51 A	1 001 628



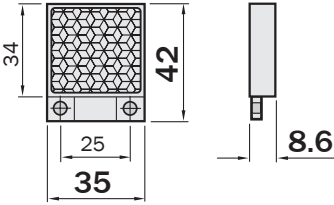
Reflector 47 x 47 mm ²	
screwable	
Type	Order no.
P 250	5 304 812



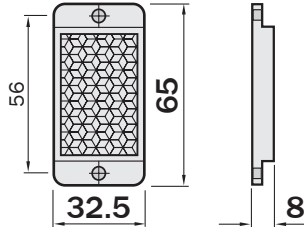
Dimensional drawings and order information

SENSICK reflectors plastic design, angular for temperatures up to 65 °C

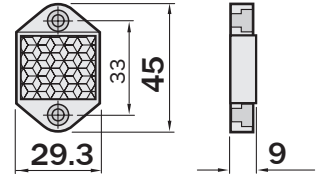
Reflector 34 x 35 mm²	
screwable	
Type	Order no.
P 42	5 314 825



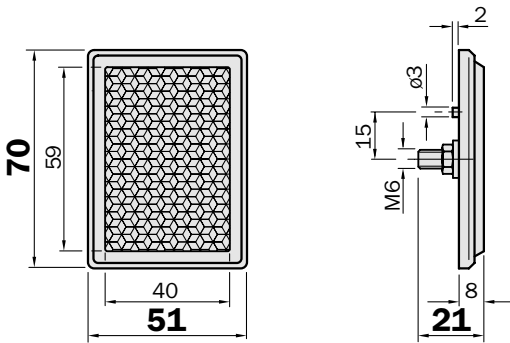
Reflector 32 x 48 mm²	
screwable	
Type	Order no.
P 32	5 314 001



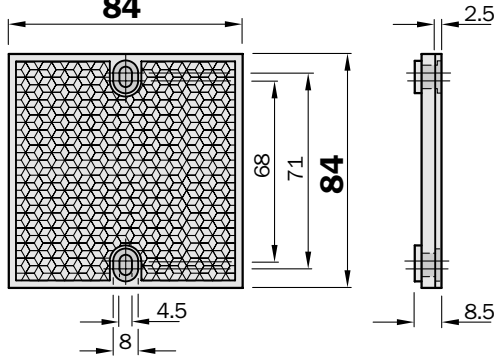
Reflector 28 x 29 mm²	
screwable	
Type	Order no.
P 40	5 313 923



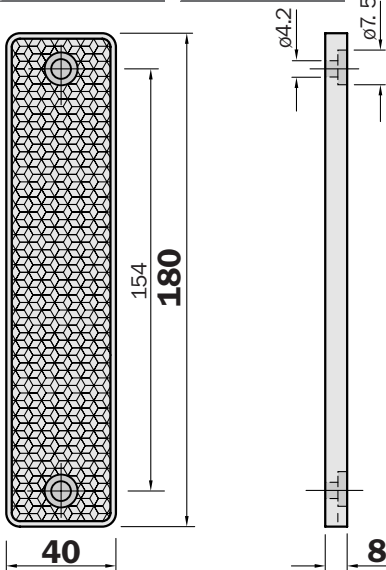
Reflector 70 x 51 mm², with M6 mounting bolt	
Type	Order no.
PL 72	5 304 145



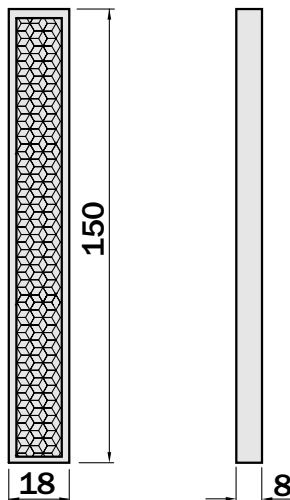
Reflector 80 x 80 mm²	
screwable	
Type	Order no.
PL 80 A	1 003 865



Reflector 40 x 180 mm²	
screwable	
Type	Order no.
PL 180 E01	1 013 289



Reflector 18 x 115 mm²	
self-adhesive	
Type	Order no.
PL 150	5 315 548

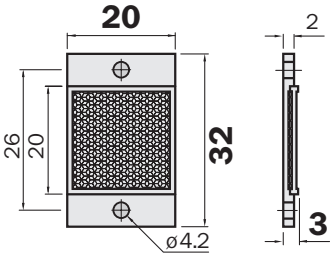


* with/without reducing sleeve

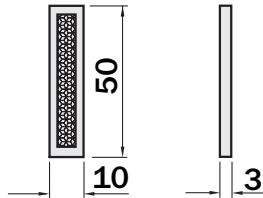
Dimensional drawings and order information

SENSICK micro triple reflectors plastic design, angular for temperatures up to 65 °C

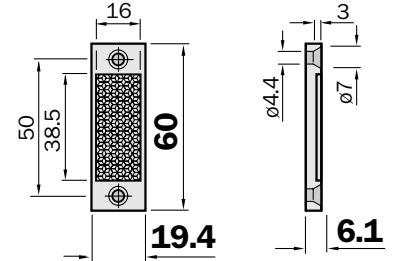
Micro triple reflector 20 x 20 mm ² screwable	
Type	Order no.
PL 10 F	5 311 210



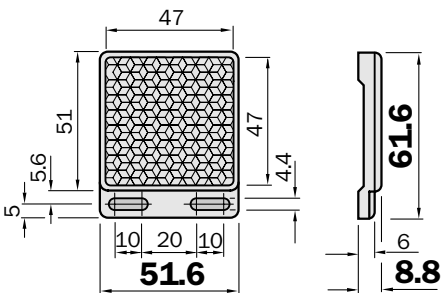
Micro triple reflector 10 x 50 mm ² plane	
Type	Order no.
PL 15 F	5 313 849



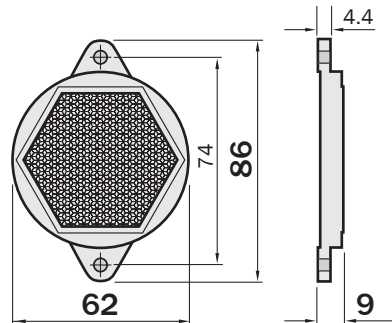
Micro triple reflector 20 x 40 mm ² screwable	
Type	Order no.
PL 20 F	5 308 844



Micro triple reflector 47 x 47 mm ² screwable	
Type	Order no.
P 250 F	5 308 843



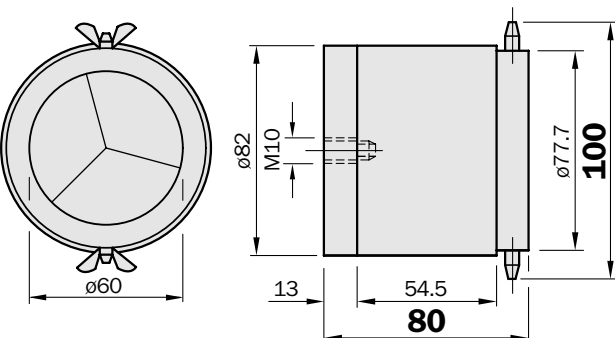
Micro triple reflector, 6-sided, width across flats 52 mm screwable	
Type	Order no.
P 55 F	5 313 924



SENSICK special reflectors, glass for temperatures up to 65 °C

Triple reflector, glass, ϕ 60 mm screwable

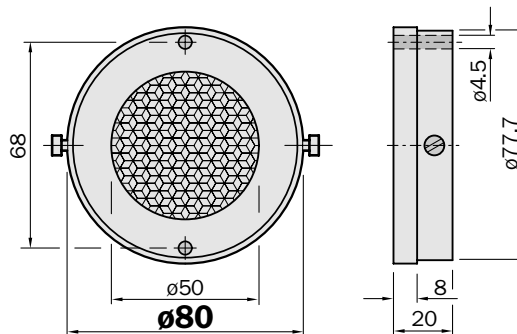
Type	Order no.	Bemerkung
OP 60- ∞	1 000 141	f = ∞
OP 60-20	1 000 136	f = 20 m



SENSICK special reflectors, oil-tight for temperatures up to 65 °C

Reflector, ϕ 50 mm screwable

Type	Order no.
PL 53 A	1 000 382



Dimensional drawings and order information

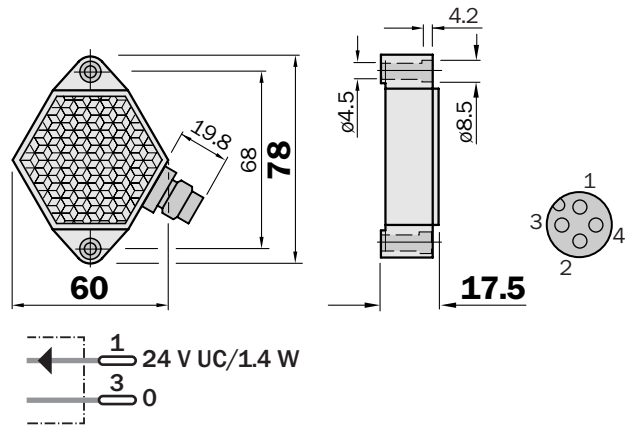
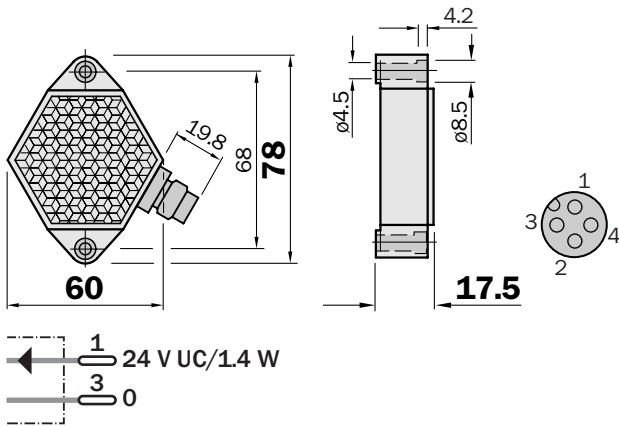
SENSICK special reflectors, with heating, for temperatures up to 65 °C

Reflector, 6-sided, width across flats 52 mm, continuous heating screwable

Type	Order no.
PL 50 HK	1 011 545

Reflector, 6-sided, width across flats 52 mm, regulated heating screwable

Type	Order no.
PL 50 HS	1 009 871

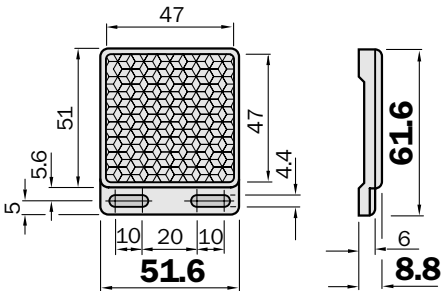


Heating ON: < 15 °C

SENSICK special reflectors plastic design, for temperatures up to 110 °C

Reflector, 47 x 47 mm screwable

Type	Order no.
P 250 H	5 315 124



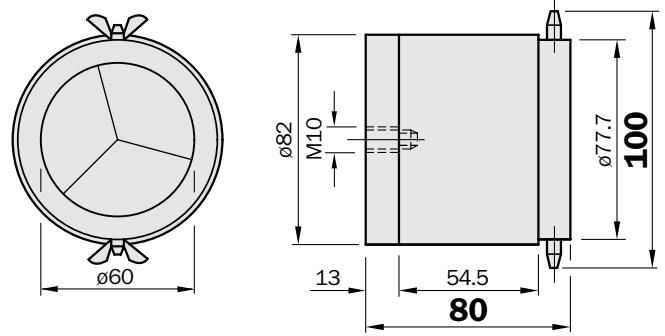
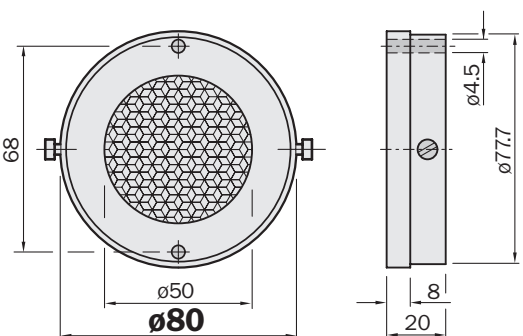
SENSICK special reflectors, glass, for temperatures up to 300 °C

Reflector, ϕ 50 mm

Type	Order no.
SW 50	1 000 131

Triple reflector, glass, ϕ 60 mm high temperature resistant seals

Type	Order no.
OP 61- ∞	1 002 627

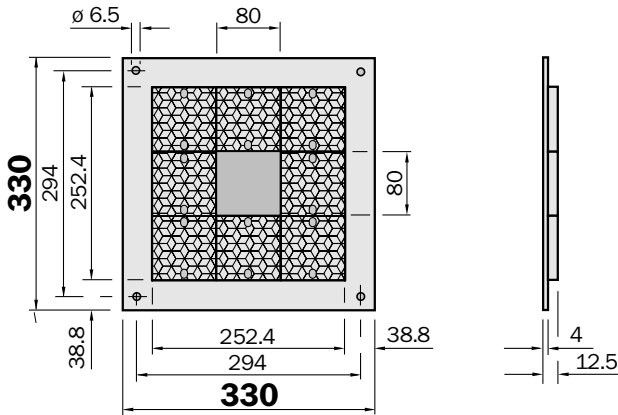


Dimensional drawings and order information

Special reflectors

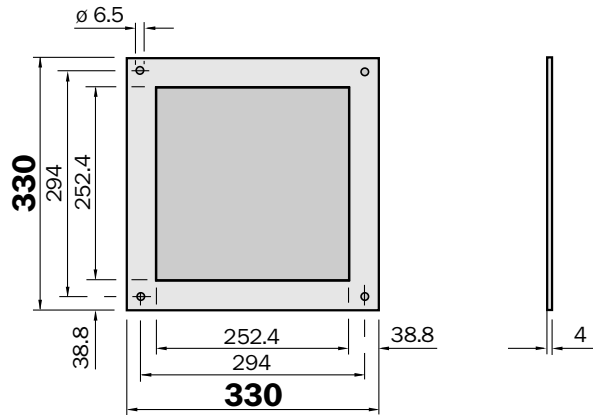
Combi-reflector, 3 x 3 PL 80 A, reflective foil centre, for DME

Type	Order no.
PL 240 F	1 013 784



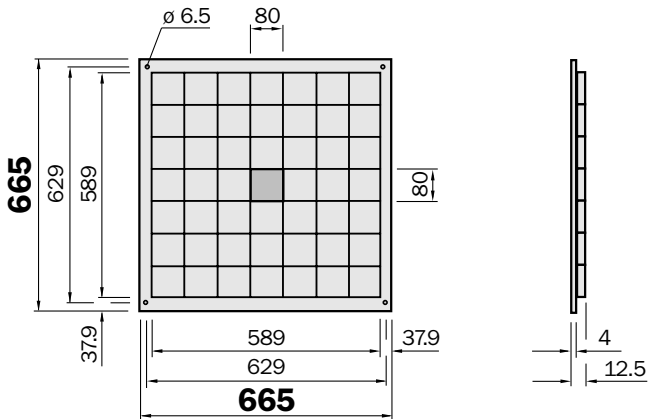
Reflector, 280 x 280 mm, for DME

Type	Order no.	Reflective tape
PL 240 DG	1 017 910	Diamond Grade
PL 240-7610	1 019 012	High Grain



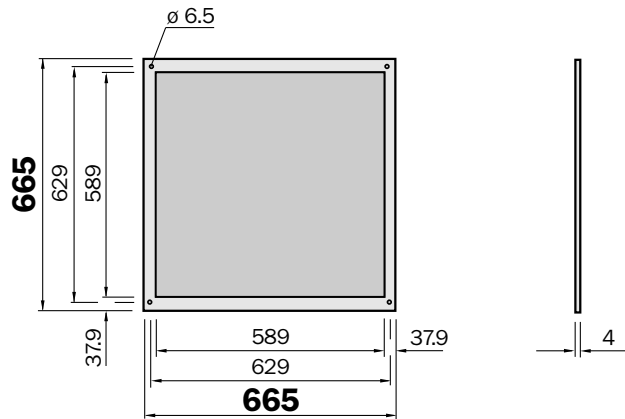
Combi-reflector, 7 x 7 PL 80 A, reflective foil centre, for DME

Type	Order no.
PL 560 F	1 013 785



Reflector, 605 x 605 mm, Diamond Grade, for DME

Type	Order no.
PL 560 DG	1 016 806



Dimensional drawings and order information

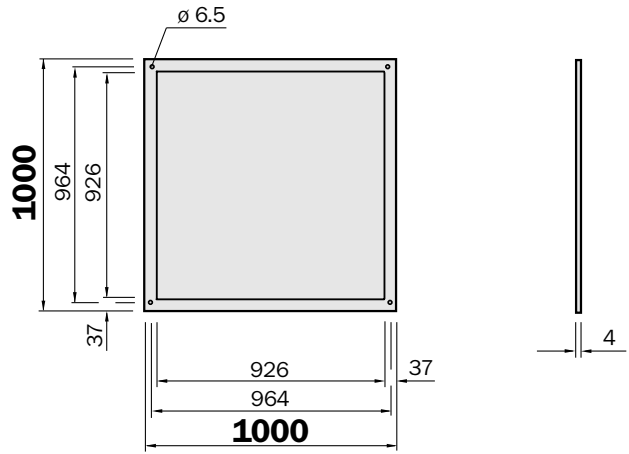
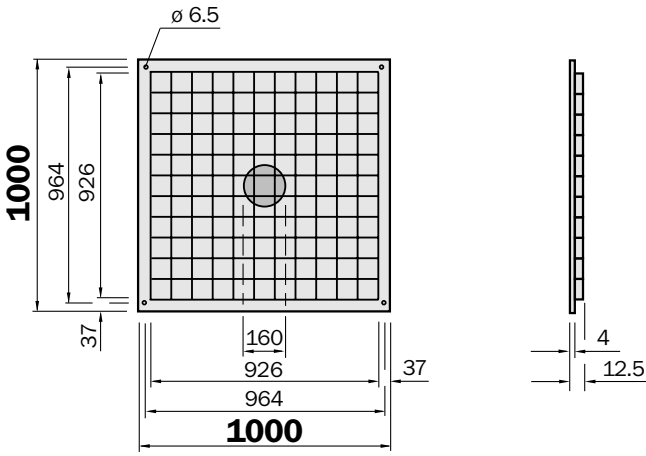
Special reflectors

Combi-reflector, 11 x 11 PL 80 A, centre reflectivity reduced, for DME

Type	Order no.
PL 880 F	1 013 786

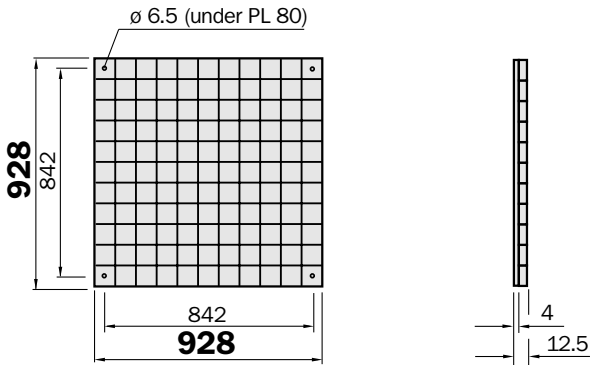
Reflector, 914 x 914 mm², Diamond Grade, for DME

Type	Order no.
PL 880 DG	1 018 975



Reflector, 11 x 11 PL 80 A, can be linked in a row, for DME

Type	Order no.
PL 880 FS01	1 017 865



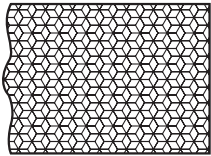
Dimensional drawings and order information

Self-adhesive reflective tape for photoelectric switches with polarisation filter

Reflective tape „Diamond Grade“

self-adhesive

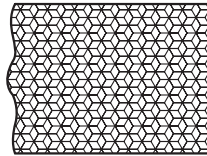
Type	Order no.	
REF-DG-K	4 019 634	cut to size
REF-DG	5 304 334	Sheet 749 x 914 mm



Reflective tape „Diamond Grade“

self-adhesive

Type	Order no.	
REF-DG-R51	5 315 090	roll 51 mm x 22.8 m
REF-DG-R25	5 314 423	roll 25 mm x 22.8 m

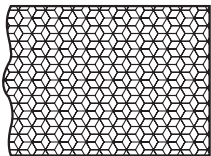


Self-adhesive reflective tape for photoelectric switches without polarisation filter

Reflective tape, width 91.4 cm

Length of roll 4.57 m, cut to size

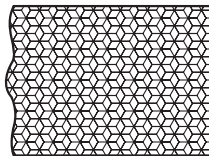
Type	Order no.
REF-3290-K	4 018 696



Reflective tape, width 7.6 cm

Length of roll 45.7 m, cut to size

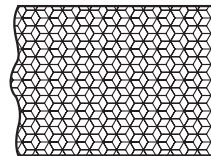
Type	Order no.
REF-5870-K	4 018 616



Reflective tape, width 61 cm

Length of roll 4.57 m, cut to size

Type	Order no.
REF-7610-K	4 018 617



LL3: fibre-optic cables – solving automation problems



To this should be added the large number of different variants. Around 70 different versions of the LL3 offer optimum alternatives for virtually every application in the optical, mechanical and chemical fields. A number of different attachment lenses extend its field of possible applications even further. The fibre-optic cable of type LL3 and the fibre-optic cable photoelectric switch by SICK are an unbeatable team with a high degree of success in semiconductor and electronics assembly, packaging, handling and assembly systems, special engineering and fine mechanics.

	Fibre optic cable Through-beam systems
	Fibre optic cable Proximity systems

Lack of installation space (even for miniature photoelectric switches) or exposure to chemicals or heat are frequent reasons for using the plastic fibre-optic cable LL3. In combination with the photoelectric switch series WLL170(T), the LL3s assure reliable object detection even under difficult conditions.

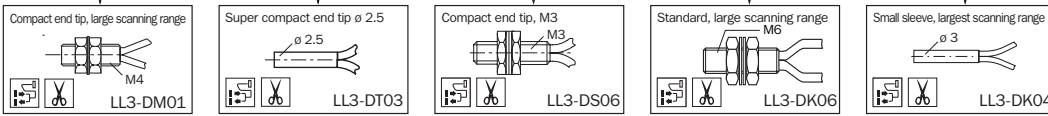
Its multiple flexibility is one of the main advantages of the LL3. It has small bending radii and can be easily shortened to the required length. A number of different end sleeves also mean that it is easy to connect and install.

LL3 options:

- Standard optical conductor
- Large range
- Attachment lenses
- Small end sleeves for confined spaces
- Highly flexible with small bending radii
- Integrated 90° deflection
- Temperature resistant up to 300 °C
- Teflon sheath for corrosive surroundings
- Coaxial design
- Flexible end sleeves
- 10 meters in length
- Optical-guide line
- Level switch ...

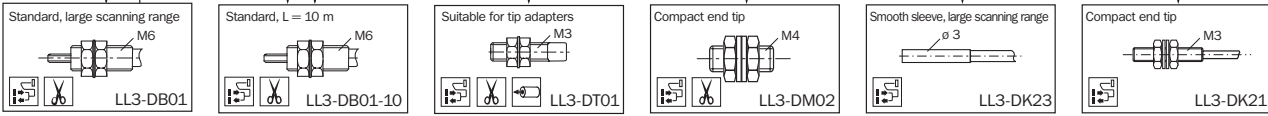
Flowchart for selection of fibre-optic cable, proximity systems

Standard, compact end tip, large scanning range

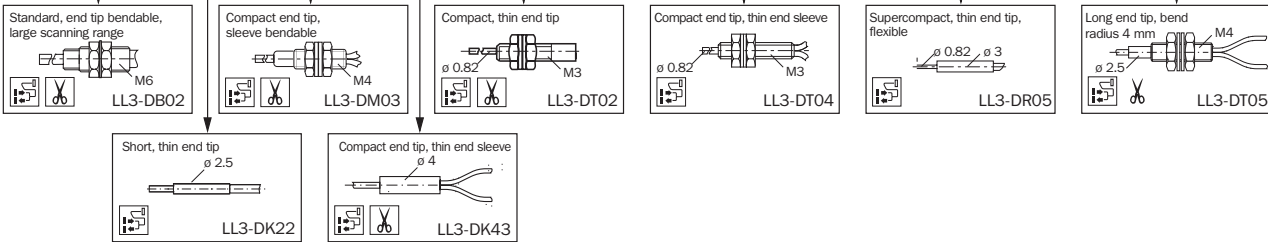


Coaxial structure for exact switching

Length of fiber 10 m



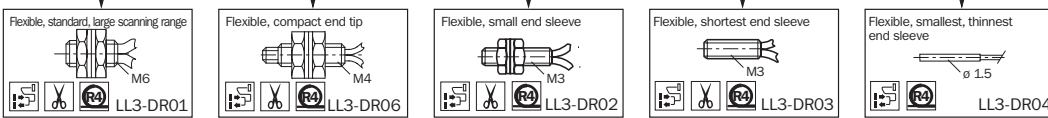
Thin sleeves, long end tips, bendable: ideal for small inaccessible objects



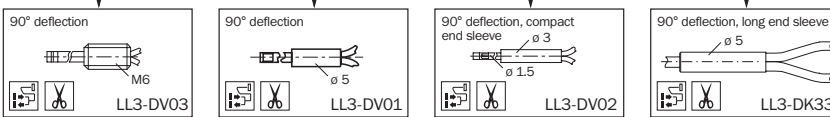
Highly flexible, for moved mechanics, bend radius R2 (R = 2 mm)



Flexible, bend radius R4 (R = 4mm)



Integrated 90° deflection, smallest mounting depth

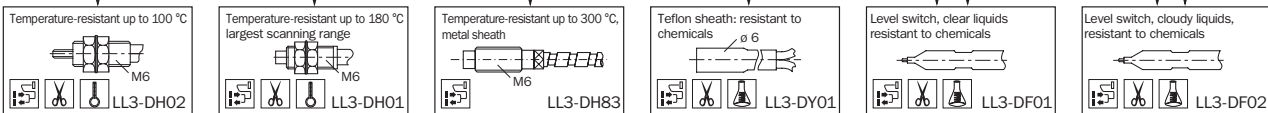


Special applications:

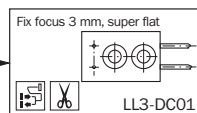
Level switch

Chemicals

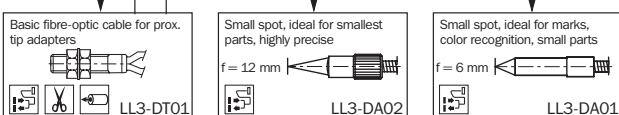
Temperature



Fix focus



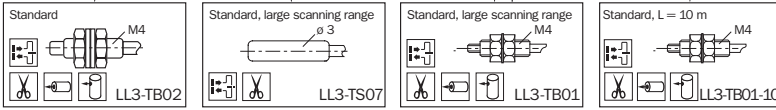
Accessories: Tip adapters with focussed optics



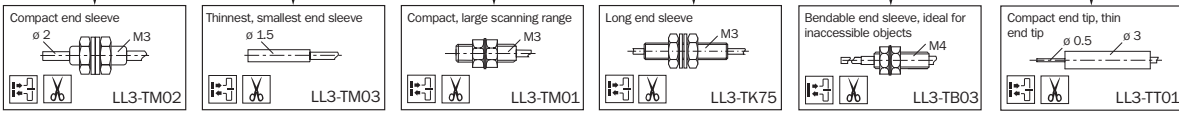
Flowchart for selection of fibre-optic cable, through-beam systems

Standard: compact end sleeve, large scanning ranges

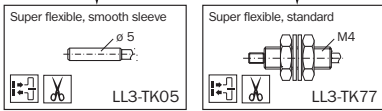
Length of fibre-optic cable 10 m



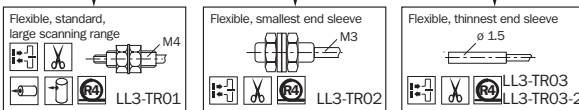
Thin end sleeves, long end sleeves, bendable



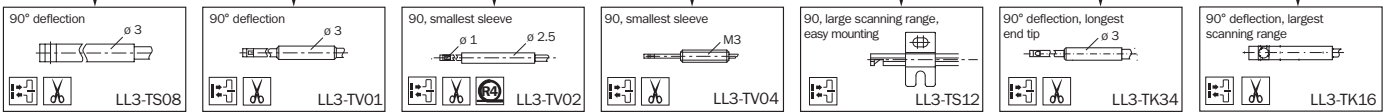
Super flexible, for moved mechanics, bend radius R2 (R = 2 mm)



Flexible fibre-cable, smallest bend radius R4 (R = 4mm)



Integrated 90° deflection, smallest mounting depth

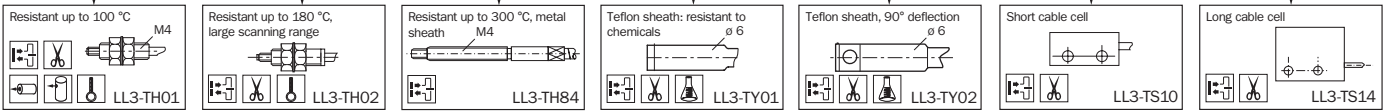


Special applications:

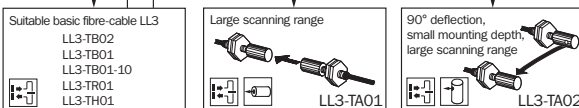
Fibre-optic cable cell

Chemicals

Temperature



Accessories: tip adapters, large scanning ranges (max. 3200 mm), 90° deflection





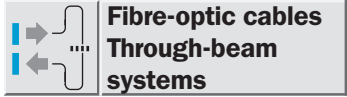
LL3 Plastic fibre-optic cables Proximity systems

Type	Order no.	Object size Standard: white 90 %	Minimum ¹⁾	Suitable for scanning tip adapter ²⁾	LL3 – Core structure C = Coaxial, S = Sender, R = Receiver	Can be shortened as required ³⁾	LL3- Length	LL3- Outside Ø	Bend radius R LL3
Standard type									
LL3-DM01	5308071	100 x 100 mm	Ø 0.015 mm	No	2 x : Ø 1.0 mm	Yes	2 m	1.3 mm	R25
LL3-DT03	5308072	30 x 30 mm	Ø 0.015 mm	No	2 x : Ø 0.5 mm	Yes	2 m	1.0 mm	R15
LL3-DS06	5308073	30 x 30 mm	Ø 0.015 mm	No	2 x : Ø 0.5 mm	Yes	2 m	2.2 mm	R15
LL3-DK06	5313019	100 x 100 mm	Ø 0.015 mm	No	2 x : Ø 1.0 mm	Yes	2 m	2.2 mm	R25
LL3-DK04	5313020	100 x 100 mm	Ø 0.015 mm	No	2 x : Ø 1.0 mm	Yes	2 m	1.3 mm	R25
Coaxial cable									
LL3-DB01	5308074	100 x 100 mm	Ø 0.015 mm	No	C, S: Ø 1.0 mm, R: 16 x Ø 0.25 mm	Yes	2 m	2.2 mm	R25
LL3-DB01-10	5308075	100 x 100 mm	Ø 0.015 mm	No	C, S: Ø 1.0 mm, R: 16 x Ø 0.25 mm	Yes	10 m	2.2 mm	R25
LL3-DB03	5313021	100 x 100 mm	Ø 0.015 mm	No	C, S: Ø 1.0 mm, R: 16 x Ø 0.25 mm	Yes	2 m	2.2 mm	R25
LL3-DT01	5308076	30 x 30 mm	Ø 0.015 mm	Yes	C, S: Ø 0.5 mm, R: 9 x Ø 0.25 mm	Yes	2 m	1.3 mm	R15
LL3-DM02	5308077	30 x 30 mm	Ø 0.015 mm	No	C, S: Ø 0.5 mm; R: 9 x Ø 0.25 mm	Yes	2 m	1.3 mm	R15
LL3-DK23	5313022	30 x 30 mm	Ø 0.015 mm	No	C, S: Ø 1.0 mm, R: 16 x Ø 0.25 mm	No	0.5 m	2.6 mm	R25
LL3-DK21	5313023	30 x 30 mm	Ø 0.015 mm	No	C, S: Ø 0.25 mm, R: 10 x Ø 0.125 mm	No	2 m	1.6 mm	R15
Super flexible, bend radius R = 2 mm									
LL3-DK66	5313024	100 x 100 mm	Ø 0.015 mm	No	2 x : Ø 1.0 mm	Yes	2 m	1.3 mm	R2
LL3-DK67	5313025	100 x 100 mm	Ø 0.015 mm	No	2 x : Ø 1.0 mm	Yes	2 m	2.2 mm	R2
LL3-DK04Z	5313026	100 x 100 mm	Ø 0.015 mm	No	2 x : Ø 1.0 mm	Yes	2 m	1.3 mm	R2
LL3-DK63Z	5313027	100 x 100 mm	Ø 0.015 mm	No	2 x : Ø 1.0 mm	Yes	2 m	1.3 mm	R2
Flexible, bend radius R = 4 mm									
LL3-DR01	5308078	100 x 100 mm	Ø 0.015 mm	No	S: 16 x Ø 0.26 mm, R: 16 x Ø 0.26 mm	Yes	2 m	2.2 mm	R4
LL3-DR02	5308079	30 x 30 mm	Ø 0.015 mm	No	S: 2 x Ø 0.25 mm, R: 2 x Ø 0.25 mm	Yes	1 m	1.0 mm	R4
LL3-DR03	5308080	30 x 30 mm	Ø 0.015 mm	No	S: 4 x Ø 0.25 mm, R: 4 x Ø 0.25 mm	Yes	2 m	1.0 mm	R4
LL3-DR04	5308081	30 x 30 mm	Ø 0.015 mm	No	S: 2 x Ø 0.25 mm, R: 2 x Ø 0.25 mm	No	1 m	1.2 mm	R4
LL3-DR06	5308082	30 x 30 mm	Ø 0.015 mm	No	S: 4 x Ø 0.25 mm, R: 4 x Ø 0.25 mm	Yes	2 m	1.0 mm	R4
Long end tips									
LL3-DB02	5308083	100 x 100 mm	Ø 0.015 mm	No	C, S: Ø 1.0 mm, R: 16 x Ø 0.25 mm	Yes	2 m	2.2 mm	R25
LL3-DM03	5308084	30 x 30 mm	Ø 0.015 mm	No	2 x Ø 0.5 mm	Yes	2 m	1.0 mm	R15
LL3-DT02	5308085	30 x 30 mm	Ø 0.015 mm	No	2 x Ø 0.25 mm	Yes	2 m	1.0 mm	R4
LL3-DT04	5308086	30 x 30 mm	Ø 0.015 mm	No	C, S: Ø 0.25 mm, R: 9 x Ø 0.125 mm	No	0.5 m	1.2 mm	R4
LL3-DT05	5313028	30 x 30 mm	Ø 0.015 mm	No	2 x Ø 0.5 mm	Yes	2 m	1.0 mm	R15
LL3-DR05	5308087	30 x 30 mm	Ø 0.015 mm	No	2 x Ø 0.25 mm	No	0.5 m	2.2 mm	R4
LL3-DK22	5313029	30 x 30 mm	Ø 0.015 mm	No	C, S: Ø 0.5 mm, R: 9 x Ø 0.25 mm	No	0.5 m	2.1 mm	R15
LL3-DK43	5313030	30 x 30 mm	Ø 0.015 mm	No	2 x : Ø 0.5 mm	Yes	2 m	1.0 mm	R15
Integrated 90° deflection									
LL3-DV01	5308088	30 x 30 mm	Ø 0.025 mm	No	2 x Ø 1.0 mm	Yes	2 m	2.2 mm	R25
LL3-DV02	5308089	30 x 30 mm	Ø 0.015 mm	No	2 x Ø 0.5 mm	Yes	2 m	1.0 mm	R15
LL3-DV03	5308090	30 x 30 mm	Ø 0.025 mm	No	2 x Ø 1.0 mm	Yes	2 m	2.2 mm	R25
LL3-DK33	5313031	30 x 30 mm	Ø 0.025 mm	No	2 x Ø 1.0 mm	Yes	2 m	2.2 mm	R25
Level switch for liquids									
LL3-DF01	5308094	clear liquid	–	No	2 x Ø 1.0 mm	Yes	2 m	6 mm	R60
LL3-DF02	5308095	cloudy liquid	–	No	2 x Ø 1.0 mm	Yes	2 m	6 mm	R60
Temperature-resistant									
LL3-DH01	5308091	100 x 100 mm	Ø 0.015 mm	No	2 x Ø 1.5 mm	Yes	2 m	2.2 mm	R35
LL3-DH02	5308092	100 x 100 mm	Ø 0.015 mm	No	2 x Ø 1.0 mm	Yes	2 m	2.2 mm	R25
LL3-DH83	5313032	100 x 100 mm	Ø 0.015 mm	No	Ø 1.6 (mixed 50 µm)	No	1 m	5 mm	R25
Teflon sheath									
LL3-DY01	5308093	100 x 100 mm	Ø 0.02 mm	No	2 x Ø 1.0 mm	Yes	2 m	6 mm	R60
Fix focus									
LL3-DC01	5313033	30 x 30 mm	Ø 0.015 mm	No	2 x Ø 0.5 mm	Yes	2 m	1.0 mm	R15

¹⁾ Minimum object diameter: scanning range reduction
²⁾ See also LL3-Accessories: tip adapters
³⁾ Cutter FC for fibre-optic cables included with delivery

Dimensioning Mounting sleeve	End tip	Fibre material Core	Sheath	End tip ⁴⁾	Operating temperature	General description
M4	–	PMMA	PE	1.4305	–40 ... +70 °C	M4, core: 2 x Ø 1.0 mm
Ø 2.5 mm	–	PMMA	PE	1.4305	–40 ... +70 °C	2.5 mm cylindric, core: 2 x Ø 0.5 mm
M3	–	PMMA	PE	1.4305	–40 ... +70 °C	M3, core: 2 x Ø 0.5 mm
M6	–	PMMA	PE	1.4306	–40 ... +70 °C	M6, core: 2 x Ø 1.0 mm
Ø 3 mm	–	PMMA	PE	1.4306	–40 ... +70 °C	Ø 3, core: 2 x Ø 1.0 mm
M6	–	PMMA	PE	1.4305	–40 ... +70 °C	M6, core: S = Ø 1.0 mm/R = 16 x Ø 0.25 mm; fibre length 2 m
M6	–	PMMA	PE	1.4305	–40 ... +70 °C	M6, core: S = Ø 1.0 mm/R = 16 x Ø 0.25 mm; fibre length 10 m
M6	–	PMMA	PE	1.4305	–40 ... +70 °C	M6, core: S = Ø 1.0 mm/R = 16 x Ø 0.25 mm
M3	–	PMMA	PE	1.4305	–40 ... +70 °C	M3, core: S = Ø 0.5 mm/R = 9 x Ø 0.25 mm
M4	–	PMMA	PE	1.4305	–40 ... +70 °C	M4, core: S = Ø 0.5 mm/R = 9 x Ø 0.25 mm
Ø 3 mm	–	PMMA	PE	1.4306	–40 ... +70 °C	Ø 3 mm, core: S = Ø 1.0 mm/R = 16 x Ø 0.25 mm
M3	–	PMMA	PE	1.4306	–40 ... +70 °C	M3, core: S = Ø 0.25 mm/R = 10 x Ø 0.125 mm
M4	–	PMMA	PE	1.4305	–40 ... +70 °C	M4, core: 2 x Ø 1.0 mm; R = 2
M6	–	PMMA	PE	1.4305	–40 ... +70 °C	M6, core: 2 x Ø 1.0 mm; R = 2
Ø 3 mm	–	PMMA	PE	1.4306	–40 ... +70 °C	Ø 3 mm, core: 2 x Ø 1.0 mm; R = 2
M4	Ø 2.5 mm	PMMA	PE	1.4306	–40 ... +70 °C	M4, Ø 2.5 end tip (bendable R = 10); core 2 x Ø 1.0 mm
M6	–	PMMA	PE	CuZn	–40 ... +70 °C	M6, core: S = 16 x Ø 0.26 mm/R = 16 x Ø 0.26 mm, mixed; R = 4
M3	–	PMMA	PE	1.4305	–40 ... +70 °C	M3, core: S = 2 x Ø 0.25 mm/R = 2 x Ø 0.25 mm, mixed; R = 4
Ø 3 mm	–	PMMA	PE	1.4305	–40 ... +70 °C	Ø 3 cylindric, core: S = 4 x Ø 0.25 mm/R = 4 x Ø 0.25 mm mixed; R = 4
Ø 1.5 mm	–	PMMA	PE	1.4305	–40 ... +70 °C	Ø 1.5 cylindric, core: S = 2 x Ø 0.25 mm/R = 2 x Ø 0.25 mm mixed; R = 4
M4	–	PMMA	PE	1.4305	–40 ... +70 °C	M4, core: S = 4 x Ø 0.25 mm/R = 4 x Ø 0.25 mm splitted; R = 4
M6	Ø 2.5 mm	PMMA	PE	1.4305	–40 ... +70 °C	M6, Ø 2.5 end tip, bendable; coaxial: S = Ø 1.0 mm/R = 16 x Ø 0.25 mm
M4	–	PMMA	PE	1.4305	–40 ... +70 °C	M4, Ø 1.5 end tip, bendable; core: 2 x Ø 0.5 mm
M3	–	PMMA	PE	1.4305	–40 ... +70 °C	M3, Ø 0.82 end tip; core: 2 x Ø 0.25 mm; R = 4
M3	–	PMMA	PE	1.4305	–40 ... +70 °C	M3, Ø 0.82 end tip; coax: 1 x Ø 0.25 mm/9 x Ø 0.125 mm; fibre length 0.5 m; R = 4
M4	–	PMMA	PE	1.4305	–40 ... +70 °C	M4, Ø 1.5 end tip, not bendable; core: 2 x Ø 0.5 mm;
Ø 3 mm	–	PMMA	PE	1.4305	–40 ... +70 °C	Ø 3 cylindric, Ø 0.82 end tip; core: 2 x Ø 0.25 mm; fibre length 0.5 m; R = 4
Ø 2.5 mm	–	PMMA	PE	1.4305	–40 ... +70 °C	Ø 2.5 mm cylindric, Ø 1.5 mm end tip; core: S = Ø 0.5 mm/R = 9 x Ø 0.25 mm;
Ø 4.0 mm	–	PMMA	PE	1.4305	–40 ... +70 °C	Ø 4 mm, Ø 1.5 end tip, core: 2 x Ø 0.5 mm
Ø 5 mm	–	PMMA	PE	1.4305	–40 ... +70 °C	Ø 5 mm cylindric, side view, Ø 2.7 mm short sleeve; core: 2 x Ø 1.0 mm
Ø 3 mm	–	PMMA	PE	1.4305	–40 ... +70 °C	Ø 3 mm cylindric, side view, Ø 1.5 mm end tip; core: 2 x Ø 0.5 mm
M6	–	PMMA	PE	1.4305	–40 ... +70 °C	M6, side view, Ø 2.5 mm end tip; core: 2 x Ø 1.0 mm
Ø 5 mm	–	PMMA	PE	1.4305	–40 ... +70 °C	Ø 5 mm cylindric, side view, Ø 2.7 mm lange sleeve; core: 2 x Ø 1.0 mm
Ø 6 mm	–	PTEE (Teflon sheath)			–40 ... +70 °C	Ø 6 mm cylindric, Teflon jacket; for clear liquid detection
Ø 6 mm	–	PTEE (Teflon sheath)			–40 ... +70 °C	Ø 6 mm cylindric, Teflon jacket; for cloudy liquid detection
M6	–	Si	FEP	1.4305	–40 ... +180 °C	Heat resist to 180 °C; M6, core: 2 x Ø 1.5 mm
M6	–	PC	PVC	1.4305	–40 ... +100 °C	Heat resist to 105 °C; M6, core: 2 x Ø 1.0 mm
M6	–	Glas		1.4305	–40 ... +300 °C	Heat resist to 300 °C; M6, core: Ø 1.6 (mixed 50 µ)
Ø 6 mm	–	PTEE (Teflon sheath)			–40 ... +100 °C	Ø 6 mm cylindric, Teflon sheath
19 x 12 x 3	–	PMMA	PE	Al	–40 ... +70 °C	Fix focussed 3mm

⁴⁾ 1.4305 (German materials no.) stainless steel, resistant to rusting and acids



LL3 Plastic fibre-optic cables Through-beam systems

Type	Order no.	Object size Standard	Minimum ¹⁾	Suitable for scanning tip adapter ²⁾	LL3 – Core structure	Can be shortened as required ³⁾	LL3- Length	LL3-Out-side Ø	Bend radius R LL3	Sleeve
Standard type										
LL3-TS07	5308049	Ø 1.5 mm	Ø 0.5 mm	No	Ø 1.5 mm	Yes	2 m	2.2 mm	R30	-
LL3-TB01	5308050	Ø 1.5 mm	Ø 0.5 mm	Yes	Ø 1.5 mm	Yes	2 m	2.2 mm	R30	-
LL3-TB01-10	5308051	Ø 1.5 mm	Ø 0.5 mm	Yes	Ø 1.5 mm	Yes	10 m	2.2 mm	R30	-
LL3-TB02	5308048	Ø 1 mm	Ø 0.2 mm	Yes	Ø 1.0 mm	Yes	2 m	2.2 mm	R25	-
Super flexible, bend radius R = 2 mm										
LL3-TK05	5313034	Ø 1 mm	Ø 0.2 mm	No	Ø 1.0 mm (multi-core)	Yes	2 m	2.2 mm	R2	-
LL3-TK77	5313035	Ø 1 mm	Ø 0.2 mm	Yes	Ø 1.0 mm (multi-core)	Yes	2 m	2.2 mm	R2	-
Flexible, bend radius R = 4 mm										
LL3-TR01	5308052	Ø 1 mm	Ø 0.3 mm	Yes	Ø 0.265 mm x 16	Yes	2 m	2.2 mm	R4	-
LL3-TR02	5308053	Ø 0.5 mm	Ø 0.1 mm	No	Ø 0.25 mm x 4	Yes	2 m	1.0 mm	R4	-
LL3-TR03	5308054	Ø 0.5 mm	Ø 0.1 mm	No	Ø 0.25 mm x 4	Yes	1 m	1.0 mm	R4	-
LL3-TR03-02	5308055	Ø 0.5 mm	Ø 0.1 mm	No	Ø 0.25 mm x 4	Yes	2 m	1.0 mm	R4	-
Long end tips										
LL3-TB03	5308056	Ø 1 mm	Ø 0.2 mm	No	Ø 1.0 mm	Yes	2 m	2.2 mm	R25	10
LL3-TT01	5308057	Ø 0.25 mm	Ø 0.1 mm	No	Ø 0.25 mm	Yes	2 m	1.0 mm	R15	-
LL3-TK75	5313036	Ø 0.5 mm	Ø 0.1 mm	No	Ø 0.5 mm	Yes	2 m	1.0 mm	R15	-
Integrated 90° deflection										
LL3-TV01	5308058	Ø 1 mm	Ø 0.2 mm	No	Ø 1.0 mm	Yes	2 m	2.2 mm	R25	-
LL3-TV02	5308059	Ø 0.5 mm	Ø 0.1 mm	No	Ø 0.5 mm	Yes	2 m	1.0 mm	R15	-
LL3-TV04	5308060	Ø 0.5 mm	Ø 0.1 mm	No	Ø 0.5 mm	Yes	2 m	1.0 mm	R15	-
LL3-TS08	5308061	Ø 1 mm	Ø 0.2 mm	No	Ø 1.0 mm	Yes	2 m	2.2 mm	R25	-
LL3-TS12	5308062	Ø 1.7 mm	Ø 0.5 mm	No	Ø 0.75 mm	Yes	2 m	2.2 mm	R25	-
LL3-TK34	5313037	Ø 1 mm	Ø 0.2 mm	No	Ø 1.0 mm	Yes	2 m	2.2 mm	R25	-
LL3-TK16	5313038	Ø 1 mm	Ø 0.2 mm	No	Ø 1.0 mm	Yes	2 m	2.2 mm	R25	-
Fibre-optic cable cell										
LL3-TS10	5308063	Ø 2 mm	Ø 1 mm	No	Ø 0.25 mm x 16	Yes	2 m	2.2 mm	R25	-
LL3-TS14	5313039	Ø 1.5 mm	Ø 0.5 mm	No	Ø 0.25 mm x 16	Yes	2 m	2.2 mm	R25	-
Temperature-resistant										
LL3-TH01	5308064	Ø 1 mm	Ø 0.2 mm	Yes	Ø 1.0 mm	Yes	2 m	2.2 mm	R25	-
LL3-TH02	5308065	Ø 1.5 mm	Ø 0.5 mm	No	Ø 1.5 mm	Yes	2 m	2.2 mm	R35	-
LL3-TH84	5313040	Ø 1 mm	Ø 0.2 mm	No	Ø 1.1 mm (multi-core Ø 50 µm)	No	1 m	2.2 mm	R25	-
Teflon sheath										
LL3-TY01	5308066	Ø 4 mm	Ø 0.3 mm	No	Ø 1.0 mm	Yes	2 m	6 mm	R60	-
LL3-TY02	5308067	Ø 4 mm	Ø 0.3 mm	No	Ø 1.0 mm	Yes	2 m	6 mm	R60	-
Smallest end sleeves										
LL3-TM01	5308068	Ø 1 mm	Ø 0.2 mm	No	Ø 1.0 mm	Yes	2 m	1.3 mm	R25	-
LL3-TM02	5308069	Ø 0.5 mm	Ø 0.1 mm	No	Ø 0.5 mm	Yes	2 m	1.0 mm	R15	-
LL3-TM03	5308070	Ø 0.5 mm	Ø 0.1 mm	No	Ø 0.5 mm	Yes	2 m	1.0 mm	R15	-

¹⁾ Minimum object diameter: scanning range reduction
²⁾ See also LL3-Accessories: tip adapters
³⁾ Cutter FC for fibre-optic cables included with delivery

Dimensioning Mounting sleeve	End tip	Fibre material Core	Sheath	End tip ⁴⁾	Operating temperature	General description
Ø 3 mm	-	PMMA	PE	1.4305	-40 ... +70 °C	Ø 3 mm cylindric
M4	-	PMMA	PE	1.4305	-40 ... +70 °C	M4, long range, fibre length 2 m
M4	-	PMMA	PE	1.4305	-40 ... +70 °C	M4, long range, fibre length 10 m
M4	-	PMMA	PE	CuZn	-40 ... +70 °C	M4, standard
Ø 3 mm	-	PMMA	PE	1.4305	-40 ... +70 °C	Ø 3 mm cylindric, multicore, tubular
M4	-	PMMA	PE	CuZn	-40 ... +70 °C	M4 cylindric, multicore, tubular
M4	-	PMMA	PE	CuZn	-40 ... +70 °C	flexible, R4 mm, M4
M3	-	PMMA	PE	1.4305	-40 ... +70 °C	flexible, R4 mm, M3
Ø 1.5 mm	-	PMMA	PE	1.4305	-40 ... +70 °C	flexible, R4 mm, Ø 1.5 mm cylindric, fibre length 1 m
1.5 mm	-	PMMA	PE	1.4305	-40 ... +70 °C	flexible, R4 mm, Ø 1.5 mm cylindric, fibre length 2 m
M4	Ø 1.5 mm	PMMA	PE	1.4305	-40 ... +70 °C	M4, Ø 1.5 mm end tip bendable
Ø 3 mm	-	PMMA	PE	1.4305	-40 ... +70 °C	Ø 3 mm cylindric, Ø 0.5 mm end tip
M3	-	PMMA	PE	1.4305	-40 ... +70 °C	M3, Ø 1.0 mm end tip
Ø 3 mm	-	PMMA	PE	1.4305	-40 ... +70 °C	3 mm cylindric, side view 90°, Ø 2.0 mm end tip
Ø 2.5 mm	-	PMMA	PE	1.4305	-40 ... +70 °C	Ø 2.5 mm cylindric, side view 90°, Ø 1.0 mm end tip
M3	-	PMMA	PE	1.4305	-40 ... +70 °C	M3, side view 90°, Ø 1.0 mm end tip
Ø 3 mm	-	PMMA	PE	1.4305	-40 ... +70 °C	Ø 3 mm cylindric, side view 90°, Ø 2.0 mm end tip
Ø 4 mm	-	PMMA	PE	1.4305	-40 ... +70 °C	Ø 4 mm cylindric, side view 90°, special mounting
Ø 3 mm	-	PMMA	PE	1.4305	-40 ... +70 °C	Ø 3 mm cylindric, side view 90°, Ø 1.5 mm end tip
Ø 4 mm	-	PMMA	PE	1.4305	-40 ... +100 °C	Ø 4 mm cylindric, side view 90°, short end tip, heat resist to 100 °C
10 x 20 x 5	-	PMMA	PE	CuZn	-40 ... +70 °C	Fibre-optic cable cell 5.25 mm
19 x 25 x 5	-	PMMA	PE	CuZn	-40 ... +70 °C	Fibre-optic cable cell 10.5 mm
M4	-	PC	PE	CuZn	-40 ... +100 °C	Heat resist to 100°, M4-sleeve
M4	-	Si	FEP	1.4305	-40 ... +180 °C	Heat resist to 180°, M4-sleeve
M4	-	Glas	1.4305	1.4305	-40 ... +300 °C	Heat resist to 300°, M4-sleeve, glass/metal
Ø 6 mm	-	PTEE (Teflon sheath)		-	-40 ... +70 °C	Ø 6 mm cylindric, Teflon sheath
Ø 6 mm	-	PTEE (Teflon sheath)		-	-40 ... +70 °C	Ø 6 mm cylindric, side view 90°, Teflon sheath
M3	-	PMMA	PE	1.4305	-40 ... +70 °C	M3, Ø LL-core: 1 mm
M3	-	PMMA	PE	1.4305	-40 ... +70 °C	M3, Ø LL-core: 0.5 mm
Ø 1.5 mm	-	PMMA	PE	1.4305	-40 ... +70 °C	1.5 mm cylindric, Ø LL-core: 0.5 mm

⁴⁾ 1.4305 (German materials no.) stainless steel, resistant to rusting and acids

Accessories
LL3 Fibre-optic cables

LL3 Plastic fibre-optic cables

Accessories – Tip adapters

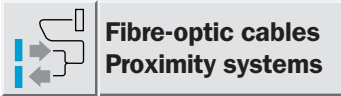
Type LL3 proximity, lenses with focussed optic	Order no.	Object size (White 90 %)		Dimensioning		Lens material		Operating temperature	Remark
		Standard	Minimum	Thread	Outside Ø	Lens	Housing		
Focus 6 mm, spot size Ø 0.25 mm									
LL3-DA01	5308127			M3	Ø 5.0 mm			-40 ... +70 °C	<ul style="list-style-type: none"> ■ For detection of very small parts, ■ focused , very small light spot diameter, ■ high sensitivity (6 % remission), ■ for suppressing interference – causing backgrounds
Combined with standard fibre LL3									
LL3-DT01	5308076	Ø 0.25 mm	Ø 0.1 mm			Glass	Al	-40 ... +70 °C	
Focus 12 mm, spot size Ø 3.0 mm									
LL3-DA02	5308130			M3	Ø 5.0 mm			-40 ... +70 °C	<ul style="list-style-type: none"> ■ Suitable as a mark sensor for color marks, ■ focused , very small light spot diameter, ■ high sensitivity (6 % remission), ■ for suppressing interference – causing backgrounds
Combined with standard fibre LL3									
LL3-DT01	5308076	Ø 3.0 mm	Ø 0.1 mm			Glass	Al	-40 ... +70 °C	

Type LL3 through-beam, lenses for extended scanning ranges	Order no.	Object size		Dimensioning		Lens material		Operating temperature	Remark
		Standard	Minimum	Thread	Outside Ø	Lens	Housing		
Axial optic, largest scanning ranges									
LL3-TA01	5308128			M2.6	Ø 5.0 mm	Glass	CuZn	-40 ... +300 °C	<ul style="list-style-type: none"> ■ For through-beam systems, ■ for increased scanning ranges (up to factor 10 x), ■ light spot diameter: approx. 170 mm at 1000 mm ■ aperture: approx. 15°
Combined with standard fibres LL3									
LL3-TB01	5308050	–	Ø 3 mm ¹⁾ /4 mm ²⁾					-40 ... +70 °C	
LL3-TB01-10	5308051	–	Ø 3 mm ¹⁾ /4 mm ²⁾					-40 ... +70 °C	
LL3-TB02	5308048	–	Ø 3 mm ¹⁾ /4 mm ²⁾					-40 ... +70 °C	
Combined with super flexible fibres									
LL3-TK77	5313035	–	Ø 3 mm ¹⁾ /4 mm ²⁾					-40 ... +70 °C	
Combined with flexible fibres									
LL3-TR01	5308052	–	Ø 3 mm ¹⁾ /4 mm ²⁾					-40 ... +70 °C	
Combined with heat resisting fibres (100 °C)									
LL3-TH01	5308064	–	Ø 3 mm ¹⁾ /4 mm ²⁾					-40 ... +100 °C	
Integrated 90° deflection, large scanning ranges									
LL3-TA02	5308129			M2.6	Ø 5.0 mm	Glas	CuZn	-40 ... +300 °C	<ul style="list-style-type: none"> ■ For through-beam systems, ■ integrated 90° deflection, ■ for increased scanning ranges, ■ light spot diameter: x-axis approx. 110 mm, y-axis ca. 170 mm (for 200 mm in each case), ■ aperture: x-axis approx. 30°, y-axis approx. 40°
Combined with standard fibres LL3									
LL3-TB01	5308050	–	Ø 3 mm					-40 ... +70 °C	
LL3-TB01-10	5308051	–	Ø 3 mm					-40 ... +70 °C	
LL3-TB02	5308048	–	Ø 3 mm					-40 ... +70 °C	
Combined with super flexible fibres									
LL3-TK77	5313035	–	Ø 3 mm					-40 ... +70 °C	
Combined with flexible fibres									
LL3-TR01	5308052	–	Ø 3 mm					-40 ... +70 °C	
Combined with heat resisting fibres (100 °C)									
LL3-TH01	5308064	–	Ø 3 mm					-40 ... +100 °C	

1) For devices WLL190T

2) For devices WLL170, WLL160 and VLL 18T

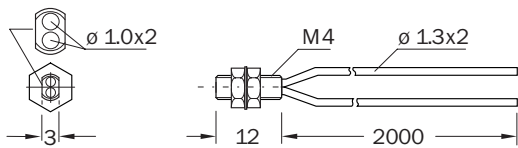
Dimensional drawings and order information



Dimensional drawings for LL3 fibre-optic cables, proximity systems

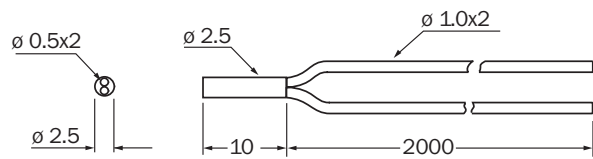
Standard type

Type	Order no.
LL3-DM01	5308071



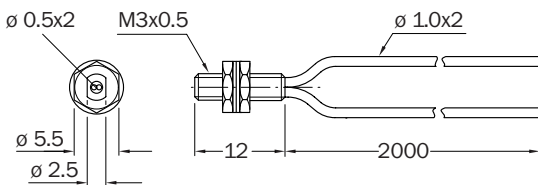
Standard type

Type	Order no.
LL3-DT03	5308072



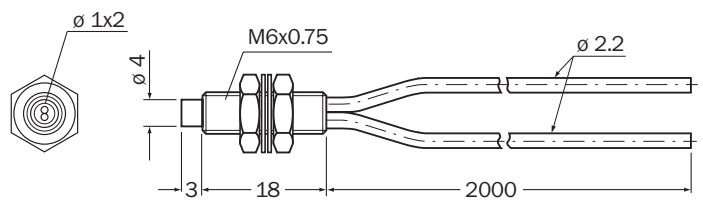
Standard type

Type	Order no.
LL3-DS06	5308073



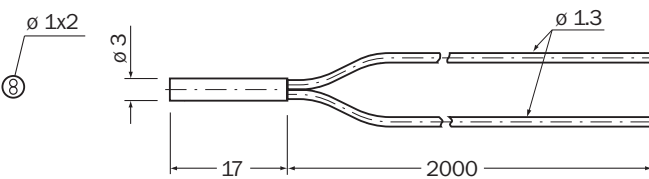
Standard type

Type	Order no.
LL3-DK06	5313019



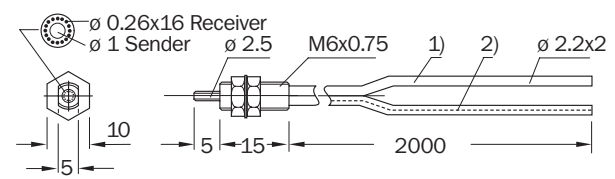
Standard type

Type	Order no.
LL3-DK04	5313020



Coaxial cable

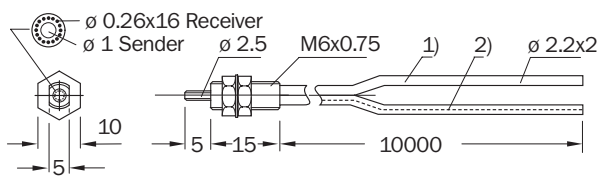
Type	Order no.
LL3-DB01	5308074



- 1) Sender
- 2) Receiver

Coaxial cable

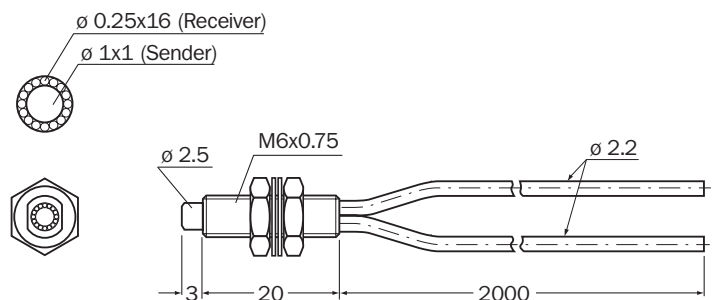
Type	Order no.
LL3-DB01-10	5308075



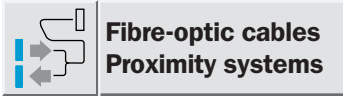
- 1) Sender
- 2) Receiver

Coaxial cable

Type	Order no.
LL3-DB03	5313021



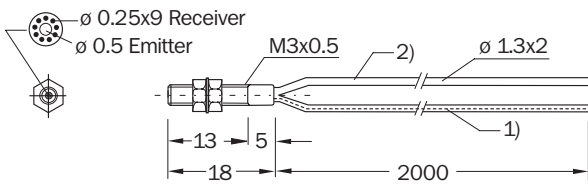
Dimensional drawings and order information



Dimensional drawings for LL3 fibre-optic cables, proximity systems

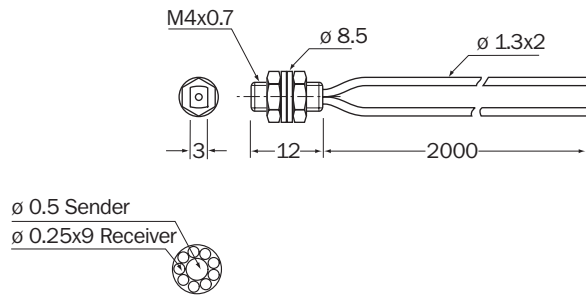
Coaxial cable

Type	Order no.
LL3-DT01	5308076



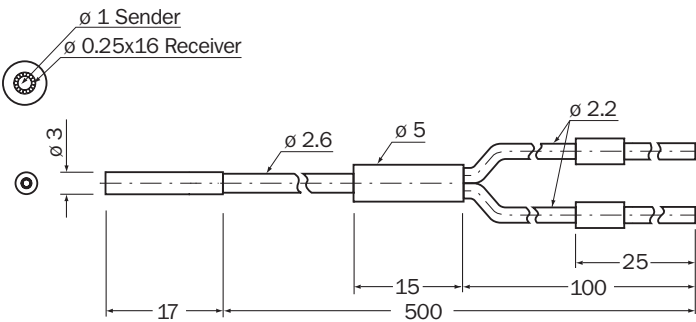
Coaxial cable

Type	Order no.
LL3-DM02	5308077



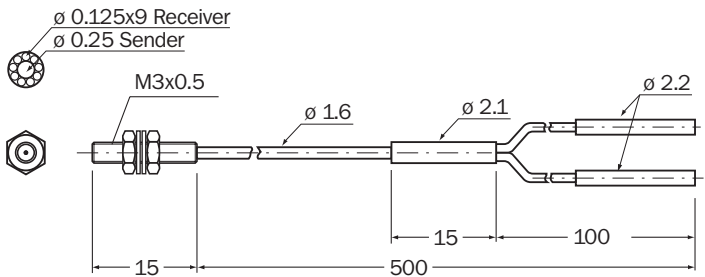
Coaxial cable

Type	Order no.
LL3-DK23	5313022



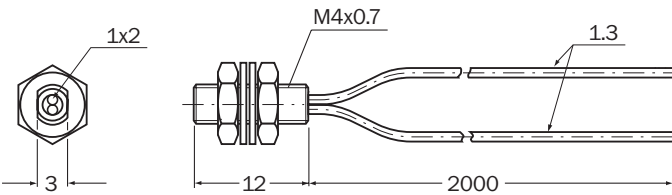
Coaxial cable

Type	Order no.
LL3-DK21	5313023



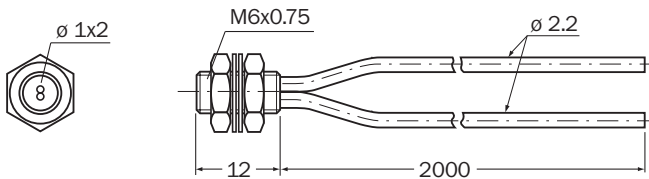
Super flexible, bend radius R = 2 mm

Type	Order no.
LL3-DK66	5313024



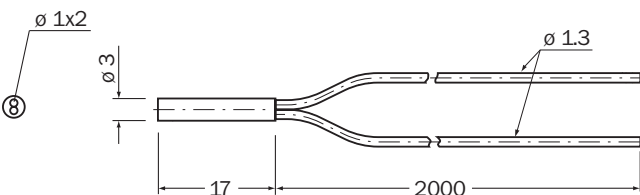
Super flexible, bend radius R = 2 mm

Type	Order no.
LL3-DK67	5313025



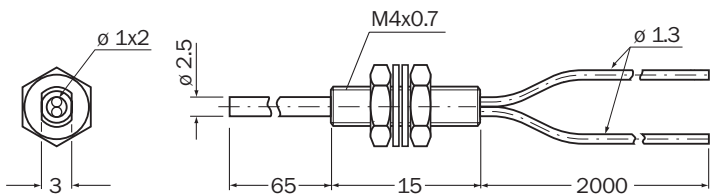
Super flexible, bend radius R = 2 mm

Type	Order no.
LL3-DK04Z	5313026



Super flexible, bend radius R = 2 mm

Type	Order no.
LL3-DK63Z	5313027



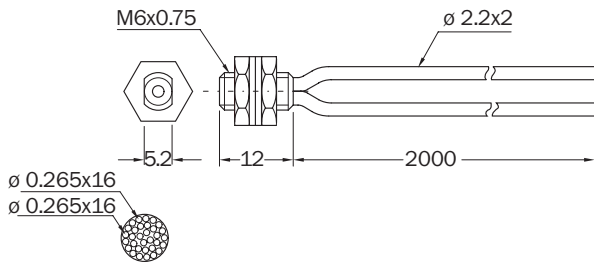
Dimensional drawings and order information



Dimensional drawings for LL3 fibre-optic cables, proximity systems

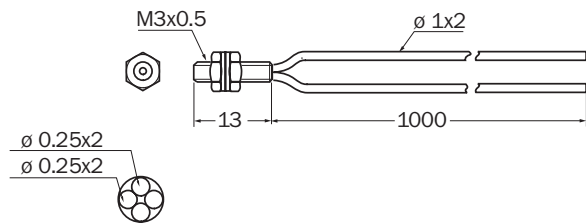
Flexible, bend radius R = 4 mm

Type	Order no.
LL3-DR01	5308078



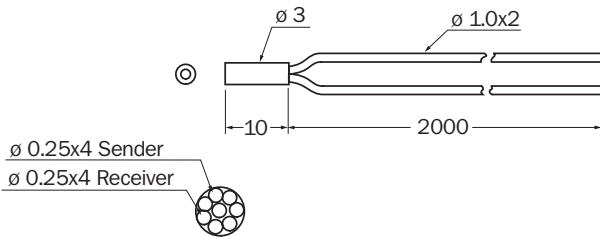
Flexible, bend radius R = 4 mm

Type	Order no.
LL3-DR02	5308079



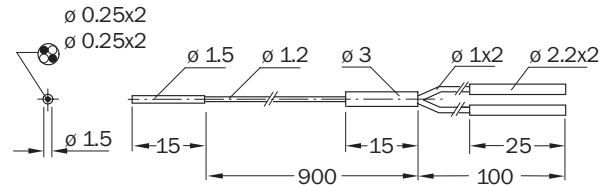
Flexible, bend radius R = 4 mm

Type	Order no.
LL3-DR03	5308080



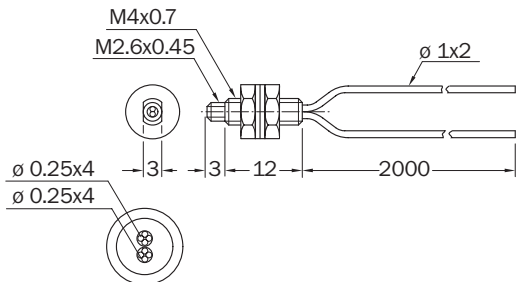
Flexible, bend radius R = 4 mm

Type	Order no.
LL3-DR04	5308081



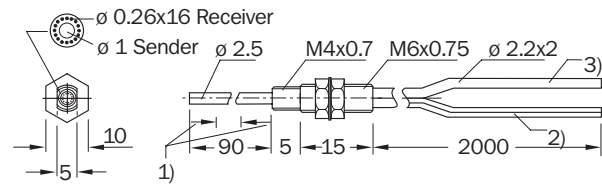
Flexible, bend radius R = 4 mm

Type	Order no.
LL3-DR06	5308082



Long end tips

Type	Order no.
LL3-DB02	5308083



- 1) Flexible end tip, do not bend in this region (10 mm), bend radius R 10
- 2) Sender (marked blue)
- 3) Receiver

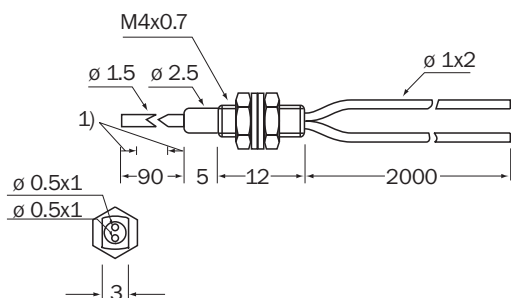
Dimensional drawings and order information



Dimensional drawings for LL3 fibre-optic cables, proximity systems

Long end tips

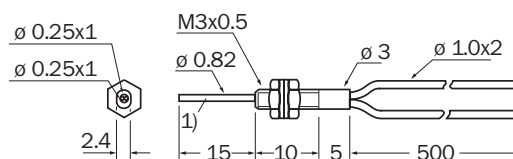
Type	Order no.
LL3-DM03	5308084



1) Flexible end tip, do not bend in this region (10 mm), bend radius R 10

Long end tips

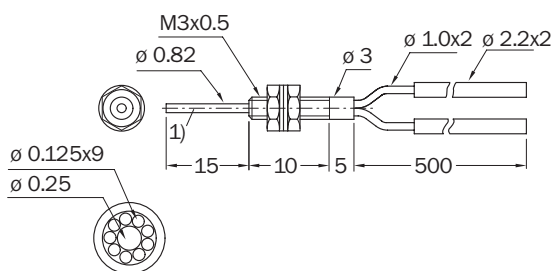
Type	Order no.
LL3-DT02	5308085



1) End tip cannot be bent

Long end tips

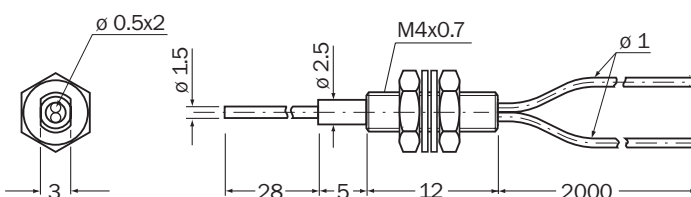
Type	Order no.
LL3-DT04	5308086



1) End tip cannot be bent

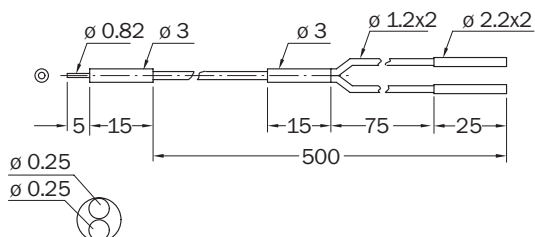
Long end tips

Type	Order no.
LL3-DT05	5313028



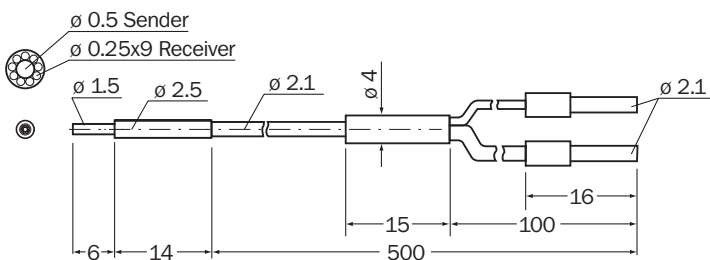
Long end tips

Type	Order no.
LL3-DR05	5308087



Long end tips

Type	Order no.
LL3-DK22	5313029



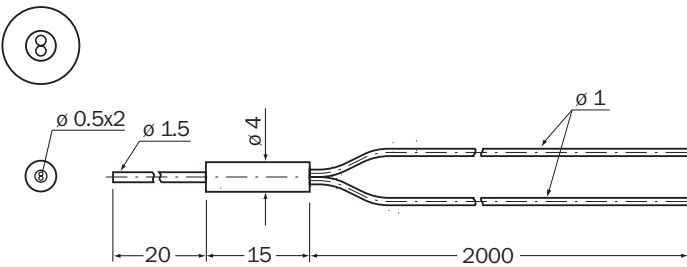
Dimensional drawings and order information



Dimensional drawings for LL3 fibre-optic cables, proximity systems

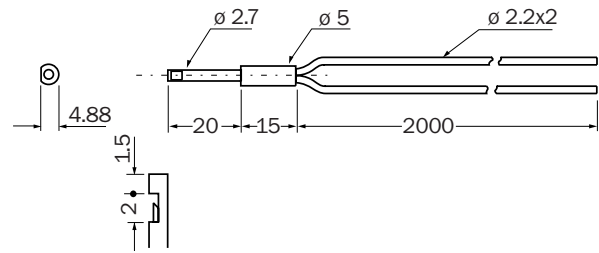
Long end tips

Type	Order no.
LL3-DK43	5313030



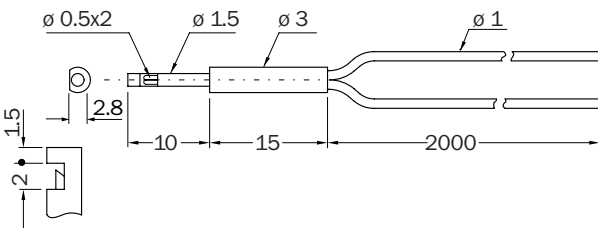
Integrated 90° deflection

Type	Order no.
LL3-DV01	5308088



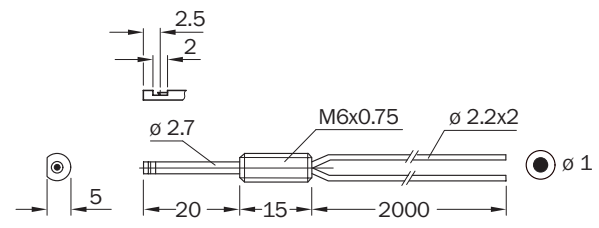
Integrated 90° deflection

Type	Order no.
LL3-DV02	5308089



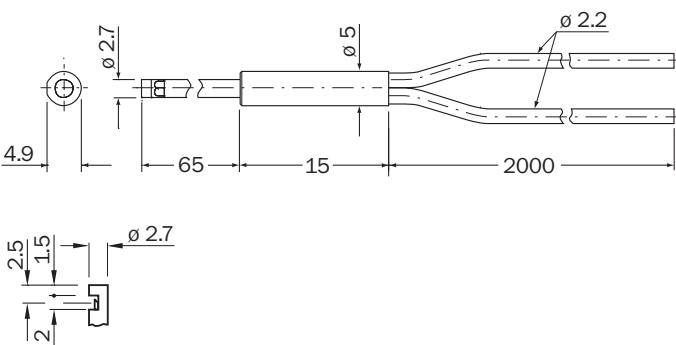
Integrated 90° deflection

Type	Order no.
LL3-DV03	5308090



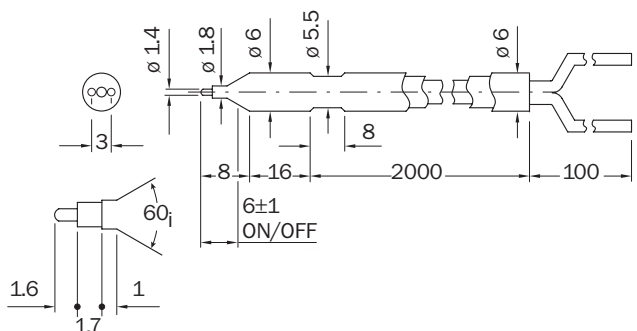
Integrated 90° deflection

Type	Order no.
LL3-DK33	5313031



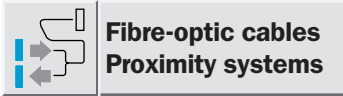
Level switch for liquids

Type	Order no.
LL3-DF01	5308094 ¹⁾
LL3-DF02	5308095 ²⁾



¹⁾ For transparent liquids
²⁾ For cloudy liquids

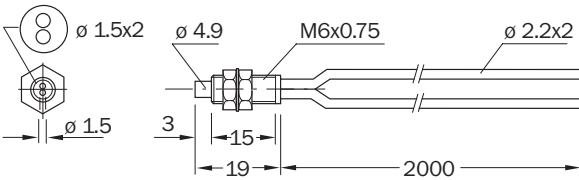
Dimensional drawings and order information



Dimensional drawings for LL3 fibre-optic cables, proximity systems

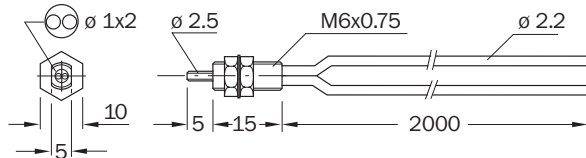
Temperature-resistant

Type	Order no.
LL3-DH01	5308091



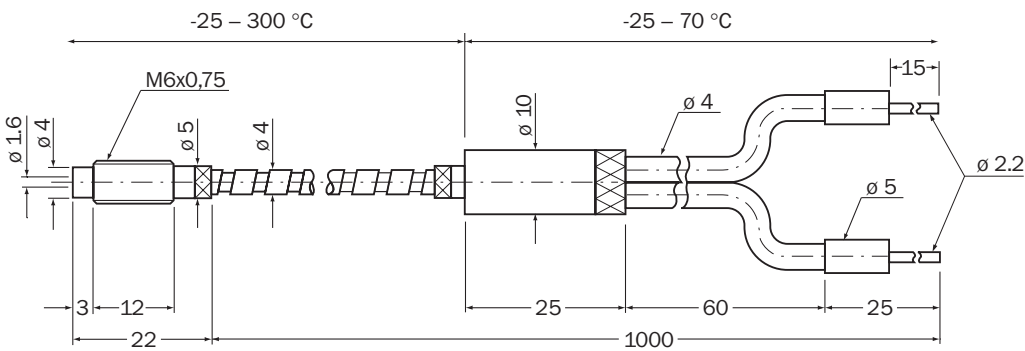
Temperature-resistant

Type	Order no.
LL3-DH02	5308092



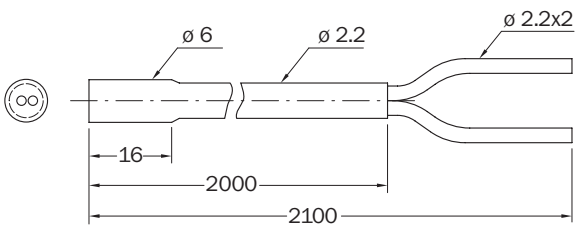
Temperature-resistant

Type	Order no.
LL3-DH83	5313032



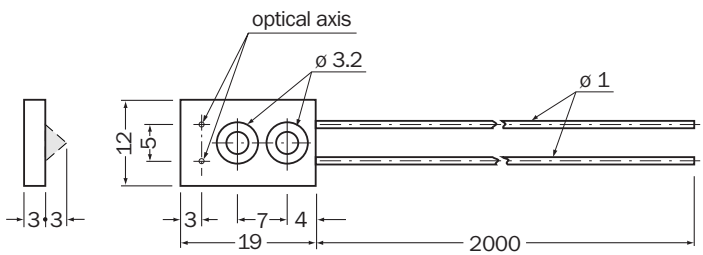
Teflon sheath

Type	Order no.
LL3-DY01	5308093



Fix focus

Type	Order no.
LL3-DC01	5313033



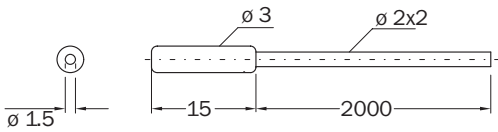
Dimensional drawings and order information

Fibre-optic cables
Through-beam systems

Dimensional drawings for LL3 fibre-optic cables, through-beam systems

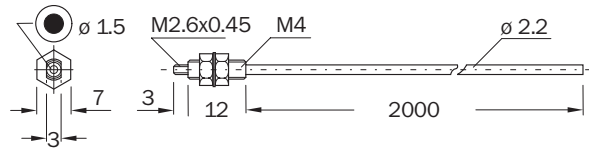
Standard type

Type	Order no.
LL3-TS07	5308049



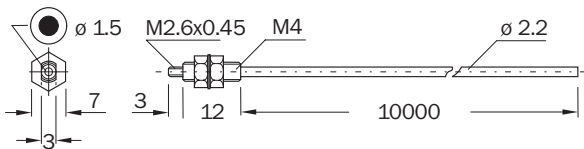
Standard type

Type	Order no.
LL3-TB01	5308050



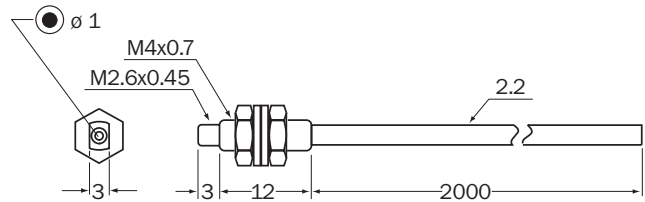
Standard type

Type	Order no.
LL3-TB01-10	5308051



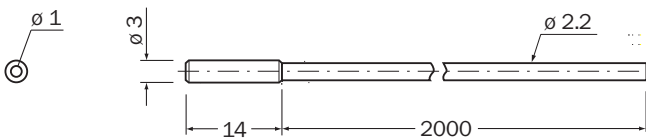
Standard type

Type	Order no.
LL3-TB02	5308048



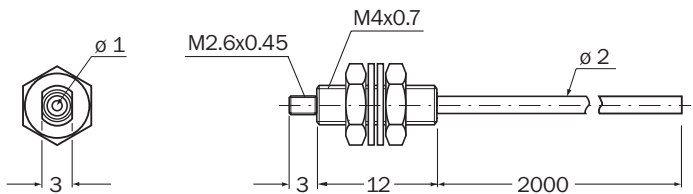
Super flexible, bend radius R = 2 mm

Type	Order no.
LL3-TK05	5313034



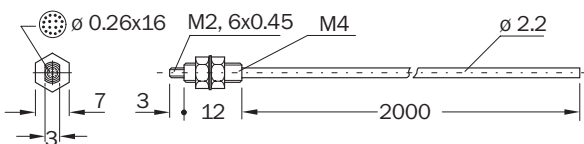
Super flexible, bend radius R = 2 mm

Type	Order no.
LL3-TK77	5313035



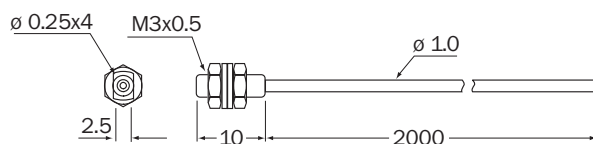
Flexible, bend radius R = 4 mm

Type	Order no.
LL3-TR01	5308052

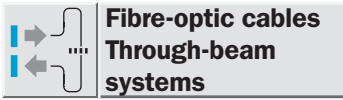


Flexible, bend radius R = 4 mm

Type	Order no.
LL3-TR02	5308053



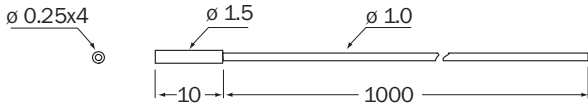
Dimensional drawings and order information



Dimensional drawings for LL3 fibre-optic cables, through-beam systems

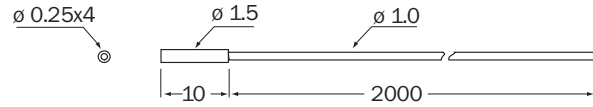
Flexible, bend radius R = 4 mm

Type	Order no.
LL3-TR03	5308054



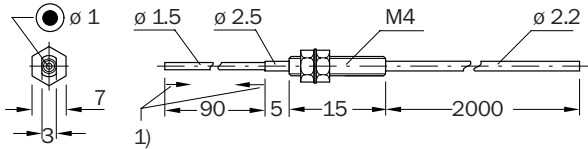
Flexible, bend radius R = 4 mm

Type	Order no.
LL3-TR03-02	5308055



Long end tips

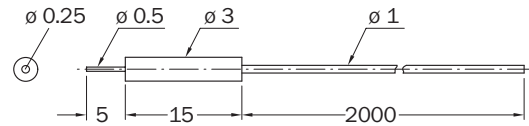
Type	Order no.
LL3-TB03	5308056



1) Flexible end tip, do not bend in this region (10 mm), bend radius R 10

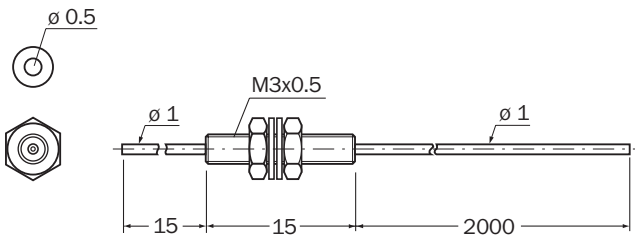
Long end tips

Type	Order no.
LL3-TT01	5308057



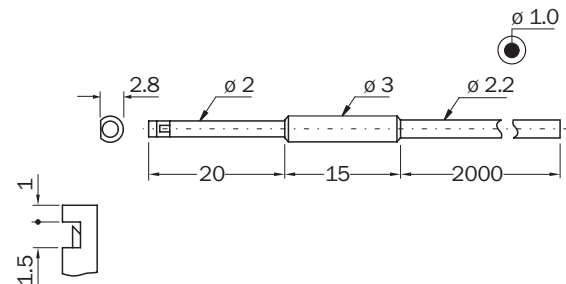
Long end tips

Type	Order no.
LL3-TK75	5313036



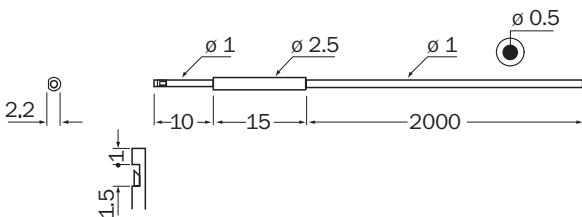
Integrated 90° deflection

Type	Order no.
LL3-TV01	5308058



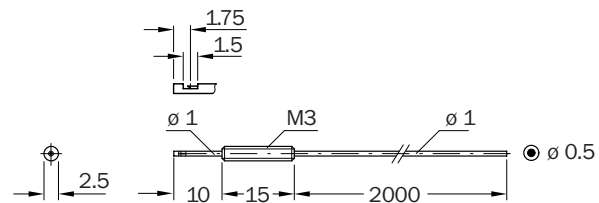
Integrated 90° deflection

Type	Order no.
LL3-TV02	5308059

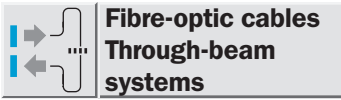


Integrated 90° deflection

Type	Order no.
LL3-TV04	5308060



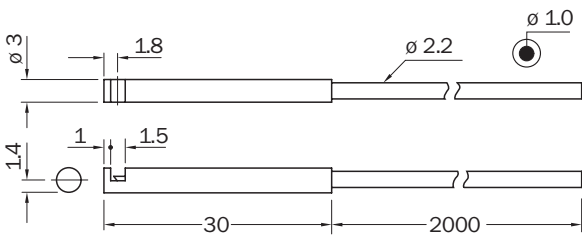
Dimensional drawings and order information



Dimensional drawings for LL3 fibre-optic cables, through-beam systems

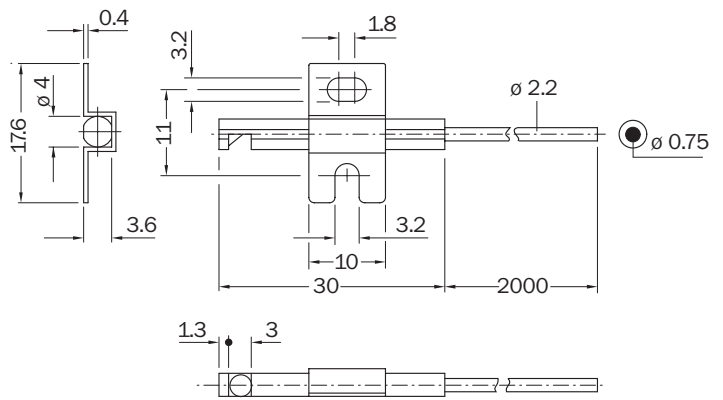
Integrated 90° deflection

Type	Order no.
LL3-TS08	5308061



Integrated 90° deflection

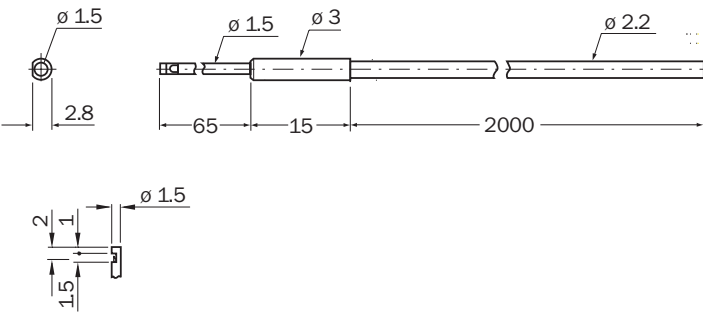
Type	Order no. *)
LL3-TS12	5308062



*) Mounting bracket included with delivery

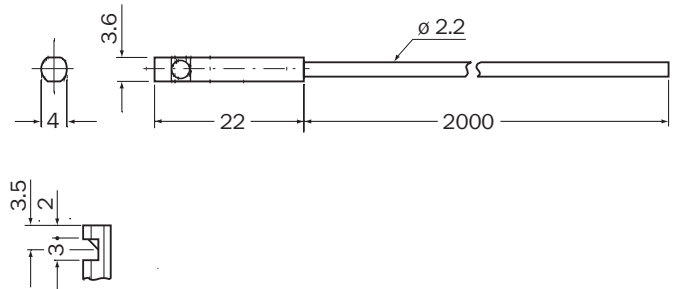
Integrated 90° deflection

Type	Order no.
LL3-TK34	5313037



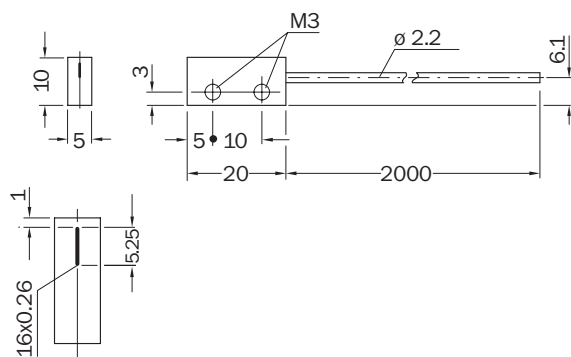
Integrated 90° deflection

Type	Order no.
LL3-TK16	5313038



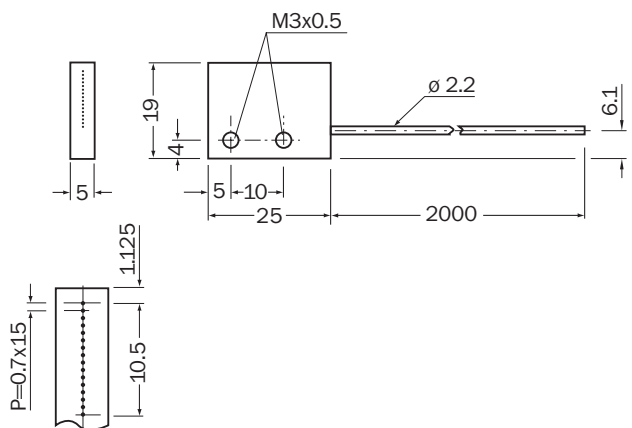
Fibre-optic cable cell

Type	Order no.
LL3-TS10	5308063

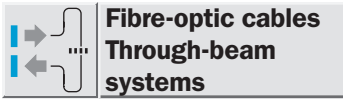


Fibre-optic cable cell

Type	Order no.
LL3-TS14	5313039



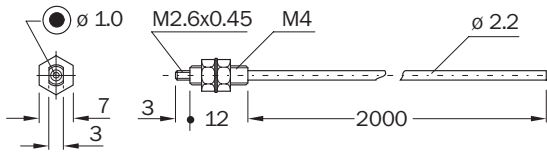
Dimensional drawings and order information



Dimensional drawings for LL3 fibre-optic cables, through-beam systems

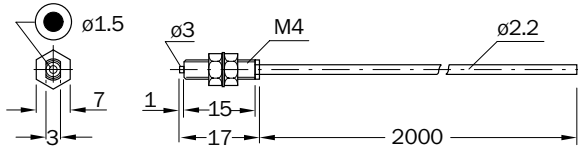
Temperature-resistant

Type	Order no.
LL3-TH01	5308064



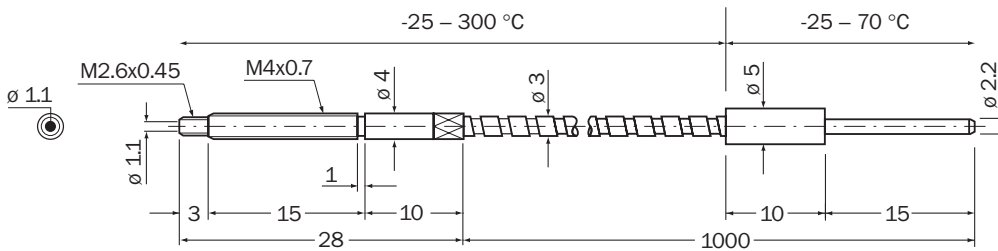
Temperature-resistant

Type	Order no.
LL3-TH02	5308065



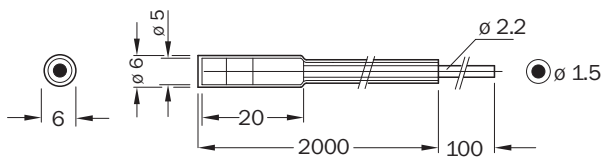
Temperature-resistant

Type	Order no.
LL3-TH84	5313040



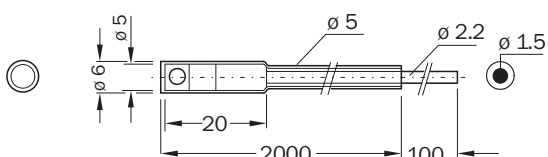
Teflon sheath

Type	Order no.
LL3-TY01	5308066



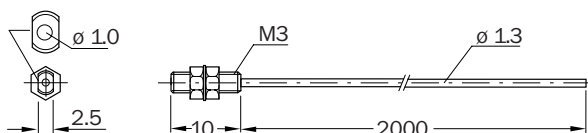
Teflon sheath

Type	Order no.
LL3-TY02	5308067



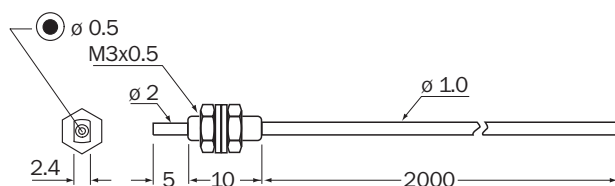
Smallest end sleeves

Type	Order no.
LL3-TM01	5308068



Smallest end sleeves

Type	Order no.
LL3-TM02	5308069



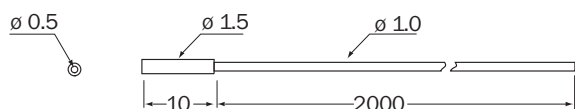
Dimensional drawings and order information

Fibre-optic cables
Through-beam systems

Dimensional drawings for LL3 fibre-optic cables, through-beam systems

Smallest end sleeves

Type	Order no.
LL3-TM03	5308070

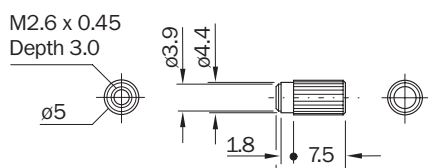


Accessories
LL3 Fibre-optic cables

Dimensional drawings for tip adapters LL3 fibre-optic cables

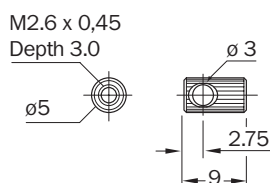
Order information

Type	Order no.
LL3-TA01	5308128



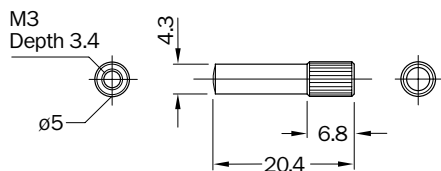
Order information

Type	Order no.
LL3-TA02	5308129



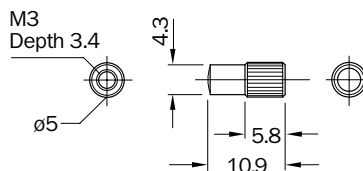
Order information

Type	Order no.
LL3-DA01	5308127



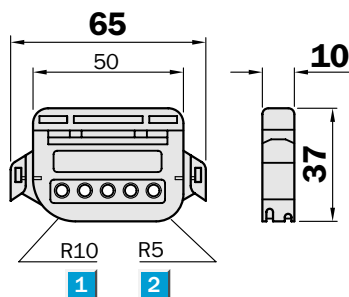
Order information

Type	Order no.
LL3-DA02	5308130



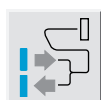
Cutter for fibre-optic cables ¹⁾

Type	Order no.
FC	5304141



- 1** Templing for bend radius
R 10 mm, for end tips
Ø 1.5 mm and Ø 2.5 mm
- 2** Bend radius R 5 mm

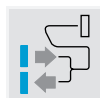
¹⁾ Supplied with fibre-optic cable for cutting to length



LL 3 Plastic fibre-optic cables, scanning ranges combined with serie WLL 190T

Type	Order no.	WLL 190T – LED red High-Speed 1.25 kHz Operating range [mm]	Standard Operating range [mm]	Large scanning range Operating range [mm]	WLL 190T – LED green (registration mark sensor) High-Speed 1.25 kHz Operating range [mm]	Standard Operating range [mm]	Large scanning range Operating range [mm]
Standard type							
LL3-DM01	5 308 071	80	150	250	20	30	40
LL3-DT03	5 308 072	25	45	80	15	25	40
LL3-DS06	5 308 073	25	45	80	15	25	40
LL3-DK06	5 313 019	100	200	300	30	45	60
LL3-DK04	5 313 020	100	200	300	30	45	60
Coaxial cable							
LL3-DB01	5 308 074	100	200	300	20	35	45
LL3-DB01-10	5 308 075	100	200	300	20	35	45
LL3-DB03	5 313 021	70	100	200	15	30	40
LL3-DT01	5 308 076	70	130	250	20	30	40
LL3-DM02	5 308 077	70	130	250	20	30	40
LL3-DK23	5 313 022	100	200	300	20	35	45
LL3-DK21	5 313 023	15	30	50	8	15	25
Super flexible, bend radius R = 2 mm							
LL3-DK66	5 313 024	80	150	250	25	40	50
LL3-DK67	5 313 025	80	150	250	25	40	50
LL3-DK04Z	5 313 026	80	150	250	25	40	50
LL3-DK63Z	5 313 027	80	150	250	25	40	50
Flexible, bend radius R = 4 mm							
LL3-DR01	5 308 078	80	150	250	25	35	50
LL3-DR02	5 308 079	15	25	50	8	15	25
LL3-DR03	5 308 080	30	50	100	15	30	50
LL3-DR04	5 308 081	15	25	50	8	15	25
LL3-DR06	5 308 082	30	50	100	15	30	30
Long end tips							
LL3-DB02	5 308 083	100	200	300	20	35	45
LL3-DM03	5 308 084	25	40	80	15	25	40
LL3-DT02	5 308 085	5	10	20	3	6	10
LL3-DT04	5 308 086	10	18	35	5	10	20
LL3-DT05	5 313 028	25	40	80	15	30	40
LL3-DR05	5 308 087	5	10	20	3	6	10
LL3-DK22	5 313 029	70	130	250	20	30	50
LL3-DK43	5 313 030	25	40	80	15	30	45
Integrated 90° deflection							
LL3-DV01	5 308 088	50	80	150	20	30	45
LL3-DV02	5 308 089	20	35	60	10	20	35
LL3-DV03	5 308 090	50	80	150	20	45	45
LL3-DK33	5 313 031	50	80	150	20	45	45
Level switch for liquids							
LL3-DF01	5 308 094	–	–	–	–	–	–
LL3-DF02	5 308 095	–	–	–	–	–	–
Temperature-resistant							
LL3-DH01	5 308 091	130	200	300	30	50	70
LL3-DH02	5 308 092	50	100	180	30	50	70
LL3-DH83	5 313 032	100	150	200	20	40	60
Teflon sheath							
LL3-DY01	5 308 093	50	80	100	20	30	40
Fix focus							
LL3-DC01	5 313 033	3	3	3	3	3	3

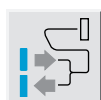
Characteristic curves and diagrams: see Internet "www.sick.com"



LL 3 Plastic fibre-optic cables, scanning ranges combined with serie WLL 170

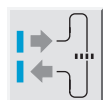
Type	Order no.	WLL 170-2, manual sensitivity	WLL 170-2, registration mark sensor, LED green	WLL 170T, sensitivity adjustment via teach-in	WLL 170T, registration mark sensor, LED green	WLL 170A, Analogue output 1 ... 5 V			WLL 170-2, High speed 10,000 Hz	
		Operating range [mm]	Operating range [mm]	Operating range [mm]	Operating range [mm]	5 V	3 V	1 V	Operating range [mm]	
Standard type										
LL3-DM01	5 308 071	160	45	100	25	30	45	170	60	
LL3-DT03	5 308 072	45	5	25	4	11	15	60	15	
LL3-DS06	5 308 073	45	5	25	4	11	15	60	15	
LL3-DK06	5 313 019	160	45	100	25	30	45	170	60	
LL3-DK04	5 313 020	160	45	100	25	30	45	170	60	
Coaxial cable										
LL3-DB01	5 308 074	150	45	100	25	28	40	170	65	
LL3-DB01-10	5 308 075	80	45	50	20	15	20	90	25	
LL3-DB03	5 313 021	150	35	100	25	28	40	170	65	
LL3-DT01	5 308 076	70	10	35	7	15	20	90	20	
LL3-DM02	5 308 077	70	10	35	7	15	20	90	20	
LL3-DK23	5 313 022	150	45	100	25	28	40	170	65	
LL3-DK21	5 313 023	20	4	14	not possible	not possible	not possible	not possible	5	
Super flexible, bend radius R = 2 mm										
LL3-DK66	5 313 024	110	25	80	20	25	35	140	45	
LL3-DK67	5 313 025	110	25	80	20	25	35	140	45	
LL3-DK04Z	5 313 026	110	25	80	20	25	35	140	45	
LL3-DK63Z	5 313 027	110	25	80	20	25	35	140	45	
Flexible, bend radius R = 4 mm										
LL3-DR01	5 308 078	130	15	85	20	25	35	140	45	
LL3-DR02	5 308 079	20	2	14	not possible	not possible	not possible	not possible	8	
LL3-DR03	5 308 080	35	5	25	3	7	10	43	10	
LL3-DR04	5 308 081	20	2	14	not possible	not possible	not possible	not possible	8	
LL3-DR06	5 308 082	35	5	25	3	7	10	43	10	
Long end tips										
LL3-DB02	5 308 083	150	45	100	25	30	40	160	65	
LL3-DM03	5 308 084	45	5	25	4	11	15	60	15	
LL3-DT02	5 308 085	10	2	6	not possible	not possible	not possible	not possible	3	
LL3-DT04	5 308 086	15	2	13	not possible	not possible	not possible	not possible	8	
LL3-DT05	5 313 028	45	5	25	4	11	15	60	15	
LL3-DR05	5 308 087	10	2	8	not possible	not possible	not possible	not possible	3	
LL3-DK22	5 313 029	70	10	35	7	15	20	90	20	
LL3-DK43	5 313 030	45	5	25	4	7	10	43	15	
Integrated 90° deflection										
LL3-DV01	5 308 088	90	25	50	10	17	24	170	40	
LL3-DV02	5 308 089	15	3	12	not possible	not possible	not possible	not possible	5	
LL3-DV03	5 308 090	90	25	50	10	17	24	170	40	
LL3-DK33	5 313 031	90	25	50	10	17	24	170	40	
Level switch for liquids										
LL3-DF01	5 308 094	–	–	–	not possible	not possible	not possible	not possible	–	
LL3-DF02	5 308 095	–	–	–	not possible	not possible	not possible	not possible	–	
Temperature-resistant										
LL3-DH01	5 308 091	210	40	135	25	45	65	200	90	
LL3-DH02	5 308 092	110	7	75	5	22	30	125	40	
LL3-DH83	5 313 032	140	25	125	25	40	60	180	55	
Teflon sheath										
LL3-DY01	5 308 093	45	10	60	not possible	not possible	not possible	not possible	5	
Fix focus										
LL3-DC01	5 313 033	3	1,5	3	3	3	3	4	3	

Characteristic curves and diagrams: see Internet "www.sick.com"



LL 3 Plastic fibre-optic cables, scanning ranges combined with series WLL 160 and VLL 18T

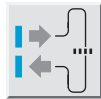
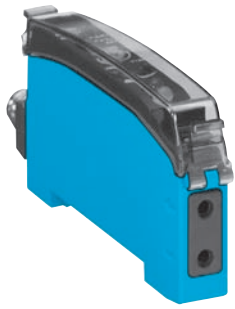
Type	Order no.	WLL 160, manual sensitivity Operating range [mm]	WLL 160T, Large scanning range Operating range [mm]	High-Speed 1,666 kHz Operating range [mm]	VLL 18T, Teach-in, LED red Operating range [mm]
Standard type					
LL3-DM01	5 308 071	70	70	50	50
LL3-DT03	5 308 072	20	20	14	15
LL3-DS06	5 308 073	20	20	14	15
LL3-DK06	5 313 019	70	70	50	50
LL3-DK04	5 313 020	70	70	50	50
Coaxial cable					
LL3-DB01	5 308 074	70	70	50	50
LL3-DB01-10	5 308 075	40	40	30	25
LL3-DB03	5 313 021	70	70	50	50
LL3-DT01	5 308 076	25	25	18	20
LL3-DM02	5 308 077	25	25	18	20
LL3-DK23	5 313 022	70	70	50	50
LL3-DK21	5 313 023	8	8	5	not possible
Super flexible, bend radius R = 2 mm					
LL3-DK66	5 313 024	65	65	45	45
LL3-DK67	5 313 025	65	65	45	45
LL3-DK04Z	5 313 026	65	65	45	45
LL3-DK63Z	5 313 027	65	65	45	45
Flexible, bend radius R = 4 mm					
LL3-DR01	5 308 078	70	70	50	45
LL3-DR02	5 308 079	9	9	6	not possible
LL3-DR03	5 308 080	20	20	14	13
LL3-DR04	5 308 081	9	9	6	not possible
LL3-DR06	5 308 082	20	20	14	13
Long end tips					
LL3-DB02	5 308 083	70	70	50	50
LL3-DM03	5 308 084	20	20	14	15
LL3-DT02	5 308 085	5	5	3	not possible
LL3-DT04	5 308 086	9	9	5	not possible
LL3-DT05	5 313 028	20	20	14	15
LL3-DR05	5 308 087	5	5	3	not possible
LL3-DK22	5 313 029	30	30	25	not possible
LL3-DK43	5 313 030	20	20	14	15
Integrated 90° deflection					
LL3-DV01	5 308 088	40	40	30	25
LL3-DV02	5 308 089	9	9	5	not possible
LL3-DV03	5 308 090	40	40	30	25
LL3-DK33	5 313 031	40	40	30	25
Level switch for liquids					
LL3-DF01	5 308 094	clear liquid	clear liquid	not possible	not possible
LL3-DF02	5 308 095	cloudy liquid	cloudy liquid	not possible	not possible
Temperature-resistant					
LL3-DH01	5 308 091	100	100	70	65
LL3-DH02	5 308 092	55	55	50	35
LL3-DH83	5 313 032	100	100	70	65
Teflon sheath					
LL3-DY01	5 308 093	not possible	45	not possible	30
Fix focus					
LL3-DC01	5 313 033	3	3	3	not possible



LL 3 Plastic fibre-optic cables, scanning ranges combined with serie WLL 190T

Type	Order no.	WLL 190T – LED red High-Speed 1.25 kHz			WLL 190T – LED green (registration mark sensor) High-Speed 1.25 kHz		
		Operating range [mm]	Standard Operating range [mm]	Large scanning range Operating range [mm]	Operating range [mm]	Standard Operating range [mm]	Large scanning range Operating range [mm]
Standard type							
LL3-TS07	5 308 049	450	800	1300	100	200	300
LL3-TB01	5 308 050	450	800	1300	100	200	300
LL3-TB01-10	5 308 051	350	450	900	100	150	250
LL3-TB02	5 308 048	250	450	800	80	150	200
Super flexible, bend radius R = 2 mm							
LL3-TK05	5 313 034	300	550	1000	80	150	600
LL3-TK77	5 313 035	300	550	1000	80	150	600
Flexible, bend radius R = 4 mm							
LL3-TR01	5 308 052	250	400	650	80	150	200
LL3-TR02	5 308 053	90	180	300	50	100	150
LL3-TR03	5 308 054	90	180	300	50	100	150
LL3-TR03-02	5 308 055	90	180	300	50	100	150
Long end tips							
LL3-TB03	5 308 056	250	500	800	80	150	250
LL3-TT01	5 308 057	20	40	55	10	20	30
LL3-TK75	5 313 036	35	60	90	20	30	40
Integrated 90° deflection							
LL3-TV01	5 308 058	250	450	700	80	150	250
LL3-TV02	5 308 059	50	90	150	30	50	70
LL3-TV04	5 308 060	50	90	150	30	50	70
LL3-TS08	5 308 061	250	400	650	80	150	250
LL3-TS12	5 308 062	2000	3500	3000	800	1000	1500
LL3-TK34	5 313 037	250	450	700	80	150	200
LL3-TK16	5 313 038	2500	3000	3000	1000	1500	2000
Fibre-optic cable cell							
LL3-TS10	5 308 063	300	500	800	80	150	300
LL3-TS14	5 313 039	300	500	800	80	150	300
Temperature-resistant							
LL3-TH01	5 308 064	250	400	700	80	150	250
LL3-TH02	5 308 065	350	600	1000	100	200	300
LL3-TH84	5 313 040	250	350	600	80	100	200
Teflon sheath							
LL3-TY01	5 308 066	1500	2500	3000	500	1000	1700
LL3-TY02	5 308 067	500	800	1000	150	250	350
Smallest end sleeves							
LL3-TM01	5 308 068	250	450	800	80	150	300
LL3-TM02	5 308 069	100	200	300	40	100	150
LL3-TM03	5 308 070	100	200	300	40	100	150

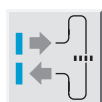
Characteristic curves and diagrams: see Internet "www.sick.com"



LL 3 Plastic fibre-optic cables, scanning ranges combined with serie WLL 170

Type	Order no.	WLL 170-2, manual sensitivity	WLL 170-2, registration mark sensor, LED green	WLL 170T, sensitivity adjustment via teach-in	WLL 170T, registration mark sensor, LED green	WLL 170A, Analogue output 1 ... 5 V			WLL 170-2, High speed 10,000 Hz	
		Operating range [mm]	Operating range [mm]	Operating range [mm]	Operating range [mm]	5 V	3 V	1 V	Operating range [mm]	
Standard type										
LL3-TS07	5 308 049	700	350	580	140	160	230	1000	350	
LL3-TB01	5 308 050	700	350	580	140	160	230	1000	350	
LL3-TB01-10	5 308 051	400	260	300	120	80	110	500	160	
LL3-TB02	5 308 048	450	130	350	75	95	135	590	160	
Super flexible, bend radius R = 2 mm										
LL3-TK05	5 313 034	360	110	350	75	95	135	590	120	
LL3-TK77	5 313 035	360	110	350	75	95	135	590	120	
Flexible, bend radius R = 4 mm										
LL3-TR01	5 308 052	330	120	270	60	80	110	500	120	
LL3-TR02	5 308 053	110	20	80	15	25	35	150	35	
LL3-TR03	5 308 054	110	20	80	15	25	35	150	35	
LL3-TR03-02	5 308 055	110	20	80	15	25	35	150	35	
Long end tips										
LL3-TB03	5 308 056	450	130	330	75	90	125	540	160	
LL3-TT01	5 308 057	30	4	23	not possible	6	8	35	12	
LL3-TK75	5 313 036	120	25	100	15	27	38	160	40	
Integrated 90° deflection										
LL3-TV01	5 308 058	320	85	230	55	80	110	450	110	
LL3-TV02	5 308 059	75	15	60	15	23	33	140	25	
LL3-TV04	5 308 060	75	15	60	15	23	33	140	25	
LL3-TS08	5 308 061	350	110	250	55	80	110	450	120	
LL3-TS12	5 308 062	1700	750	1000	450	550	800	2500	830	
LL3-TK34	5 313 037	320	85	230	55	80	110	450	110	
LL3-TK16	5 313 038	2000	800	1300	550	600	900	3000	900	
Fibre-optic cable cell										
LL3-TS10	5 308 063	330	85	330	60	85	120	530	120	
LL3-TS14	5 313 039	330	85	330	60	85	120	530	120	
Temperature-resistant										
LL3-TH01	5 308 064	300	45	250	60	70	95	430	120	
LL3-TH02	5 308 065	600	120	500	85	130	180	770	250	
LL3-TH84	5 313 040	350	130	240	50	65	90	380	150	
Teflon sheath										
LL3-TY01	5 308 066	2000	380	1800	200	not possible	not possible	not possible	400	
LL3-TY02	5 308 067	550	210	380	50	not possible	not possible	not possible	220	
Smallest end sleeves										
LL3-TM01	5 308 068	450	130	350	75	95	135	590	160	
LL3-TM02	5 308 069	120	25	100	15	27	38	160	40	
LL3-TM03	5 308 070	120	25	100	15	27	38	160	40	

Characteristic curves and diagrams: see Internet "www.sick.com"



LL 3 Plastic fibre-optic cables, scanning ranges combined with series WLL 160 and VLL 18T

Type	Order no.	WLL 160, manual sensitivity Operating range [mm]	WLL 160T, Large scanning range Operating range [mm]	High-Speed 1,660 kHz Operating range [mm]	VLL 18T, Teach-in, LED red Operating range [mm]
Standard type					
LL3-TS07	5 308 049	500	500	360	200
LL3-TB01	5 308 050	400	400	280	200
LL3-TB01-10	5 308 051	250	250	190	110
LL3-TB02	5 308 048	200	200	150	120
Super flexible, bend radius R = 2 mm					
LL3-TK05	5 313 034	200	200	150	120
LL3-TK77	5 313 035	200	200	150	120
Flexible, bend radius R = 4 mm					
LL3-TR01	5 308 052	180	180	130	100
LL3-TR02	5 308 053	50	50	40	not possible
LL3-TR03	5 308 054	50	50	40	not possible
LL3-TR03-02	5 308 055	50	50	40	not possible
Long end tips					
LL3-TB03	5 308 056	200	200	150	120
LL3-TT01	5 308 057	18	18	10	not possible
LL3-TK75	5 313 036	70	70	50	not possible
Integrated 90° deflection					
LL3-TV01	5 308 058	150	150	130	70
LL3-TV02	5 308 059	40	40	30	not possible
LL3-TV04	5 308 060	40	40	30	not possible
LL3-TS08	5 308 061	200	200	150	80
LL3-TS12	5 308 062	700	700	400	350
LL3-TK34	5 313 037	150	150	130	70
LL3-TK16	5 313 038	800	800	500	450
Fibre-optic cable cell					
LL3-TS10	5 308 063	260	260	190	100
LL3-TS14	5 313 039	260	260	190	100
Temperature-resistant					
LL3-TH01	5 308 064	180	180	130	80
LL3-TH02	5 308 065	350	350	240	170
LL3-TH84	5 313 040	170	170	140	70
Teflon sheath					
LL3-TY01	5 308 066	1000	1000	700	350
LL3-TY02	5 308 067	250	250	180	120
Smallest end sleeves					
LL3-TM01	5 308 068	200	200	150	not possible
LL3-TM02	5 308 069	70	70	50	not possible
LL3-TM03	5 308 070	70	70	50	not possible



Tip adapters for LL 3 plastic fibre-optic cables, scanning ranges combined with serie WLL 190T

Type LL3 proximity, lenses with focussed optic	Order no.	WLL 190T – LED red High-Speed, 1.25 kHz Operating range [mm]	Standard Operating range [mm]	Large scanning range Operating range [mm]	WLL 190T – LED green (registration mark sensor) High-Speed, 1.25 kHz Operating range [mm]	Standard Operating range [mm]	Large scanning range Operating range [mm]
Focus 6 mm, spot size Ø 0.25 mm							
LL3-DA01	5 308 127						
Combined with standard fibre LL 3							
LL3-DT01	5 308 076	6 ± 1	6 ± 1	6 ± 1	6 ± 1	6 ± 1	6 ± 1
Focus 12 mm, spot size Ø 3.0 mm							
LL3-DA02	5 308 130						
Combined with standard fibre LL 3							
LL3-DT01	5 308 076	12 ± 3	12 ± 3	12 ± 3	12 ± 3	12 ± 3	12 ± 3

Type LL3 through-beam, lenses for extended scanning ranges	Order no.	WLL 190T – LED red High-Speed, 1.25 kHz Operating range [mm]	Standard Operating range [mm]	Large scanning range Operating range [mm]	WLL 190T – LED green (Marksensor) High-Speed, 1.25 kHz Operating range [mm]	Standard Operating range [mm]	Large scanning range Operating range [mm]
axial optic, largest scanning ranges							
LL3-TA01	5 308 128						
Combined with standard fibres LL 3							
LL3-TB01	5 308 050	2000	4000	4000	1000	2000	3000
LL3-TB01-10	5 308 051	1300	2500	5500	700	1500	3000
LL3-TB02	5 308 048	3500	4000	4000	1500	2500	3000
Combined with super flexible fibres							
LL3-TK77	5 313 035	3500	4000	4000	1500	2500	3000
Combined with flexible fibres							
LL3-TR01	5 308 052	3500	4000	4000	1500	2500	3000
Combined with heat resisting fibres (100 °C)							
LL3-TH01	5 308 064	3000	4000	4000	1500	2500	3000
Integrated 90° deflection, large scanning ranges							
LL3-TA02	5 308 129						
Combined with standard fibres LL 3							
LL3-TB01	5 308 050	400	700	1300	200	400	700
LL3-TB01-10	5 308 051	300	500	1000	150	300	500
LL3-TB02	5 308 048	500	1000	1500	300	600	800
Combined with super flexible fibres							
LL3-TK77	5 313 035	500	700	1300	300	400	700
Combined with flexible fibres							
LL3-TR01	5 308 052	450	600	800	250	350	450
Combined with heat resisting fibres (100 °C)							
LL3-TH01	5 308 064	550	800	1000	300	450	600

Characteristic curves and diagrams: see Internet "www.sick.com"



Tip adapters for LL 3 plastic fibre-optic cables, scanning ranges combined with the WLL 170 series

Type LL 3 proximity, lenses with focussed optic	Order no.	WLL 170-2, manual sensitivity	WLL 170-2, registration mark sensor, LED green	WLL 170T, sensitivity adjustment via teach-in	WLL 170T, registration mark sensor, LED green	WLL 170A, Analogue output			WLL 170-2, High speed 10,000 Hz	
		Operating range [mm]	Operating range [mm]	Operating range [mm]	Operating range [mm]	5 V	3 V	1 V	Operating range [mm]	
Focus 6 mm, spot size Ø 0.25 mm										
LL3-DA01	5 308 127									
Combined with standard fibre LL 3										
LL3-DT01	5 308 076	6 ± 1	6 ± 1	6 ± 1	6 ± 1	-	-	-	6 ± 1	
Focus 12 mm, spot size Ø 3.0 mm										
LL3-DA02	5 308 130									
Combined with standard fibre LL 3										
LL3-DT01	5 308 076	12 ± 3	12 ± 3	12 ± 3	12 ± 3	-	-	-	12 ± 3	

Type LL 3 through-beam, lenses for extended scanning ranges	Order no.	WLL 170-2, manual sensitivity	WLL 170-2, registration mark sensor, LED green	WLL 170T, sensitivity adjustment via teach-in	WLL 170T, registration mark sensor, LED green	WLL 170A, Analogue output			WLL 170-2, High speed 10,000 Hz	
		Operating range [mm]	Operating range [mm]	Operating range [mm]	Operating range [mm]	5 V	3 V	1 V	Operating range [mm]	
Axial optic, largest scanning ranges										
LL3-TA01	5 308 128									
Combined with standard fibre LL3										
LL3-TB01	5 308 050	3000	1200	2500	600	650	950	4000	1200	
LL3-TB01-10	5 308 051	1900	1100	1200	500	350	480	2200	800	
LL3-TB02	5 308 048	4000	1700	3200	650	900	1300	5500	1600	
Combined with super flexible fibres										
LL3-TK77	5 313 035	4000	1500	3200	650	900	1300	5500	1400	
Combined with flexible fibres										
LL3-TR01	5 308 052	3000	1100	2500	550	640	880	4000	1500	
Combined with heat resisting fibres (100 °C)										
LL3-TH01	5 308 064	4000	800	2500	300	700	950	4300	1500	
Integrated 90° deflection, large scanning ranges										
LL3-TA02	5 308 129									
Combined with standard fibre LL 3										
LL3-TB01	5 308 050	600	200	550	200	180	260	1100	200	
LL3-TB01-10	5 308 051	450	250	300	150	80	110	500	180	
LL3-TB02	5 308 048	600	250	500	130	170	250	1100	250	
Combined with super flexible fibres										
LL3-TK77	5 313 035	600	200	500	130	170	250	1100	200	
Combined with flexible fibres										
LL3-TR01	5 308 052	500	150	320	80	110	150	690	200	
Combined with heat resisting fibres (100 °C)										
LL3-TH01	5 308 064	500	90	320	55	100	150	670	200	

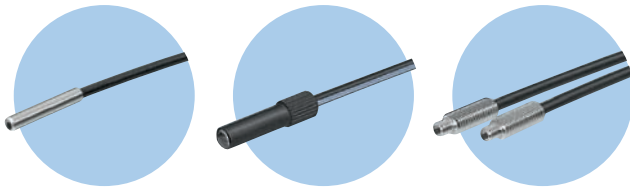
Characteristic curves and diagrams: see Internet "www.sick.com"



Tip adapters for LL 3 Plastic fibre-optic cables, scanning ranges combined with series WLL 160 and VLL 18T

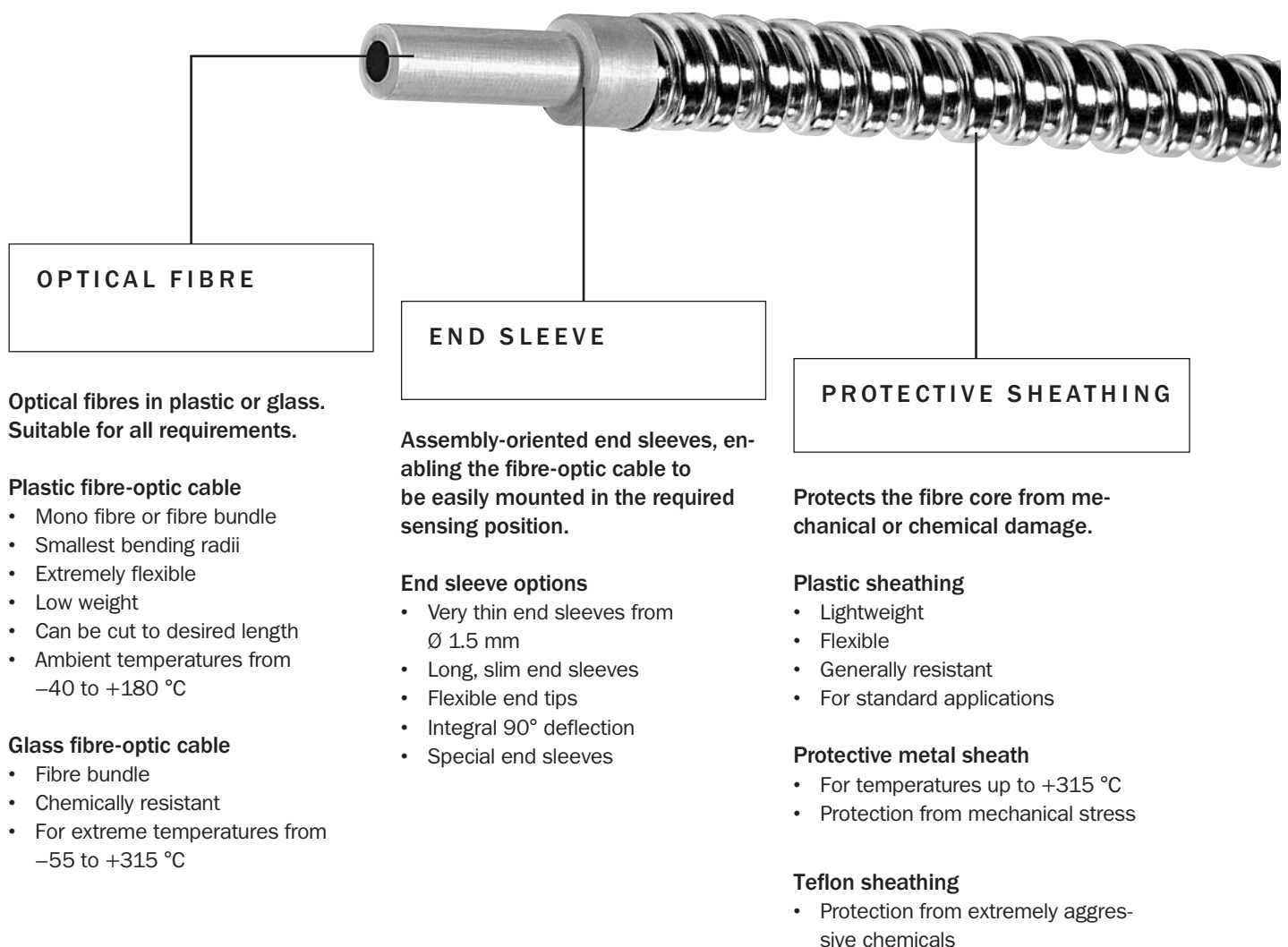
Type LL3 proximity, lenses with focussed optic	Order no.	WLL 160, manual sensitivity Operating range [mm]	WLL 160T, Large scanning range Operating range [mm]	High-Speed 1,666 kHz Operating range [mm]	VLL 18T, Teach-in, LED red Operating range [mm]
Focus 6 mm, spot size Ø 0.25 mm					
LL3-DA01	5 308 127				
Combined with standard fibre LL 3					
LL3-DT01	5 308 076	6 ± 1	6 ± 1	not possible	not possible
Focus 12 mm, spot size Ø 3.0 mm					
LL3-DA02	5 308 130				
Combined with standard fibre LL 3					
LL3-DT01	5 308 076	12 ± 3	12 ± 3	not possible	not possible

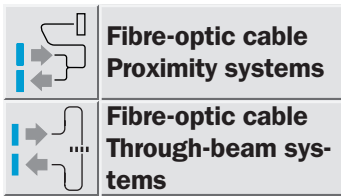
Type LL3 through-beam, lenses for extended scanning ranges	Order no.	WLL 160, manual sensitivity Operating range [mm]	WLL 160T, Large scanning range Operating range [mm]	High-Speed 1,666 kHz Operating range [mm]	VLL 18T, Teach-in, LED red Operating range [mm]
axial optic, largest scanning ranges					
LL3-TA01	5 308 128				
Combined with standard fibres LL 3					
LL3-TB01	5 308 050	1500	1500	1050	850
LL3-TB01-10	5 308 051	900	900	660	450
LL3-TB02	5 308 048	2000	2000	1500	1100
Combined with super flexible fibres					
LL3-TK77	5 313 035	2000	2000	1500	1100
Combined with flexible fibres					
LL3-TR01	5 308 052	1200	1200	850	850
Combined with heat resisting fibres (100 °C)					
LL3-TH01	5 308 064	1500	1500	1050	850
Integrated 90° deflection, large scanning ranges					
LL3-TA02	5 308 129				
Combined with standard fibres LL 3					
LL3-TB01	5 308 050	400	400	270	200
LL3-TB01-10	5 308 051	250	250	180	100
LL3-TB02	5 308 048	350	350	250	170
Combined with super flexible fibres					
LL3-TK77	5 313 035	350	350	250	170
Combined with flexible fibres					
LL3-TR01	5 308 052	250	250	180	110
Combined with heat resisting fibres (100 °C)					
LL3-TH01	5 308 064	250	350	180	110



Fibre-optic cables – solving automation problems.

Fibre-optic cables provide “slimline” and flexible connection between the sensor and the sensing target. They are key to sensing solutions and often the only way to detect inaccessible objects, details, and printed marks.





Features

- Glass-fibre cable with stainless steel sheath
- Sender and receiver fibres are randomly mixed (proximity systems)
- Operating temperature - 58... + 315 °C
- Length of fibre-optic cable 900 mm
- Bend radius 19 mm

Selection table: sensors, fibre-optic cables, range/scanning distances

Proximity systems					
LBS Fibre-optic cables			Scanning distance in mm ¹⁾ when combined with sensor		
Description	Type	Order no.	WLL 260	KTL 5-2	CSL 1
End sleeve ϕ 7.4 mm, FOC ϕ 3.2 mm	LBSA 32 900	7 020 040	50	9	9
End sleeve ϕ 6.4 mm, FOC ϕ 2.3 mm	LBSAA 23 900	7 020 103	30	9	9
Mounting 5/16" x 24, FOC ϕ 3.2 mm	LBSAT 32 900	7 020 036	50	9	9
End sleeve ϕ 7.4 mm, FOC ϕ 3.2 mm	LBSF 32 900	7 020 038	50	9	9
End sleeve ϕ 8 mm, FOC ϕ 1.2 mm	LBSM 12 900	7 020 054	6	9	9
End sleeve ϕ 7.9 mm, FOC ϕ 1.6 mm	LBSP 16 900	7 020 044	6	9	9
Fibre-optic cable cell 0.5 mm x 3.8 mm	LBSR 16 900	7 020 050	15	9	9
Fibre-optic cable cell 0.8 mm x 9.7 mm	LBSR 32 900	7 020 042	50	9	9
Fibre-optic cable cell 0.2 mm x 38.1 mm	LBSR 40 900	7 020 052	90	9	9
Mounting 5/16" x 24, FOC ϕ 3.2 mm	LBST 32 900	7 020 046	50	9	9
Mounting 5/16" x 24, FOC ϕ 3.2 mm	LBSTA 32 900	7 020 048	50	9	9
Optical head with fibre-optic cables	OCSL	1 016 296	–	9	9

Through-beam systems					
LIS Fibre-optic cables			Scanning range in mm ¹⁾ when combined with sensor		
Description	Type	Part No. ²⁾	WLL 260	KTL 5-2	CSL 1
End sleeve ϕ 7.4 mm, FOC ϕ 3.2 mm	LISA 32 900	7 020 039	700	20	20
End sleeve ϕ 6.4 mm, FOC ϕ 2.3 mm	LISAA 23 900	7 020 102	240	20	20
Mounting 5/16" x 24, FOC ϕ 3.2 mm	LISAT 32 900	7 020 035	700	20	20
End sleeve ϕ 7.4 mm, FOC ϕ 3.2 mm	LISF 32 900	7 020 037	700	20	20
End sleeve ϕ 8 mm, FOC ϕ 1.2 mm	LISM 12 900	7 020 053	90	20	20
End sleeve ϕ 7.9 mm, FOC ϕ 1.6 mm	LISP 16 900	7 020 043	100	20	20
Fibre-optic cable cell 0.5 mm x 3.8 mm	LISR 16 900	7 020 049	220	20	20
Fibre-optic cable cell 0.8 mm x 9.7 mm	LISR 32 900	7 020 041	700	20	20
Fibre-optic cable cell 0.2 mm x 38.1 mm	LISR 40 900	7 020 051	600	20	20
Mounting 5/16" x 24, FOC ϕ 3.2 mm	LIST 32 900	7 020 045	700	20	20
Mounting 5/16" x 24, FOC ϕ 3.2 mm	LISTA 32 900	7 020 047	700	20	20

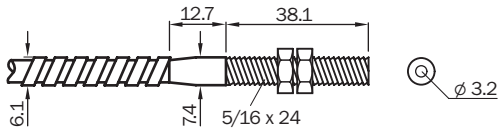
¹⁾ Operating range or scanning distance
Scanned material 90 % remission
(DIN 5033)
Size of scanned material = diameter of
light spot (aperture approx. 60°)

²⁾ The order number includes one fibre-
optic cable. Two fibre-optic cables are
needed for a through-beam system.

Dimensional drawings and order information

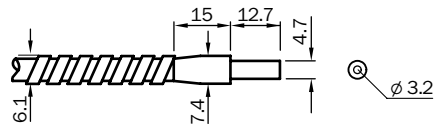
LIS/LBS 32 900 Fibre-optic cables

System	Type	Order no.
Through-beam	LIST 32 900	7 020 045
Proximity system	LBST 32 900	7 020 046



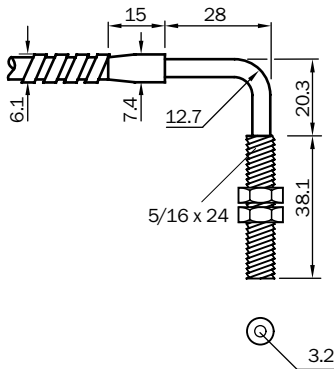
LIS/LBS 32 900 Fibre-optic cables

System	Type	Order no.
Through-beam	LISF 32 900	7 020 037
Proximity system	LBSF 32 900	7 020 038



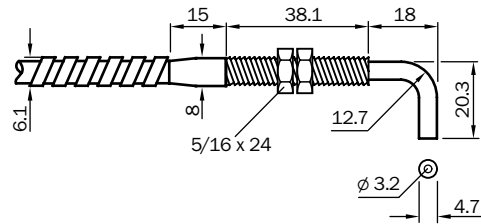
LIS/LBS 32 900 Fibre-optic cables

System	Type	Order no.
Through-beam	LISAT 32 900	7 020 035
Proximity system	LBSAT 32 900	7 020 036



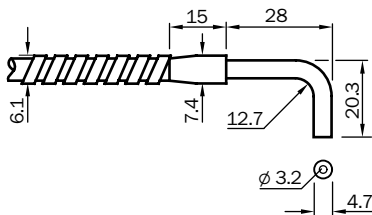
LIS/LBS 32 900 Fibre-optic cables

System	Type	Order no.
Through-beam	LISTA 32 900	7 020 047
Proximity system	LBSTA 32 900	7 020 048



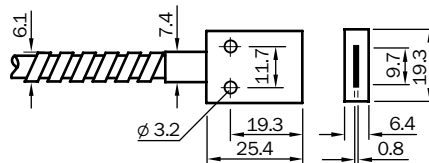
LIS/LBS 32 900 Fibre-optic cables

System	Type	Order no.
Through-beam	LISA 32 900	7 020 039
Proximity system	LBSA 32 900	7 020 040



LIS/LBS 32 900 Fibre-optic cables

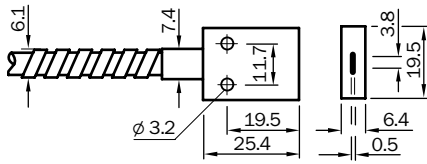
System	Type	Order no.
Through-beam	LISR 32 900	7 020 041
Proximity system	LBSR 32 900	7 020 042



Dimensional drawings and order information

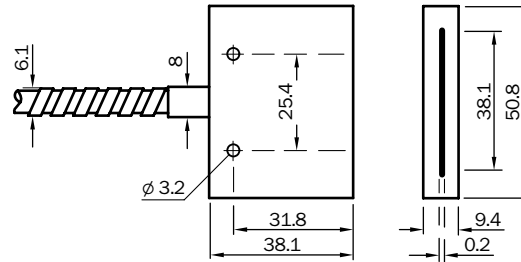
LIS/LBS 16 900 Fibre-optic cables

System	Type	Order no.
Through-beam	LISR 16 900	7 020 049
Proximity system	LBSR 16 900	7 020 050



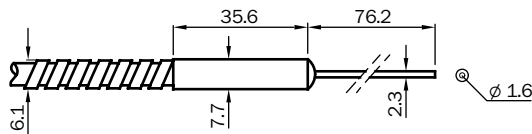
LIS/LBS 40 900 Fibre-optic cables

System	Type	Order no.
Through-beam	LISR 40 900	7 020 051
Proximity system	LBSR 40 900	7 020 052



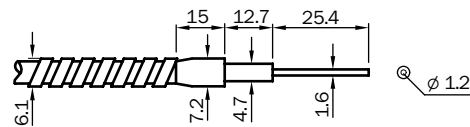
LIS/LBS 16 900 Fibre-optic cables

System	Type	Order no.
Through-beam	LISP 16 900	7 020 043
Proximity system	LBSP 16 900	7 020 044



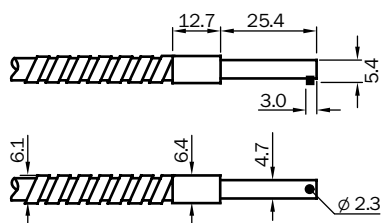
LIS/LBS 12 900 Fibre-optic cables

System	Type	Order no.
Through-beam	LISM 12 900	7 020 053
Proximity system	LBSM 12 900	7 020 054



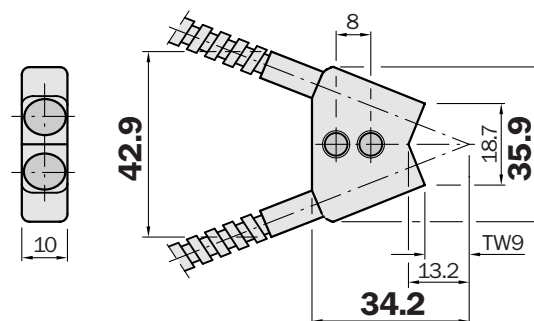
LIS/LBS 23 900 Fibre-optic cables

System	Type	Order no.
Through-beam	LISAA 23 900	7 020 102
Proximity system	LBSAA 23 900	7 020 103



OCSL Fibre-optic cables

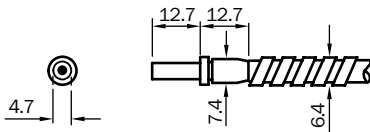
System	Type	Order no.
Proximity system	OCSL	1 016 296



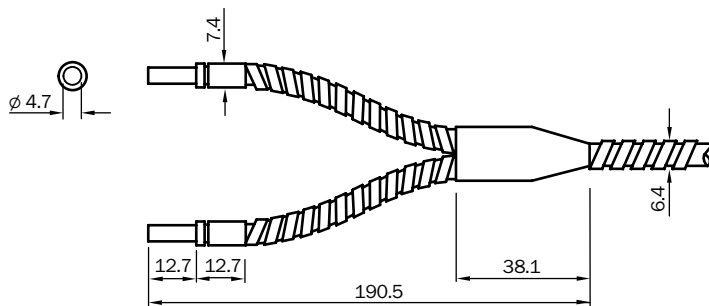
Dimensional drawings and order information

Adaptation of fibre-optic cables

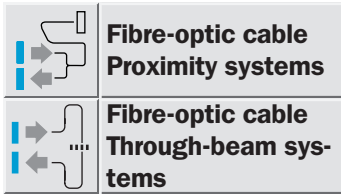
Through-beam systems



Proximity systems



Mounting materials (cap nut, clamp ring, O-ring seal and mounting instructions) are included with fibre-optic cables.



Features

- Robust glass fibre-optic cable within a helical metal spring
- Operating temperature for chrome-plated helical metal spring – 25... + 250 °C
Operating temperature for helical metal spring with PVC sheath – 10... + 60 °C
- Minimum bend radius 20 mm

Selection table: sensors, fibre-optic cables, scanning distance/range

Fibre-optic cables, proximity systems

Description	Type	Order no.	Scanning distance in mm with photoelectric switches								
			WLL 12-B 5181			WLL 12-B 5281			WLL 12-B 5381		
			1	2	4	1	2	4	1	2	3
			Red light			Infrared light			Green light		
150 mm	LM 31-150	2 015 225	50	12	280	60	20	280	5	2	60
450 mm	LM 31-450	2 015 223	50	12	280	60	20	280	5	2	60
750 mm	LM 31-750	2 015 224	50	12	280	60	20	280	5	2	60
1500 mm	LM 31-1500	2 017 381	50	12	280	60	20	280	5	2	60
150 mm, with rectangular light outlet	LM 35-150	2 015 226	50	12	280	60	20	280	5	2	60
450 mm, with rectangular light outlet	LM 35-450	2 015 230	50	12	280	60	20	280	5	2	60
750 mm, with rectangular light outlet	LM 35-750	2 015 231	50	12	280	60	20	280	5	2	60
150 mm, with 90° offset head with rectangular light outlet	LM 36-150	2 015 232	50	12	280	60	20	280	5	2	60
450 mm, with 90° offset head with rectangular light outlet	LM 36-450	2 015 233	50	12	280	60	20	280	5	2	60
750 mm, with 90° offset head with rectangular light outlet	LM 36-750	2 015 234	50	12	280	60	20	280	5	2	60
1000 mm, with 90° offset head with rectangular light outlet	LM 36-1000	2 016 772	50	12	280	60	20	280	5	2	60
1250 mm, with 90° offset head with rectangular light outlet	LM 36-1250	2 016 792	50	12	280	60	20	280	5	2	60
150 mm, as LM 36, but with light outlet turned 90°	LM 37-150	2 015 235	50	12	280	60	20	280	5	2	60
450 mm, as LM 36, but with light outlet turned 90°	LM 37-450	2 015 236	50	12	280	60	20	280	5	2	60
750 mm, as LM 36, but with light outlet turned 90°	LM 37-750	2 015 237	50	12	280	60	20	280	5	2	60
450 mm, up to 250 °C	LT 31-450	2 015 227	50	12	280	60	20	280	5	2	60
750 mm, up to 250 °C	LT 31-750	2 015 228	50	12	280	60	20	280	5	2	60
2200 mm, up to 250 °C	LT 31-2200	2 017 871	50	12	280	60	20	280	5	2	60

Fibre-optic cables, through-beam systems

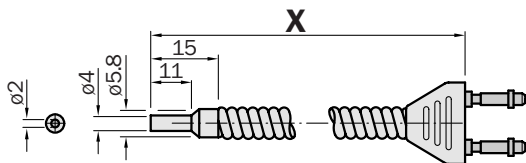
Description	Type	Order no.	Scanning range in mm with photoelectric switches								
			WLL 12-B 5181			WLL 12-B 5281			WLL 12-B 5381		
			Red light			Infrared light			Green light		
450 mm	LM 32-450	2 014 850	200			300			20		
750 mm	LM 32-750	2 015 038	200			300			20		
150 mm, with 90° offset head	LM 38-150	2 016 788	200			300			20		
450 mm, with 90° offset head	LM 38-450	2 015 049	200			300			20		
750 mm, with 90° offset head	LM 38-750	2 015 050	200			300			20		
750 mm, with 90° offset head and tip adapter	LM 38-751	2 015 970	330			550			32		
450 mm, as LM 38, but with light outlet turned 90°	LM 39-450	2 015 047	200			300			20		
750 mm, as LM 38, but with light outlet turned 90°	LM 39-750	2 015 048	200			300			20		
450 mm, up to 250 °C	LT 32-450	2 015 072	200			300			20		
750 mm, up to 250 °C	LT 32-750	2 015 073	200			300			20		

- 1 With reference to standard white, 90 % remission
- 2 With reference to standard grey, 18 % remission
- 3 With reference to standard black, 6 % remission
- 4 On "Diamond Grade" reflective tape

Dimensional drawings and order information

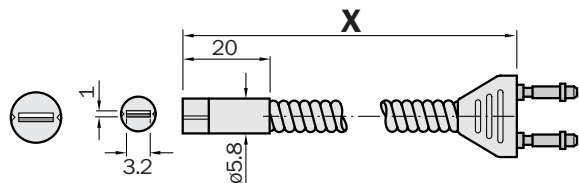
LM 31 Fibre-optic cables, helical metal spring with PVC sheath

Type	Order no.	Length X
LM 31-150	2 015 225	150 mm
LM 31-450	2 015 223	450 mm
LM 31-750	2 015 224	750 mm
LM 31-1500	2 017 381	1500 mm



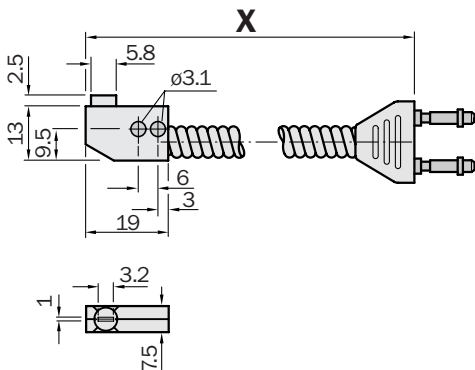
LM 35 Fibre-optic cables, helical metal spring with PVC sheath

Type	Order no.	Length X
LM 35-150	2 015 226	150 mm
LM 35-450	2 015 230	450 mm
LM 35-750	2 015 231	750 mm



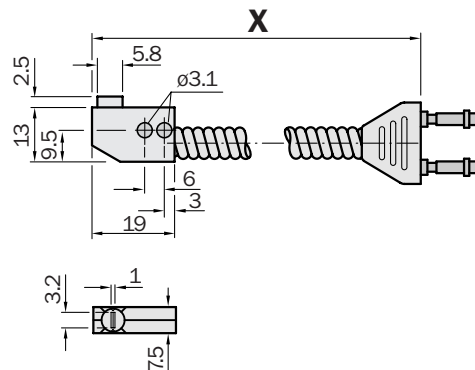
LM 36 Fibre-optic cables, helical metal spring with PVC sheath

Type	Order no.	Length X
LM 36-150	2 015 232	150 mm
LM 36-450	2 015 233	450 mm
LM 36-750	2 015 234	750 mm
LM 36-1000	2 016 772	1000 mm
LM 36-1250	2 016 792	1250 mm



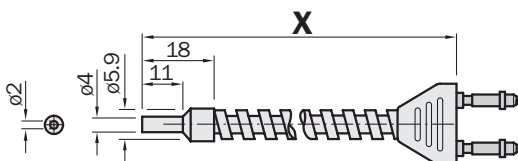
LM 37 Fibre-optic cables, helical metal spring with PVC sheath

Type	Order no.	Length X
LM 37-150	2 015 235	150 mm
LM 37-450	2 015 236	450 mm
LM 37-750	2 015 237	750 mm



LT 31 Fibre-optic cables, helical metal spring, chrome-plated

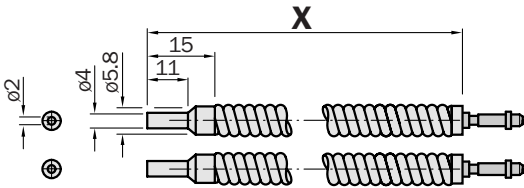
Type	Order no.	Length X
LT 31-450	2 015 227	450 mm
LT 31-750	2 015 228	750 mm
LT 31-2200	2 017 871	2200 mm



Dimensional drawings and order information

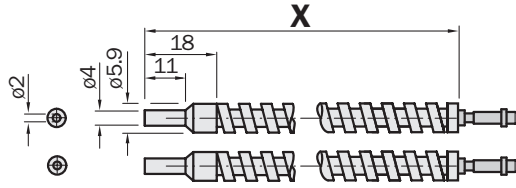
LM 32 Fibre-optic cables, helical metal spring with PVC sheath

Type	Order no.	Length X
LM 32-450	2 014 850	450 mm
LM 32-750	2 015 038	750 mm



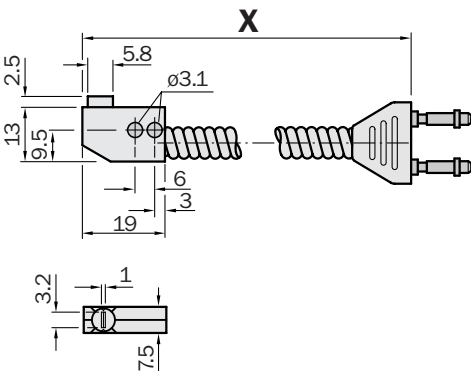
LT 32 Fibre-optic cables, helical metal spring, chrome-plated

Type	Order no.	Length X
LT 32-450	2 015 072	450 mm
LT 32-750	2 015 073	750 mm



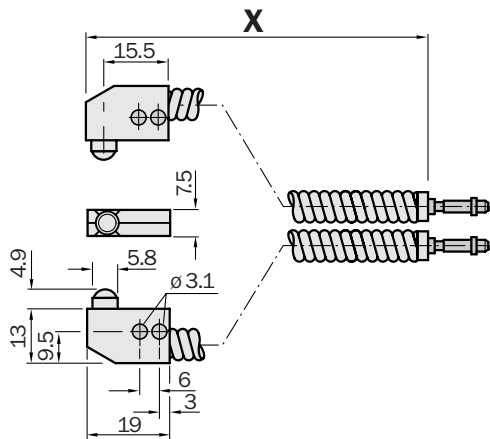
LM 38 Fibre-optic cables, helical metal spring with PVC sheath

Type	Order no.	Length X
LM 38-150	2 015 788	150 mm
LM 38-450	2 015 049	450 mm
LM 38-750	2 015 050	750 mm



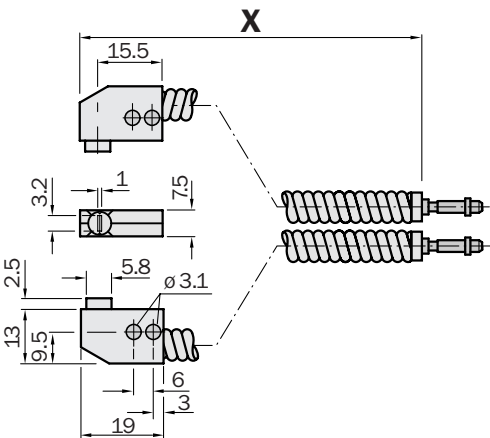
LM 38 Fibre-optic cables, with tip adapter, helical metal spring with PVC sheath

Type	Order no.	Length X
LM 38-751	2 015 970	750 mm



LM 39 Fibre-optic cables, helical metal spring with PVC sheath

Type	Order no.	Length X
LM 39-450	2 015 047	450 mm
LM 39-750	2 015 048	750 mm



Fibre-optic cable Proximity systems

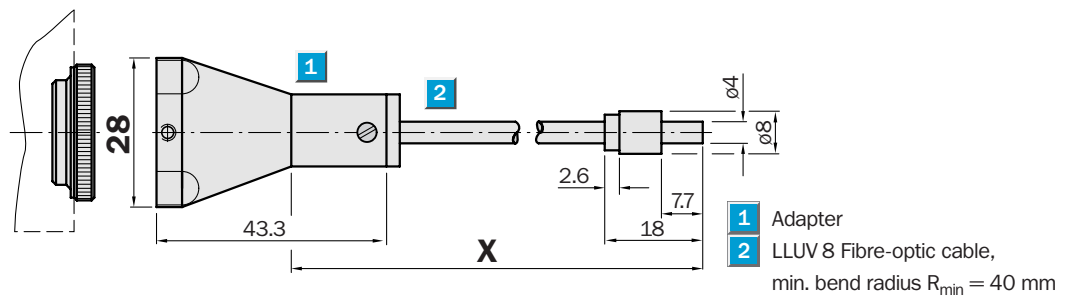
Fibre-optic cables for LUT Luminescence scanner

- UV fibre-optic cables
- Operating temperature – 5... + 35 °C.
Unable to withstand mechanical loading outside this range.
Must not be bent below 0 °C.

Dimensional drawings and order information

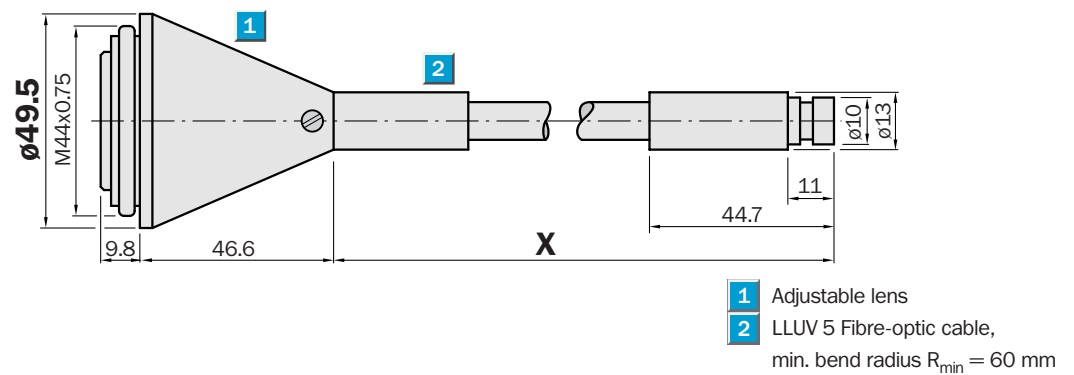
LLUV 8 Fibre-optic cables for LUT 3-820, LUT 3-920 Luniscence scanner

Type	Order no.	Length X
LLUV 8-500	2 017 098	500 mm
LLUV 8-1000	2 017 099	1000 mm



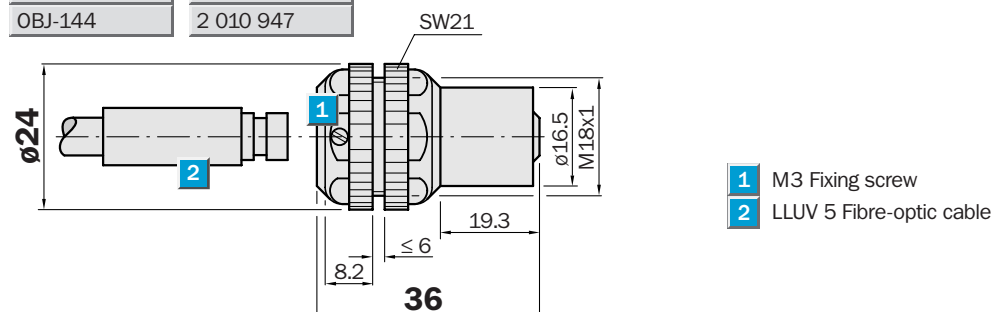
LLUV 5 Fibre-optic cable for LUT 1-4 Luminescence scanner

Type	Order no.	Length X
with adjustable lens		
LLUV 5-500-A	1 005 621	500 mm
LLUV 5-1000-A	1 005 622	1000 mm
LLUV 5-1500-A	1 005 623	1500 mm
without adjustable lens		
LLUV 5-500	2 008 435	500 mm
LLUV 5-1000	2 008 436	1000 mm
LLUV 5-1500	2 008 437	1500 mm



Tip adapter for LLUV 5 fibre-optic cables

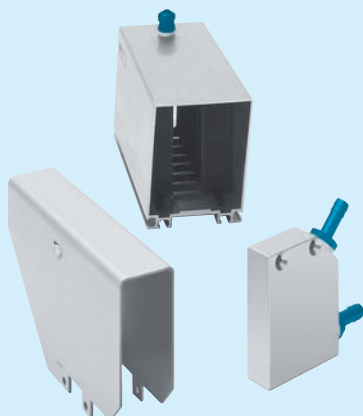
Type	Order no.
OBJ-144	2 010 947



Special accessories

Selection table, special accessories

For equipment	Description	Type	Order no.	Page
Masks				
WS/WE 9-2	Mask card, 0.5/1.0/1.5/2.0 mm wide, self-adhesive	BL-9-2	4 033 253	1501
WS/WE 12-2	Mask card, 0.5/1.0/1.5/2.0 mm wide, self-adhesive	BL 12-SKN	4 031 815	1501
WS/WE 150	Slotted masks, each 2 x 0.5 mm/1.0 mm/2.0 mm wide	BL-150-10	5 306 216	1502
WS/WE 160	Slotted masks, 1.0 mm wide	BL-160-10	5 305 196	1502
WS/WE 170	Slotted masks, 1.0 mm wide	BL-170-10	5 305 687	1502
WS/WE 260	Slotted masks, each 2 x 1.0 mm/2.0 mm/5.0 mm wide	BL-260-SK	5 308 773	1502
Polarisation filter				
WS/WE 170	Front lenses with polarising filter 2 x X- and 2 x Y-polarisation filters	BL-170-POLF	5 305 688	1502
Objektive				
KT 5-2	Lens, scanning distance = 10 mm	OBJ-212	1 011 506	1503
KT 5-2	Lens, scanning distance = 18 mm	OBJ-213	2 009 266	1503
KT 5-2	Lens, scanning distance = 20 mm	OBJ-211	1 004 936	1503
KT 5-2	Lens, scanning distance = 40 mm	OBJ-210	2 010 945	1503
LUT 3	Lens, scanning distance = 10 mm	OBJ-LUT 3-10	2 016 348	1503
LUT 3	Lens, scanning distance = 20 mm	OBJ-LUT 3-20	2 016 349	1503
LUT 3	Lens, scanning distance = 50 mm	OBJ-LUT 3-50	2 016 350	1503
LUT 3	Adapter ring for lenses with thread M 20 x 0.75	AD-OBJ-01	2 017 097	1503
Corner mirror				
DME	Corner mirror	USP-DME	2 016 330	1504



Selection table, special accessories

For equipment	Description	Type	Order no.	Page
Equipment protection, cooling and heating devices				
W 23, W 23-2, W 24-2, W 24 Exi, W 27-3, W 34, W 260	Weather-protection hood	OBW-KHS-M01	2 023 240	1504
	Mounting bracket for weather-protection hood	BEF-WN-OBW	2 023 251	1504
W 24-2, W 24 Exi, WTA 24	Dust protection tube, air-purged	OBS-W 24	2 015 069	1504
W 24-2, W 34, DS 60	Weather-protecting hood (bar attachment)	WSG1-01	1 018 470	1505
W 45	Dust protection tube, 150 mm	OBS-W 45	2 011 432	1504
W 45	Air protection hood, 100 mm	OBW-W 45	2 011 431	1505
DME	Dust protection tube	OBS-DME	2 014 458	1505
PL 50 A	Front flange for dust protection tube and front air-purged	FLV-PL50	1 000 130	1505
PL 50 A	Front air-purged (front flange needed)	SLV-PL50	1 000 309	1505
PL 50 A	Dust protection tube, 90 mm long (front flange needed)	SST DO 80-090	1 000 252	1505
PL 50 A	Dust protection tube, 184 mm long (front flange needed)	SST DO 80-184	1 000 134	1505
PL 50 A	Dust protection tube, 314 mm long (front flange needed)	SST DO 80-314	1 000 133	1505
W 24-2, WTA 24	Cooling plate for water cooling, 2 units recommended per piece of equipment	BEF-KP-W 24	2 015 071	1506
W 45	Cooling plate for water cooling	BEF-KP-W 45	2 011 435	1506
DME	Cooling plate assembly kit for water cooling (complete)	BEF-KPM-DME	2 014 457	1506
DME	Peltier cooling unit with lid	BEF-KE-DME	2 019 912	1507
DME	Heating unit with lid	BEF-HE-DME	2 021 269	1507
Alignment assistance				
DME	Targeting telescope	OBZ-DME	2 014 194	1507
DME	Adjustment device for targeting telescope	OBZ-DME-J	2 014 191	1507

Dimensional drawings and order information

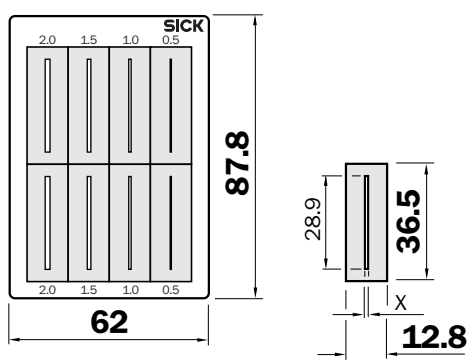
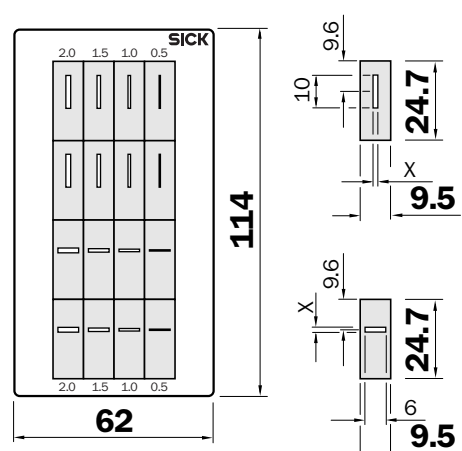
Masks

Slotted masks for WS/WE 9-2
with 2 self-adhesive masks each for sender (WS) and receiver (WE)
Slot width X: 0.5 mm/1.0 mm/1.5 mm/2.0 mm

Type	Order no.
BL-9-2	4 033 253

Slotted masks for WS/WE 12-2
with 2 self-adhesive masks each for sender (WS) and receiver (WE)
Slot width X: 0.5 mm/1.0 mm/1.5 mm/2.0 mm

Type	Order no.
BL 12-SKN	4 031 815



Dimensional drawings and order information

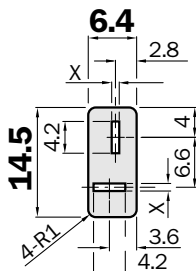
Masks/polarisation filter

Slotted masks* for WS/WE 150

Slot width X: 0.5 mm/1.0 mm/2.0 mm

Type	Order no.
BL-150-10	5 306 216

*2 units respectively

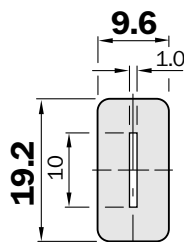


Slotted masks* for WS/WE 160

Slot width: 1.0 mm

Type	Order no.
BL-160-10	5 305 196

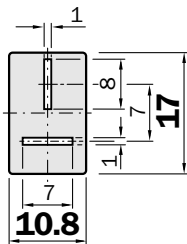
*2 units respectively



Slotted masks* for WS/WE 170

Type	Order no.	Slot width
BL-170-10	5 305 687	1.0 mm

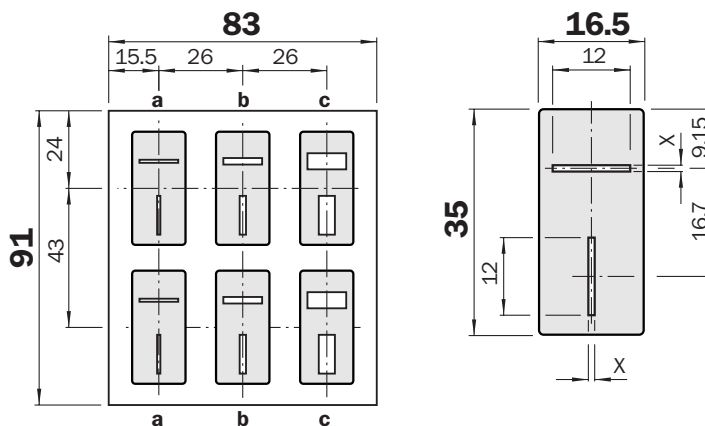
*2 units respectively



Slotted masks* for WS/WE 260 (only for DC version)

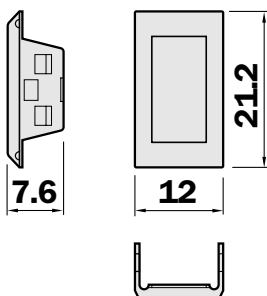
Type	Order no.	Slot width X	Range
BL-260-SK	5 308 773	1,0 mm	1,5 m
		2,0 mm	3 m
		5,0 mm	6 m

*2 units respectively



Front polarisation filter for WS/WE 170

Type	Order no.	Design
BL-170-POLF	5 305 688	2 x X and Y polarisation

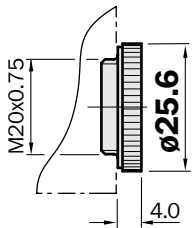


Dimensional drawings and order information

Lenses (SD = Scanning distance, SR = Scanning range)

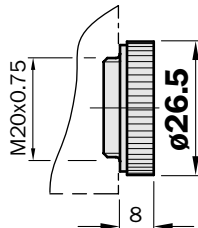
Lens, SD = 20 mm, for KT 5-2

Type	Order no.
OBJ-212	1 011 506



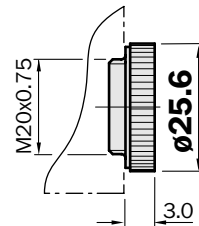
Objektiv, TW = 18 mm, für KT 5-2

Type	Order no.
OBJ-213	2 009 266



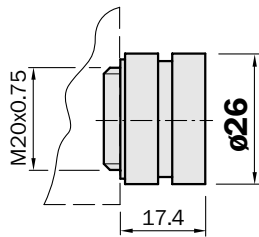
Objektiv, TW = 10 mm, für KT 5-2

Type	Order no.
OBJ-211	1 004 936



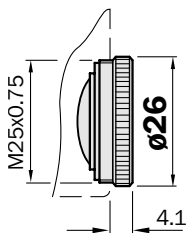
Lens, SD = 40 mm, for KT 5G-2

Type	Order no.
OBJ-210	2 010 945



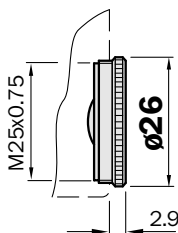
Lens, SD = 10/20 mm, for LUT 3

Type	Order no.	SD
OBJ-LUT 3-10	2 016 348	10 mm
OBJ-LUT 3-20	2 016 349	20 mm



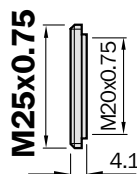
Lens SD = 50 mm, for LUT 3

Type	Order no.
OBJ-LUT 3-50	2 016 350



Adapter ring for lenses with M20 thread, for LUT 3

Type	Order no.
AD-OBJ-01	2 017 097

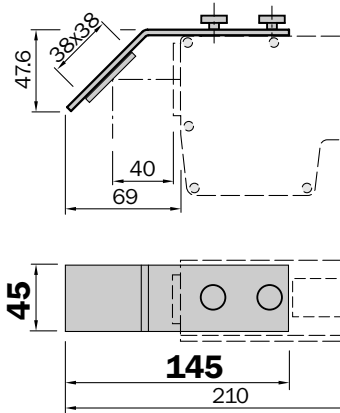


Dimensional drawings and order information

Corner mirror

Corner mirror for DME

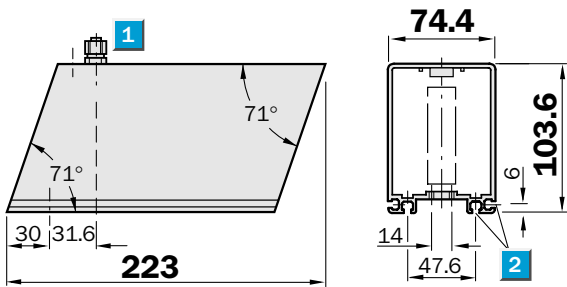
Type	Order no.
USP-DME	2 016 330



Dust and weather protection devices

Dust protection tube, air-purged, for W 24-2, W 24 Exi, WTA 24

Type	Order no.
OBS-W 24	2 015 069



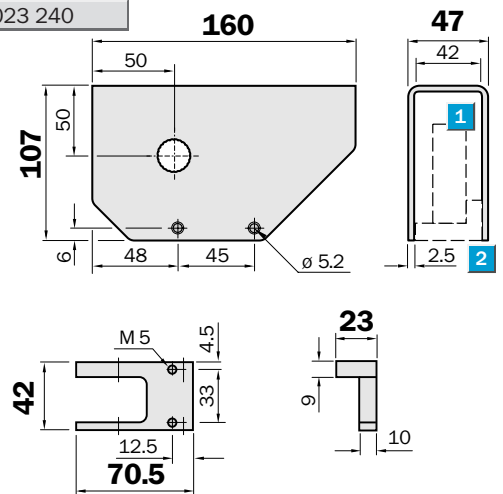
- 1 Fast action screw fitting for hose internal diameter 6 mm
- 2 Running nut channel for M5 nut

Weather protection hood for W 23, W 24-2, W 24 Exi, W27-3, W 34, W 260*)

Type	Order no.
OBW-KHS-M01	2 023 240

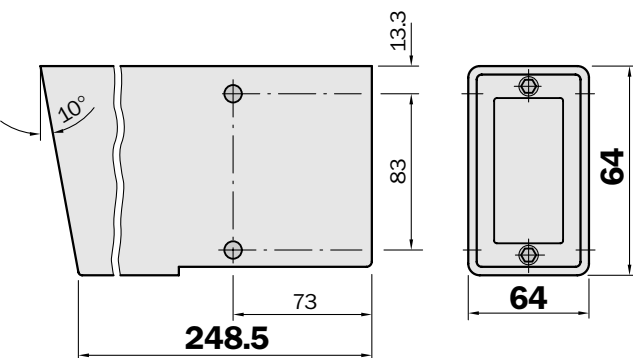
- 1 Sensor
- 2 Base plate with clamp supplied with unit

*) Also available in a rod mounting version with separate clip BEF-KHS-KH1 (Order no. 2 022 726)



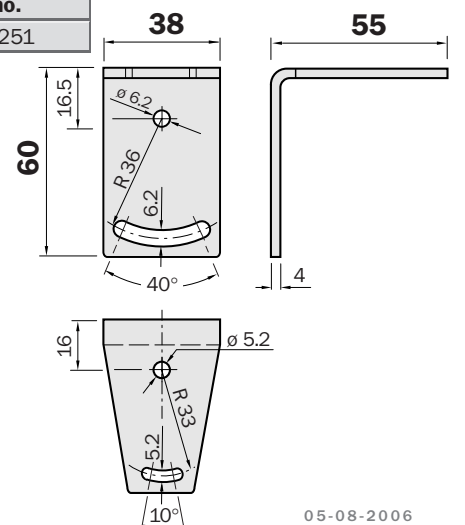
Dust protection tube for W 45

Type	Order no.
OBS-W 45	2 011 432



Mounting bracket for weather protection hood OBW-KHS-M01

Type	Order no.
BEF-WN-OBW	2 023 251

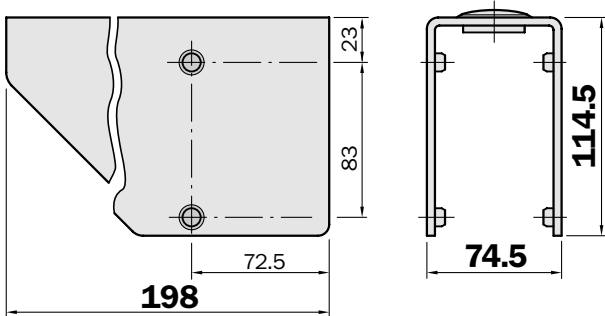


Dimensional drawings and order information

Dust and weather protection devices

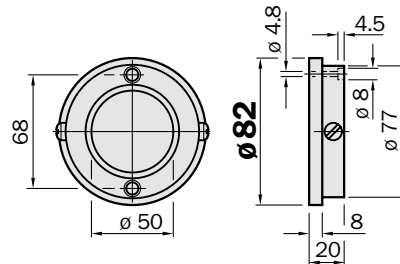
Air protection hood for W 45

Type	Order no.
OBW-W 45	2 011 431



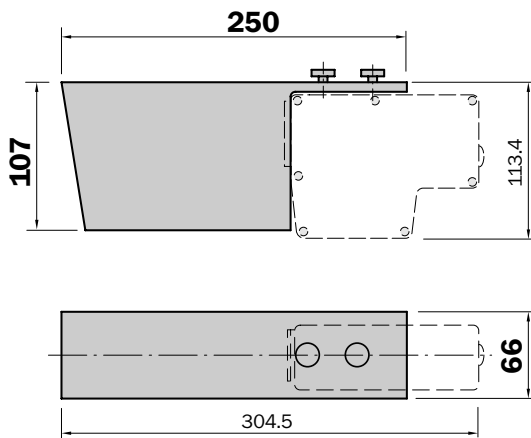
Front flange for dust protection tube, weather protection and air-purging unit for PL 50 A

Type	Order no.
FLV-PL 50	1 000 130



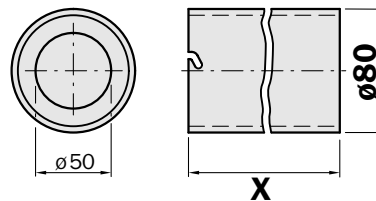
Dust protection tube for DME

Type	Order no.
OBS-DME	2 014 458



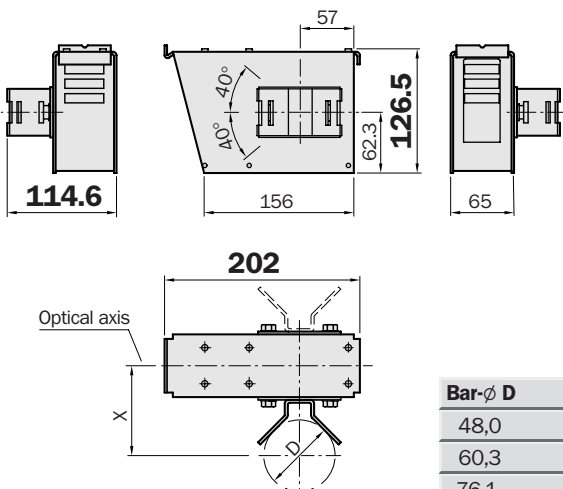
Dust protection tube for PL 50 A (with front flange 1 000 130), PL 53 A, SW 50

Type	Order no.	Länge X
SST DO 80-090	1 000 252	90 mm
SST DO 80-184	1 000 134	184 mm
SST DO 80-314	1 000 133	314 mm



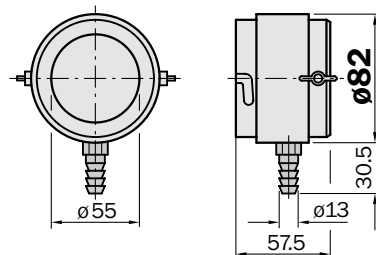
Weather-protecting hood for W 24-2, W 34, DS 60

Type	Order no.*
WSG1-01	1 018 470



Front, air-purged, for PL 50 A (only with front flange 1 000 130), PL 53 A, SW 50

Type	Order no.
SLV-PL 50	1 000 309



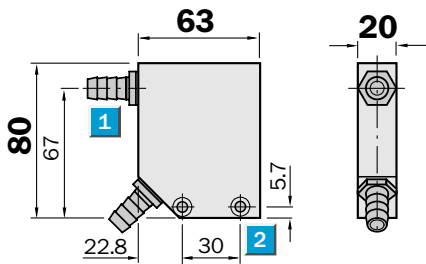
* Mounting materials included

Dimensional drawings and order information

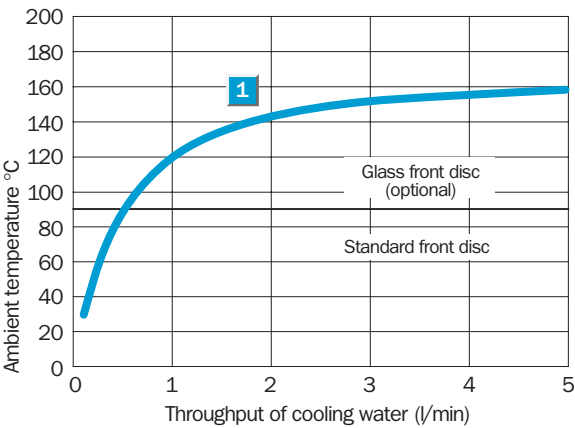
Equipment cooling devices

Cooling plate for water cooling for W 24-2, WTA 24
(only with front flange 1 000 130)

Type	Order no.
BEF-KP-W 24	2 015 071



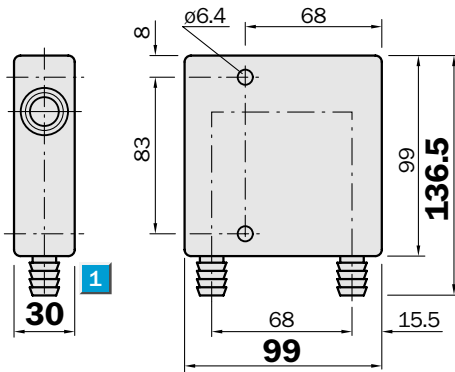
- 1 Hose nozzle R 1/4"
- 2 Tapped hole for countersunk screw M5



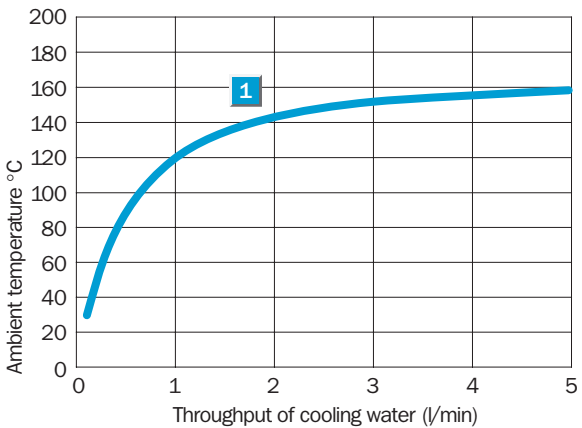
- 1 Temperature of cooling water 20 °C, water pressure max. 5 bar

Cooling plate for water cooling for W 45

Type	Order no.	
BEF-KP-W 45	2 011 435*	* including fixing screws



- 1 Hose nozzle R 1/2"

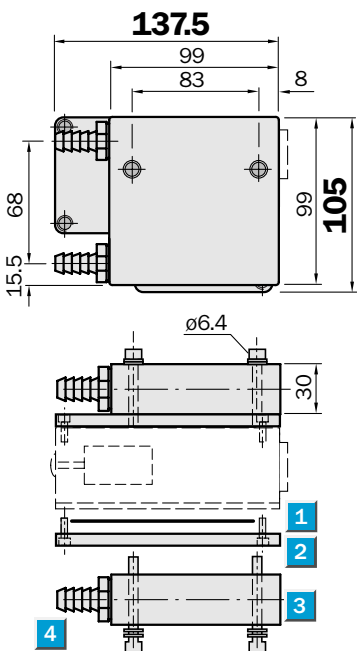


- 1 Temperature of cooling water 20 °C, water pressure max. 5 bar

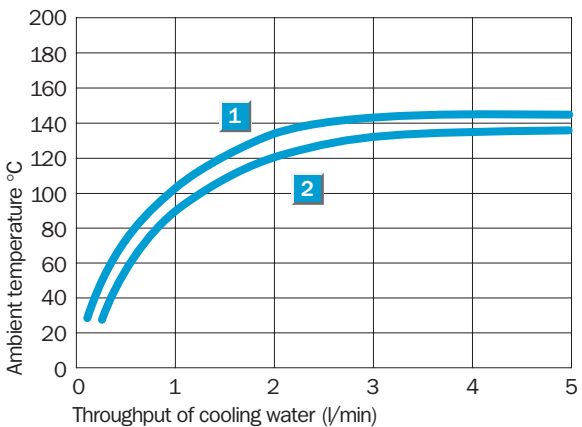
Cooling plate assembly kit (complete*), for water cooling on both sides, for DME

Type	Order no.
BEF-KPM-DME	2 014 457

* including heat conducting paste and fixing screws



- 1 Heat conducting cloth (2 x)
- 2 Adapter plate (2 x)
- 3 Cooling plate (2 x)
- 4 Hose nozzle R 1/2"



- 1 Temperature of cooling water 20 °C
- 2 Temperature of cooling water 30 °C

Dimensional drawings and order information

Equipment cooling and heating devices/alignment aid/alignment bracket

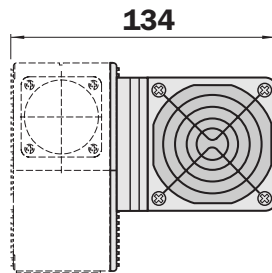
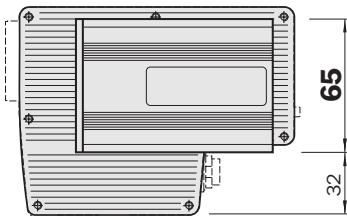
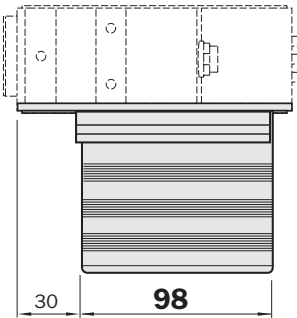
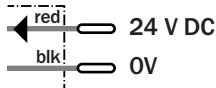
Peltier cooling unit with lid for DME

Type	Order no.
BEF-KE-DME	2 019 912

Technical data

Supply voltage	24 V DC
Current rating	2 A
Ambient temperature	Operation: + 55 °C
Connection type	Porcelain insulator

Connection diagram



Alignment aid for DME

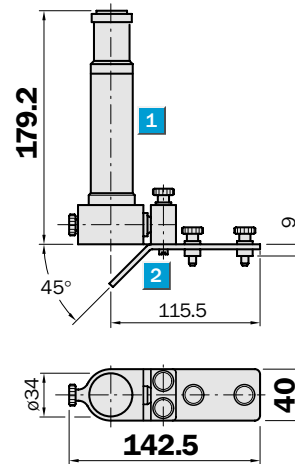
Consisting of:

1 Target telescope

Type	Order no.
OBZ-DME	2 014 194

2 Adjustment device for DME

Type	Order no.
OBZ-DME-J	2 014 191



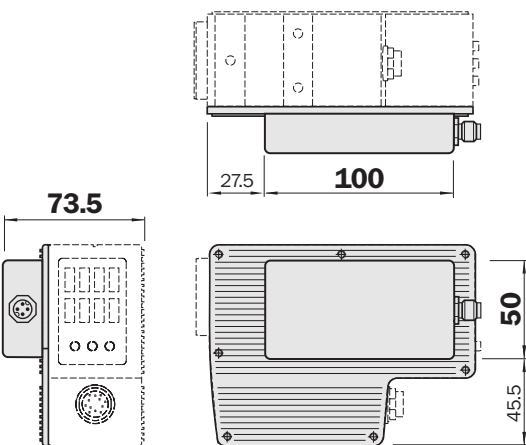
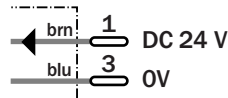
Heating element for DME

Type	Order no.
BEF-HE-DME	2 021 269

Technical data

Supply voltage	24 V DC ± 20 %
Current rating	< 400 mA
Ambient temperature	Operation: - 28...+ 40 °C
Connection type	M12 plug

Connection diagram

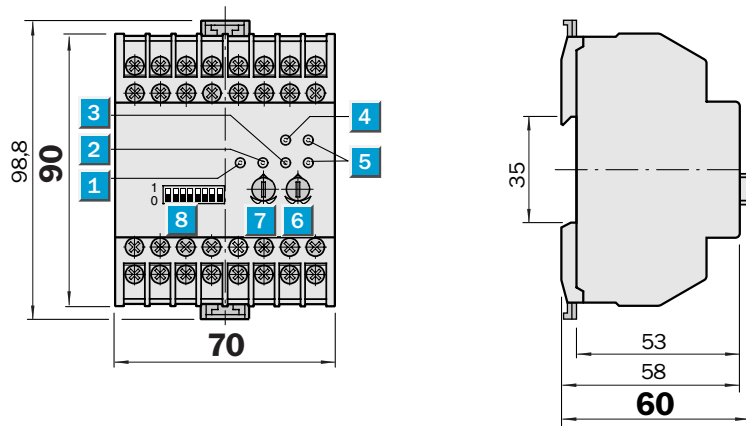


EN 2 Switching units

Features

- Universal supply voltage
- 3 inputs that can be connected via DIP-switches
- Adjustable time stages
- Housing with snap fastening for support rail DIN 46277

Dimensional drawing

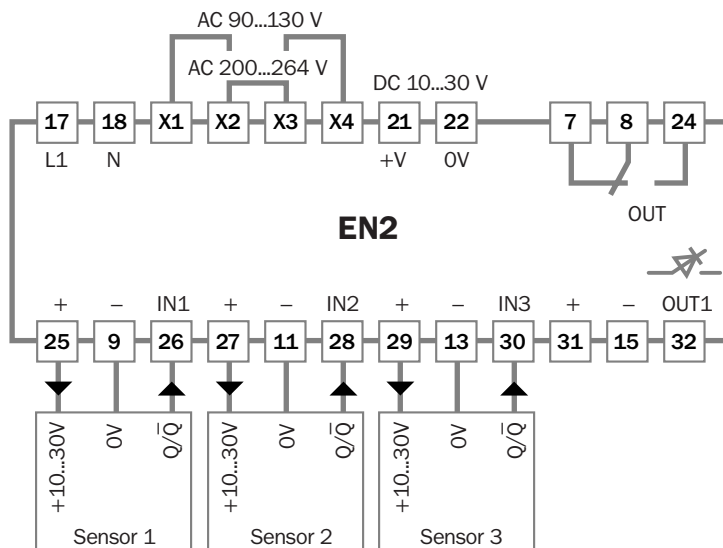


- 1 Display IN 1
- 2 Display IN 2
- 3 Display IN 3
- 4 Operating display
- 5 Display OUT (transistor/relay)
- 6 Time delay off t_2
- 7 Time delay on t_1
- 8 DIP switches F1–F8



Connection diagram

EN 2
EN 2T

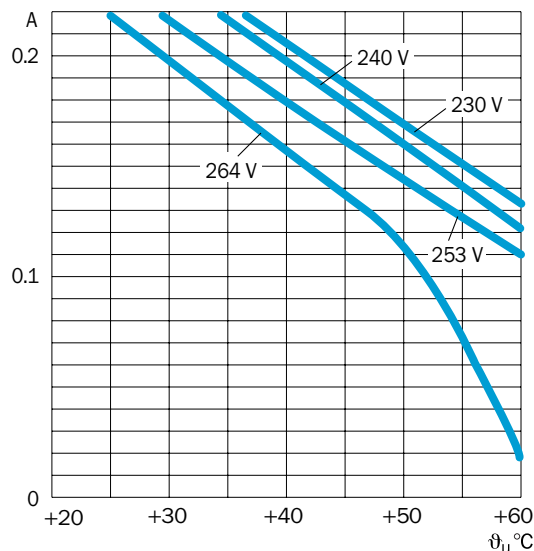


Technical data		EN 2	EN 2T
Supply voltage V_s	90...130 V AC or 200...264 V AC (can be reset using bridges) 10...30 V DC ¹⁾		
Mains frequency	48...62 Hz		
Power consumption	Approx. 40 VA		
Outputs			
Supply voltage for sensor	24 V DC \pm 25 %		
Output current (total)	220 mA (1.4 A) in total, see load curve		
Transistor output			
Switching current, max.	100 mA, short-circuit-resistant, display OUT, flashes on overload, goes out if there is a short-circuit		
Switching frequency	10 kHz		
Relay output			
Switching voltage, max.	250 V AC		
Switching current, max.	2 A		
Switching frequency	10/s		
Inputs			
	26 (IN 1) and 28 (IN 2) and 30 (IN 3) suitable for PNP, NPN ²⁾ and B sensor outputs		
Input voltage	10...30 V DC		
HIGH	> 10 V DC		
LOW	> 6 V DC		
Minimum switching time	5 μ s		
Logic			
	Linking the 3 inputs and delay and storage modes via DIP-switches F1 – F8 (see truth table and function diagrams)		
Time stages			
Time delay off t_1	0.005...1 s, adjustable		
Time delay on t_2	0.005...1 s, adjustable		
	1...120 s, adjustable		
VDE protection class	<input type="checkbox"/>		
Enclosure rating	IP 20		
Ambient temperature	Operation -25 °C...+55 °C Storage -40 °C...+70 °C		
Shock load	Complying with IEC 68		
Weight	Approx. 400 g		
Housing material	Plastic		

¹⁾ Delivery 200...264 V AC

²⁾ External pull-up resistor \leq 10 k Ω
required for NPN variant

Load curve – output current



Order information

Type	Order no.
EN 2	6 009 654
EN 2T	6 010 342

Truth table

F 3	0	IN 1 normal	
	1	IN 1 inverted	
F 7	0	IN 2 normal	
	1	IN 2 inverted	
F 5	0	f (IN 1, IN 2) = IN 1 or IN 2	
	1	f (IN 1, IN 2) = IN 1 and IN 2	
F 8	0	F 8 = 0	
	1	F 8 = 1	
F 6	0	f (IN 1, IN 2, IN 3) = IN 3 or f (IN 1, IN 2)	
	1	f (IN 1, IN 2, IN 3) = IN 3 and f (IN 1, IN 2)	
F 4	0	OUT 1 normal	
	1	OUT 1 inverted	
F 1	0	Mode 1 (no delay)	
	0	Mode 2 (switching on and switching off delay)	
	1	Mode 3 (dynamic delay)	
	1	Mode 4 (frequency discriminator)	
F 2	0	Mode 5	
	1	Mode 9	
F 1	0	Mode 6	
	1	Mode 10	
F 2	0	Mode 7	
	1	Mode 11	
F 1	0	Mode 8	
	1	Mode 12	

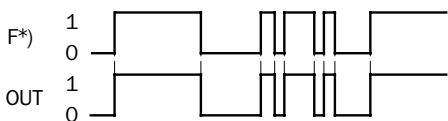
Logic module:

The logic input levels of the 3 inputs are linked together depending on the position of the 8 DIP switches F 1 – F 8 on the front of the equipment and immediately, or with a delay, produce a reaction at the output (which is formed in parallel as a relay and semiconductor output).

Function diagrams and description of the modes

F 8 = 0

Mode 1 F 1 = 0 F 2 = 0

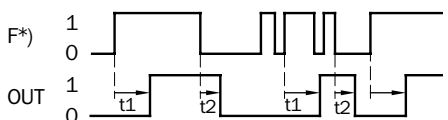


Delay modes

No delay

Output OUT follows the logic linking of the inputs IN 1, IN 2 and IN 3 F*) without delay.

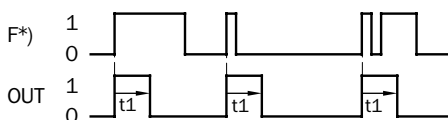
Mode 2 F 1 = 0 F 2 = 1



Delay switching on and switching off

Output OUT follows with a delay in response and drop-out time F*). F*) must be high for a minimum of t₁ for OUT to react. If F*) is LOW, t₁ is reset. When t₁ elapses, OUT responds, the oscillator is stopped for t₁. If then F*) is low again, t₂ begins to run, after the end of which OUT becomes inactive. If F*) goes high again during t₂, t₂ is reset and begins to run again at F*) = LOW. Both times t₁ and t₂ can therefore be retriggered.

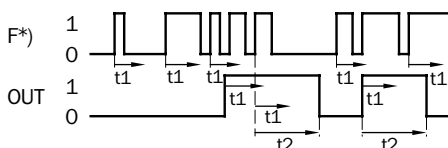
Mode 3 F 1 = 1 F 2 = 0



Dynamic delay

Output OUT is set with a rising signal edge of F*) for the duration of t₁. This time cannot be retriggered here.

Mode 4 F 1 = 1 F 2 = 1



Frequency discriminator

The time stage t₁ is set by the first rising signal edge of F*). If a further rising signal edge of F*) occurs within the course of t₁, OUT is set for the duration of t₂ and t₁ is retriggered simultaneously. All further rising signal edges of F*), if they arrive within the course of t₁, retrigger both t₁ and t₂. In practice, t₂ should always be set greater than t₁. If t₁ has elapsed but t₂ has not yet done so, t₂ is not retriggered by the next rising signal edge of F*).

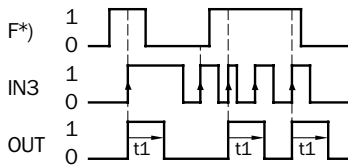
This function produces a frequency discriminator for the setting t₂ > t₁: If the duration of the period T of the input frequency of F*) is less than t₁, OUT always goes to HIGH; if T is or becomes greater than t₁ OUT remains or becomes LOW.

F*) logic link of the inputs: F = f (IN 1, IN 2, IN 3)

F 8 = 1 **F 4 = 0**

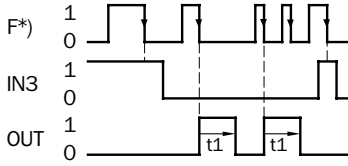
Mode 5

F 1 = 0 **F 2 = 0**



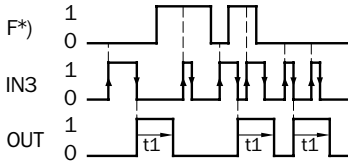
Mode 6

F 1 = 0 **F 2 = 1**



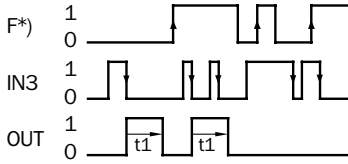
Mode 7

F 1 = 1 **F 2 = 0**



Mode 8

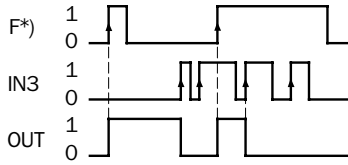
F 1 = 1 **F 2 = 1**



F 8 = 1 **F 4 = 1**

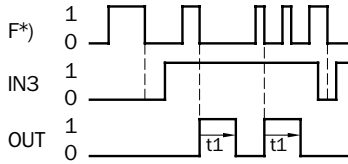
Mode 9

F 1 = 0 **F 2 = 0**



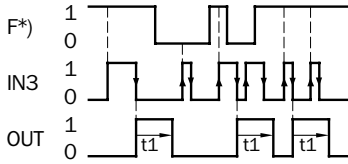
Mode 10

F 1 = 0 **F 2 = 1**



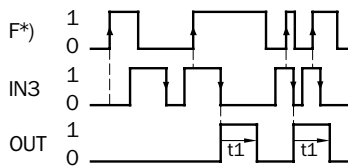
Mode 11

F 1 = 1 **F 2 = 0**



Mode 12

F 1 = 1 **F 2 = 1**



Memory modes

If during the rising signal edge of IN 3, the link F*) is HIGH, the output OUT is set with this signal edge for the time t_1 .

If during the falling signal edge of F*), IN 3 is not HIGH, the output is set for the duration of t_1 .

If F*) was not HIGH during the rising signal edge of IN 3, the output is set for the time t_1 with the falling signal edge of IN 3.

If no rising signal edge of F*) occurs during the HIGH time of IN 3, the output is set for the duration of t_1 by the falling signal edge of IN 3.

Memory modes

A rising signal edge of F*) sets the output; a rising signal edge of IN 3 resets it (signal edge-controlled RS-flipflop).

If IN 3 is HIGH during the falling signal edge of F*), the output is set for the duration of t_1 (i.e. as mode 2, but used inverted in IN 3).

If F*) was not HIGH when the signal edge of IN 3 was rising, as the signal edge of IN 3 falls, the output is set for the time t_1 (as mode 3, F* used inverted).

If no rising signal edge of F*) occurs during the HIGH time of IN 3, the output will be set for the duration of t_1 during the falling signal edge of IN 3.

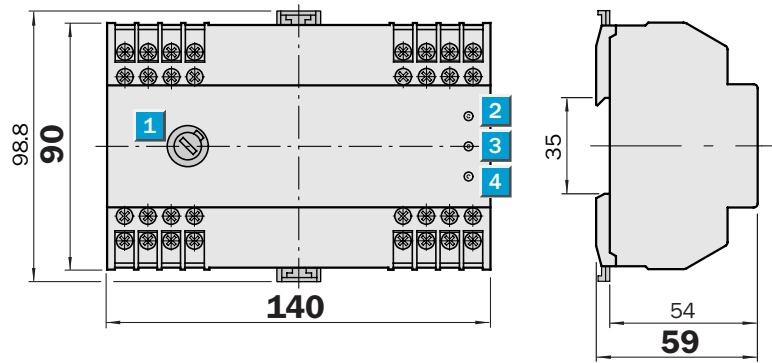
F*) logic link of the inputs: $F = f(\text{IN } 1, \text{IN } 2, \text{IN } 3)$

EN 3 Switching units

Features

- Universal supply voltage
- 2 inputs, each with a relay output
- Housing with snap fastening for support rail DIN 46277

Dimensional drawing

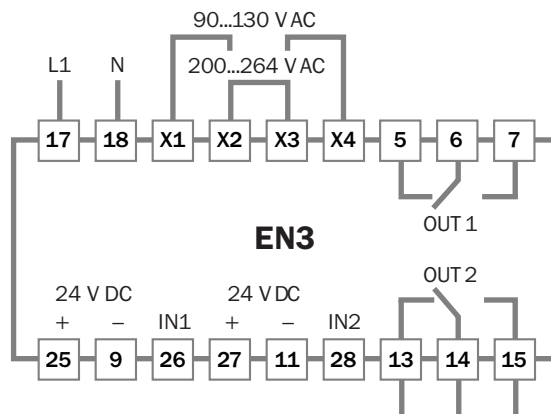


- 1 Fuse (250 V/0.25 A)
- 2 Display IN 1
- 3 Operating display
- 4 Display IN 2



Connection diagram

EN 3



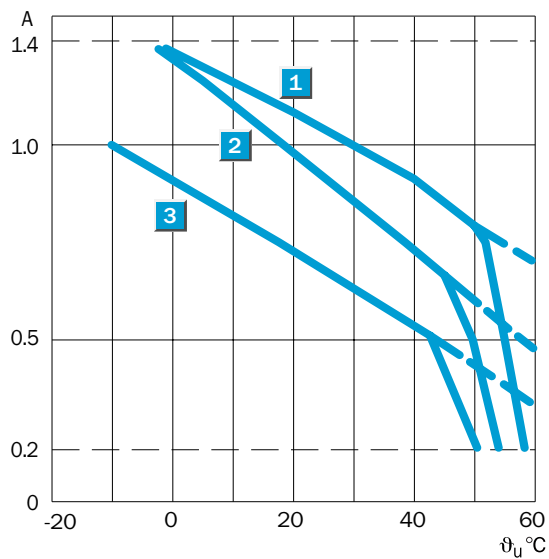
Technical data		EN 3									
Supply voltage V_s	90...130 V AC or 200...264 V AC ¹⁾ (can be reset using bridges)										
Mains frequency	48...62 Hz										
Power consumption	env. 40 VA										
Outputs											
Supply voltage for sensor	24 V DC \pm 25 %										
Output current (total)	1.4 A in total, see load graph, output current										
Min. load	200 mA										
Relay output											
	5/6/7(OUT 1) and 13/14/15 (OUT 2)										
Switching voltage, max.	250 V AC										
Switching current, max.	2 A										
Switching frequency	20/s										
Inputs for PNP, NPN²⁾ and B											
sensor inputs											
	26 (IN 1), 28 (IN 2)										
Input voltage	10...30 V DC										
HIGH	> 10 V DC										
LOW	< 6 V DC										
VDE protection class¹⁾											
	<input type="checkbox"/>										
Enclosure rating											
	IP 20										
Ambient temperature											
	Operation -25 °C...+55 °C										
	Storage -40 °C...+70 °C										
Shock load											
	Complying with IEC 68										
Weight											
	Approx. 970 g										
Housing material											
	Plastic										

¹⁾ Delivery 200...264 V AC

²⁾ External pull-up resistor \leq 10 k Ω required for NPN variant

Load curve, output current

Order information	
Type	Order no.
EN 3	6 009 692

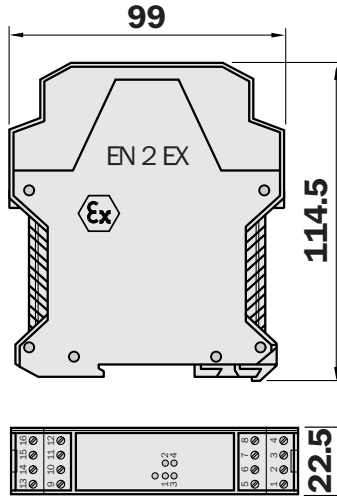


EN 2 Ex Switching amplifier

Features

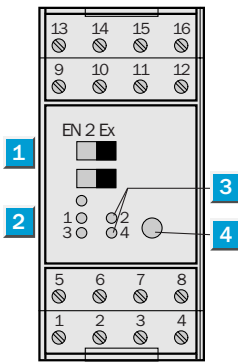
- **Ex II (1) G/D [EEx ia] IIC** according to Directive 94/9/EC (ATEX) with intrinsically safe inputs
- Reliable electrical isolation between input, output and supply voltage to VDE 0100 Part 410
- 2-channel each with one relay output 1 x u
- Invertible outputs
- Mounting on 35 mm (1.378 in.) DIN rails according to DIN EN 60715

Dimensional drawing



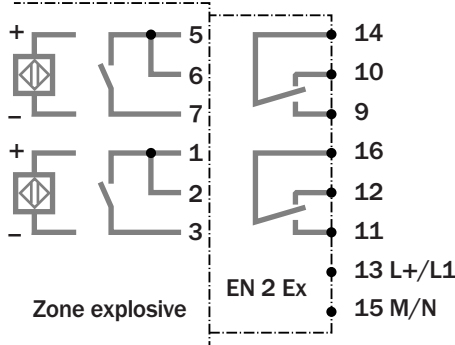
Adjustments possible

All Types



- 1 Switches to reverse action. Switch in position I and contact in the input circuit closed, output active (ON). Switch in position II, output action inverted.
- 2 LED (red), cable monitoring indicator: The activation of the cable-break and cable short-circuit monitoring is only functional if a sensor/proximity switch to EN 60947-5-6 (NAMUR) or a mechanical contact with suitable resistance circuit as per the operating instructions is connected. This circuit monitors the input current and deactivates the output with input currents < 0.3 mA cable-break and > 6.5 mA short-circuit irrespective of setting for the direction of action.
- 3 LED (yellow), switch status indication: This LED is activated in parallel to the output.
- 4 LED (green), supply voltage indication.

Connection diagram



Technical data		EN 2 Ex-	1	2	3							
Supply voltage V_s	120 V AC											
	230 V AC											
	24 V DC											
Power frequency	48 ... 62/s											
Power consumption per channel	Approx. 2.2 VA											
Power consumption, total	Approx. 0.7 W											
Inputs	For 1 or 2 sensors											
No-load voltage	8.5 V DC											
EC-type examination certificate	TÜV 03 ATEX 2346											
Output voltage U_o , max.	≤ 10.5 V											
Output current I_o , max.	≤ 26 mA											
Output power P_o , max.	67 mW											
External capacity C_a , max.	2.41 μ F											
External inductivity L_a , max.	45 mH											
Ambient temperature T_A	Operation: -20 °C $\leq T_a \leq +60$ °C											
Switching points	$0 < 1.55$ mA											
	$1 > 1.75$ mA											
Short circuit current	$I \geq 8.5$ mA											
Switching outputs ¹⁾	1 relay per input: SPDT											
Switching voltage $U_{max.}$	250 V AC											
Switching current $I_{max.}$	5 A											
Switching power $P_{max.}$	100 VA											
VDE protection class	I											
Enclosure rating	IP 20											
Ambient temperature T_A	Storage: -25 °C ... $+85$ °C											
Weight	Approx. 175 g											
Housing material	Plastic											

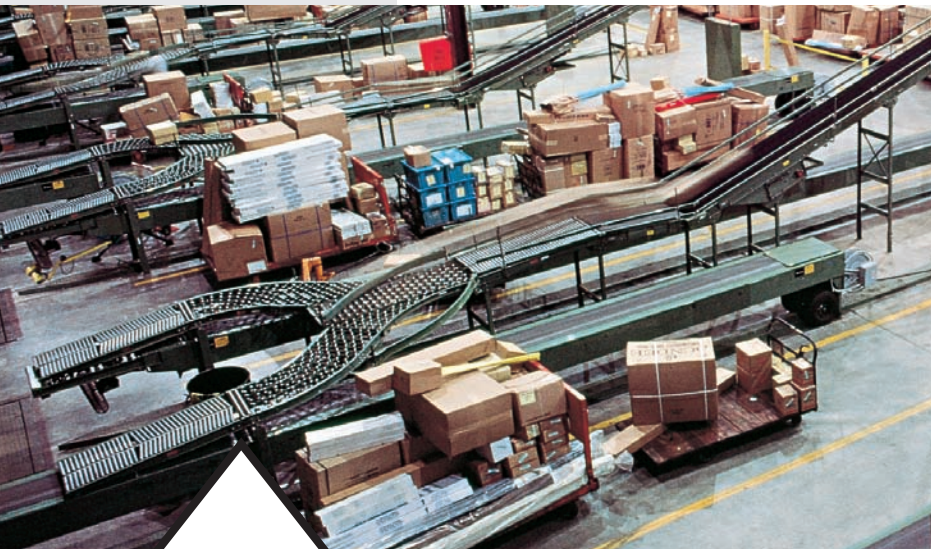
¹⁾ Provide suitable spark suppression for inductive or capacitive loads.

Transmission characteristics		Order information	
Active direction		Type	Order no.
(light-/dark-switching):	Can be changed over (see table)	EN 2 EX-1	6 010 459
Cable monitoring:	Can be switched off	EN 2EX-2	6 010 460
Max. switching frequency:	20/s	EN 2EX-3	6 009 944

Table of switching functions

Input		Active direction light/dark change-over switch on		Cable monitoring		Output status	
		I	II		Red LED	Relay	Yellow LED
No fault in input circuit	Contact open	Normal		as desired	off	dropped off	off
			Inverted	as desired	off	responded	on
	Contact closed	Normal		as desired	off	responded	on
			Inverted	as desired	off	dropped off	off
With fault in input circuit	Cable break	Normal		on	on	dropped off	off
			Inverted	on	on	dropped off	off
	Short-circuit	Normal		on	on	dropped off	off
			Inverted	on	on	dropped off	off
	Cable break	Normal		off	off	dropped off	off
			Inverted	off	off	responded	on
	Short-circuit	Normal		off	off	responded	on
			Inverted	off	off	dropped off	off

Actuator-Sensor Interface: intelligent wiring



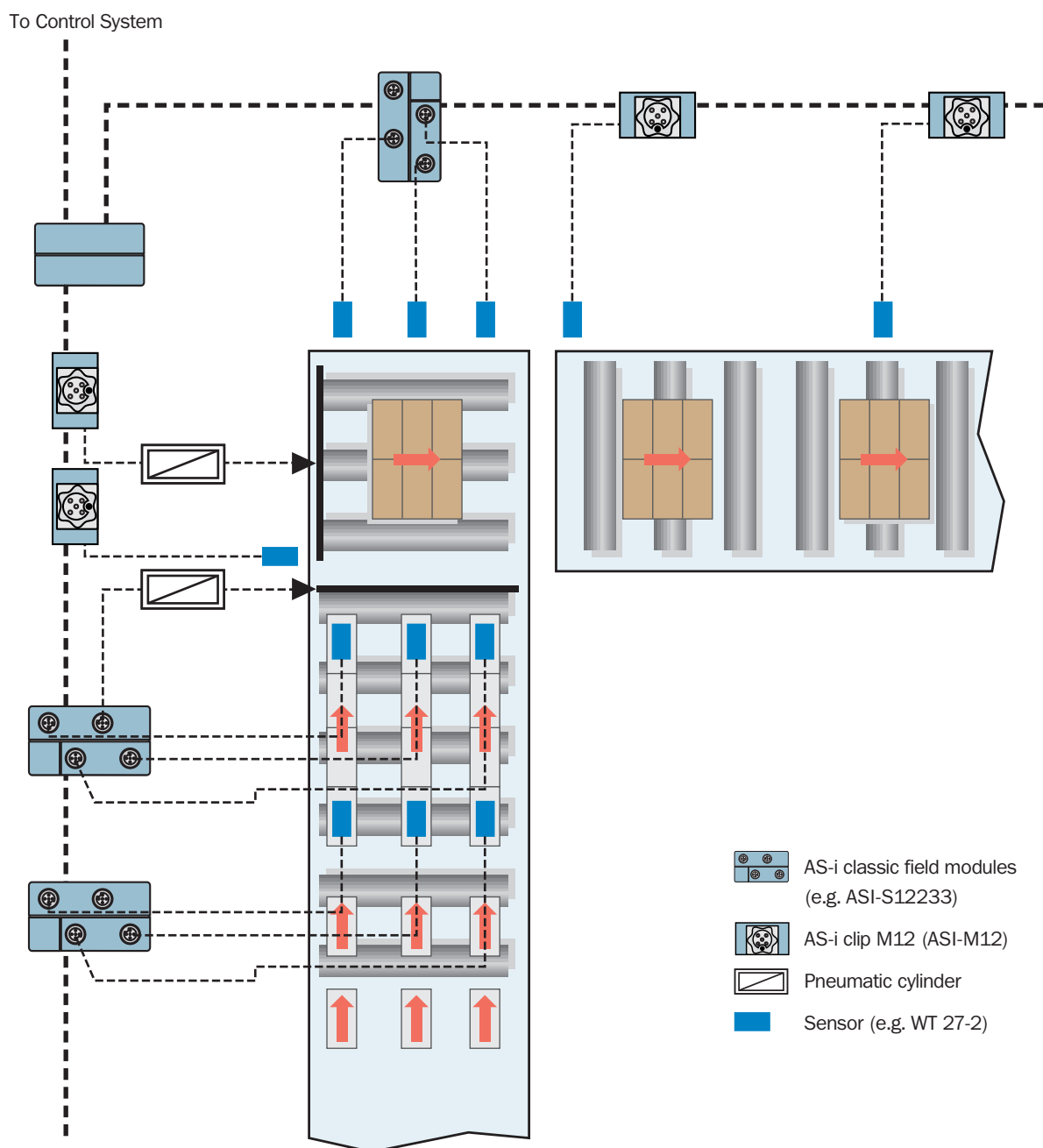
Process signals created on site were previously transmitted via comprehensive parallel wiring and input/output modules. This means that each sensor or actuator in the field was connected via its own line with the input/output modules.

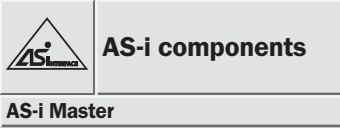
The change of structures, motivated by a high degree of cost consciousness, has pushed the architecture of automation systems strongly in the direction of decentralization over the past years. This triggered the triumphant progress of field bus technology and especially the AS interface® as the most significant standardized representative of the lowest field level: sensors and actuators.

Two factors have always characterized automation technology: the economic pressure to cut costs and the availability of new technologies. On the other hand, the requirement to use more progressive system architecture puts pressure on equipment manufacturers to structure components, so that they meet the needs of the architecture.

AS-i Applications

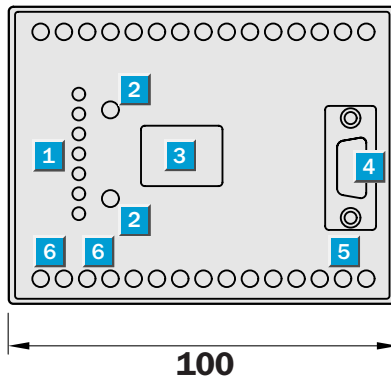
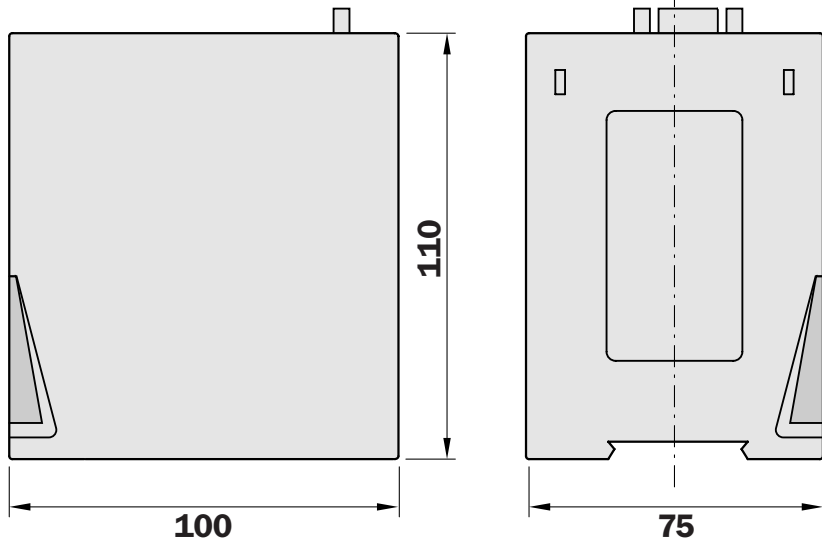
Central control of complex processes in the packaging industry with AS-i.





- Serial interface
- Simple SPS "AS-i Control" II
- Advanced AS-i diagnostics
- AS-i version 2.1

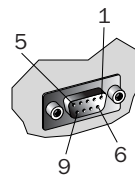
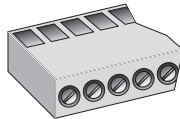
Dimensional drawing



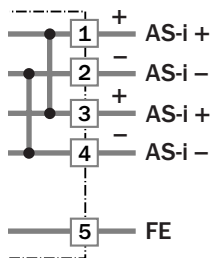
- 1 Status indicator LED
- 2 Buttons for manual operation
- 3 LCD display
- 4 RS 232C interface
- 5 Functional earth
- 6 AS-Interface® connection (power supply via AS-i cable)



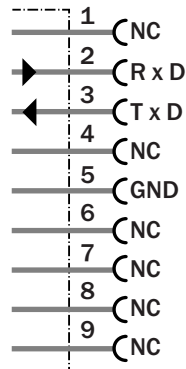
Connection type



Terminals



RS 232C



See chapter Accessories
 AS-i Control Tool Software
 Connection cable PC – RS 232



Technical data		ASI	-M										
			31320										
Supply voltage V_S ¹⁾	26.5 ... 31.6 V DC												
Operating current	Approx. 200 mA out of the AS-i circuit												
Interface	RS 232C												
Baud rates ²⁾	1200, 2400, 4800, 9600, 19.200												
	38.400 or 57.800 Baud												
AS-i cycle time ³⁾	150 μ s												
AS-Interface specification	2.1												
Displays	LCD	Slave addresses and error messages											
	LED green (power)	Power on											
	LED green (ser active)	Profibus master recognized											
	LED red (config error)	Configuration error											
	LED green (U ASI)	AS-i voltage "OK"											
	LED green (ASI active)	AS-i normal operation											
	LED green (prg enable)	Automatic slave programming enabled											
	LED yellow (prj mode)	Configuration mode active											
Push-buttons	2 (mode/set)												
Voltages of insulation	500 V DC												
Product standard/EMC	EN 50295												
Ambient temperature T_A	Operating 0 ... +55 °C												
	Storage -25 ... +85 °C												
Enclosure rating to EN 60529	IP 20												
Tolerable loading impacts/vibrations ⁵⁾	Screw-mounting: b \leq 30 g, T \leq 11 ms												
	Spring lock-mounting: b \leq 15 g, T \leq 11 ms												
	Screw-mounting: f \leq 55/s, a \leq 1 mm												
	Spring lock-mounting: f \leq 55/s, a \leq 0.5 mm												
Housing	Housing with snap fastening, LDG-A-30												
Weight	420 g												

1) In accordance with AS-i specification
 2) Automatic recognition
 3) Number of slaves + 1

4) Control program active
 5) Max. allowed values

Order information	
Type	Order no.
ASI-M31320	6 022 376

Description of the micro programmed logic control system

Processor	DS80C320
Programme memory (EEPROM)	600 bytes/16 Kbytes with activated AS-i Control Tool Software
Data storage capacity (bit/byte marker)	8 Kbytes
Remanent data storage capacity	128 byte marker
Clock speed (1 Kbit/1000 words)	1.8 ms/2.0 ms to 16 ms/18 ms, depending on the unit in question

Processing

Control Command System	based on STEP5
Supplementary operations	8051 assembler, call-up from AS-i Master functions
Marker/register	8 Kbytes
Number of counters/timers	1024 in each instance
Counter/timer resolution	16 Bit
Programmable times	1 to 40950 ms
Inputs and Outputs	up to 248 E, 186 A. 124 analog values by means of AS-i slaves

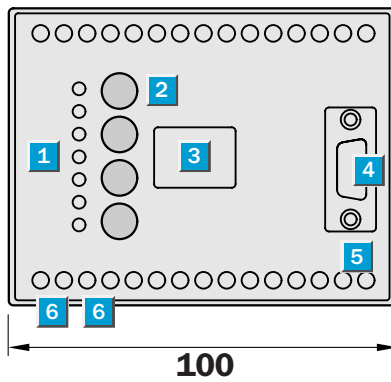
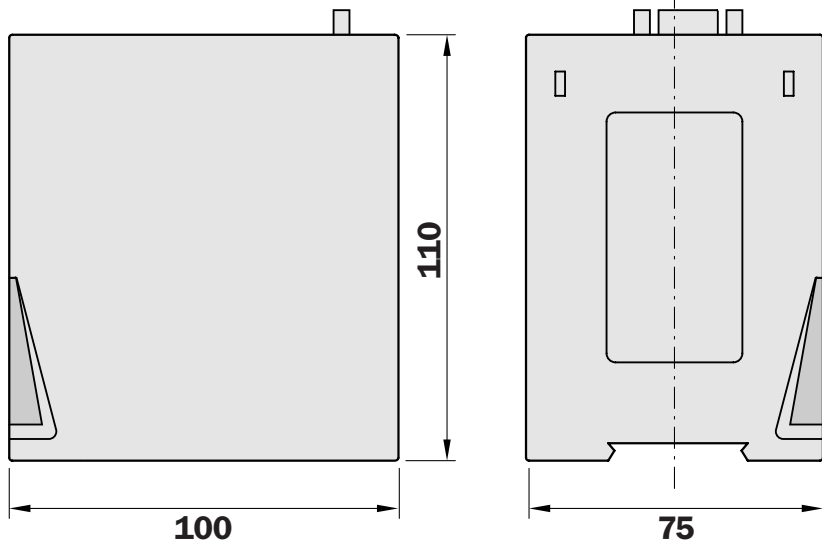
Programming

Programming languages	Selection logic, assembler
Programming device	PC
Programming platform	DOS, MS Windows, Windows 95/98, Windows NT, Windows 2000
Programming software	AS-i control tools



- IP 20
- AS-i Control Tool
- Advanced AS-i diagnostics
- AS-i version 2.1
- On-site diagnostics with graphic display

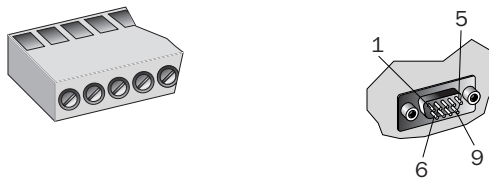
Dimensional drawing



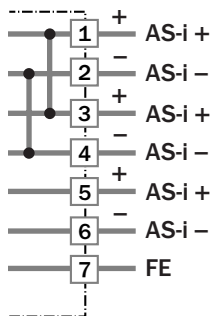
- 1 Status indicator LED
- 2 Buttons for manual operation
- 3 Graphic display
- 4 Profibus interface
- 5 Functional earth
- 6 AS-Interface® connection (power supply via AS-i cable)



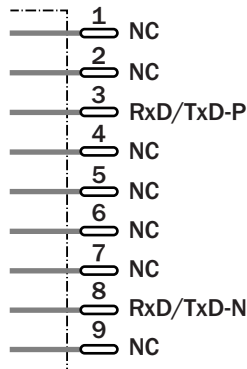
Connection type



Terminals



Profibus



- See chapter Accessories**
- Software AS-i Control Tools
 - Connection cable PC – RS 232
 - Profibus Master simulator



Technical data		ASI	-M												
			31321												
Supply voltage V_s ¹⁾	26.5 ... 31.6 V DC														
Operating current	Approx. 200 mA out of the AS-i circuit														
Interface	Profibus according to DIN 19245 Part 3														
Baud rates ²⁾	9.6 to 12,000 kBaud														
DP functions ³⁾	Imaging of the AS-i slaves														
AS-i cycle time ⁴⁾	150 μ s														
AS-Interface specification	2.1														
Displays	Display	Menu guided display													
	LED green (power)	Power on													
	LED green (Profibus)	Profibus master recognized													
	LED red (config error)	Configuration error													
	LED green (U ASI)	AS-i voltage "OK"													
	LED green (ASI active)	AS-i normal operation													
	LED green (prg enable)	Automatic slave programming enabled													
	LED yellow (prj mode)	Configuration mode active													
Push-buttons	4 (mode/ \uparrow ; ok; ESC; set/ \downarrow)														
Voltages of insulation	500 V DC														
Product standard/EMC	EN 50295														
Ambient temperature T_A	Operating 0 ... +55 °C														
	Storage -25 ... +85 °C														
Enclosure rating to EN 60529	IP 20														
Tolerable loading impacts/vibrations ⁵⁾	Screw-mounting: $b \leq 30$ g, $T \leq 11$ ms														
	Spring lock-mounting: $b \leq 15$ g, $T \leq 11$ ms														
	Screw-mounting: $f \leq 55/s$, $a \leq 1$ mm														
	Spring lock-mounting: $f \leq 55/s$, $a \leq 0.5$ mm														
Housing	Housing with snap fastening, LDG-A-30														
Weight	420 g														

1) In accordance with AS-i specification
 2) Automatic recognition
 3) As I/O Data of the Profibus complete diagnosis and configuration via Profibus DP

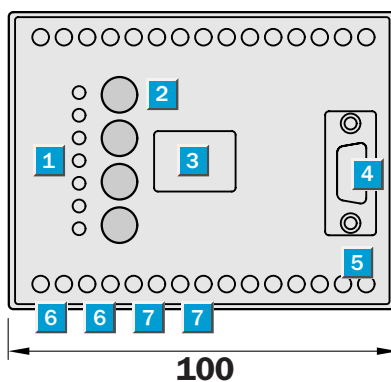
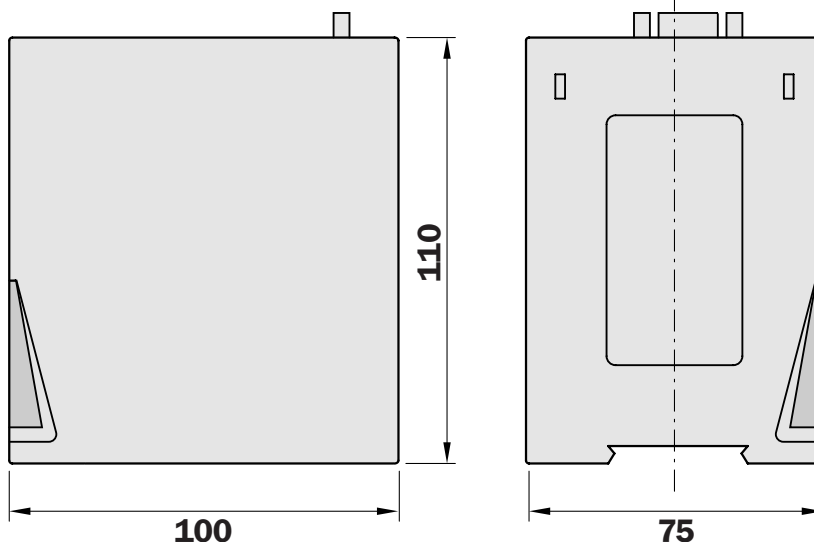
4) Number of slaves + 1
 5) Max. allowed values

Order information	
Type	Order no.
ASI-M31320	6 027 500



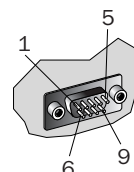
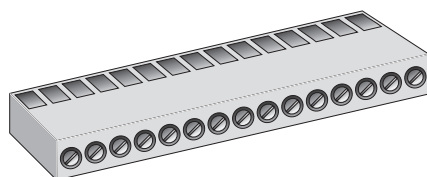
- IP 20
- AS-i Control Tool
- Advanced AS-i diagnostics
- AS-i version 2.1
- Two AS interface Master units in a single housing
- On-site diagnostics with graphic display

Dimensional drawing

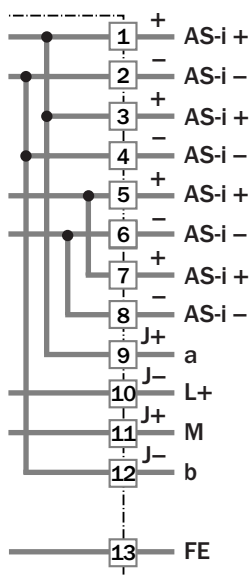


- 1 Status indicator LED
- 2 Buttons for manual operation
- 3 Graphic display
- 4 Profibus interface
- 5 Functional earth
- 6 AS-Interface® connection 1 (power supply via AS-i cable)
- 7 AS-Interface connection 2 (power supply via AS-i cable)

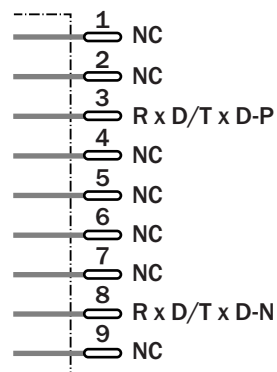
Connection type



Terminals



Profibus



See chapter Accessories

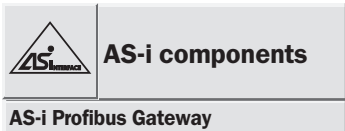
- AS-i Control Tool Software
- Connection cable PC – RS 232
- Profibus Master simulator

Technical data		ASI	-M											
			32321											
Supply voltage V_s ¹⁾	26.5 ... 31.6 V DC													
Operating current	Approx. 200 mA out of the AS-i circuit													
Interface	Profibus, according to DIN 19245 Part 3													
Baud rates ²⁾	9.6 to 12,000 kBaud													
DP functions ³⁾	Imaging of the AS-i slaves													
AS-i cycle time ⁴⁾	150 μ s													
AS-Interface specification	2.1													
Displays	Display	Menu guided display												
	LED green (power)	Electrical supply On												
	LED green (Profibus)	Profibus master recognized												
	LED red (config error)	Configuration error												
	LED green (U ASI)	AS-Interface voltage "OK"												
	LED green (AS-i active)	AS interface operation normal												
	LED green (prg enable)	Automatic slave programming enabled												
	LED yellow (prj mode)	Configuration mode active												
Push-buttons		4 (mode/ \uparrow ; ok; ESC; set/ \downarrow)												
Voltages of insulation		500 V DC												
Product standard/EMC		EN 50295												
Ambient temperature T_A		Operating 0 ... +55 °C												
		Storage -25 ... +85 °C												
Enclosure rating to EN 60529		IP 20												
Tolerable loading impacts/vibrations⁵⁾		Screw-mounting: $b \leq 30$ g, $T \leq 11$ ms												
		Spring lock-mounting: $b \leq 15$ g, $T \leq 11$ ms												
		Screw-mounting: $f \leq 55/s$, $a \leq 1$ mm												
		Spring lock-mounting: $f \leq 55/s$, $a \leq 0.5$ mm												
Housing		Housing with snap fastening, LDG-A-30												
Weight		420 g												

1) In accordance with AS-i specification
 2) Automatic recognition
 3) As I/O Data of the Profibus complete diagnosis and configuration via Profibus DP

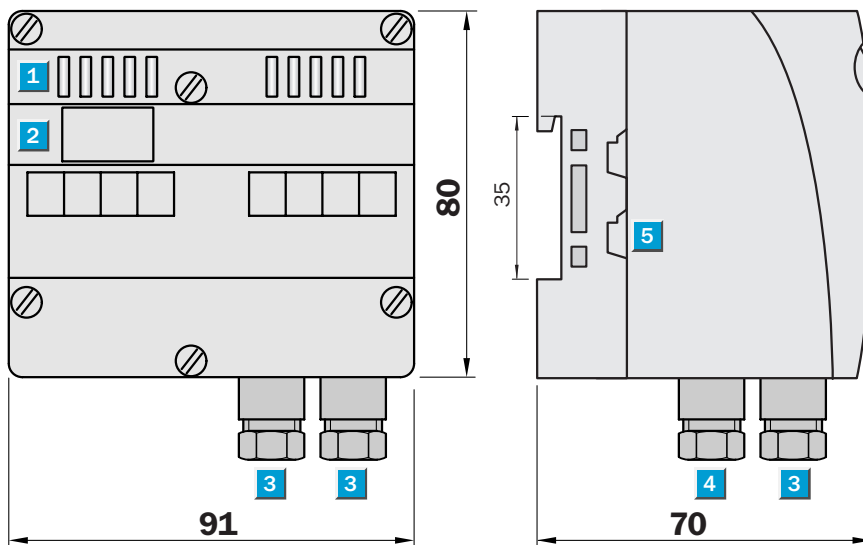
4) Number of slaves + 1
 5) Max. allowed values

Order information	
Type	Order no.
ASI-M32321	6 027 501



- IP 65
- Advanced AS-i diagnostics
- AS-i version 2.1

Dimensional drawing



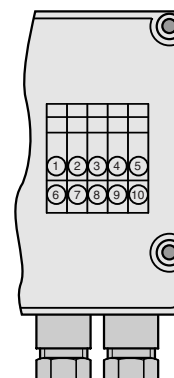
- 1 Status indicators LED
- 2 LCD display
- 3 Profibus interface via a Sub D data cable (PG screwed connection)
- 4 Functional earth (Connection via PC screwed connection in housing)
- 5 AS-Interface® connection (power supply via AS-i cable)

With scheduling resistances that can be switched on and off.
FK lower part not included with delivery.



Connection type

1	RxD/TxD-N (data line A)
2	RxD/TxD-P (data line B)
3	RxD/TxD-N (data line A)
4	RxD/TxD-P (data line B)
5	0 V
6	Shield
7	FE functional earth
8	FE functional earth
9	Shield
10	+ 5 V




See chapter Accessories
AS-i Control Tool Software
Cable receptacles PC RS 485
Profibus Master simulator

Technical data		ASI	-M										
			31330										
Supply voltage V_S ¹⁾	26.5 ... 31.6 V DC												
Operating current	Approx. 200 mA out of the AS-i circuit												
Interface	Profibus, according to DIN 19245 Part 3												
Baud rates ²⁾	9.6 to 12,000 kBaud												
DP functions ³⁾	Imaging of the AS-i slaves												
AS-i cycle time ⁴⁾	150 μ s												
AS-Interface specification	2.1												
Displays	LCD	Slave addresses and error messages											
	LED green (power)	Power on											
	LED green (ser active)	Profibus master recognized											
	LED red (config error)	Configuration error											
	LED green (U ASI)	AS-i voltage "OK"											
	LED green (ASI active)	AS-i normal operation											
	LED green (prg enable)	Automatic slave programming enabled											
	LED yellow (prj mode)	Configuration mode active											
Push-buttons	2 (mode/set)												
Voltages of insulation	500 V DC												
Product standard/EMC	EN 50295												
Ambient temperature T_A	Operation 0 ... +55 °C												
	Storage -25 ... +85 °C												
Enclosure rating to EN 60529	IP 65												
Tolerable loading impacts/vibrations ⁵⁾	Screw-mounting: $b \leq 30$ g, $T \leq 11$ ms												
	Spring lock-mounting: $b \leq 15$ g, $T \leq 11$ ms												
	Screw-mounting: $f \leq 55/s$, $a \leq 1$ mm												
	Spring lock-mounting: $f \leq 55/s$, $a \leq 0.5$ mm												
Housing	Housing with snap fastening, PA												
Weight	420 g												

1) In accordance with AS-i specification
 2) Automatic recognition
 3) As I/O Data of the Profibus complete diagnosis and configuration via Profibus DP

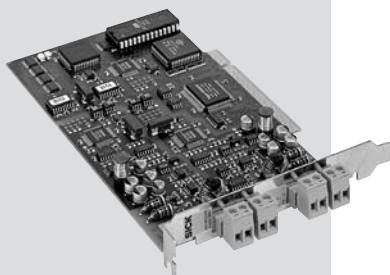
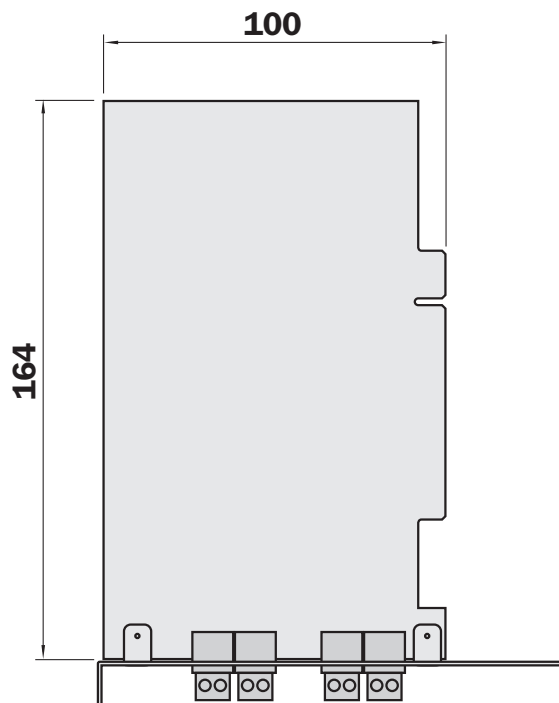
4) Number of slaves + 1
 5) Max. allowed values

Order information	
Type	Order no.
ASI-M31330	6 022 378

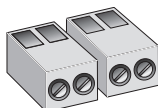
	AS-i components
	AS-i Master

- AS-i Master Board for AT-PCs
- Two AS-i Masters on one board
- Micro PLC AS Interface Control II
- Watchdog
- Advanced AS-i diagnostics
- AS-i version 2.1

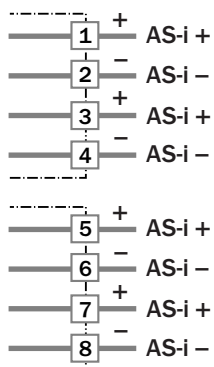
Dimensional drawing



Connection type



Terminals



See chapter Accessories
AS-i Control Tool Software



Technical data		ASI	-M										
			22310										
Supply voltage V_S	Supply via PC and AS-i												
Operating current	Approx. 200 mA out of PC power supply												
	Approx. 70 mA from AS-i (per AS-i circuit)												
Type	PCI card												
Interface ¹⁾	16 bit PCI bus interface												
	AS-i circuit 1												
	AS-i circuit 2												
Connection type	PC plug-in card location, Plug & Play												
ASI-cycle time ²⁾	150 µs												
ASI specification	2.1												
Voltages of insulation	500 V												
Product standard/EMC	EN 50295												
Ambient temperature T_A	Operating	0 ... +55 °C											
	Storage	-25 ... +70 °C											
Weight	125 g												

¹⁾ Galvanic separation from AS-i
²⁾ Number of slaves + 1

Description of the micro programmed logic control system		Order information	
Processor	DS80C320	Type	Order no.
Programme memory (EEPROM)	600 bytes/16 Kbytes with activated AS-i Control Tool Software	ASI-M22310	6 022 380
Data storage capacity (bit/byte marker)	8 kBytes		
Remanent data storage capacity	128 byte marker		
Clock speed (1 Kbit/1000 words)	1.8 ms/2.0 ms to 16 ms/18 ms, depending on the unit in question		

Processing	
Control Command System	based on STEP5
Supplementary operations	8051 assembler, call-up from AS-i Master functions
Marker/register	8 kBytes
Number of counters/timers	1024 in each instance
Counter/timer resolution	16 Bit
Programmable times	1 to 40950 ms
Inputs and Outputs	up to 248 E, 186 A. 124 analog values by means of AS-i slaves

Programming	
Programming languages	Selection logic, assembler
Programming device	PC
Programming platform	DOS, MS Windows, Windows 95/98, Windows NT, Windows 2000
Programming software	AS-i control tools

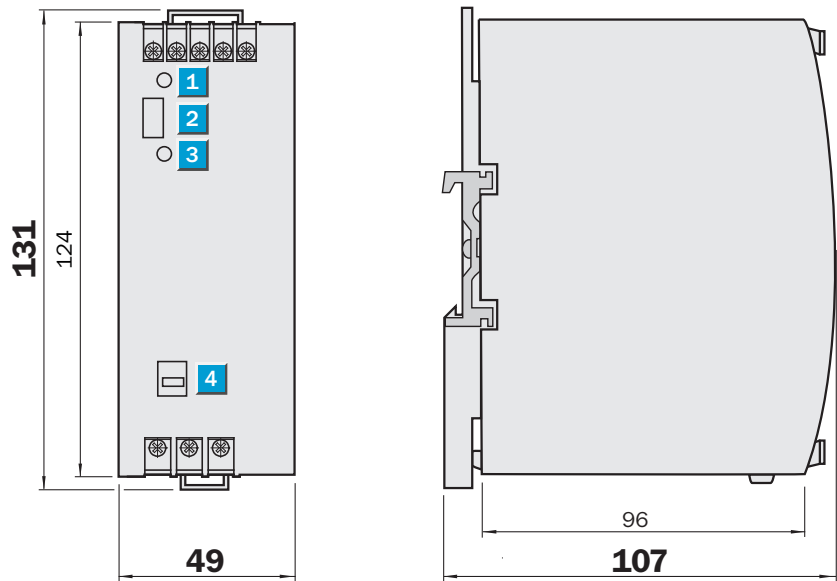
AS-i components
AS-i power supply unit

- Easy mounting on DIN rail TS 35
- Overload and short-circuit protected
- Mains power input and output indirect-coupled
- Integrated data decoupling
- Plug-in bridge for switching off AS-i communication

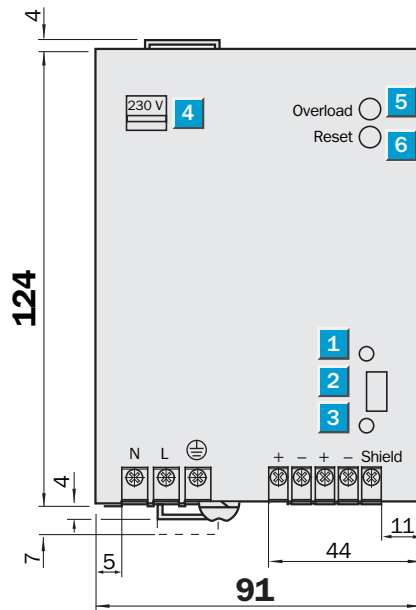


Dimensional drawing

HN.SL A3.100

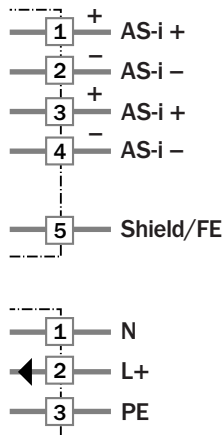


HN.SL A8.100



- 1 LED green, AS-i power supply OK
- 2 Plug-in bridge for switching off AS-i communication
- 3 LED red, AS-i communication interrupted
- 4 Switch 230 V DC/110 V DC
- 5 Red flashing LED in FKSE mode
- 6 Switch for resetting the FVSE mode

Connection type



Technical data		HN	SL A3. 100	SL A8. 100									
Voltage rating	115/230 V AC ¹⁾												
Supply voltage V_S	85 ... 132 V AC/196 ... 264 V AC												
Output current	2.8 A												
	8 A												
Short-circuit protected													
Overload protected													
Network nominal frequency	47 ... 63/s												
Efficiency factor	90.5 %												
	92 %												
Output voltage²⁾	29.5 ... 31.6 V DC to PELV												
Standby delay time	100 ms typ.												
	300 ms typ.												
Derating	2 W/k at 60 °C												
	6 W/k at 60 °C												
Power outage bridging time ³⁾	26 ms												
	10 ms												
Switch-on peak current ⁴⁾	20 A (132 V AC), 38 (264 V AC)												
	< 14 A (120 V AC), < 27 A (240 V AC)												
Fuses	T3 15 A/250 V integrated												
	T 8 A/250 V HBC												
Ripple	< 50 mV _{pp}												
Display LED green/red	AS-i communication												
Ambient temperature T_A	Operation -10 ... +70 °C												
	Storage -25 ... +85 °C												
Enclosure rating	IP 20												
AS-i certificate	34401												
	41601												
EMC	EN 50081-1, EN 61000-6-2												
LVD (low-voltage directive)	EN 60950, EN 50178												
	EN 61000-3-2 (A 14), EN 61000-3-3												
Product standard	EN 50295												
Housing material	Aluminum, galvanized sheet steel												
Weight	496 g												
	890 g												

¹⁾ 230 V AC default

²⁾ Output is short-circuit protected and protected against no-load and over-load occurrences

³⁾ Load dependent

⁴⁾ Not accessible

Order information

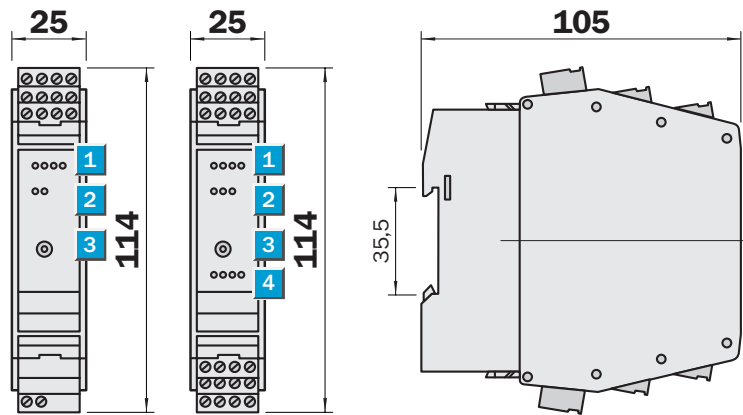
Type	Order no.
HN.SL A3.100	6 022 381
HN.SL A8.100	6 022 382

AS-i components
AS-i Smartline switch cabinet modules

- For cabinet mounting
- Digital inputs and outputs
- Sensor/actuator, connection via combicon plug
- Support rail fastening
- AS-i version 2.1
- Connection of 2-wired and 3-wired sensors

Dimensional drawing

ASI-S12320 ASI-S24220



Combicon plug not included with delivery.

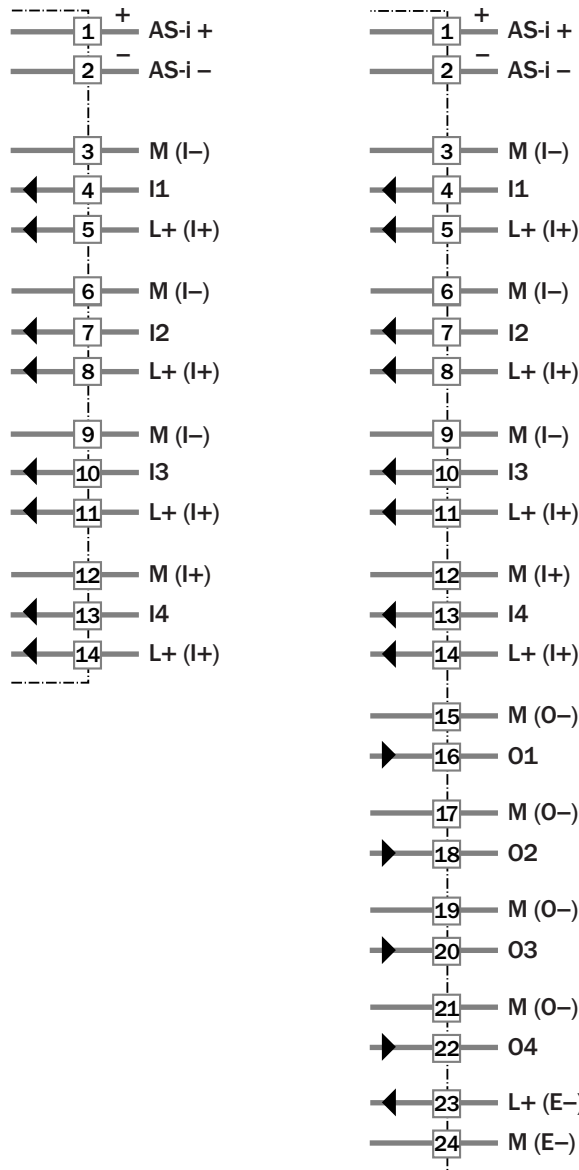
- 1** LED array 1
- 2** LED array 2
- 3** Addressing socket
- 4** LED array 3



Connection type

ASI-S12320

ASI-S24220



See chapter Accessories

AS-i address equipment
AS-i address cable
Combicon plug

Technical data		ASI	-S 12320	-S 24220								
Digital inputs	4											
Digital outputs (transistor)	4											
Supply voltage V_S¹⁾	26.5 ... 31.6 V DC											
Current consumption total	≤ 240 mA											
Inputs												
Input circuit	PNP											
Sensor supply via	AS-i											
Voltage area	18 ... 30 V DC											
Current loading ²⁾	200 mA											
Inputs	Short-circuit protection											
Switching level HIGH signal 1	≥ 10 V											
Input current HIGH/LOW	≥ 6 mA/≤ 2 mA											
Outputs												
Electrically separated	PNP											
Short-circuit protected												
Watchdog integrated ³⁾												
Current load per output (DC 13) ⁴⁾	1 A											
Extern supply voltage ⁵⁾	10 ... 30 V DC required											
Current load per module	4 A											
AS-i interface reserve-polarity prot.												
AS-i profile												
	S-0.A.E											
	S-7.0.E											
AS interface specification	2.1											
Extended address mode available												
AS-i certificate												
	40801											
	40701											
Product standard/EMC	EN 50295											
Enclosure rating to EN 60529	IP 20											
Ambient temperature T_A												
	Operation -25 ... +70 °C											
	Storage -40 ... +100 °C											
Display												
LED green	AS-i voltage											
LED yellow	In-/output signals											
LED green	24 V supply											
LED red	Communication error ⁶⁾											
Addressing via addressing socket												
Housing material	PA 6.6											
Weight	110 g											
Connection to AS interface	Via combicon plug											

1) In accordance with AS-i specification
 2) For all inputs total
 3) Outputs will be reset, if communication is interrupted for more than 40 ms

4) Category of use (DC 13):
 On and Off switching capacity for activation of electro-solenoids is designed for use up to 20 W (in accordance with IEC 609-47-5-2)

5) Via combicon plug to PELV
 6) Peripherie error

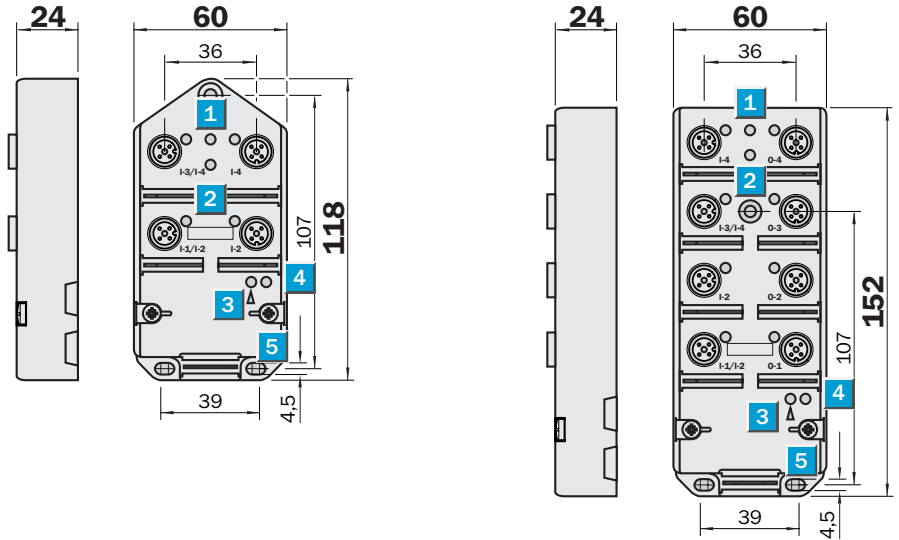
Order information	
Type	Order no.
ASI-S12320	6 022 383
ASI-S24220	6 022 384

AS-i components
AS-i Compact field modules

- For field applications IP 67
- Digital inputs and outputs
- External voltage supply via 24 V flat cable
- Inputs Y-circuit for connection of 3- or 4-wire sensors
- AS-i version 2.1

Dimensional drawing

ASI-S12343	ASI-S24243
ASI-S21243	



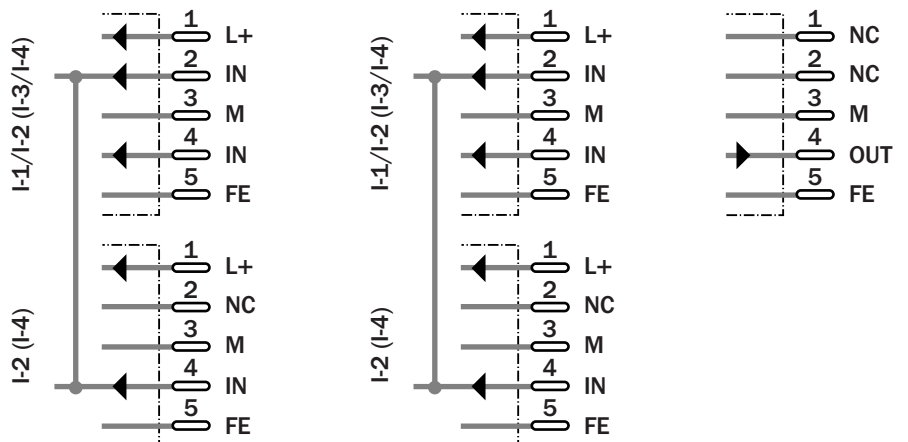
- 1** LED green: AS-i-Power
- 2** LED green: output voltage
- 3** LED red: FAULT
- 4** IR interface
- 5** Function ground FE

Two protection caps for M12 connectors included with delivery.



Connection type

ASI-S12343	ASI-S21243	ASI-S24243
Socket 1 – 4	Socket 1 – 4	Socket 1 – 4
Input 1 – 4	Input 1 – 4	Output 1 – 4



See chapter Accessories

- AS-i addressing unit
- AS-i address cable
- Safety cap for M12 female connector
- Cables and connectors

Technical data		ASI	-S 12343	-S 21243	-S 24243						
Digital inputs	2										
	4										
Digital outputs	2										
	4										
Supply voltage V_S¹⁾	26.5 ... 31.6 V DC										
Current consumption total	≤ 242 mA										
	≤ 142 mA										
Inputs											
Input circuit	PNP										
Sensor supply via	ASI										
Voltage area	20 ... 30 V DC										
Current loading ²⁾	200 mA										
	100 mA										
Inputs	Short-circuit protection										
Switching level HIGH signal 1	≥ 10 V										
Input current HIGH/LOW	≥ 5 mA/≤ 1.5 mA										
Outputs											
Electrically separated											
Short-circuit protected											
Watchdog integrated ³⁾											
Current load per output	2 A										
Extern supply voltage ⁴⁾	24 V DC required										
Current load per module	4 A										
AS-i interface reserve-polarity prot.											
AS-i profile											
	S-0.A.E										
	S-3.F.E										
	S-7.F.E										
AS interface specification	2.1										
Extended address mode available											
Product standard/EMC	EN 50295										
Enclosure rating to EN 60529	IP 67										
Ambient temperature T_A	Operation -25 ... +80 °C										
	Storage -40 ... +100 °C										
Displays	LED yellow										
	LED green										
	LED red										
Addressing via IR interface											
Housing material	Polyurethan										
Weight	203 g										
	301 g										
Connection to AS interface	Via contact pins inside of the device ⁶⁾										

1) In accordance with AS-i specification

2) For all inputs total

3) Outputs will be reset, if communication is interrupted for more than 40 ms

4) Via AS interface ribbon cable to PELV

5) Peripherie error

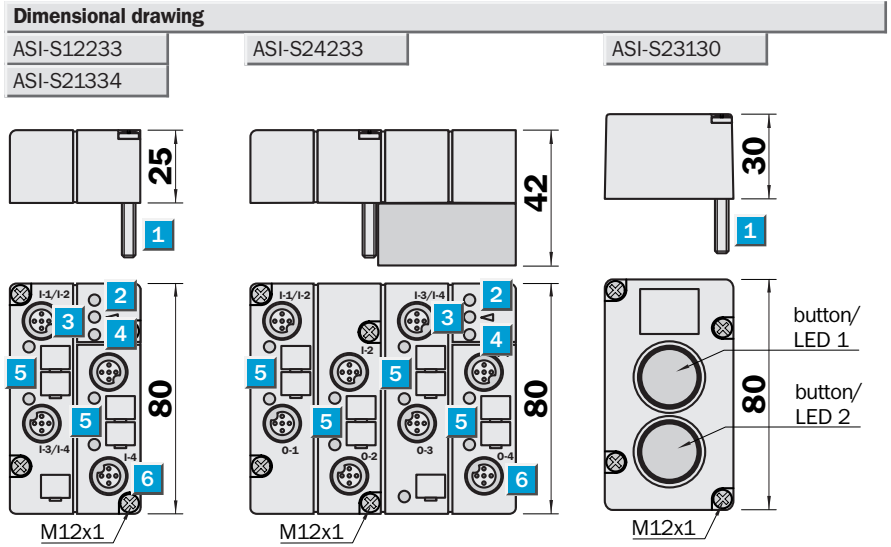
6) Without separate FK lower part

Order information

Type	Order no.
ASI-S12343	6 022 387
ASI-S21243	6 022 388
ASI-S24243	6 022 389

AS-i components
AS-i Classic field modules

- For field applications IP 67
- AS-i interface to FK and FKE lower parts
- Extern supply voltage via 24 V flat cable
- Inputs Y-circuit for connection of 3- or 4-wire sensors
- AS-i version 2.1



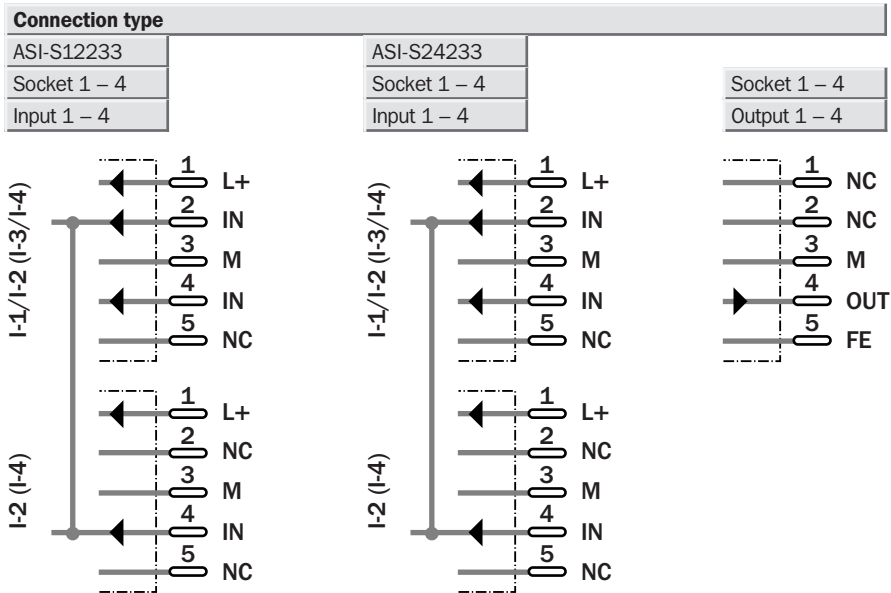
- 1** Screws for mounting on module lower part
- 2** LED red: FAULT
- 3** Attachment of IR adapter
- 4** LED green: PWR, power supply OK
- 5** LED yellow: status indicator
- 6** Connectors, M12

Protection cap for M12 connectors not included with delivery.
FK lower parts must be ordered separately.



See chapter Accessories

AS-i addressing unit
AS-i address cable
FK lower parts
Protection cap for M12 connector
Cables and connectors



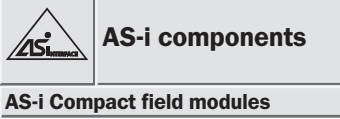
Technical data		ASI	-S 12233	-S 21334	-S 24233	-S 23130						
Digital inputs	4											
	2											
Digital outputs	4											
	2											
Supply voltage V_S⁴⁾	26.5 ... 31.6 V DC											
Current consumption total	≤ 240 mA											
	≤ 250 mA											
	≤ 55 mA (LED ein)											
	≤ 135 mA											
Inputs												
Input circuit	PNP											
Sensor supply via	AS-i											
Voltage area	20 ... 30 V DC											
Current loading ²⁾	200 mA											
	100 mA											
Short-circuit protected												
Switching level HIGH signal 1	≥ 10 V											
Input current HIGH/LOW	≥ 5 mA/≤ 1.5 mA											
Outputs												
Electrically separated												
Short-circuit protected												
Watchdog integrated ³⁾												
Current load per output (DC 13) ⁴⁾	1 A											
Extern supply voltage ⁵⁾	24 V DC required											
Current load per module	2 A											
AS-i interface reserve-polarity prot.												
AS-i profile	S-0.FE											
	S-7.FE											
	S-3.F											
	S-B.A.E											
AS interface specification	2.1											
	2.0											
Extended address mode available												
AS-Interface Certificate	33601											
Product standard/EMC	EN 50295											
Enclosure rating to EN 60529	IP 67											
Ambient temperature T_A	Operation -25 ... +80 °C											
	Storage -40 ... +100 °C											
	Operation -25 ... +60 °C											
	Storage -40 ... +85 °C											
Display	LED yellow	In-/output signals										
	LED green	Display AS-i voltage										
	LED red	Communication error ⁶⁾										
	Push-button 2	Data bit D0										
	Push-button 1	Data bit D1, color selectable										
	LED 2 ⁷⁾	Data bit D2										
	LED 1 ⁷⁾	Data bit D3										
Addressing via IR interface												
Housing material	PBTP (Pocan)											
Weight	84 g											
	158 g											
	93 g											
Connection to AS interface	Via contact pins ⁸⁾											

- 1) In accordance with AS-i specification
2) For all inputs total
3) Outputs will be reset, if communication is interrupted for more than 40 ms
4) Category of use (DC 13)
ON an OFF switching capacity for activation of electro-solenoids is designed for use up to 20 W (in accordance with IEC 609-47-5-2)

- 5) Via AS interface flat cable to PELV
6) Peripherie error
7) Color is set by the supplied pressure hood corresponding to scanner 1/2
8) On FK or FKE lower parts or FK-A or FKE-A lower parts

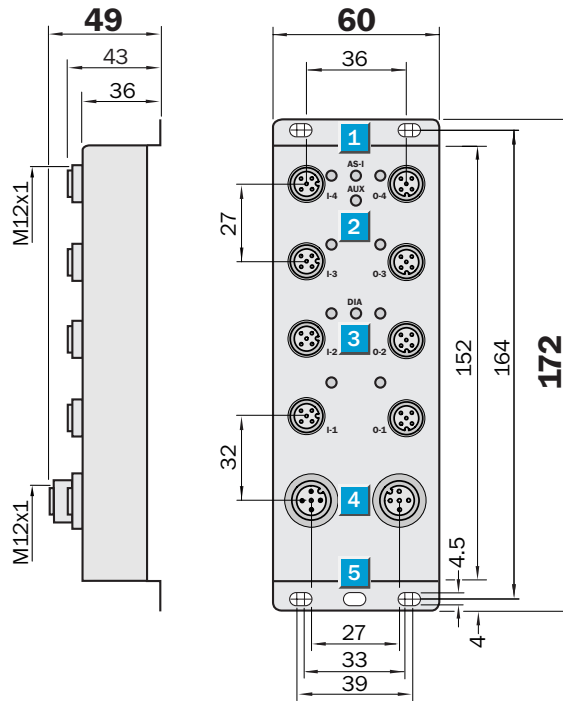
Order information

Type	Order no.
ASI-S12233	6 022 390
ASI-S21334	6 022 391
ASI-S24233	6 022 392
ASI-S23130	6 022 393



- For applications in harsh environments IP 69K
- Stainless steel housing
- Digital inputs and outputs
- Connection of 2- or 3-wire sensors
- AS-i version 2.1

Dimensional drawing



- 1** LED green: AS-i Power
- 2** LED green: output voltage
- 3** LED red: FAULT
- 4** Plug/female connector M12 (connection AS-i, actuator supply)
- 5** Function earth FE over mounting holes at the stainless steel housing

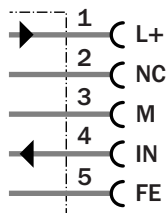
6 protection caps for M12 connectors included with delivery



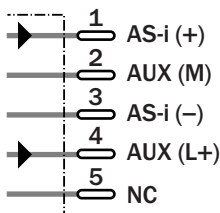
Connection type

ASI-S24261

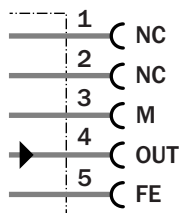
Female connector 1-4
Input I-1-I-4



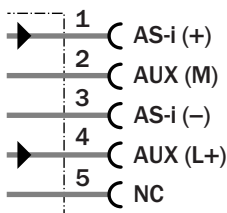
Supply
Plug IN



Female connector 1-4
Output O-1-O-4



Supply
Female connector OUT



See chapter Accessories

AS-i addressing unit

Cables and connectors

Technical data		ASI-S	24261										
Digital inputs		4											
Digital outputs		4											
Supply voltage V_S ¹⁾		26.5 ... 31.6 V DC											
Current consumption total		310 mA											
Inputs													
Input circuit		PNP											
Sensor supply		aus AS-i											
Voltage area		DC 17 ... 30 V											
Current loading ²⁾		200 mA											
Short-circuit protected		elektronisch gesichert											
Overload proof		elektronisch gesichert											
Switching level HIGH signal 1		≥ 10 V											
Input current HIGH/LOW		≥ 4.7 mA/≤ 1.5 mA											
Outputs													
Electrically separated													
Short-circuit protected		Electronically protected											
Overload proof		Electronically protected											
Watchdog ³⁾		Integrated											
Actuator supply ⁴⁾		External, according PELV											
Nominal voltage		24 V DC											
Voltage range		11 ... 30 V DC											
Current load per module		4 A											
Current load per output		2 A											
AS-i interface reserve-polarity prot.													
AS-i profile													
AS-i profile		S-7.FE											
AS-interface specification		2.1											
Product standard/EMC													
Product standard/EMC		EN 50295											
Enclosure rating to EN 60529													
Enclosure rating to EN 60529		IP 69K											
Ambient Temperature T_A													
Ambient Temperature T _A		Operation -25 ... +70 °C											
		Storage -25 ... +70 °C											
Displays													
Displays	LED yellow	In-/output signals											
	LED green	AS-i voltage/actuator supply (AUX)											
	LED red	Diagnostics ⁵⁾											
Addressing		Via M12 plug											
Housing material													
Housing material		Stainless steel/PUR											
Weight		550 g											
Connection to AS interface		Via M12 plug at the module											

¹⁾ In accordance with AS-i specification

²⁾ For sensor supply at all inputs total

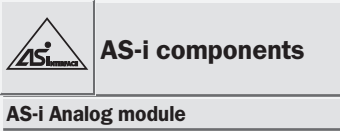
³⁾ Outputs will be reset, if communication is interrupted for more than 40 ms

⁴⁾ Via M12 plug at the module. For the output circuit an external auxiliary supply is necessary.

⁵⁾ ON Communication error
Flashing Peripherie error
(short-circuit/overload)
OFF No error

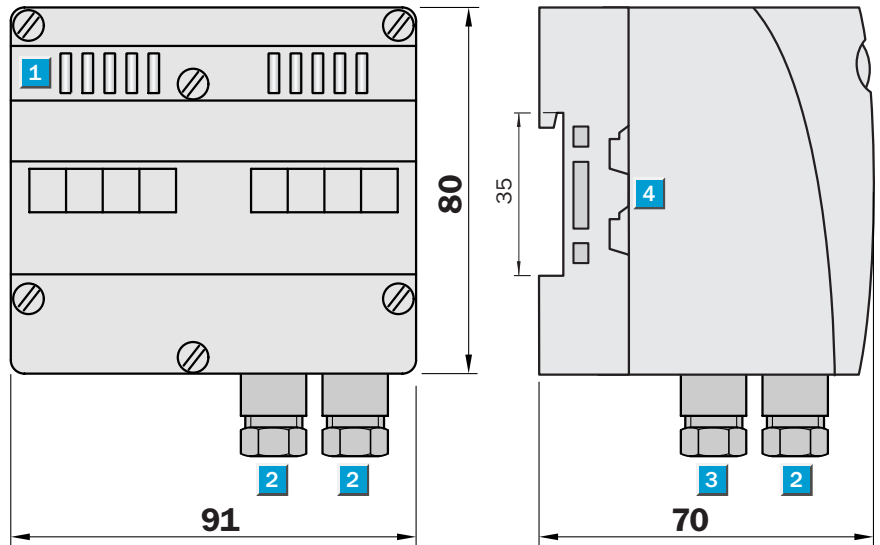
Order information

Type	Order no.
ASI-S24261	6 028 620



- For field applications IP 65
- 2 analog inputs 4 ... 20 mA
- AS-i Version 2.1
- Sensor supply via AS-i or 24 V flat cable.

Dimensional drawing



- 1 Status indicators LED
- 2 Sensor connection
- 3 Functional earth (via PC screwed connection in housing)
- 4 AS-Interface® connection (power supply via AS-i cable)

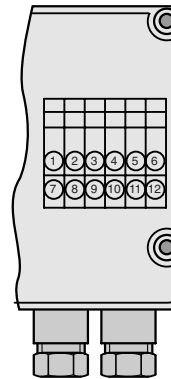
PG dummy plugs contained in package.

FK lower parts must be ordered separately.



Connection type

1	+ 24 V Output
2	Sig. +Ch2
3	GND
4	Sig. -Ch2
5	Schield
6	Shield
7	+ 24 V Output
8	Sig. +Ch1
9	GND
10	Sig. -Ch1
11	FE function ground
12	FE function ground



See chapter Accessories


- AS-i addressing unit
- FK lower parts
- AS-i address cable
- Cables and connectors

Technical data		ASI	-S										
			41250										
Analog Inputs		2											
Supply voltage ¹⁾		26.5 ... 31.6 V DC											
Current consumption total		< 80 mA											
Sensor supply		via AS-i/ext.											
Internal resistance		50 Ω											
Current loading per input		40 mA											
Resolution		16 Bit/1 μA											
AS-i profile		7.3											
AS Interface specification		2.1											
Voltages of insulation		500 V DC											
ID-Code		3 _{hex}											
ID2-Code		D _{hex}											
IO-Code		7 _{hex}											
Displays	LED green (analog 1)	Status of channel 1											
	LED green (analog 2)	Status of channel 2											
	LED green (power)	Voltage supply 24 V DC for analog module											
	LED green (AS-i)	Voltage at AS-i terminals											
	LED red (FAULT)	AS-i Communication/Peripherie error											
Product standard/EMC		EN 50295											
Ambient temperature T_A	Operation	0 ... +70 °C											
	Storage	-25 ... +85 °C											
Enclosure rating to EN 60529		IP 65											
Housing material		PA											
Weight		242 g											
Connection to AS interface		Via contact pins ²⁾											

¹⁾ In accordance with AS-i specification

²⁾ On FK/FK-A/FKE or FKE-A lower part

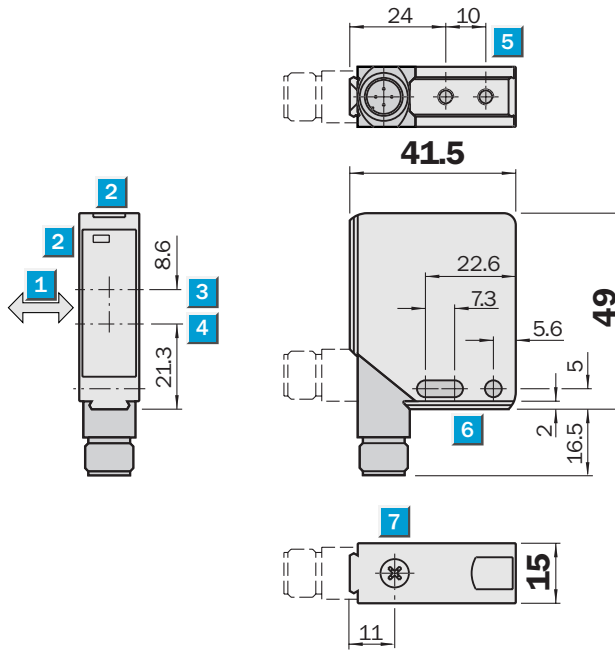
Order information	
Type	Order no.
ASI-S41250	6 022 401


Scanning distance
 20...250 mm
 Photoelectric proximity switches

- Red light
- Insensitive to ambient light sources
- M12 plug rotatable by 90°
- With integrated AS-i chip
- Adjustable background suppression

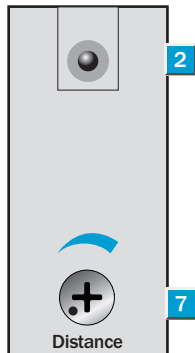


Dimensional drawing



Adjustments possible

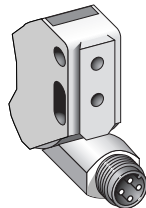
WT 12-2Z 430



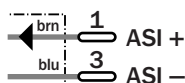
- 1 Standard direction of the material being scanned
- 2 LED signal strength indicator
- 3 Receiver's optical axis
- 4 Transmitter's optical axis
- 5 M4 threaded mounting hole – 4 mm deep
- 6 Mounting holes \varnothing 4.2 mm
- 7 Scanning distance adjustment

Connection type

WT 12-2Z 430



4-pin, M12



See chapter Accessories

- AS-i addressing unit
- Cables and connectors
- Mounting systems
- Clamps*

* 2 pieces included with delivery



Technical data		WT 12-2	Z 430										
Scanning distance	20...250 mm, adjustable												
Light source¹⁾, light type	LED, red light												
Light spot diameter	10 mm at 200 mm												
Supply voltage V_S	26.5...31.5 V DC ²⁾												
Current consumption ³⁾	≤ 35 mA												
Response time ⁴⁾	≤ 330 μs												
Max. switching frequency ⁵⁾	1500/s												
Pre-failure signalling output	Alarm												
Test input "TE"													
Connection type	4-pin, M12 plug												
VDE protection class⁶⁾	□												
Circuit protection⁷⁾	A, B, C												
Enclosure rating	IP 67												
AS-i profile	S 1.1												
AS interface specification	2.0												
Ambient temperature T_A	Operation	-25 °C...+60 °C											
	Storage	-40 °C...+75 °C											
Weight	With plug: 120 g												
Housing material	Zinc die-cast housing												

1) Average service life 100,000 h at $T_A = +25 °C$
 2) Limit values

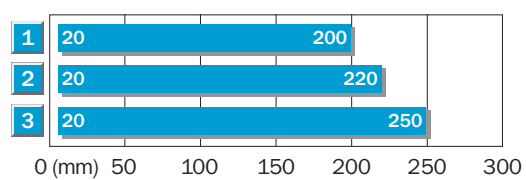
3) Without load
 4) Signal transit time with resistive load
 5) With light/dark ratio 1:1
 6) Reference voltage 50 V DC

7) A = V_S connections reverse-polarity protected
 B = Output Q and \bar{Q} short-circuit protected
 C = Interference pulse suppression

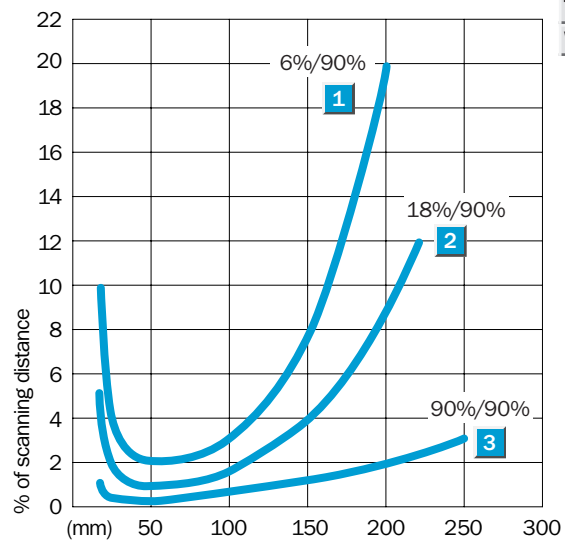
Assignment of data bits (Host level)				Assignment of parameter bits (Host level)			
D ₀	Switching state	0 If light interrupted	Input	P ₀ *	NC	0	Parameter
	Mode: light-switching	1 If light received				1	
D ₁	Alarm	0 Active	Input	P ₁ *	Light-/dark-switching	0 Dark-switching	Parameter
		1 Inactive				1 Light-switching	
D ₂	NC	0	Input	P ₂ *	NC	0	Parameter
		1				1	
D ₃	Test function	0 Sender ON	Output	P ₃ *	NC	0	Parameter
		1 Sender OFF				1	

* Default setting = 1

Scanning distance




- 1 Scanning distance on black, 6% remission
- 2 Scanning distance on grey, 18% remission
- 3 Scanning distance on white, 90% remission



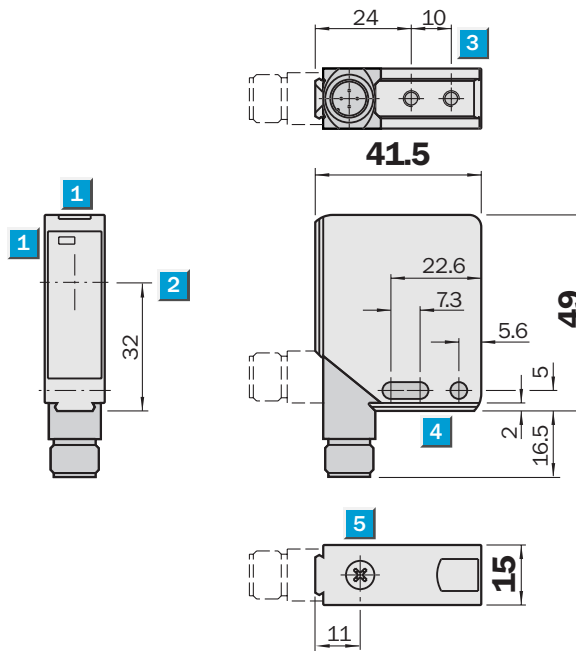
Order information

Type	Order no.
WT 12-2Z 430	1 016 136


Scanning range
 7 m
Photoelectric proximity switches

- Red light
- Insensitive to ambient light sources
- M12 plug rotatable by 90°
- Integrated AS-i chip

Dimensional drawing



Adjustments possible

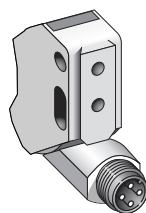
WL 12-2Z 430

- 1** LED signal strength indicator
- 2** Centre of optical axis
- 3** M4 threaded mounting hole – 4 mm deep
- 4** Mounting holes \varnothing 4.2 mm
- 5** Sensitivity adjustment

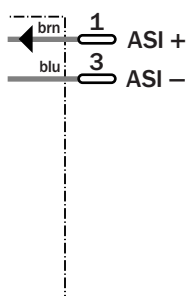


Connection type

WL 12-2Z 430



4-pin, M12



See chapter Accessories

- AS-i addressing unit
- Cables and connectors
- Mounting systems
- Clamps*
- Reflectors

* 2 pieces included with delivery

Technical data	WL 12-2	Z 430												
----------------	---------	-------	--	--	--	--	--	--	--	--	--	--	--	--

Scanning range

max. typical/on reflector	7 m/PL 80 A
Sensitivity	adjustable
Light source¹⁾, light type	LED, red light
Light spot diameter	80 mm at 3 m
Supply voltage V_S	26.5...31.6 V DC ²⁾
Ripple ³⁾	≤ 35 mA
Response time ⁴⁾	≤ 330 μs
Max. switching frequency ⁵⁾	1500/s
Pre-failure signalling output	Alarm
Test input "TE"	
Connection type	M12 plug, 4-pin
VDE protection class⁶⁾	□
Circuit protection⁷⁾	A, C
Enclosure rating	IP 67
AS-i profile	S 1.1
AS interface specification	2.0
Ambient temperature T_A	Operation -25 °C...+60 °C Storage -40 °C...+75 °C
Weight	With plug: 120 g
Polarising filter	
Housing material	Zinc die-cast housing

1) Average service life 100,000 h at T_A = +25 °C

2) Limit values

3) Without load

4) Signal transit time with resistive load

5) With light/dark ratio 1:1

6) Reference voltage 50 V DC

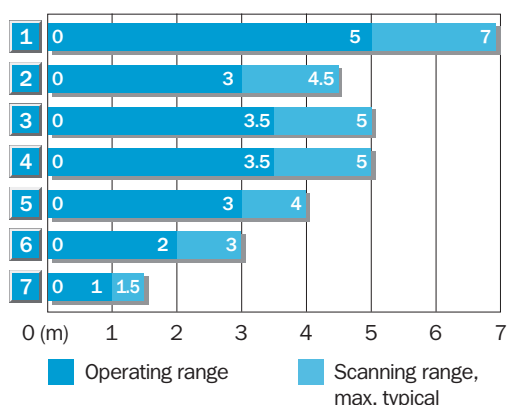
7) A = V_S connections reverse-polarity protected

C = Interference pulse suppression

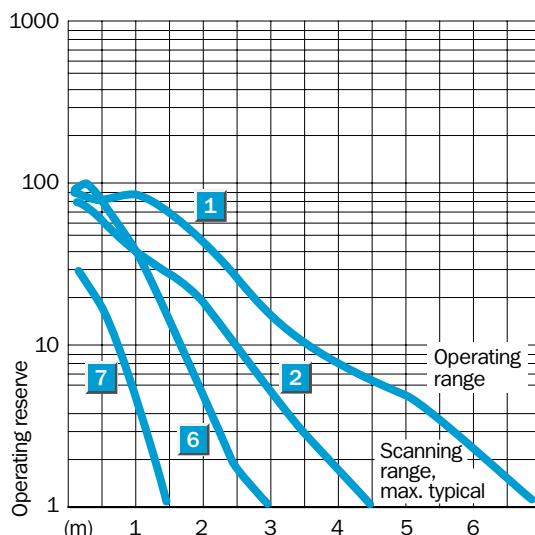
Assignment of data bits (Host level)				Assignment of parameter bits (Host level)			
D ₀	Switching state	0 If light interrupted	Input	P ₀ *	NC	0	Parameter
	Mode: light-switching	1 If light received				1	
D ₁	Alarm	0 Active	Input	P ₁ *	Light-/dark-switching	0 Dark-switching	Parameter
		1 Inactive				1 Light-switching	
D ₂	NC	0	Input	P ₂ *	NC	0	Parameter
		1				1	
D ₃	Test function	0 Sender ON	Output	P ₃ *	NC	0	Parameter
		1 Sender OFF				1	

* Default setting = 1

Scanning range





Reflector type	Operating range
1	PL 80 A 0 ... 5.0 m
2	C 110 0 ... 3.0 m
3	PL 50 A 0 ... 3.5 m
4	PL 40 A 0 ... 3.5 m
5	PL 30 A 0 ... 3.0 m
6	PL 20 A 0 ... 2.0 m
7	Reflective tape 0 ... 1.0 m



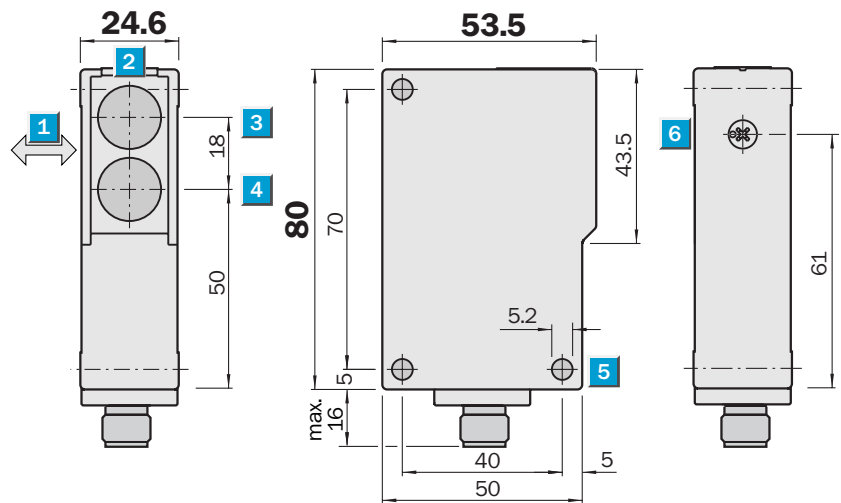
Order information

Type	Order no.
WL 12-2Z 430	1 016 108

	Scanning distance 100...1000 mm
	Scanning distance 100...1500 mm
Photoelectric proximity switches	

- Red/infrared light
- Adjustable background suppression
- Front screen heating, optional (only for infrared type)
- Integrated AS-i chip

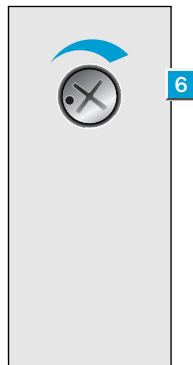
Dimensional drawing



Adjustments possible

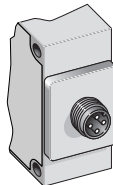
WT 27-2Z 230
WT 27-2Z 210
WT 27-2Z 240

- 1 Standard direction of the material being scanned
- 2 LED signal strength indicator
- 3 Optical axis, sender
- 4 Optical axis, receiver
- 5 Mounting hole \varnothing 5.2 mm
- 6 Sensitivity adjustment

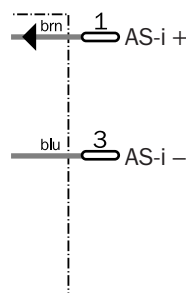


Connection type

WT 27-2Z 230
WT 27-2Z 210
WT 27-2Z 240



4-pin, M12



See chapter Accessories

- AS-i addressing unit
- Cables and connectors
- Mounting systems

Technical data		WT 27-2	Z 230	Z 210	Z 240						
Scanning distance	100...1000 mm, adjustable										
	100...1500 mm, adjustable										
Light source ¹⁾ , light type	LED, red light										
	LED, infrared light										
Light spot diameter	Approx. 15 mm at 500 mm										
	Approx. 25 mm at 800 mm										
Supply voltage V_S	26.5...31.6 V DC ²⁾										
Ripple ³⁾	$\leq 5 V_{PP}$										
Current consumption ⁴⁾	≤ 30 mA										
	≤ 40 mA, front screen heating										
Response time ⁵⁾	2 ms										
Max. switching frequency ⁶⁾	250/s										
Pre-failure signalling output	Alarm										
Test input "TE"											
Connection type	Plug										
VDE protection class	<input type="checkbox"/>										
Circuit protection ⁷⁾	A, C										
Enclosure rating	IP 67										
AS-i profile	S 1.1										
AS interface specification	2.0										
Ambient temperature T_A	Operation -40 °C... $+60$ °C										
	Storage -40 °C... $+75$ °C										
Weight	Approx. 100 g										
Front screen heating											
Housing material	ABS										

1) Average service life 100,000 h at $T_A = +25$ °C
 2) Limit values

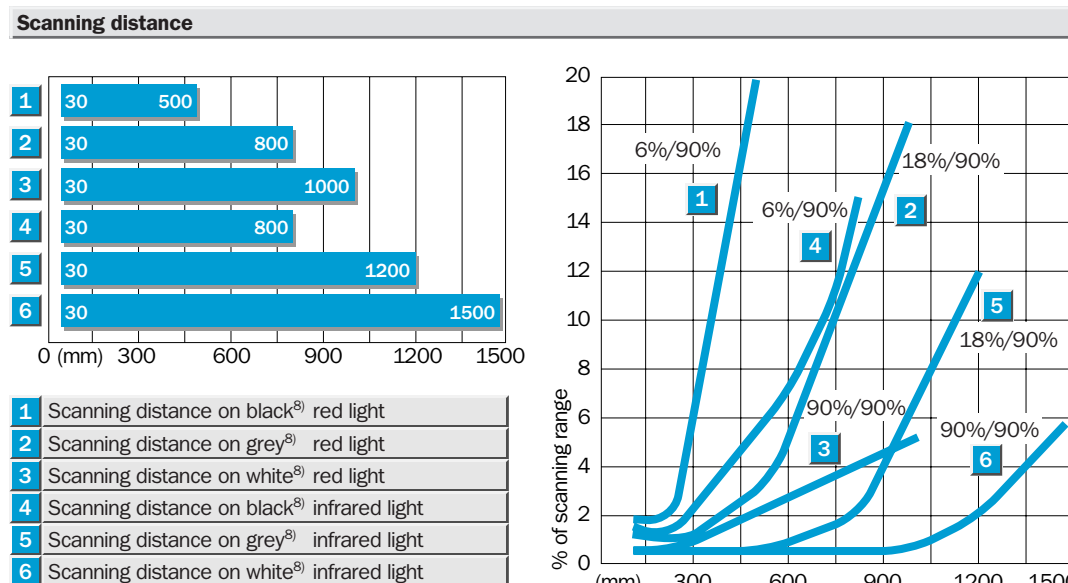
3) May not exceed or fall short of V_S tolerances
 4) Without load
 5) Signal transit time with resistive load

6) With light/dark ratio 1:1
 7) A = V_S connections reverse-polarity protected
 C = Interference pulse suppression

8) Black = 6 % remission
 Grey = 18 % remission
 White = 90 % remission


Assignment of data bits (Host level)				Assignment of parameter bits (Host level)			
D ₀	Switching state	0 Light is not received	Input	P ₀ *	NC	0	Parameter
	Mode: light-switching	1 Light is received				1	
D ₁	Alarm	0 Active	Input	P ₁ *	Light-/dark-switching	0 Dark-switching	Parameter
		1 Inactive				1 Light-switching	
D ₂	NC	0	Input	P ₂ *	NC	0	Parameter
		1				1	
D ₃	Test function	0 Sender ON	Output	P ₃ *	NC	0	Parameter
		1 Sender OFF				1	

* Default setting = 1



Order information	
Type	Order no.
WT 27-2Z 230	1 015 099
WT 27-2Z 210	1 015 098
WT 27-2Z 240	1 015 137

- 1 Scanning distance on black⁸⁾ red light
- 2 Scanning distance on grey⁸⁾ red light
- 3 Scanning distance on white⁸⁾ red light
- 4 Scanning distance on black⁸⁾ infrared light
- 5 Scanning distance on grey⁸⁾ infrared light
- 6 Scanning distance on white⁸⁾ infrared light

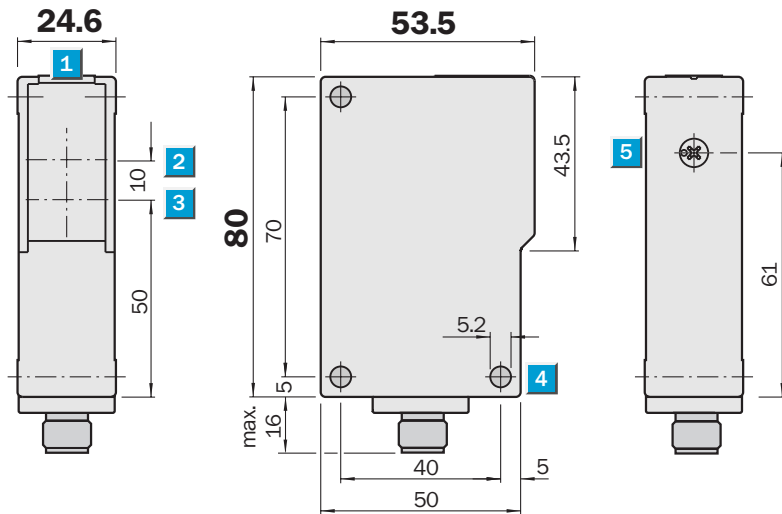

Scanning range
14 m

Photoelectric proximity switches

- Visible red light
- Front screen heating, optional
- With integrated AS-i chip



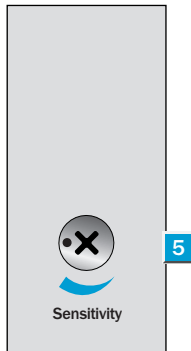
Dimensional drawing



Adjustments possible

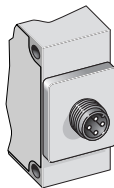
WL 27-2Z 230
WL 27-2Z 240

- 1 LED signal strength indicator
- 2 Optical axis, sender
- 3 Optical axis, receiver
- 4 Mounting hole \varnothing 5.2 mm
- 5 Sensitivity adjustment

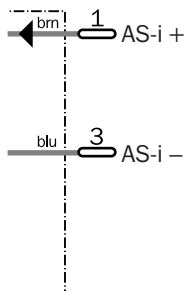


Connection type

WL 27-2Z 230
WL 27-2Z 240



4-pin, M12



See chapter Accessories

AS-i addressing unit
Cables and connectors
Mounting systems
Reflectors

Technical data		WL 27-2	Z 230	Z 240							
Scanning range, max. typ./on reflector	14 m/PL 80 A										
Light source ¹⁾ , light type	LED, red light										
Light spot diameter	220 mm at a distance of 10 mm										
Supply voltage V _S	DC 26.5...31.6 V ²⁾										
Ripple ³⁾	≤ 5 V _{PP}										
Current consumption ⁴⁾	≤ 30 mA										
	≤ 40 mA, front screen heating										
Response time ⁵⁾	500 μs										
Max. switching frequency ⁶⁾	1000/s										
Pre-failure signalling output	Alarm										
Test input "TE"											
Connection type	Plug										
VDE protection class	□										
Circuit protection ⁷⁾	A, C										
Enclosure rating	IP 67										
AS-i profile	S 1.1										
AS interface specification	2.0										
Ambient temperature T _A	Operation -40 °C...+60 °C										
	Storage -40 °C...+75 °C										
Weight	Approx. 100 g										
Front screen heating											
Polarising filter											
Housing material	ABS										

1) Average service life 100,000 h at T_A = +25 °C

2) Limit values

3) May not exceed or fall short of V_S tolerances

4) Without load

5) Signal transit time with resistive load

6) With light/dark ratio 1:1

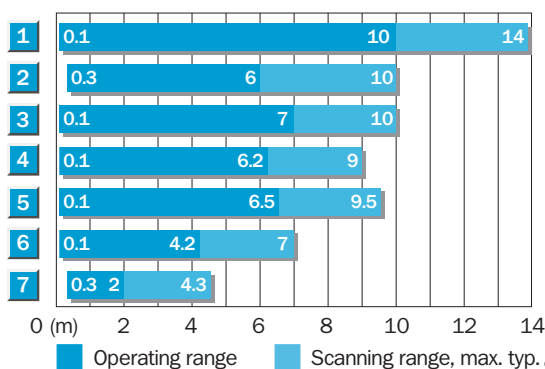
7) A = V_S connections reverse-polarity protected

C = Interference pulse suppression

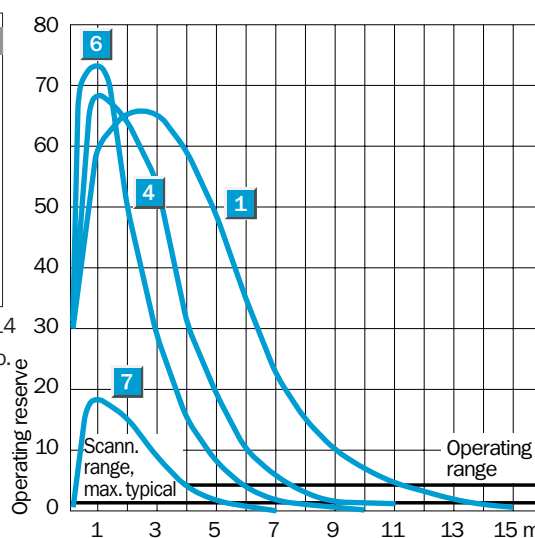
Assignment of data bits (Host level)				Assignment of parameter bits (Host level)			
D ₀	Switching state	0 Light is not received	Input	P ₀ *	NC	0	Parameter
	Mode: light-switching	1 Light is received				1	
D ₁	Alarm	0 Active	Input	P ₁ *	Light-/dark-switching	0 Dark-switching	Parameter
		1 Inactive				1 Light-switching	
D ₂	NC	0	Input	P ₂ *	NC	0	Parameter
		1				1	
D ₃	Test function	0 Sender ON	Output	P ₃ *	NC	0	Parameter
		1 Sender OFF				1	

* Default setting = 1

Operating range and operating reserve




Reflector type	Operating range
1 PL 80 A	0.1 ... 10.0 m
2 C 110	0.3 ... 6.0 m
3 PL 50 A	0.1 ... 7.0 m
4 PL 40 A	0.1 ... 6.2 m
5 PL 30 A	0.1 ... 6.5 m
6 PL 20 A	0.1 ... 4.2 m
7 Reflective tape	0.3 ... 2.0 m
Diamond Grade	



Order information

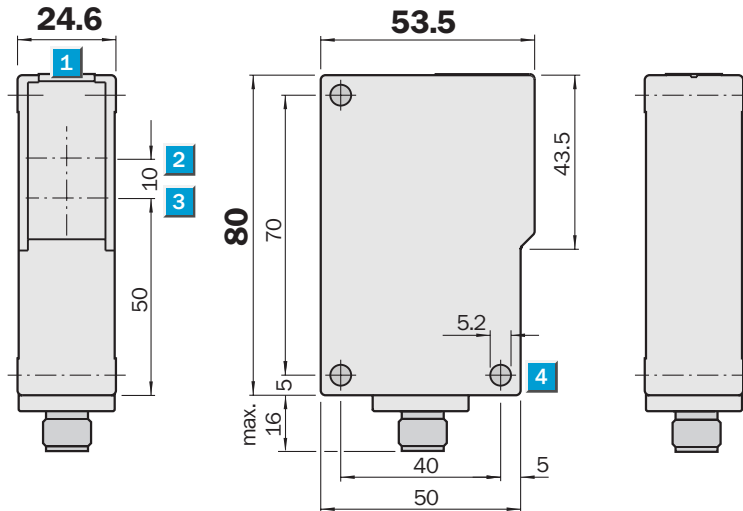
Type	Order no.
WL 27-2Z 230	1 015 112
WL 27-2Z 240	1 015 136

 **Scanning range**
35 m

Through-beam photoelectric switches

- Red light
- Selectable time delay
- With integrated AS-i chip

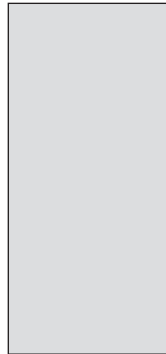
Dimensional drawing



Adjustments possible

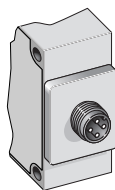
WS/WE 27-2Z 250

- 1 LED signal strength indicator
- 2 Optical axis, sender
- 3 Optical axis, receiver
- 4 Mounting hole \varnothing 5.2 mm



Connection type

WS/WE 27-2Z 250

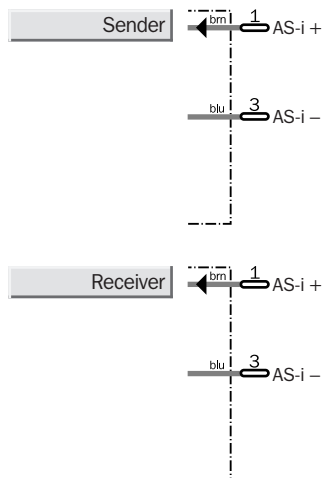


4-pin, M12



See chapter Accessories

- AS-i addressing unit
- Cables and connectors
- Mounting systems



Technical data		WS/WE 27-2	Z 250								
Scanning range, max. typical		0...35 m									
Light source¹⁾, light type		LED, red light									
Light spot diameter		Approx. 1200 mm at 25 m									
Angle of dispersion		3°									
Supply voltage V_S		26.5...31.6 V DC ²⁾									
Ripple ³⁾		≤ 5 V _{pp}									
Current consumption ⁴⁾	sender	≤ 35 mA, front screen heating									
	receiver	≤ 40 mA, front screen heating									
Response time ⁵⁾		500 μs									
Max. switching frequency ⁶⁾		1000/s									
Pre-failure signalling output		Alarm									
Test input "TE"											
Connection type		Plug									
VDE protection class⁷⁾		□									
Circuit protection⁸⁾		A, C									
Enclosure rating		IP 67									
AS-i profile WS 27-2		S D.1									
AS-i profile WE 27-2		S 1.1									
AS interface specification		2.0									
Ambient temperature T_A		Operation -40 °C...+60 °C Storage -40 °C...+75 °C									
Weight		Approx. 100 g									
Front screen heating											
Housing material		ABS									

1) Average service life 100,000 h at T_A = +25 °C
2) Limit values

3) May not exceed or fall short of V_S tolerances
4) Without load

5) Signal transit time with resistive load
6) With light/dark ratio 1:1
7) Reference voltage 50 V DC

8) A = V_S connections reverse-polarity protected
C = Interference pulse suppression

WS 27-2 – Assignment of data bits			(Host level)
D ₀	Test function	0 Sender ON 1 Sender OFF	Output
D ₁	NC	0 1	Input
D ₂	NC	0 1	Input
D ₃	NC	0 1	Input

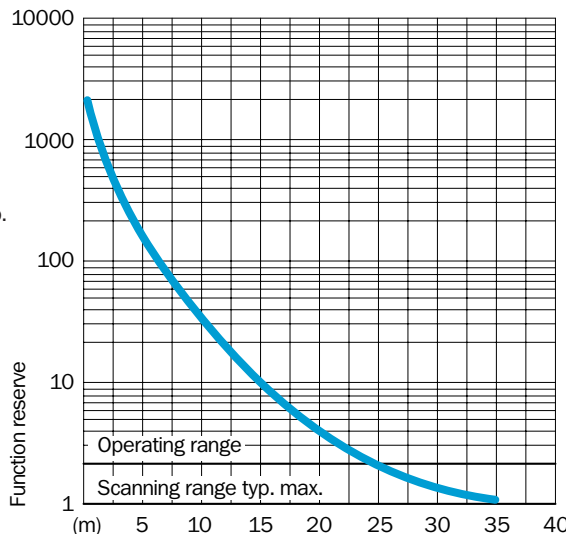
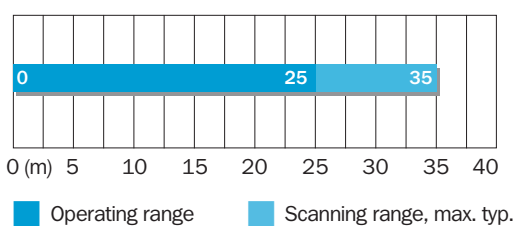
WS 27-2 – Assignment of parameter bits			(Host level)
P ₀ *	NC	0 1	Parameter
P ₁ *	NC	0 1	Parameter
P ₂ *	NC	0 1	Parameter
P ₃ *	NC	0 1	Parameter

WE 27-2 – Assignment of data bits			(Host level)
D ₀	Switching state Mode: light-switching	0 Light is not received 1 Light is received	Input
D ₁	Alarm	0 Active 1 Inactive	Input
D ₂	NC	0 1	Input
D ₃	NC	0 1	Output

WE 27-2 – Assignment of parameter bits			(Host level)
P ₀ *	NC	0 1	Parameter
P ₁ *	Light-/dark-switching	0 Dark-switching 1 Light-switching	Parameter
P ₂ *	NC	0 1	Parameter
P ₃ *	NC	0 1	Parameter

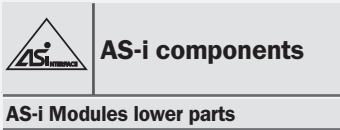
* Default setting = 1

Operating range and operating reserve



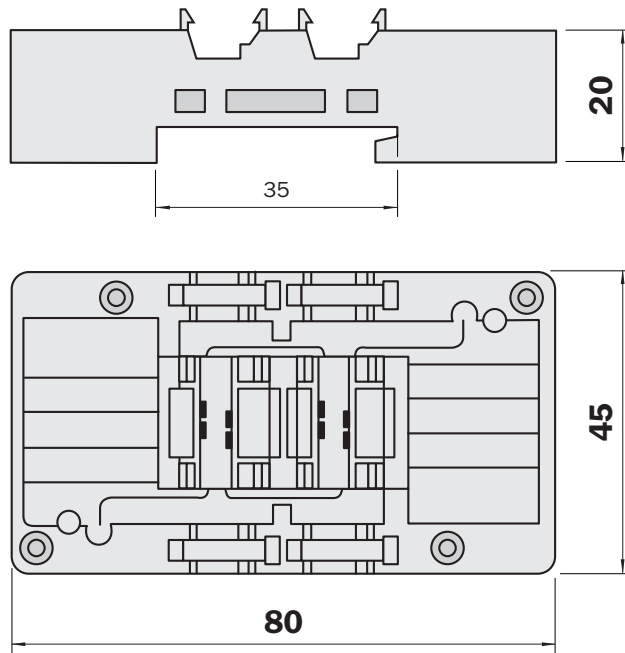
Order information

Type	Order no.
WS/WE 27-2Z 250	1 015 140



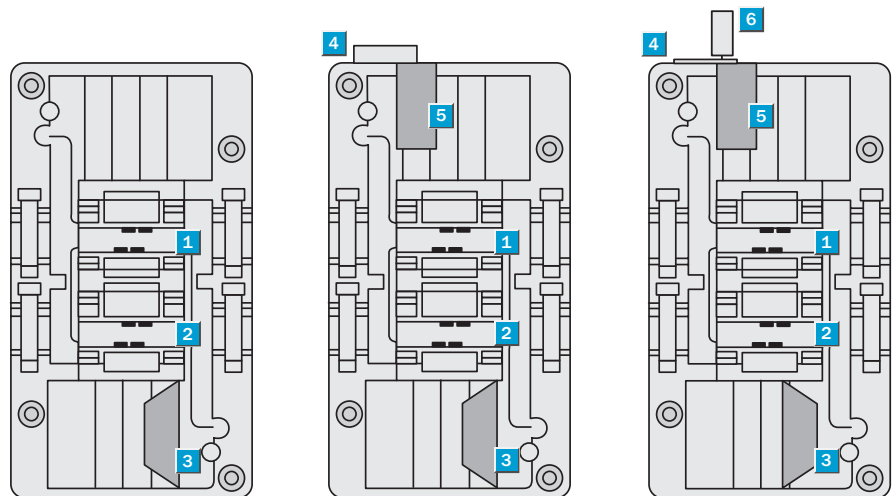
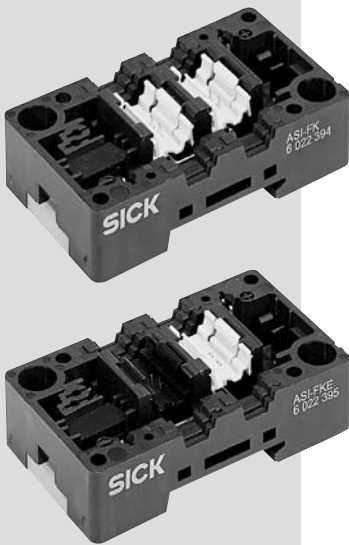
- AS-i modules lower parts for Classic field modules
- AS-i interface to module upper part
- Quick mounting technology for AS-i flat cable
- DIN rail and panel mounting

Dimensional drawing



Connection type

ASI-FK	ASI-FK-A	ASI-FKE-A-E
ASI-FKE	ASI-FKE-A	



- 1** AS-i flat cable (yellow)
- 2** 24 V flat cable (black) PELV (only with ASI-FKE and ASI-FKE-A)
- 3** Sealings
- 4** Plug
- 5** Addressing socket
- 6** Connection functional earth



See chapter Accessories
FK lower parts

Technical data		ASI-	FK	FKE	FK-A	FKE-A	FKE-A-E					
Operating voltage ¹⁾	26.5 ... 31.6 V DC											
Contact load capacity	≤ 2 A											
Spezification	EMS											
	E-EMS											
Data bits	Available via ASI											
Parameter bits	Available via ASI											
ASI-Interface	reverse-polarity protection, mechanical											
Enclosure rating to EN 60529	IP 20/ IP 65/ IP 67 ²⁾											
Ambient temperature T_A	Operation -25 ... +60 °C											
	Storage -40 ... +85 °C											
Housing material	PBTP											
Weight	54 g											
Connection type	Via penetration technique ³⁾											
Addressing socket												
Special features												
End caps ⁴⁾	3 pieces											
FK seal	4 pieces											
Cable shafts AS-i parallel switched ⁵⁾	2											
Cable shaft for AS-i	1											
Cable shaft for ext. 24 V supply	1											
Connection for functional earth												

¹⁾ According to ASI specification
²⁾ Depending on used upper part
³⁾ ASI-flat cable, connection to module upper part via contact socket

⁴⁾ Unloseable supported in the module
⁵⁾ For any T and X branches

Order information	
Type	Order no.
ASI-FK	6 022 394
ASI-FKE	6 022 395
ASI-FK-A	6 022 396
ASI-FKE-A	6 022 397
ASI-FKE-A	6 025 058 ^{*)}

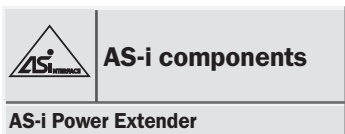
^{*)} On request

AS-i module cover for covering the FK lower parts

Use of the lower part as junction box

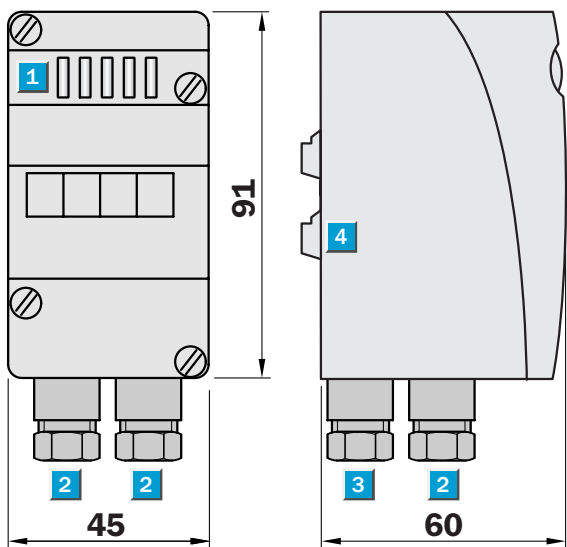
Order information	
Type	Order no.
ASI-FKTOP	5 308 999





- Extends distance between power supply unit and AS-i bus segment
- Can be used with repeater
- Several AS-i loops can be supplied via a power supply unit
- Does not occupy any address in AS-i network

Dimensional drawing

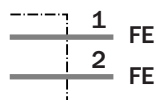


- 1 Status indicators LED
- 2 Functional earth (FE)
(connection via PG connector in housing)
- 3 Functional earth (FE)
(connection via PG connector in housing)
- 4 AS-Interface® connection
(power supply via AS-i cable)

FKE lower part not included with delivery



Connection type	
Module	Connection via FKE lower parts
	Shield connection



See chapter Accessories
FK lower parts

Technical data		ASI-	PEXT1									
Input voltage ¹⁾	DC 30 V via external power source or AS interface power pack											
Output voltage ²⁾	26.5 ... 31.6 V DC											
Current loading	≤ 2.8 A at 30 V											
Short-circuit limiter	Self-resetting fuse 3 A											
Voltages of insulation	500 V DC											
Displays	LED green AS-i voltage > 28 V											
	LED green AS-i voltage > 26 V											
Product standard/EMC	EN 50295											
Ambient temperature T_A	Operation 0 ... +70 °C											
	Storage -25 ... +85 °C											
Enclosure rating to EN 60529	Housing IP 65											
Housing material	PA											
Weight	120 g											
Connection to AS interface	via contact pins ³⁾											

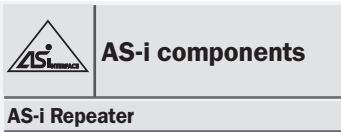
¹⁾ To PELV

²⁾ According to AS-i specification

³⁾ To FKE sub-unit

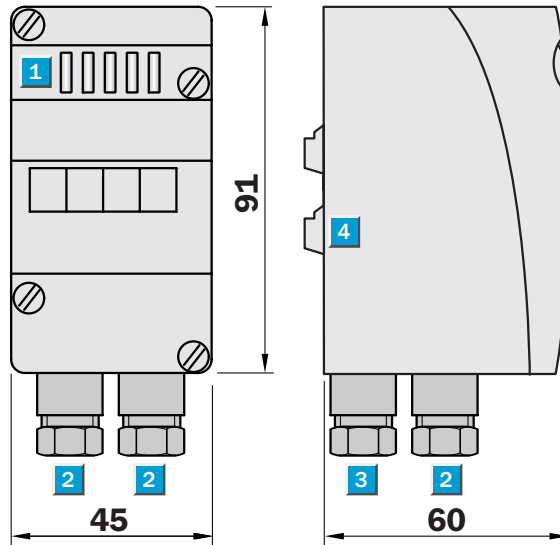
Order information	
Type	Order no.
ASI-PEXT1	6 022 456

AS-i Repeater



- Line extension of 100 m
- Galvanic separation
- Does not occupy any address in AS-i network

Dimensional drawing



- 1 Status indicators LED
- 2 NC
- 3 NC
- 4 AS-Interface® connection (power supply via AS-i cable)

Lower part included with delivery



Connection type

Connection via FK lower parts

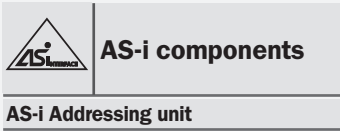
Technical data		ASI-	RPT1									
Operating voltage¹⁾	26.5 ... 31.6 V DC											
Current consumption	60 mA ²⁾ (per cable segment)											
Conn. types 30 V input voltage	FK lower part for connecting AS-i cable											
Displays	4 LEDs											
U AS-i 1	AS-i power circuit 1											
FLT 1	AS-i Communication error circuit 1											
FLT 2	AS-i Communication error circuit 2											
U AS-i 2	AS-i power circuit 2											
Voltages of insulation	500 V DC											
Product standard/EMC	EN 50295											
Connection to AS interface	Via contact pins ³⁾											
Ambient temperature T_A	Operation -10 ... +55 °C											
	Storage -25 ... +75 °C											
Enclosure rating to EN 60529	IP 65											
Housing material	PA											
Weight	120 g											

¹⁾ According to AS-i specification

²⁾ One AS-i power supply unit required per segment, max. 2 repeaters in a row

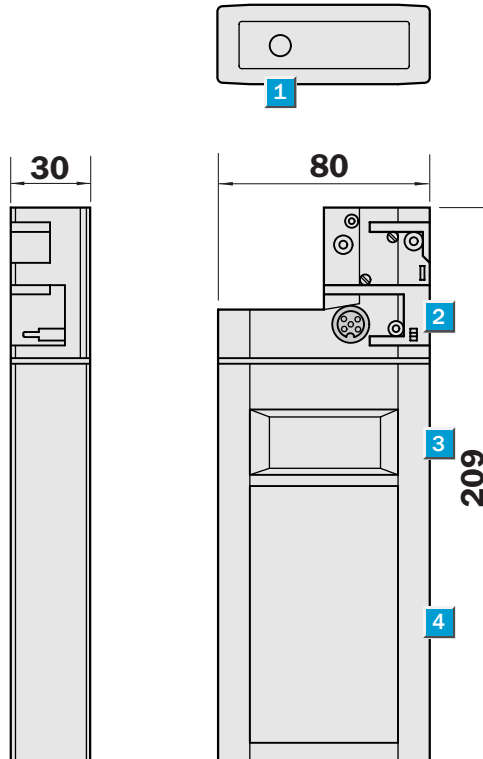
³⁾ Only by means of the supplied sub-unit

Order information	
Type	Order no.
ASI-RPT1	6 022 457

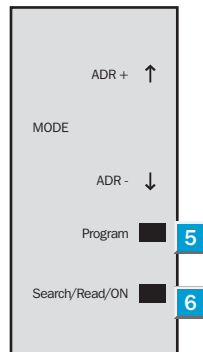


- Determination of the slave address
- New addressing with check
- Slave connection short-circuit and overload protected
- LCD display
- Error evaluation
- Version 2.1

Dimensional drawing



Adjustments possible



- 1 Loading jack
- 2 Adapter for connection of the AS interface slave
- 3 LC display
- 4 Operating panel
- 5 PRG
- 6 ADR

Function table

Push-button	Function
Mode	Setting of the operation mode.
↑	Setting of the desired addressed (counting upward) or the desired data.
↓	Setting of the desired addressed (counting downward) or the desired data.
PRG	Programming of the slave address from the active to the displayed address (only in addressing mode). Writing the displayed data in the activated slave (not in addressing mode).
ADR	Switching on of the equipment. Searching for the connected AS interface slaves. Activating of the next highest address (only in addressing mode). Re-inputting the slave information from an activated slave address (not in addressing mode).

Technical data		ASI-	PM 2							
Display	LCD, 13 mm digit height									
Keyboard	Film keyboard, 4 push-buttons									
Interface¹⁾	ASI									
Operating voltage	Battery-powered operation ²⁾									
Charger	Plug charger 230 V AC ³⁾									
Operating period	8 h/≥ 250 Writing/reading procedures									
EMC	EN 61326 ⁴⁾ , EN 50081-1 ⁵⁾									
	EN 60555-2/-3 ⁴⁾ , EN 50082-1 ⁵⁾									
LVD (Low voltage directive)	EN 61558-1 ⁵⁾ , EN 61558-2-6 ⁵⁾									
Enclosure rating to EN 60529	IP 20									
Ambient temperature T_A	Operation 0 ... + 50 °C									
	Storage - 20 ... + 55 °C									
Weight	approx. 550 g									

¹⁾ Short-circuit and overload protected (slave connection)

²⁾ Use charger (charging time approx. 14 h)

³⁾ Included with delivery

⁴⁾ Addressing unit

⁵⁾ Plug-in charger

Order information

Type	Order no.
ASI-PM2	6 022 426

Accessories addressing unit



Addressing cable for addressing classic modules in combination with FK lower parts with addressing socket in built-in state and modules with integrated addressing socket

Order information

Type	Order no.
ASI-PM2-DSL1	6 022 464



IR addressing cable for addressing classic and compact modules with IR addressing interface

Order information

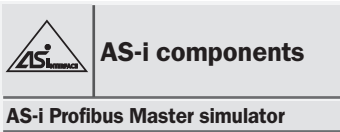
Type	Order no.
ASI-PM2-DSL2	6 022 465



Addressing adapter for addressing the AS-i compact module with manual addressing device ASI-PM2

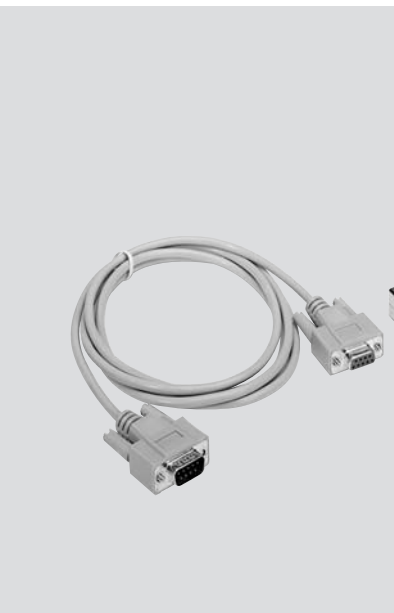
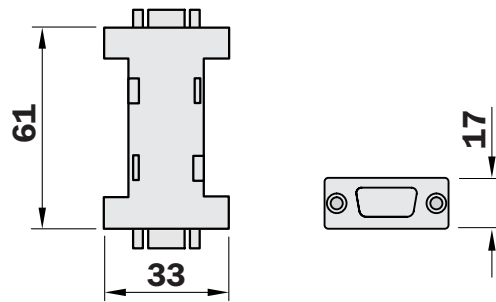
Order information

Type	Order no.
ASI-PM2-DSL3	6 025 773



- Operation startup software for Profibus DP slaves
- With interface converter
- Universal tool for data exchange with Profibus slaves
- Sub D data cable

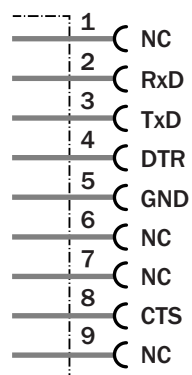
Dimensional drawing



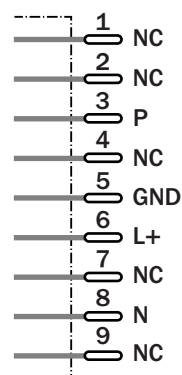
Connection type



Terminals



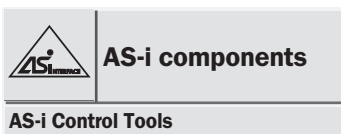
Profibus, Sub D



Technical data		PR-	MSV0	MSV1							
Operating	5 V DC ¹⁾										
Operating current	< 60 mA										
Interfaces	RS 232, RS 485										
Baud rates ²⁾	19.2 kBaud										
Ambient temperature T_A	Operation 0 ... +55 °C										
	Storage -25 ... +85 °C										
Cable length	RS 232 and RS 485 each max. 2 m										
	Profibus										
	DPV0										
	DPV1										
EMC	EN 50081-2, EN 61000-2										
System requirements	IBM compatible PC from 80386										
Supplied with delivery	Software: Profibus DP										
	Master simulator										
	16 Bit DLL for Win 3.1x										
	32 Bit DLL for Win 95/98, Win NT										
	Example programs in C in source code										
	Interface converter										
	Sub D data cable										

1) Receives power from the RS 485 interface of the Profibus slave
 2) Automatic recognition

Order information	
Type	Order no.
PR-MSV0	6 022 458
PR-MSV1	6 022 459



- Operating software for SICK AS-i Master/Gateways
- Configuration of an AS-i network
- Programming of slaves
- Advanced AS-i diagnostics



ASI-CT210	
System requirements	IBM-compatible PC min. 80386 MS Windows (min. 3.1), Windows 95/98, NT 4.0, ME, 2000, XP
Language	English/German
Application	Setup tools for AS-i Diagram of the AS-i network
Expanded diagnostic function	Storing of the error cause Log analysis (counter for transmission errors)

Order information	
Type	Order no.
ASI CT210	6 022 501

Connection cable PC RS 232	
Cable connection	D-Sub plug D-Sub socket
Length	1.8 m
Pin 1 on Pin 1	Connected through

Order information	
Type	Order no.
DSL-RS 232-02M	6 022 468



Female connector PC RS 485	
Cable connection	Prefabricated cable RS 485
Length	1.5 m
Connection	on Profibus IP 65 Gateway

Order information	
Type	Order no.
DSL-RS485-02M	6 022 469

Combicon plug for switch cabinet modules



ASI-ADPS

Model	With screw terminals, 4 pin
Packaging unit	100/6 pieces
Specific insulation resistance (A= 2.5 mm ²)	1.5 mΩ
Max. load current (A= 2.5 mm ²)	12 A
Housing material	Current-carrying parts: Cu alloy, tin-coated

Order information

Type	Unit	Order no.
ASI-ADPS	100 pieces	6 025 327
ASI-ADPS	6 pieces	2 024 074



ASI-FKVT AS-i flat cable junction

Material	PUR
Enclosure rating to EN 60529	IP 65
Current consumption total	8 A

Order information

Type	Unit	Order no.
ASI-FKVT	1 piece	6 028 783



ASI-FKVT-M12 AS-i flat cable grabbing M12

Material	PUR
Enclosure rating to EN 60529	IP 65
Current consumption total	4 A

Order information

Type	Unit	Order no.
ASI-FKVT-M12	1 piece	6 030 228



ASI-LTGAGF AS-i cable grabbing

Material	Housing PA
	Cable PUR
Enclosure rating to EN 60529	IP 67
Current consumption total	2 A

Bestell-Information

Type	Unit	Order no.
ASI-LTGAGF	1 Stück	6 029 307

AS-i Clip



Technical data

Positive line	brown
Negative line	blue
Coating color	ASI-LTG D-MW: yellow/ASI-LTG E-MW: black
Cable material	EPDM
Enclosure rating	IP 67
Ambient temperature	Operation -30 ...+ 90 °C
Connection	2 x 1,5 mm ²

Order information

Type	Unit	Order no.
ASI-LTG D-MW	1 meter	6 022 462
ASI-LTG E-MW	1 meter	6 022 463



AS-i Clip M12 for connecting AS-i components directly to the AS-i flat cable

Material	PA
Enclosure rating to EN 60529	IP 67

Order information

Type	Unit	Order no.
ASI-M12	1 piece	6 022 472



Mounting clip for the AS-i flat cable

Material	PA
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Order information

Type	Unit	Order no.
ASI-LTG CLIP	1 piece	5 309 051



Protecting cap for M12 connector

Order information

Type	Unit	Order no.
DOS-12SK	1 Kit /10 pieces	5 309 189



End piece for the AS-i flat cable

Order information

Type	Unit	Order no.
ASI-LTG END	1 Kit /10 pieces	5 309 052