

THE WORLD OF LAPP

Innovations 2013



LAPP GROUP













Welcome

To contact your local Lapp Group representative please visit www.lappgroup.com/worldwide

This catalogue is valid as from April 2013.

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Brand quality from Stuttgart



ÖLFLEX® **Power- and control cables**

The world's first brand cable is available in the most varied of versions to match maximum requirements.

Key features: Oil-resistant, flexible and available to match almost any requirement or environmental condition – also free of halogens.

Fields of application: Multipurpose. Special variants are more and more in demand in the area of renewable energies.

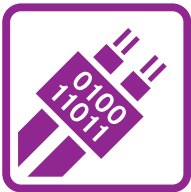


EPIC® **Industrial connectors**

The brand for strong and reliable connections.

Key features: Robust square and circular connectors. Flexible system consisting of housings, inserts, contacts and accessories – for every requirement, the tailor-made solution. Similarly, EPIC® SOLAR plugs for photovoltaics are also part of the extensive product range.

Fields of application: Mechanical and systems engineering, drive technology, Automation.



UNITRONIC® **Data communication systems**

The ideal brand for fast, trend-setting and reliable data transfer.

Key features: UNITRONIC® are not only data lines, but also bus lines, which together with active sensor/actuator modules or gateways provide a perfect system for automation.

Fields of application: Measurement, control, regulation, bus or LAN networks.



SKINTOP® **Cable glands**

The brand for multipurpose cable entries in line with the following: quickly fastened, centred and hermetically sealed.

Key features: Large clamping areas, optimum strain reliefs, the most diverse of versions such as SKINTOP® CLICK, COLD or CUBE.

Fields of application: Everywhere, where cables must be fastened reliably and quickly.



ETHERLINE® **Data communication systems for ETHERNET-Technology**

The brands for network solutions, safety systems and firewalls in the industrial networking sector.

Key features: System solutions consisting hardware, software, consulting, network design and support.

Fields of application: Factory automation, Renewable Energy, Building technology, Structured cabling.



SILVYN® **Protective cable conduit- and cable carrier systems**

The brand for all-round cable protection.

Key features: The product range includes SILVYN® cable protection hoses for perfect protection against mechanical and chemical loads, along with SILVYN® CHAIN energy supply chains for highly-dynamic applications.

Fields of application: Everywhere that cables have to be additionally protected or routed.



HITRONIC® **Optical transmission systems**

The brand for split-second, fault-free, intercept-free data transport.

Key features: The HITRONIC® product range includes fibre optic cables in the most varied of versions, along with suitable accessories such as splice boxes, wall distributors or couplings.

Fields of application: Office and industrial sector, Renewable Energy.



FLEXIMARK® **Marking systems**

The brand for permanent, clearly-arranged cable markings.

Key features: Comprehensive range – from manual labelling solutions onto digital identification. Withstands high chemical, thermal and mechanical loads.

Fields of application: All cable, single cores, control cabinets.

eCAD Solutions

In the mechanical and plant engineering sectors, up-to-date, complete and correct data have become an important part of the electrics design with the aim of optimising the engineering process.

As one of the leading providers of cable, connections and cable accessories, Lapp offers you the possibility of accessing constantly updated product data in 10 languages:

- Chinese
- Polish
- German
- Portuguese
- English
- Russian
- French
- Spanish
- Italian
- Czech

Current product data are available in the download centre on our homepage:



EPLAN Electric P8

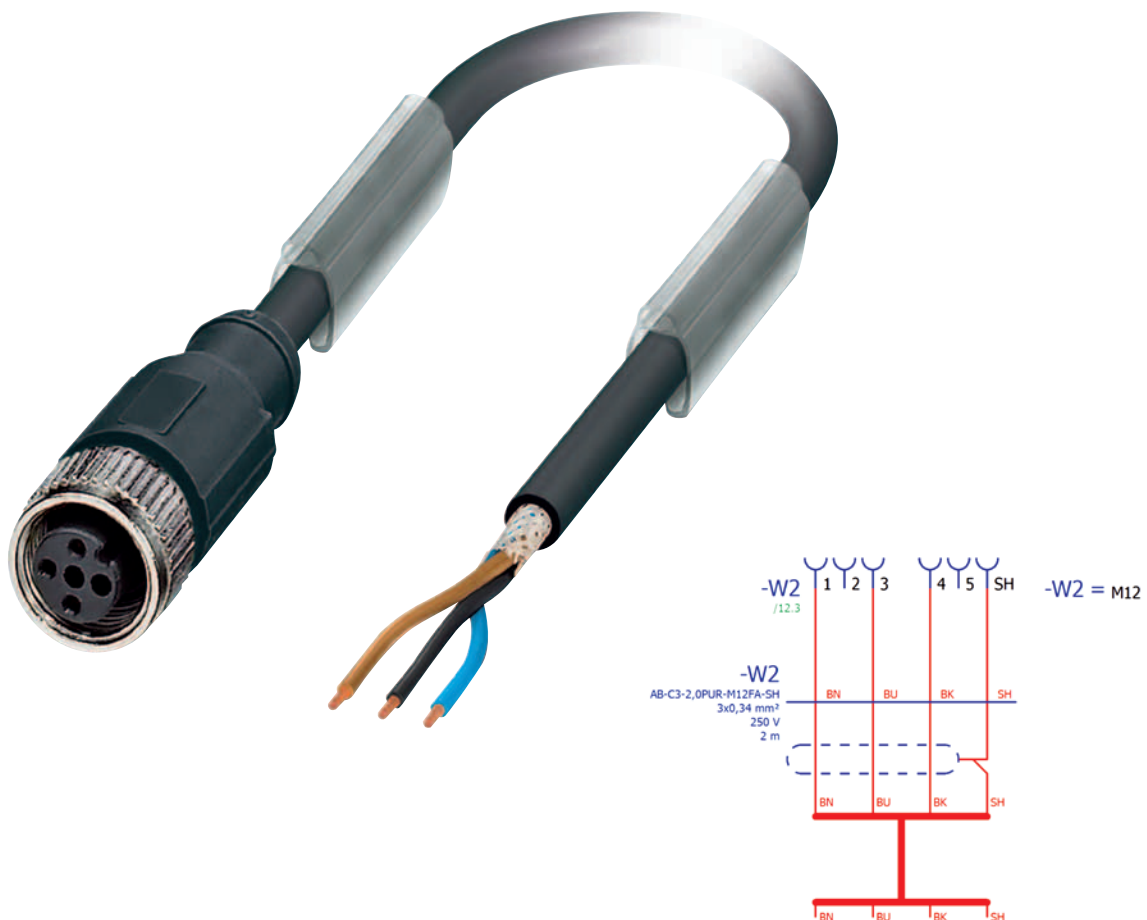
www.lappgroup.com/eplan
www.eplan.de



Aucotec EB

www.lappgroup.com/aucotec
www.aucotec.com

We look forward to your feedback via: info@lappkabel.de (Subject: eCAD solutions)



We're writing the next instalment in the ÖLFLEX® success story In two chapters

[CLASSIC 110]



CLASSIC 110

State of the art for 50 years. Now even better.

One cable - unlimited possibilities: with the ÖLFLEX® CLASSIC 110 we have once again succeeded in improving flexibility and performance. Whether subjected to constant rotation in wind power plants or operating in extremely low temperatures, the ÖLFLEX® CLASSIC 110 will not let you down.

- More than 145 articles with up to 100 cores
- Torsion-resistant
- Suitable for power chains
- Temperature-resistant to -15 °C

[SMART 108]



SMART 108

Pure efficiency, but not at any cost.

The new ÖLFLEX® SMART 108 gives operating efficiency a new face: a cable combining immediate availability with the proven Lapp brand quality and its fresh ideas. More cable – at lower cost.

- The right cable for almost any application
- Sustainable interior material made from reclaimed waste
- Tested and certified brand quality
- Unbeatable low price

New

ÖLFLEX® SMART 108

LAPP KABEL STUÏTGART ÖLFLEX® SMART 108 VDE-Reg. Nr. 8639 CE



Info

- VDE certificate of conformity with factory surveillance
- Only available in standard lengths and standard packagings
- price advantage when choosing larger standard lengths

Benefits

- SMART: Not more than necessary - basic version of a flexible control cable from Lapp.
- SMART: Recycling protects the environment - inner part of the outer sheath made with recycled PVC with unchanged high quality of TM2

Application range

- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Dry or damp rooms that are subject to medium mechanical loads
- Completes ÖLFLEX® CLASSIC 110
- Only main dimensions, further items see ÖLFLEX® CLASSIC 110
- Only standard lengths and packaging units, individual length see ÖLFLEX® CLASSIC 110
- For higher temperature range, oil resistance and mechanical usage see ÖLFLEX® CLASSIC 110

Product features

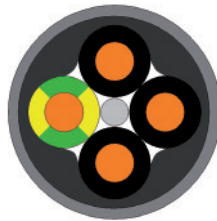
- Flame-retardant according to IEC 60332-1-2
- Good chemical resistance

Approvals (Norm references)



Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation, T12
- Two-layer PVC outer sheath, TM2; outside silvergrey



Technical data

- Core identification code**
Black with white numbers acc. to VDE 0293
- Specific insulation resistance**
> 20 GOhm x cm
- Conductor stranding**
Fine wire according to DIN EN 60228 (VDE 0295), class 5 / IEC 60228 class 5
- Minimum bending radius**
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter
- Nominal voltage**
U₀/U: 300/500 V
- Test voltage**
4000 V
- Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor
- Temperature range**
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C
- VDE-tested**
VDE reg. no. 8639

Article number*	Number of cores and mm ² per conductor	Sample piece	Standard length / standard packaging					Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)	
			50 m/RG	100 m/RG	200 m/RG	200 m/DR	500 m/DR				1000 m/DR
ÖLFLEX® SMART 108											
1752....	2 X 0.5	M 1752108		1752010R	1752020R		1752050D	1752100D	4.8	9.6	35
1003....	3 G 0.5			1003010R	1003020R		1003050D	1003100D	5.1	14.4	42
1753....	3 X 0.5			1753010R	1753020R		1753050D	1753100D	5.1	14.4	42
1004....	4 G 0.5			1004010R	1004020R		1004050D	1004100D	5.7	19.2	54
1754....	4 X 0.5			1754010R	1754020R		1754050D	1754100D	5.7	19.2	54
1005....	5 G 0.5			1005010R	1005020R		1005050D	1005100D	6.2	24.0	63
1007....	7 G 0.5	M 1007108	1007005R	1007010R	1007020R		1007050D	1007100D	6.7	33.6	81
1802....	2 X 0.75			1802010R	1802020R		1802050D	1802100D	5.4	14.4	45
1103....	3 G 0.75			1103010R	1103020R		1103050D	1103100D	5.7	21.6	55
1803....	3 X 0.75			1803010R	1803020R		1803050D	1803100D	5.7	21.6	55
1104....	4 G 0.75			1104010R	1104020R		1104050D	1104100D	6.2	28.8	66
1804....	4 X 0.75			1804010R	1804020R		1804050D	1804100D	6.2	28.8	66
1105....	5 G 0.75		1105005R	1105010R	1105020R		1105050D	1105100D	6.7	36.0	79
1107....	7 G 0.75		1107005R	1107010R	1107020R		1107050D	1107100D	7.3	50.0	101
1852....	2 X 1.0			1852010R	1852020R		1852050D	1852100D	5.7	19.2	53
1203....	3 G 1.0			1203010R	1203020R		1203050D	1203100D	6.0	28.8	65
1204....	4 G 1.0		1204005R	1204010R	1204020R		1204050D	1204100D	6.5	38.4	79
1205....	5 G 1.0		1205005R	1205010R	1205020R		1205050D	1205100D	7.1	48.0	94
1207....	7 G 1.0		1207005R	1207010R	1207020R		1207050D	1207100D	8.0	67.0	126
1902....	2 X 1.5			1902010R	1902020R		1902050D	1902100D	6.3	29.0	68
1303....	3 G 1.5		1303005R	1303010R	1303020R		1303050D	1303100D	6.7	43.0	84
1304....	4 G 1.5	M 1304108	1304005R	1304010R	1304020R		1304050D	1304100D	7.2	58.0	104
1305....	5 G 1.5	M 1305108	1305005R	1305010R	1305020R		1305050D	1305100D	8.1	72.0	128
1307....	7 G 1.5		1307005R	1307010R		1307020D	1307050D	1307100D	8.9	101.0	166
1952....	2 X 2.5		1952005R	1952010R	1952020R		1952050D	1952100D	7.5	48.0	101
1403....	3 G 2.5	M 1403108	1403005R	1403010R	1403020R		1403050D	1403100D	8.1	72.0	132
1404....	4 G 2.5		1404005R	1404010R		1404020D	1404050D	1404100D	8.9	96.0	163
1405....	5 G 2.5		1405005R	1405010R		1405020D	1405050D	1405100D	10.0	120.0	200
1407....	7 G 2.5	M 1407108	1407005R	1407010R		1407020D	1407050D	1407100D	11.1	168.0	267

*) Available are the combinations where an article number can be found in the table
 Example 1: The article number 1752010R represents a 100-metre standard packaging 'ring' of 2X0.5
 Example 2: The article number 1407100D represents a 1000-metre standard packaging 'drum' of 7G2.5
 Example 3: The order quantity of 800 meters of article number 1007020R means 4 rings of 7G0.5 with 200 metres each
 Example 4: The order quantity of 1 piece of article number M1403108 means 1 sample of 3G2.5. The length of the sample is 1 metre
 Standard packaging: ring = RG, drum = DR
 Copper price basis: EUR 150/100kg. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
 Samples: The amount is limited to 1 piece for each dimension.
 Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
 Photographs are not to scale and do not represent detailed images of the respective products.

Only the main dimensions are shown. The complete item list can be found under: www.lappgroup.com/products

New

ÖLFLEX® CLASSIC 110



Info

- VDE certificate of conformity with factory surveillance



Benefits

- Wide choice of standardized lengths and individual cuts
- Very broad range, items with up to 100 conductors

Application range

- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Dry or damp rooms that are subject to medium mechanical loads
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- In power chains for a travelling distance up to 5 m and 0,2 ... 1 million bending cycles, for following dimensions: 0,5 to 2.5mm² and 2 to 7 conductors

Product features

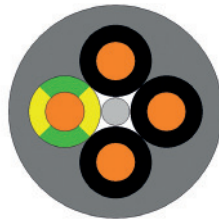
- Flame-retardant according to IEC 60332-1-2
- Good chemical resistance see Appendix T1
- Oil-resistant according to DIN EN 50290-2-22 (TM54)

Approvals (Norm references)



Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC outer sheath, grey (RAL 7001)



Technical data

- Core identification code**
Black with white numbers acc. to VDE 0293
- Specific insulation resistance**
> 20 GΩhm x cm
- Conductor stranding**
Fine wire according to DIN EN 60228 (VDE 0295), class 5 / IEC 60228 class 5
- Torsion movement in WTG**
TW-0 & TW-1 refer to catalogue, Appendix T0
- Minimum bending radius**
Occasional flexing: 10 x outer diameter
In power chains: 15 x outer diameter
Fixed installation: 4 x outer diameter
- Nominal voltage**
U₀/U: 300/500 V
- Test voltage**
4000 V
- Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor
- Temperature range**
Occasional flexing: -15°C to +70°C
In power chains: -5°C to +70°C
Fixed installation: -40°C to +80°C
- VDE-tested**
VDE reg. no. 7030 for the following sizes:
up to 2.5 mm²: 2 - 65 cores
from 4 mm²: 2 - 7 cores

Article number	Number of cores and mm ² per conductor	Standard lengths, metre							Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
		25	50	100	200	300	500	1000			
ÖLFLEX® CLASSIC 110											
1119752	2 X0.5			100	200	300	500	1000	4.8	9.6	35
1119003	3 G0.5			100	200	300	500	1000	5.1	14.4	42
1119753	3 X0.5			100	200	300	500	1000	5.1	14.4	42
1119004	4 G0.5			100	200	300	500	1000	5.7	19.2	54
1119754	4 X0.5			100	200	300	500	1000	5.7	19.2	54
1119005	5 G0.5			100	200	300	500	1000	6.2	24.0	63
1119007	7 G0.5		50.0	100	200	300	500	1000	6.7	33.6	81
1119802	2 X0.75			100	200	300	500	1000	5.4	14.4	45
1119103	3 G0.75			100	200	300	500	1000	5.7	21.6	55
1119803	3 X0.75			100	200	300	500	1000	5.7	21.6	55
1119104	4 G0.75			100	200	300	500	1000	6.2	28.8	66
1119804	4 X0.75			100	200	300	500	1000	6.2	28.8	66
1119105	5 G0.75		50.0	100	200	300	500	1000	6.7	36.0	79
1119107	7 G0.75		50.0	100	200	300	500	1000	7.3	50.0	101
1119852	2 X1.0			100	200	300	500	1000	5.7	19.2	53
1119203	3 G1.0			100	200	300	500	1000	6.0	28.8	65
1119204	4 G1.0		50.0	100	200	300	500	1000	6.5	38.4	79
1119205	5 G1.0		50.0	100	200	300	500	1000	7.1	48.0	94
1119207	7 G1.0		50.0	100	200	300	500	1000	8.0	67.0	126
1119902	2 X1.5			100	200	300	500	1000	6.3	29.0	68
1119303	3 G1.5	25.0	50.0	100	200	300	500	1000	6.7	43.0	84
1119304	4 G1.5	25.0	50.0	100	200	300	500	1000	7.2	58.0	104
1119305	5 G1.5	25.0	50.0	100	200	300	500	1000	8.1	72.0	128
1119307	7 G1.5	25.0	50.0	100	200	300	500	1000	8.9	101.0	166
1119952	2 X2.5	25.0	50.0	100	200	300	500	1000	7.5	48.0	101
1119403	3 G2.5	25.0	50.0	100	200	300	500	1000	8.1	72.0	132
1119404	4 G2.5	25.0	50.0	100	200	300	500	1000	8.9	96.0	163
1119405	5 G2.5	25.0	50.0	100	200	300	500	1000	10.0	120.0	200
1119407	7 G2.5	25.0	50.0	100	200	300	500	1000	11.1	168.0	267

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 191 refer to main catalogue 2012

Accessories

- SKINTOP® CLICK refer to main catalogue 2012

Halogen-free cables



Halogen-free cables are particularly used where humans, animals as well as valuable property are at high risk in case of fire. Such cables are applied inside public buildings like airports, railway stations, schools etc. as well as office buildings and industrial plants, in the first place.

To extend the application range of the halogen-free ÖLFLEX® cables, the following products will be provided with UL AWM styles additionally. Hence they can be used for appropriate applications in North America.

Application according to UL AWM style 21089: 600 V – 75 °C:

ÖLFLEX® CLASSIC 110 H



New: UL AWM styles



ÖLFLEX® CLASSIC 110 CH



New: UL AWM styles



ÖLFLEX® CLASSIC 130 H



New: UL AWM styles



ÖLFLEX® CLASSIC 135 CH

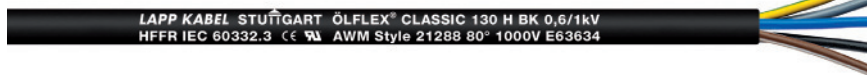


New: UL AWM styles



Application according to UL AWM style 21288: 1000 V – 80 °C:

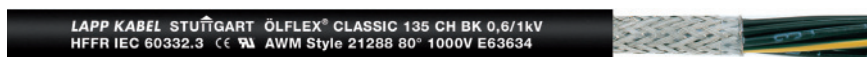
ÖLFLEX® CLASSIC 130 H BK



New: UL AWM styles



ÖLFLEX® CLASSIC 135 CH BK



New: UL AWM styles



The complete description of each product comprising technical data and the item list can be found under: www.lappgroup.com/products

New

ÖLFLEX® SERVO FD 796 P

LAPP KABEL STÜTTGART ÖLFLEX® SERVO FD 796 P CE



Info

- New high-end version! For very dynamic motion sequences
- Slim = less space required
- Unshielded version of ÖLFLEX® SERVO FD 796 CP with control pair(s)

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard = fewer part varieties = cost savings
- The advantage: the modified design of the control core pairs means the longitudinal voltage drop is lower; it also permits considerably higher operating voltages in the auxiliary circuits
- To substitute 3 ÖLFLEX® SERVO FD product lines: -750P/-755P/-795P (with control pair)

Application range

- Power drive systems in automation engineering
- Connecting cable between servo controller and motor
- In power chains or moving machine parts
- For use in assembling & pick-and-place machinery
- Particularly in wet areas of machine tools and transfer lines

Product features

- Dynamic performance in power chains: Acceleration up to 50 m/s². Travel speeds up to 5 m/s. Travel distances up to 100 m.
- Low-capacitance design
- Halogen-free materials
- Flame retardancy: UL/CSA: VW-1, FT1 IEC/EN: 60332-1-2
- Oil-resistant

Approvals (Norm references)



- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- Minimum bending radius for flexible use: After consulting, in particular cases, usage at bending factor smaller 7,5 x outer diameter is possible.

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: polypropylene (PP)
- According to P/N individual design: Power cores with one or with two control pair(s), twisted together in short lay length
- Non-woven wrapping
- PUR outer sheath, black (RAL 9005)

Technical data

- Core identification code**
Power: black cores with marking U/L1/C/L+; V/L2; W/L3/D /L- and 1 green-yellow core
Designs with one pair of control cores: black; white
two pairs of control cores: black with white numbers: 5, 6, 7, 8
0,34mm²: WH/BN/GN/YE
- Approvals**
VDE - reg - no. 8591 (from 4G1,5)
UL AWM Style 20234
CSA AWM I/II, A/B 1000 V 80° FT 1
- Specific insulation resistance**
> 20 GOhm x cm
- Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6
- Minimum bending radius**
For flexible use:
7.5 x outer diameter
Fixed installation: 4 x outer diameter
- Nominal voltage**
IEC U₀/U: 600/1000V
UL & CSA: 1000 V
- Test voltage**
Core/Core: 4 kV
Core/Screen: 4 kV
- Protective conductor**
G = with GN-YE protective conductor
- Temperature range**
Flexing: -40°C to +90°C (UL/CSA: +80°C)
Fixed installation: -50°C to +90°C (UL/CSA: +80°C)

Article number	Number of cores and mm ² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO FD 796 P				
0025319	4 G 1,5 + (2 x 1,5)	11.7	99.0	217
0025320	4 G 2,5 + (2 x 1,5)	13.1	134.0	270
0025321	4 G 4 + (2 x 1,5)	14.2	195.0	333
0025322	4 G 6 + (2 x 1,5)	16.0	272.0	403
0025323	4 G 10 + (2 x 1,5)	18.4	425.0	581
0025324	4 G 16 + (2 x 1,5)	22.1	656.0	887
0025326	4 G 0,75 + 2 x (2 x 0,34)	10.9	54.0	143
0025327	4 G 1,5 + 2 x (2 x 0,75)	12.3	103.0	209
0025328	4 G 2,5 + 2 x (2 x 1,0)	14.3	152.0	306
0025312	4 G 4 + 2 x (2 x 1,0)	15.4	218.0	381
0025329	4 G 4 + (2 x 1,0) + (2 x 1,5)	15.6	231.0	388
0025330	4 G 6 + (2 x 1,0) + (2 x 1,5)	17.1	308.0	460
Sample (1m)				
M025319	4 G 1,5 + (2 x 1,5)	11.7	99.0	217
M025328	4 G 2,5 + 2 x (2 x 1,0)	14.3	152.0	306

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO FD 796 CP refer to main catalogue 2012

Accessories

- Protective Cable Conduit Systems and Cable Carrier Systems refer to main catalogue 2012
- Circular connectors refer main catalogue 2012

Power chain applications

Servo applications - power drive systems, approved

New

ÖLFLEX® SERVO FD 798 CP

Encoder and resolver cables, DESINA® green

LAPP KABEL STUFGART ÖLFLEX® SERVO FD 798 CP



Info

- New high-end version! For very dynamic motion sequences
- Multiple certifications
- MUD res. according to IEC61892-4 Annex D

Benefits

- Thin, optimised for weight and volume
- Total screening prevents/reduces interference from neighbouring cables
- Also suitable for mobile outdoor use
- Suitable for use with encoders & resolvers from leading manufacturers
- To substitute 4 ÖLFLEX® SERVO FD product lines: -760CP/-760CP DESINA®/-770CP/-770CP DESINA®

Application range

- Connecting cable between servo controller and encoder/resolver
- Connecting cable between servo controller and speed generators
- In power chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Assembly lines, production lines, in all kinds of machines

Product features

- Dynamic performance in power chains: Acceleration up to 50 m/s². Travel speeds up to 5 m/s. Travel distances up to 100 m.
- Abrasion and cut-resistant
- Halogen-free materials
- Flame retardancy: UL/CSA: VW-1, FT1 IEC/EN: 60332-1-2
- Oil-resistant

Approvals (Norm references)



- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- DESINA®-compliant

Product Make-up

- Fine-wire or extra-fine wire, tinned-copper conductor
- Core insulation: polypropylene (PP)
- Cores (or core pairs) twisted in layers or bundles
- Refer to data sheet for more details
- Non-woven wrapping
- PUR outer sheath, green (RAL 6018)

Technical data



Core identification code
Details see datasheet ÖLFLEX® SERVO FD 798 CP



Approvals
UL AWM Style 20236
CSA AWM IA/B; IIA/B FT 1, C22.2 No. 210-05



Specific insulation resistance
> 20 GOhm x cm



Conductor stranding
Fine wire or extra-fine wire



Minimum bending radius
Flexible use: 7.5 x outer diameter
Fixed installation:
4 x outer diameter



Nominal voltage
IEC: 30 V
UL & CSA: 30 V



Test voltage
Core/core: 1500 V rms
Core/screen: 750 V rms



Temperature range
Flexing: -40°C to +90°C (UL/CSA: +80°C)
Fixed installation: -50°C to +90°C (UL/CSA: +80°C)

Article number	Number of cores and mm ² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO FD 798 CP				
0036910	4x2x0,34+4x0,5	8,9	79,0	125
0036911	3x(2x0,14)+2x(0,5)	8,9	70,0	120
0036912	3x(2x0,14)+4x0,14+2x0,5	8,8	68,0	110
0036913	3x(2x0,14)+4x0,14+2x0,5+4x0,22	9,4	80,0	130
0036914	9x0,5	8,8	71,0	110
0036915	4x2x0,25+2x1,0	8,8	63,0	109
0036916	6x2x0,25+2x0,5	10,3	67,0	121
0036917	10x0,14+2x0,5	7,7	41,0	82
0036918	10x0,14+4x0,5	8,1	54,0	98
0036920	4x2x0,14+4x0,5	8,2	51,0	95
0036921	4x2x0,25	7,6	38,0	75
0036923	8x2x0,18	7,8	51,0	85
0036924	4x2x0,18	6,4	30,0	52
0036926	12x0,22	6,9	44,0	73
0036927	4x2x0,25+2x0,5	8,5	62,0	98
0036928	2x2x0,14+2x(2x0,14)+4x0,5+(4x0,14)	9,1	79,0	135
0036929	2x(2x0,25)+2x0,5	8,7	46,0	98
0036930	2x2x0,25+2x0,5	7,3	38,0	72
Sample (1m)				
M036911	3x(2x0,14)+2x(0,5)	8,9	70,0	120
M036915	4x2x0,25+2x1,0	8,8	63,0	109

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
DESINA® is a registered trademark of the German Machine Tool Builders' Association
Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- SERVO cables in acc. to SIEMENS® Standard 6FX 8PLUS refer to main catalogue 2012

Accessories

- Circular connectors refer to main catalogue 2012
- SILVYN® CHAIN cable protection and guiding systems

New

ÖLFLEX® CHAIN 896 P



Info

- New high-end version! For very dynamic motion sequences
- Multiple certifications
- MUD res. according to IEC61892-4 Annex D

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard = fewer part varieties = cost savings
- Various applications
- Also suitable for mobile outdoor use
- To substitute 2 ÖLFLEX® SERVO FD product lines: -785P/-795P (without control pair)

Application range

- Applications in automation engineering
- Power circuits in industrial machines
- In power chains or moving machine parts
- For use in assembling & pick-and-place machinery
- Particularly in wet areas of machine tools and transfer lines

Product features

- Dynamic performance in power chains: Acceleration up to 50 m/s². Travel speeds up to 5 m/s. Travel distances up to 100 m.
- Low-capacitance design
- Halogen-free materials
- Flame retardancy: UL/CSA: VW-1, FT1 IEC/EN: 60332-1-2
- Oil-resistant

Approvals (Norm references)



- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- Minimum bending radius for flexible use: After consulting, in particular cases, usage at bending factor smaller 7,5 x outer diameter is possible.

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: polypropylene (PP)
- Non-woven wrapping
- PUR outer sheath, black (RAL 9005)

Technical data

- Core identification code**
Black with white numbers acc. to VDE 0293
- Approvals**
VDE - reg submitted
UL AWM Style 20234
CSA AWM I/II, A/B 1000 V 80° FT 1
- Specific insulation resistance**
> 20 GOhm x cm
- Conductor stranding**
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6
- Minimum bending radius**
For flexible use:
7.5 x outer diameter (≤16mm²)
10 x outer diameter (>16mm²)
Fixed installation:
4 x outer diameter
- Nominal voltage**
IEC U₀/U: 600/1000V
UL & CSA: 1000 V
- Test voltage**
4000 V
- Protective conductor**
G = with GN-YE protective conductor
X = without protective conductor
- Temperature range**
Flexing: -40°C to +90°C (UL/CSA: +80°C)
Fixed installation: -50°C to +90°C (UL/CSA: +80°C)

Article number	Number of cores and mm ² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CHAIN 896 P				
1023229	4 G 1.5	9.6	58.0	120
1023230	5 G 1.5	10.0	72.0	143
1023238	4 G 2.5	11.0	96.0	174
1023239	5 G 2.5	12.0	120.0	210
1023245	4 G 4	12.5	154.0	242
1023246	5 G 4	13.7	192.0	316
1023248	4 G 6	14.3	231.0	335
1023249	5 G 6	15.7	288.0	439
1023250	4 G 10	17.0	384.0	503
1023251	5 G 10	18.9	480.0	663
1023252	4 G 16	21.2	615.0	810
1023253	5 G 16	23.8	768.0	1065
1023254	4 G 25	25.9	960.0	1254
1023255	5 G 25	29.0	1,200.0	1582
Sample (1m)				
M023229	4 G 1.5	9.6	58.0	120

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® FD 855 P refer to main catalogue 2012
- ÖLFLEX® CHAIN 879 refer to main catalogue 2012
- ÖLFLEX® SERVO FD 796 P refer to page 11

Accessories

- Protective Cable Conduit Systems and Cable Carrier Systems refer to page 52

EPIC® Data PROFIBUS Connectors



The complete product range (37 variants) from one hand

Benefits

- Secured PROFIBUS network connection
- Cost-saving due to quick installation (Plug & Play)
- Easy to use, as compatible with the market standard

Product features

- Less transmission loss
- Switchable bus termination is integrated
- Connection types with screw and spring clamp terminal, fast connection and M 12
- Different cable outlet (90°, 35°, axial)
- Optional diagnostic LEDs
- No loose parts
- D-Sub screws 4-40 UNC
- EMC protection
- High mechanical durability (200 contacts durability)

Approvals



- D-Sub 9-pin assignment in accordance with PROFIBUS
- IEC 61158, IEC 61784

Suitable cables

- Cables for bus systems PROFIBUS-DP/FMS/FIP
- BUS-System Components (M 12)

EPIC® Data connectors with screw connection

Article number	Article designation	Housing	Cable outlet	PG socket ¹	Diagnostic LEDs ²	Connection, bus cable		Protection rating	UL/CSA ³
						Single conductor	Outer diameter		
21700507	ED-PB-35	plastic, metallised	35°	no	no	solid/flexible ≤ 1,0 mm ²	8 mm	IP20	yes
21700506	ED-PB-35-PG		35°	yes	no				yes
21700504	ED-PB-90		90°	no	no				yes
21700530	ED-PB-90-LED		90°	no	yes				yes
21700503	ED-PB-90-PG		90°	yes	no				yes
21700529	ED-PB-90-PG-LED		90°	yes	yes				yes
21700505	ED-PB-AX		180°	no	no				yes

EPIC® Data connectors with fast connect technology (IDC)

Article number	Article designation	Housing	Cable outlet	PG socket ¹	Diagnostic LEDs ²	Connection, bus cable		Protection rating	UL/CSA ³	
						Single conductor	Outer diameter			
21700511	ED-PB-35-FC	Plastic, metallized	35°	no	no	FC cable, solid (ø = 0,64 mm)	8 mm	IP20	yes	
21700513	ED-PB-35-PG-FC			yes					yes	
21700514	ED-PB-35-FC-FLEX			no					yes	
21700515	ED-PB-35-PG-FC-FLEX			yes					yes	
21700502	ED-PB-90-FC		90°	no	no	no	FC cable, solid (ø = 0,64 mm)	8 mm	IP20	yes
21700547	ED-PB-90-LED-FC				yes					yes
21700528	ED-PB-90-FC-FLEX				no					yes
21700549	ED-PB-90-LED-FC-FLEX				yes					yes
21700501	ED-PB-90-PG-FC				no					yes
21700546	ED-PB-90-PG-LED-FC				yes					yes
21700527	ED-PB-90-PG-FC-FLEX				no					yes
21700539	ED-PB-90-PG-LED-FC-FLEX				yes					yes
21700544	ED-PB-AX-FC		180°	no	no	no	FC cable, solid (ø = 0,64 mm)	8 mm	IP20	yes
21700545	ED-PB-AX-FC-FLEX									yes

EPIC® Data connectors with spring type technology (ST)

Article number	Article designation	Housing	Cable outlet	PG socket ¹	Diagnostic LEDs ²	Connection, bus cable		Protecting rating	UL/CSA ³
						Single conductor	Outer diameter		
21700509	ED-PB-90-ST	Plastic, metallized	90°	no	no	solid (≤ 0,5 mm ²)	8 mm	IP20	yes
21700508	ED-PB-90-PG-ST			yes					
21700564	ED-PB-35-PG-ST-PRO	Full metal (ZnAl)	35°	yes	no	solid (≤ 0,5 mm ²)	8 - 9 mm	IP30	no
21700565	ED-PB-90-PG-ST-PRO		90°						
21700566	ED-PB-AX-ST-PRO		axial	no					

EPIC® Data connectors with M 12 connection

Article number	Article designation	Housing	Cable outlet	PG socket ¹	Diagnostic LEDs ²	Connection, bus cable	Protecting rating	UL/CSA ³
21700521	ED-PB-90-M12	Plastic, metallized	90°	no	no	M12 PROFIBUS B-coded	IP20	yes
21700520	ED-PB-90-PG-M12			yes				
21700561	ED-PB-35-PG-M12-PRO	Full metal (ZnAl)	35°	yes				
21700562	ED-PB-90-PG-M12-PRO		90°					
21700563	ED-PB-AX-M12-PRO		axial	no				

Legend: ¹ Connection for programming unit. ² Diagnostic LEDs: Status of bus termination (orange), BUS communication (green), BUS communication to the subscriber (blue). ³ UL file E331560. Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® Data PROFIBUS Connectors

Special versions

With ATEX approval (Screw connection)



EPIC® Data connectors with ATEX approval Zone 2 (II 3 G Ex nA II T4)

Article number	Article designation	Housing	Cable outlet	PG socket ¹	Diagnostic LEDs	Connection, bus cable		Protecting rating	UL/CSA ³
						Single conductor	Outer diameter		
21700543	ED-PB-90-ATEX	Plastic, metallized	90°	no	no	solid/flexible ≤ 1,0 mm ²	8 mm	IP20	yes
21700542	ED-PB-90-PG-ATEX			yes					

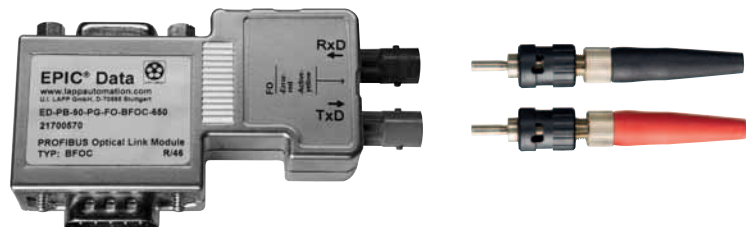
PROFIBUS Repeater (Screw connection)



EPIC® Data connectors with integrated repeater

Article number	Article designation	Housing	Cable outlet	PG socket ¹	Diagnostic LEDs	Connection, bus cable		Protecting rating	UL/CSA ³
						Single conductor	Outer diameter		
21700541	ED-PB-90-RP-PG	Plastic, metallized	90°	yes	yes	solid/flexible ≤ 1,0 mm ²	8 mm	IP20	yes

Optical Link Module (HFBR, SMA or BFOC connection)



EPIC® Data connectors with optical interface (Optical Link Module)

Article number	Article designation	Housing	Cable outlet	PG socket ¹	Diagnostic LEDs	Connection, optical cable (POF oder PCF)		Protecting rating	UL/CSA ³
21700568	ED-PB-90-PG-FO-HFBR-650	Plastic, metallized	90°	yes	yes	HFBR (compatible with HP Versatile)		IP20	no
21700569	ED-PB-90-PG-FO-SMA-650					SMA			
21700570	ED-PB-90-PG-FO-BFOC-650					BFOC (ST)			

Note: Applicable optical connectors (POF) included. For one Optical Link 2 modules are required.

Legend: ¹ Connection for programming unit. ³ UL file E331560.

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Photographs are not to scale and do not represent detailed images of the respective products.

New

EPIC® Data PROFIBUS Connector (Optical Link Modul)



Info

- Fully functioning PROFIBUS repeater with integrated optical interface

Benefits

- Easy covering of large distances
- Cost-saving due to quick installation (Plug & Play)
- Galvanic isolation in case of potential differences within PROFIBUS network
- For EMC critical environments
- Regeneration of data signal (slope, power and mark-to-space ratio)

Application range

- Automation technology
- Control engineering
- Mechanical engineering
- Plant engineering
- Tool shop

Product features

- Integrated repeater functionality
- Switchable bus termination is integrated
- Diagnostic LEDs (blue, green, red, yellow)
- Max. distance:
POF fiber: 65 m
PCF fiber: 250 m

Approvals (Norm references)



Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Metallised housing
- With additional programming/diagnostic interface: Sub-D socket, 9-pin
- An external 24 V supply is not necessary
- Connection for optical cable (POF or PCF)

Suitable cables

- HITRONIC® PCF DUPLEX Cable refer to main catalogue 2012
- HITRONIC® POF DUPLEX PE refer to main catalogue 2012
- HITRONIC® POF DUPLEX PE-PUR refer to main catalogue 2012

Technical data

	Dimensions 64 mm x 40 mm x 17 mm (LxWxH)
	Degree of soiling 2
	Weight Approx. 40 g
	Protection rating IP 20
	Cable outlet 90°
	Terminating resistor Integrated resistor combination that is connected by a sliding switch
	Transmission rate max. 12 MBit/s
	Interfaces <u>Connection:</u> Sub-D socket, 9-pin <u>PROFIBUS-cable:</u> 4 terminal blocks for wires up to 1.0 mm ² <u>Protocol:</u> PROFIBUS DP in accordance with EN 50170 applicable types of connectors: SMA, BFOC(ST) and HFBR
	Current consumption typ. 100 mA
	Permissible ambient conditions Operating temperature: 0°C to +60°C Transport and storage temperature: -25°C to +75°C
	Supply voltage 5,0 V DC (supplied from terminal)

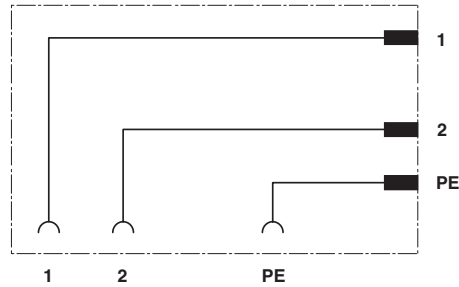
Article number	Article designation	Cable outlet	PG
21700568	EPIC® Data PROFIBUS Connectors Fiber Optic Module - HFBR connector ED-PB-90-PG-FO-HFBR-650	90°	yes
21700569	EPIC® Data PROFIBUS Connectors Fiber Optic Module - SMA connector ED-PB-90-PG-FO-SMA-650	90°	yes
21700570	EPIC® Data PROFIBUS Connectors Fiber Optic Module - BFOC(ST) connector ED-PB-90-PG-FO-BFOC-650	90°	yes

Applicable optical connectors (POF) included
 Photographs are not to scale and do not represent detailed images of the respective products.
 For detailed technical information please refer to the data sheet or installation instructions (www.lappautomation.com)
 Note: For one optical link 2 modules are required

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New

Field mountable valve connectors



Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

Product features

- 3 and 5-pin valve connector
- Free of substances that could hinder paint or varnish
- Connection type: screw connection
- 2 gaskets for bigger cable outer diameter
- Central screw M3

Approvals (Norm references)



Suitable cables

- ÖLFLEX® FD 855 P refer to main catalogue 2012

Technical data



Protection rating
IP 65



Ambient temperature (operation)
Valve connector without protective circuit
-25°C to +90°C
Valve connector with protective circuit -25°C to +60°C

Standards/stipulations

Valve connector according to EN 175301-803

Article number	Article designation	Min. cable diameter (mm)	Max. cable diameter (mm)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	Protective circuit	PU
Valve connector type A (18 mm)								
22260161	AB-C3-M16-A-P	6.0	10.0	230	10	Without	Without	1
22261030	AB-C3-M16-A-1L-S-P	6.0	10.0	24	4	1 LED	Z diode	1
22261036	AB-C3-M16-A-1L-SV	6.0	10.0	24	1.5	1 LED	Varistor	1
22261037	AB-C3-M16-A-1L-SV-230	6.0	10.0	230	1.5	1 LED	Varistor	1
Valve connector type A (18mm) with commutators								
22261038	AB-C3-M16-A-1L-SVC	6.0	10.0	24	1.5	1 LED	Varistor	1
22261039	AB-C3-M16-A-1L-SVC-230	6.0	10.0	230	1.5	1 LED	Varistor	1
Valve connector type A (18mm) for pressure switch								
22261040	AB-C5-M16-AD-2L-P	6.0	10.0	24	1.5	2 LEDs	Without	1
Valve connector type B (10 mm)								
22261041	AB-C3-M16-B	4.0	8.0	230	10	Without	Without	1
22261042	AB-C3-M16-B-1L-S-P	4.0	8.0	24	4	1 LED	Z diode	1
22261043	AB-C3-M16-B-1L-SV	4.0	8.0	24	1.5	1 LED	Varistor	1
22261044	AB-C3-M16-B-1L-SV-230	4.0	8.0	230	1.5	1 LED	Varistor	1
Valve connector type BI (11 mm)								
22261045	AB-C3-M16-BI	4.0	8.0	230	10	Without	Without	1
22261046	AB-C3-M16-BI-1L-S-P	4.0	8.0	24	4	1 LED	Z diode	1
22261047	AB-C3-M16-BI-1L-SV	4.0	8.0	24	1.5	1 LED	Varistor	1
22261048	AB-C3-M16-BI-1L-SV-230	4.0	8.0	230	1.5	1 LED	Varistor	1
Valve connector type C (8 mm)								
22261049	AB-C3-M12-C	4.0	6.0	230	6	Without	Without	1
22261050	AB-C3-M12-C-1L-SUP	4.0	6.0	24	1.5	1 LED	Suppressor diode	1
22261051	AB-C3-M12-C-1L-SV-P	4.0	6.0	24	1.5	1 LED	Varistor	1
22261052	AB-C3-M12-C-1L-SV-230	4.0	6.0	230	1.5	1 LED	Varistor	1
Valve connector type CI (9.4 mm)								
22261053	AB-C3-M12-CI	4.0	6.0	230	6	Without	Without	1
22261054	AB-C3-M12-CI-SUP	4.0	6.0	24	1.5	1 LED	Suppressor diode	1
22261055	AB-C3-M12-CI-1L-SV-P	4.0	6.0	24	1.5	1 LED	Varistor	1
22261056	AB-C3-M12-CI-1L-SV-230	4.0	6.0	230	1.5	1 LED	Varistor	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

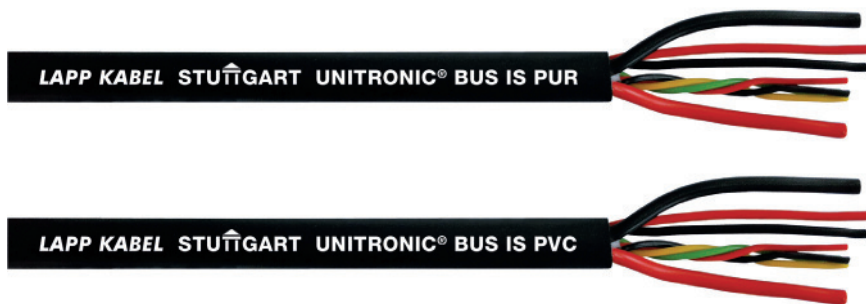
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For detailed technical information please refer to the data sheet (www.lappautomation.com)

For the UNITRONIC® field bus type code, please see table T6

New

UNITRONIC® BUS IS



Info

- ISOBUS is a bus system for agricultural vehicles, which is standardized in the international standard ISO 11783-2
- Lapp cable is member of the AEF - Agricultural Industry Electronics Foundation

Benefits

- Cable according ISOBUS standard (ISO 11783-2) for use in agricultural vehicles.
- HYBRID: cable for data transmission + power supply

Application range

- Outdoor applications
- Connection cable between tractor and pulled machinery

Product features

- Flame-retardant
- Halogen-free outer sheath
- Resistant against oil, benzine and diesel
- UV-resistant
- PUR (Polyurethane) Version with enhanced robustness and UV- resistance

Approvals (Norm references)

- ISO 11783-2:2012

Product Make-up

- 4x 0,5 mm² (red, yellow, black, green)
- 2x 2,5 mm² (red, black)
- 2x 6 mm² (red, black)
- Core insulation: Based on PVC
- Outer Sheath: Black PVC or PUR special compound

Technical data

Temperature range
 PUR: -40°C to +85°C
 PVC: -30°C to +85°C

Characteristic impedance
 Characteristic impedance: 75 ohm

Article number	Article designation	Number of pairs and cable diameter	Copper index (kg/km)
2170561	UNITRONIC BUS IS PUR 2x6+2x2,5+1x4x0,5	2x6+2x2,5+1x4x0,5	182.4
2170560	UNITRONIC BUS IS PVC 2x6+2x2,5+1x4x0,5	2x6+2x2,5+1x4x0,5	182.4

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
 Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
 Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
 Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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New

UNITRONIC® BUS PB HEAT 180

LAPP KABEL STUÏTGART UNITRONIC® BUS PB HEAT 180

Benefits

- No need for additional cable protection against high temperatures
- High temperature resistance

Application range

- Fixed installation
- For use in high temperature areas with up to 180 °C







Product features

- High oil-resistance

Product Make-up

- Solid and bare copper conductor
- Wire insulation Fluorethylen
- Overall screening with copper braid and plastic-laminated aluminium foil
- Screening: wrapped with braided tinned-copper wires
- Outer Sheath: Perfluorethylenpropylen, FEP, violet

Technical data

-  **Mutual capacitance**
approx. 28 nF / km
-  **Peak operating voltage**
(not for power applications) 250 V
-  **Minimum bending radius**
Repeated: 7 x Outer Diameter
Single: 5 x Outer Diameter
-  **Test voltage**
3600 V DC (3 sec.)
-  **Temperature range**
-50 to +180 °C
-  **Characteristic impedance**
(3 - 20 MHz): 150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Copper index (kg/km)
3031981	UNITRONIC BUS PB HEAT 180	1 x 2 x 0.64	21.7

Photographs are not to scale and do not represent detailed images of the respective products.

New

UNITRONIC® BUS PB 105 plus

LAPP KABEL STUÏTGART UNITRONIC® BUS PB 105 plus



Info

- Cables for bus systems PROFIBUS-DP/FMS/FIP
- Lapp Kabel is a member of the PROFIBUS User Organisation (PNO)

Benefits

- No need for additional cable protection against high temperatures
- High temperature resistance

Application range

- For installation in hollow shaft between gear units and pitch system
- Suitable for fixed installation and occasionally flexible use in high temperature areas

Product features

- Permanent load up to +105°C, temporary load +120°C







Approvals (Norm references)

- In accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC NET, also suitable for FIP (Factory Instrumentation Protocol)

Product Make-up

- Stranded conductor, 7-wire, bare
- Core insulation: polypropylene (PP)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: TPE-based

Technical data

-  **Mutual capacitance**
(800 Hz): max. 30 nF/km
-  **Peak operating voltage**
(not for power applications) 250 V
-  **Minimum bending radius**
Fixed installation: 45 mm once
Flexing: 65 mm
-  **Test voltage**
Core/core: 1500 V rms
Core/screen: 1500 V eff.
-  **Temperature range**
Fixed installation: -40°C to +105°C
Short-term: up to +120 °C
-  **Characteristic impedance**
(3 - 20 MHz): 150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)
2170635	UNITRONIC BUS PB 105 plus	1x2x0,64	8.0	30.1

Photographs are not to scale and do not represent detailed images of the respective products.

New

UNITRONIC® BUS ASI FD

Highly flexible application

LAPP KABEL STUÏTGART UNITRONIC® BUS ASI FD

LAPP KABEL STUÏTGART UNITRONIC® BUS ASI FD



Info

- “FD” = suitable for power chains
- “LD” = Long Distance

Benefits

- The new BUS ASI LD 2 x 2.5 (Long Distance) allows even modules located further away to be connected. AS-I power supplies can be reduced. The BUS ASI LD is downwards-compatible with version 1.5.
- For highly flexible applications (power chains, moving machine parts)
- High oil-resistance

Application range

- Communication at sensor/actuator level
- UNITRONIC® Fieldbus sensor-/actuator wiring

Product features

- PUR versions are halogen-free according to IEC 60754-1
- Flame-retardant according to IEC 60332-1-2, UL FT-2 flame test
- Data and power are transmitted via an un-screened, geometrically coded two-core flat cable (protection against polarity reversal).
- The conductor is contacted by “piercing technology” within the ASI modules.
- The sensors are connected to the ASI modules (coupling modules) using round cables (connection cables).

Approvals (Norm references)



- ASI is standardised Europe-wide in EN 50295 and internationally in IEC 62026-2.
- TPE variant: UL AWM Style 2103 CSA AWM II A/B
- PUR versions: UL AWM Style 20549

Product Make-up

- Extra-fine wire, tinned copper strands
- Core insulation: blue and brown
- Profiled outer sheath: TPE or PUR
- Colour: yellow (RAL 1023) or black (RAL 9005)

Technical data

- Peak operating voltage**
300 V (not for power applications)
- Conductor resistance**
1.5 mm²: max. 13.7 Ohm/km
2.5 mm²: max. 8.21 Ohm/km
- Minimum bending radius**
Fixed installation: 12 mm
Flexing without fixing: 24 mm
Flexing with fixing: 60 mm (15 x D)
- Test voltage**
Core/core: 2000 V
- Temperature range**
Fixed installation:
-40°C to +80°C (TPE +105°C)
Flexing - without fixing:
-30 °C to +70 °C (TPE +105 °C)

Article number	Article designation	Outer sheath material	Outer sheath colour	Application	Number of cores and mm ² per conductor	Copper index (kg/km)	Weight (kg/km)
For highly flexible applications (power chains, moving machine parts)							
2170357	UNITRONIC® BUS ASI FD P FRNC	PUR UL/CSA (AWM)	yellow	Data and power transmission	2 x 1,5	29.0	64
2170358	UNITRONIC® BUS ASI FD P FRNC	PUR UL/CSA (AWM)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29.0	64
2170317	UNITRONIC® BUS ASI LD FD P	PUR UL/CSA (AWM)	yellow	Data and power transmission	2 x 2,5	48.0	74
2170318	UNITRONIC® BUS ASI LD FD P	PUR UL/CSA (AWM)	black	Transmission of 30 V DC auxiliary power	2 x 2,5	48.0	74
2170830	UNITRONIC® BUS ASI FD (TPE) A	TPE UL/CSA (AWM)	yellow	Data and power transmission	2 x 1,5	29.0	64
2170831	UNITRONIC® BUS ASI FD (TPE) A	TPE UL/CSA (AWM)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29.0	64

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths Lapp Kabel is a member of the AS-International Association Photographs are not to scale and do not represent detailed images of the respective products.

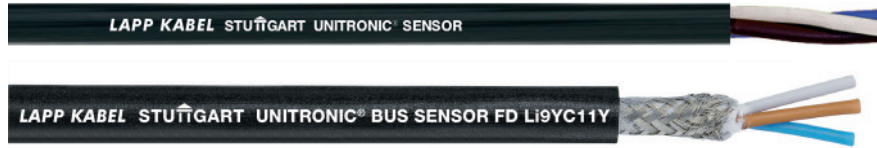
Accessories

- SKINTOP® DIX-M AUTOMATION refer to main catalogue 2012
- Universal strip stripping and cutting tool refer to main catalogue 2012
- AS-I clip clamp / AS-I end sealing refer to main catalogue 2012
- AS-I STRIP special stripping tool refer to main catalogue 2012
- AS-I STRIP special refer to main catalogue 2012
- SKINTOP® DIX ASI refer to main catalogue 2012

ÖLFLEX®
UNITRONIC®
ETHERLINE®
HITRONIC®
EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES

New

UNITRONIC® SENSOR



Application range

- Cables for UNITRONIC® field bus sensor/actuator wiring
- Unshielded and shielded data transmission cables to connect to M8, M12 connectors
- Automation technology
- Mechanical engineering
- Plant engineering

Product features

- Core colour code in accordance with DIN EN 50044
- 3 x 0.25 mm² or 0.34mm²
1= brown, 2= blue, 3= black
- 4x 0.25 mm² or 0.34 mm²
1= brown, 2= white, 3= blue, 4= black
- 5 x 0.25 mm² or 0.34 mm²
1= brown, 2= white, 3= blue, 4= black, 5= grey
- 8x 0.25mm²
1= white, 2=brown, 3= green, 4= yellow, 5= grey, 6= pink, 7=blue, 8= red

Approvals (Norm references)



Product Make-up

- UNITRONIC® SENSOR LiFY
Conductor: extra-fine bare copper strand in accordance with DIN VDE 0295 Class 6; core insulation: PVC, outer sheath: PVC
- UNITRONIC® SENSOR DESINA® LiFY11Y
Stranded bare copper conductor, super-fine. In accordance with VDE 0295 Class 6, special PVC insulation, cores twisted in layers, core identification in accordance with DESINA® (brown, white, blue, black). Outer sheath is made of special polyurethane-based compound; yellow colour in acc. to RAL 1021; flame retardant acc. to IEC 60332-1-2. Operating voltage= 48 V, Peak working voltage= 300 V.

- UNITRONIC® SENSOR FD Li9Y11Y and SENSOR FD Li9YC11Y AWM UL Style 20549, 80 °C/300 V. Conductor: Cu strand, bare, extra-fine wire according to DIN VDE 0295 Class 6, core insulation: modified polypropylene (PP), outer sheath: halogen-free polyurethane (PUR), matt, adhesion-free
- UNITRONIC® SENSOR FD series cables are specially designed for use in power chains

Article number	Article designation	Dimensions (mm ²)	Outer diameter (mm)	Core/outer sheath material	Colour	Copper index (kg/km)
UNITRONIC® SENSOR						
7038859	S-LiFY	3 x 0.34	4.8	PVC/PVC	black	9.8
7038860	S-LiFY	4 x 0.34	4.8	PVC/PVC	black	13.1
0040434	DESINA	4 x 0.34	5.2	PVC/PUR	yellow (RAL 1021)	13.5
7038861	S-LiFY11Y	4 x 0.34	4.8	PVC/PUR	black	13.1
7038862	S-LiFY11Y	5 x 0.25	4.9	PVC/PUR	black	12.0
UNITRONIC SENSOR FD						
7038883	Li9Y11Y	3x0.25	4.4	PP/PUR	black	7.5
7038864	Li9Y11Y	3 x 0.34	4.6	PP/PUR	black	9.8
7038884	Li9Y11Y	4x0.25	4.7	PP/PUR	black	10.2
7038865	Li9Y11Y	4 x 0.34	4.7	PP/PUR	black	13.0
7038867	Li9Y11Y	5 x 0.25	4.7	PP/PUR	black	12.0
7038866	Li9Y11Y	5 x 0.34	5.1	PP/PUR	black	16.0
7038868	Li9Y11Y	8 x 0.25	5.9	PP/PUR	black	19.0
UNITRONIC® SENSOR FD screened						
7038885	Li9YC11Y	3 x 0.34	4.6	PP/PUR	black	19.1
7038886	Li9YC11Y	4 x 0.34	4.7	PP/PUR	black	23.5
7038887	Li9YC11Y	5 x 0.34	5.1	PP/PUR	black	27.5

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges. Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Cables are printed
Other types of composition are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- Field mountable S/A connectors M12 refer to main catalogue 2012
- Field mountable S/A connectors M8 refer to main catalogue 2012
- STAR STRIP stripping tool refer to main catalogue 2012
- SMARTSTRIP stripping tool refer to main catalogue 2012

Industrial ethernet articlecode for patchcords

IE - PN - 5 - M8 - S - 1 - H - 2 - 22 - FD - M8 - S

1 2 3 4 5 6 7 8 9 10 11 12

- | | | | |
|---|---|--|--|
| <p>1 IE = Industrial Ethernet</p> | <p>4 Connector left
M8 = M8
M12D = M12 D-coded
M12X = M12 X-coded
RJ45 = RJ45 4 pole
RJ458 = RJ45 8 pole</p> | <p>7 Outer sheath material
H = Halogen free
P = PUR
Y = PVC
FRNC = Flame retardend
& halogen free
PE = PE
NF = Nobaflex</p> | <p>10 Installation type
1 = Fixed installation
7 = Flexible installation
FD = Draig chain</p> |
| <p>2 Bussystem
PN = Profinet
PNA = Profinet Type A
PNB = Profinet Type B
PNC = Profinet Type C
EC = EtherCat
S3 = Sercos 3</p> | <p>5 Cable outlet
S = Straight (180°)
A = Angled (90°)</p> | <p>8 Pairs
2 = 2x2
4 = 4x2</p> | <p>11 Connection right
M8 = M8
M12D = M12 D-coded
M12X = M12 X-coded
RJ45 = RJ45 4 pole
RJ458 = RJ45 8 pole
OE = Open conductor end</p> |
| <p>3 Category
5 = Cat.5
5e = Cat.5e
6 = Cat.6
6A = Cat.6_A
7 = Cat.7
7A = Cat.7_A
10G = 10 Gbit/s</p> | <p>6 Cable length
1 = 1 m
2 = 2 m
3 = 3 m
5 = 5 m
10 = 10 m
15 = 15 m
20 = 20 m</p> | <p>9 AWG (cross section)
22 = AWG22
23 = AWG23
24 = AWG24
26 = AWG26
27 = AWG27</p> | <p>12 Cable outlet
S = Straight (180°)
A = Angled (90°)</p> |

EPIC® Data Code

EPIC® Data - ED - IE - 90 - M12 - X - 6A - A - 54 - FD - FC - AC

1 2 3 4 5 6 7 8 9 10 11

- | | | | |
|---|---|--|--|
| <p>1 Type
ED</p> | <p>5 Coding
N/A = D-coded
X = X-coded</p> | <p>7 Standard for pin assignment
A = T568A
B = T568B
PN = ProfiNet</p> | <p>9 Special requirements
FD = especially for
19 wire stranded cores</p> |
| <p>2 Bussystem
IE = Industrial Ethernet</p> | <p>6 Switch/Node/
Termination/Category
N/A = Switch (= Standard)
N = Node
T = Terminated
5 = Category 5
5e = Category 5e
6 = Category 6
6A = Category 6_A
7 = Category 7
7A = Category 7_A</p> | <p>8 Protection class
N/A = IP20 (= Standard)
54 = IP54
65 = IP65
67 = IP67</p> | <p>10 Cable connection
N/A = Screw (= Standard)
FC = Fastconnect
FZ = Spring type</p> |
| <p>3 Cable outlet
90 = 90°
45 = 45°
35 = 35°
AX = straight (0°)</p> | | | <p>11 Additional
AC = Accessorie
AC-DC = Accessorie Dust Cap</p> |
| <p>4 Type of connection
N/A/RJ45 = RJ45 male
RJ45F = RJ45 female
M12 = M12
M8 = M8
HY = Hybrid</p> | | | |

New

ETHERLINE® FD CAT.6_A



Info

- CAT.6_A for drag chain, qualified for 10Gbit/s

Benefits

- For use in power chains and moving machinery parts in dry or damp rooms
- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible and highly flexible use
- Premium screening against electromagnetic interference

Application range

- For highly flexible applications (e.g. power chains)
- Can be used for Industrial Ethernet in harsh industrial environments

Product features

- PUR version is halogen-free according to IEC 60754
- Oil-resistant

Approvals (Norm references)



- Electrical requirements acc. to IEC 61156-6

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation made of foam skin
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: PUR, halogen-free/PVC
- Colour: green (based on RAL 6018)

Technical data

- Minimum bending radius**
Flexing: 15 x outer diameter
- Temperature range**
Fixed installation: -40°C to +80°C
Flexing: -10°C to +70°C
- Characteristic impedance**
100 Ohm



Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)
PVC outer sheath			
2170485	ETHERLINE® FD CAT.6 _A	4x2xAWG24/7	9.0
Outer sheath: PUR, halogen-free			
2170484	ETHERLINE® FD P CAT.6 _A	4x2xAWG24/7	9.0

Photographs are not to scale and do not represent detailed images of the respective products.

New

ETHERLINE® TORSION CAT6_A



Info

- Industrial Ethernet Cable, 4-pair, suitable for torsion stress

Benefits

- Cable suitable for high torsion stress. Tested with more than 1 million bending cycles and a right/left movement of 180° per metre.
- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible and highly flexible use as well as TORSION.
- Premium screening against electromagnetic interference

Application range

- CAT.6_A for torsion application, qualified for 10Gbit/s
- Can be used for Industrial Ethernet in harsh industrial environments

Product features

- PUR version is halogen-free according to IEC 60754
- Oil-resistant

Approvals (Norm references)



- Electrical requirements acc. to IEC 61156-6

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation made of foam skin
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: PUR, halogen-free/PVC
- Colour: green (based on RAL 6018)

Technical data

- Minimum bending radius**
Flexing: 15 x outer diameter
- Temperature range**
Fixed installation: -40°C to +80°C
Flexing: -10°C to +70°C
- Characteristic impedance**
100 Ohm



Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)
PVC outer sheath				
2170482	ETHERLINE® TORSION Y CAT6 _A	4x2	9.0	35.0
Outer sheath: PUR, halogen-free				
2170483	ETHERLINE® TORSION P CAT6 _A	4x2	9.0	35.0

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New

Industrial Ethernet PN A patchcord M 12



Info

- For PROFINET applications (D-coded)

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

- For indoor use

- For fixed installation (solid conductor) = type A

Product features

- The cable is UL/CSA-approved
- Colour: green (based on RAL 6018)

Application range

- Suitable for use in industrial applications

Product Make-up

- Solid and bare copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC
- Pre-assembled patchcord with a M 12 D-coded connector on both sides
- Connector with vibration protection

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
Straight connector on straight connector			
2171001	IE-PNA-5-M 12D-S-1-Y-2-22-1-M 12D-S	2x2xAWG22	1.0
2171002	IE-PNA-5-M 12D-S-2-Y-2-22-1-M 12D-S	2x2xAWG22	2.0
2171003	IE-PNA-5-M 12D-S-3-Y-2-22-1-M 12D-S	2x2xAWG22	3.0
2171004	IE-PNA-5-M 12D-S-5-Y-2-22-1-M 12D-S	2x2xAWG22	5.0
2171005	IE-PNA-5-M 12D-S-10-Y-2-22-1-M 12D-S	2x2xAWG22	10.0
2171006	IE-PNA-5-M 12D-S-20-Y-2-22-1-M 12D-S	2x2xAWG22	20.0
Angled connector on straight connector			
2171013	IE-PNA-5-M 12D-A-1-Y-2-22-1-M 12D-S	2x2xAWG22	1.0
2171014	IE-PNA-5-M 12D-A-2-Y-2-22-1-M 12D-S	2x2xAWG22	2.0
2171015	IE-PNA-5-M 12D-A-3-Y-2-22-1-M 12D-S	2x2xAWG22	3.0
2171016	IE-PNA-5-M 12D-A-5-Y-2-22-1-M 12D-S	2x2xAWG22	5.0
2171017	IE-PNA-5-M 12D-A-10-Y-2-22-1-M 12D-S	2x2xAWG22	10.0
2171018	IE-PNA-5-M 12D-A-20-Y-2-22-1-M 12D-S	2x2xAWG22	20.0

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New

Industrial Ethernet PN A Patchcord M 12 on free conductor end



Info

- For PROFINET applications (D-coded)

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- Suitable for direct connector assembly

Application range

- For fixed installation (solid conductor) = type A
- Indoor applications
- Automation technology
- Mechanical engineering

Product Make-up

- Solid and bare copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC
- Connector with vibration protection
- Pre-assembled patchcord with a M 12 connector on free conductor end

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
straight connector on free conductor end			
2171007	IE-PNA-5-M 12D-S-1-Y-2-22-1-OE	2x2xAWG22	1.0
2171008	IE-PNA-5-M 12D-S-2-Y-2-22-1-OE	2x2xAWG22	2.0
2171009	IE-PNA-5-M 12D-S-3-Y-2-22-1-OE	2x2xAWG22	3.0
2171010	IE-PNA-5-M 12D-S-5-Y-2-22-1-OE	2x2xAWG22	5.0
2171011	IE-PNA-5-M 12D-S-10-Y-2-22-1-OE	2x2xAWG22	10.0
2171012	IE-PNA-5-M 12D-S-20-Y-2-22-1-OE	2x2xAWG22	20.0
Angled connector on free conductor end			
2171019	IE-PNA-5-M 12D-A-1-Y-2-22-1-OE	2x2xAWG22	1.0
2171020	IE-PNA-5-M 12D-A-2-Y-2-22-1-OE	2x2xAWG22	2.0
2171021	IE-PNA-5-M 12D-A-3-Y-2-22-1-OE	2x2xAWG22	3.0
2171022	IE-PNA-5-M 12D-A-5-Y-2-22-1-OE	2x2xAWG22	5.0
2171023	IE-PNA-5-M 12D-A-10-Y-2-22-1-OE	2x2xAWG22	10.0
2171024	IE-PNA-5-M 12D-A-20-Y-2-22-1-OE	2x2xAWG22	20.0

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New



Info

- For PROFINET applications (D-coded)

Industrial Ethernet PN B patchcord M 12



■ Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

■ Application range

- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)

■ Product Make-up

- Flexible fine-wire copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC
- Pre-assembled patchcord with a M12 D-coded connector on both sides
- Connector with vibration protection

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
Angled connector on straight connector			
2171037	IE-PNB-5-M12D-A-1-Y-2-22-7-M12D-S	2x2xAWG22	1.0
2171038	IE-PNB-5-M12D-A-2-Y-2-22-7-M12D-S	2x2xAWG22	2.0
2171039	IE-PNB-5-M12D-A-3-Y-2-22-7-M12D-S	2x2xAWG22	3.0
2171040	IE-PNB-5-M12D-A-5-Y-2-22-7-M12D-S	2x2xAWG22	5.0
2171041	IE-PNB-5-M12D-A-10-Y-2-22-7-M12D-S	2x2xAWG22	10.0
2171042	IE-PNB-5-M12D-A-20-Y-2-22-7-M12D-S	2x2xAWG22	20.0
Straight connector on straight connector			
2171025	IE-PNB-5-M12D-S-1-Y-2-22-7-M12D-S	2x2xAWG22	1.0
2171026	IE-PNB-5-M12D-S-2-Y-2-22-7-M12D-S	2x2xAWG22	2.0
2171027	IE-PNB-5-M12D-S-3-Y-2-22-7-M12D-S	2x2xAWG22	3.0
2171028	IE-PNB-5-M12D-S-5-Y-2-22-7-M12D-S	2x2xAWG22	5.0
2171029	IE-PNB-5-M12D-S-10-Y-2-22-7-M12D-S	2x2xAWG22	10.0
2171030	IE-PNB-5-M12D-S-20-Y-2-22-7-M12D-S	2x2xAWG22	20.0

Photographs are not to scale and do not represent detailed images of the respective products.

New

Industrial Ethernet PN B Patchcord M 12 on free conductor end



■ Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

■ Application range

- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)

■ Product Make-up

- Fine-wire, tinned-copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC
- Connector with vibration protection
- Pre-assembled patchcord with a M12 connector on free conductor end

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
Angled connector on free conductor end			
2171043	IE-PNB-5-M12D-A-1-Y-2-22-7-OE	2x2xAWG22	1.0
2171044	IE-PNB-5-M12D-A-2-Y-2-22-7-OE	2x2xAWG22	2.0
2171045	IE-PNB-5-M12D-A-3-Y-2-22-7-OE	2x2xAWG22	3.0
2171046	IE-PNB-5-M12D-A-5-Y-2-22-7-OE	2x2xAWG22	5.0
2171047	IE-PNB-5-M12D-A-10-Y-2-22-7-OE	2x2xAWG22	10.0
2171048	IE-PNB-5-M12D-A-20-Y-2-22-7-OE	2x2xAWG22	20.0
Straight connector on free conductor end			
2171031	IE-PNB-5-M12D-S-1-Y-2-22-7-OE	2x2xAWG22	1.0
2171032	IE-PNB-5-M12D-S-2-Y-2-22-7-OE	2x2xAWG22	2.0
2171033	IE-PNB-5-M12D-S-3-Y-2-22-7-OE	2x2xAWG22	3.0
2171034	IE-PNB-5-M12D-S-5-Y-2-22-7-OE	2x2xAWG22	5.0
2171035	IE-PNB-5-M12D-S-10-Y-2-22-7-OE	2x2xAWG22	10.0
2171036	IE-PNB-5-M12D-S-20-Y-2-22-7-OE	2x2xAWG22	20.0

Photographs are not to scale and do not represent detailed images of the respective products.

New

Industrial Ethernet PN C patchcord M 12



Info

- For PROFINET applications (D-coded)

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

Application range

- Suitable for use in industrial applications
- For indoor use
- For use in power chains and moving machinery parts in dry or damp rooms

Product Make-up

- Extra-fine wire, tinned braided conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Pre-assembled patchcord with a M 12 D-coded connector on both sides
- Connector with vibration protection

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
Angled connector on straight connector			
2171061	IE-PNC-5-M12D-A-1-P-2-22-FD-M12D-S	2x2xAWG22	1.0
2171062	IE-PNC-5-M12D-A-2-P-2-22-FD-M12D-S	2x2xAWG22	2.0
2171063	IE-PNC-5-M12D-A-3-P-2-22-FD-M12D-S	2x2xAWG22	3.0
2171064	IE-PNC-5-M12D-A-5-P-2-22-FD-M12D-S	2x2xAWG22	5.0
2171065	IE-PNC-5-M12D-A-10-P-2-22-FD-M12D-S	2x2xAWG22	10.0
2171066	IE-PNC-5-M12D-A-20-P-2-22-FD-M12D-S	2x2xAWG22	20.0
Straight connector on straight connector			
2171049	IE-PNC-5-M12D-S-1-P-2-22-FD-M12D-S	2x2xAWG22	1.0
2171050	IE-PNC-5-M12D-S-2-P-2-22-FD-M12D-S	2x2xAWG22	2.0
2171051	IE-PNC-5-M12D-S-3-P-2-22-FD-M12D-S	2x2xAWG22	3.0
2171052	IE-PNC-5-M12D-S-5-P-2-22-FD-M12D-S	2x2xAWG22	5.0
2171053	IE-PNC-5-M12D-S-10-P-2-22-FD-M12D-S	2x2xAWG22	10.0
2171054	IE-PNC-5-M12D-S-20-P-2-22-FD-M12D-S	2x2xAWG22	20.0

Photographs are not to scale and do not represent detailed images of the respective products.

New

Industrial Ethernet PN C Patchcord M 12 on free conductor end



Info

- For PROFINET applications (D-coded)

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

Application range

- Suitable for use in industrial applications
- For indoor use
- For highly flexible applications (power chains, moving machine parts)

Product Make-up

- Extra-fine wire, tinned copper strands
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Connector with vibration protection
- Pre-assembled patchcord with a M 12 connector on free conductor end

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
straight connector on free conductor end			
2171055	IE-PNC-5-M12D-A-5-P-2-22-FD-OE	2x2xAWG22	1.0
2171056	IE-PNC-5-M12D-S-2-P-2-22-FD-OE	2x2xAWG22	2.0
2171057	IE-PNC-5-M12D-S-3-P-2-22-FD-OE	2x2xAWG22	3.0
2171058	IE-PNC-5-M12D-S-5-P-2-22-FD-OE	2x2xAWG22	5.0
2171059	IE-PNC-5-M12D-S-10-P-2-22-FD-OE	2x2xAWG22	10.0
2171060	IE-PNC-5-M12D-S-20-P-2-22-FD-OE	2x2xAWG22	20.0
Angled connector on free conductor end			
2171067	IE-PNC-5-M12D-A-1-P-2-22-FD-OE	2x2xAWG22	1.0
2171068	IE-PNC-5-M12D-A-2-P-2-22-FD-OE	2x2xAWG22	2.0
2171069	IE-PNC-5-M12D-A-3-P-2-22-FD-OE	2x2xAWG22	3.0
2171070	IE-PNC-5-M12D-A-5-P-2-22-FD-OE	2x2xAWG22	5.0
2171071	IE-PNC-5-M12D-A-10-P-2-22-FD-OE	2x2xAWG22	10.0
2171072	IE-PNC-5-M12D-A-20-P-2-22-FD-OE	2x2xAWG22	20.0

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New

Industrial Ethernet patchcord P M12-M12



Info

- Industrial Ethernet cable

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

Application range

- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)

Product Make-up

- Flexible fine-wire copper conductor
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Pre-assembled patchcord with a M12 D-coded connector on both sides
- Connector with vibration protection

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
2171097	IE-5-M12D-S-1-P-2-26-7-M12D-S	2x2xAWG26	1.0
2171098	IE-5-M12D-S-2-P-2-26-7-M12D-S	2x2xAWG26	2.0
2171099	IE-5-M12D-S-3-P-2-26-7-M12D-S	2x2xAWG26	3.0
2171100	IE-5-M12D-S-5-P-2-26-7-M12D-S	2x2xAWG26	5.0
2171101	IE-5-M12D-S-10-P-2-26-7-M12D-S	2x2xAWG26	10.0
2171102	IE-5-M12D-S-20-P-2-26-7-M12D-S	2x2xAWG26	20.0

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New

Industrial Ethernet Patchcord RJ45-RJ45 P



Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- Flexible use

Application range

- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)

Product Make-up

- Fine copper wire strands
- Overall screening with copper braid and plastic-laminated aluminium foil
- Pre-assembled patchcord with a RJ45 connector on both sides
- Outer sheath made of PUR

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
2-pair version			
2171115	IE-5-RJ45-1-P-2-26-7-RJ45	2x2xAWG26	1.0
2171116	IE-5-RJ45-2-P-2-26-7-RJ45	2x2xAWG26	2.0
2171117	IE-5-RJ45-3-P-2-26-7-RJ45	2x2xAWG26	3.0
2171118	IE-5-RJ45-5-P-2-26-7-RJ45	2x2xAWG26	5.0
2171119	IE-5-RJ45-10-P-2-26-7-RJ45	2x2xAWG26	10.0
2171120	IE-5-RJ45-20-P-2-26-7-RJ45	2x2xAWG26	20.0
4-pair version			
2171501	IE-5-RJ45-1-P-4-26-7-RJ45	4x2xAWG26	1.0
2171502	IE-5-RJ45-2-P-4-26-7-RJ45	4x2xAWG26	2.0
2171503	IE-5-RJ45-3-P-4-26-7-RJ45	4x2xAWG26	3.0
2171504	IE-5-RJ45-5-P-4-26-7-RJ45	4x2xAWG26	5.0
2171505	IE-5-RJ45-10-P-4-26-7-RJ45	4x2xAWG26	10.0
2171506	IE-5-RJ45-20-P-4-26-7-RJ45	4x2xAWG26	20.0

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New

Industrial Ethernet EC Patchcord M8



Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- Flexible use

Application range

- Suitable for use in industrial applications
- Especially for EtherCat applications
- For indoor use

Product Make-up

- Stranded conductor, 7-wire, 2x2xAWG26/7
- Overall screening with copper braid and plastic-laminated aluminium foil
- Pre-assembled patchcord with a M8 connector on both sides

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
Angled connector on straight connector			
2171350	IE-EC-5-M8D-A-0,5-Y-2-26-7-M8D-S	2x2xAWG26	0.5
2171351	IE-EC-5-M8D-A-1-Y-2-26-7-M8D-S	2x2xAWG26	1.0
2171352	IE-EC-5-M8D-A-2-Y-2-26-7-M8D-S	2x2xAWG26	2.0
2171353	IE-EC-5-M8D-A-3-Y-2-26-7-M8D-S	2x2xAWG26	3.0
2171354	IE-EC-5-M8D-A-5-Y-2-26-7-M8D-S	2x2xAWG26	5.0
2171355	IE-EC-5-M8D-A-7-Y-2-26-7-M8D-S	2x2xAWG26	7.0
2171356	IE-EC-5-M8D-A-10-Y-2-26-7-M8D-S	2x2xAWG26	10.0
2171357	IE-EC-5-M8D-A-15-Y-2-26-7-M8D-S	2x2xAWG26	15.0
2171358	IE-EC-5-M8D-A-20-Y-2-26-7-M8D-S	2x2xAWG26	20.0
Straight connector on straight connector			
2171300	IE-EC-5-M8D-S-0,5-Y-2-26-7-M8D-S	2x2xAWG26	0.5
2171301	IE-EC-5-M8D-S-1-Y-2-26-7-M8D-S	2x2xAWG26	1.0
2171302	IE-EC-5-M8D-S-2-Y-2-26-7-M8D-S	2x2xAWG26	2.0
2171303	IE-EC-5-M8D-S-3-Y-2-26-7-M8D-S	2x2xAWG26	3.0
2171306	IE-EC-5-M8D-S-10-Y-2-26-7-M8D-S	2x2xAWG26	10.0
2171304	IE-EC-5-M8D-S-5-Y-2-26-7-M8D-S	2x2xAWG26	5.0
2171305	IE-EC-5-M8D-S-7-Y-2-26-7-M8D-S	2x2xAWG26	7.0
2171307	IE-EC-5-M8D-S-15-Y-2-26-7-M8D-S	2x2xAWG26	15.0
2171308	IE-EC-5-M8D-S-20-Y-2-26-7-M8D-S	2x2xAWG26	20.0

Photographs are not to scale and do not represent detailed images of the respective products.

New

Industrial Ethernet EC Patchcord M8 on open conductor end



Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- Flexible use

Application range

- Suitable for use in industrial applications
- For indoor use
- Especially for EtherCat applications

Product Make-up

- Stranded conductor, 7-wire, 2x2xAWG26/7
- Overall screening with copper braid and plastic-laminated aluminium foil
- Pre-assembled patchcord with a M8 connector on free conductor end

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
Angled connector on free conductor end			
2171370	IE-EC-5-M8D-A-0,5-Y-2-26-7-OE	2x2xAWG26	0.5
2171371	IE-EC-5-M8D-A-1-Y-2-26-7-OE	2x2xAWG26	1.0
2171372	IE-EC-5-M8D-A-2-Y-2-26-7-OE	2x2xAWG26	2.0
2171373	IE-EC-5-M8D-A-3-Y-2-26-7-OE	2x2xAWG26	3.0
2171374	IE-EC-5-M8D-A-5-Y-2-26-7-OE	2x2xAWG26	5.0
2171375	IE-EC-5-M8D-A-7-Y-2-26-7-OE	2x2xAWG26	7.0
2171376	IE-EC-5-M8D-A-10-Y-2-26-7-OE	2x2xAWG26	10.0
2171377	IE-EC-5-M8D-A-15-Y-2-26-7-OE	2x2xAWG26	15.0
2171378	IE-EC-5-M8D-A-20-Y-2-26-7-OE	2x2xAWG26	20.0
straight connector on free conductor end			
2171320	IE-EC-5-M8D-S-0,5-Y-2-26-7-OE	2x2xAWG26	0.5
2171321	IE-EC-5-M8D-S-1-Y-2-26-7-OE	2x2xAWG26	1.0
2171322	IE-EC-5-M8D-S-2-Y-2-26-7-OE	2x2xAWG26	2.0
2171323	IE-EC-5-M8D-S-3-Y-2-26-7-OE	2x2xAWG26	3.0
2171324	IE-EC-5-M8D-S-5-Y-2-26-7-OE	2x2xAWG26	5.0
2171325	IE-EC-5-M8D-S-7-Y-2-26-7-OE	2x2xAWG26	7.0
2171326	IE-EC-5-M8D-S-10-Y-2-26-7-OE	2x2xAWG26	10.0
2171327	IE-EC-5-M8D-S-15-Y-2-26-7-OE	2x2xAWG26	15.0
2171328	IE-EC-5-M8D-S-20-Y-2-26-7-OE	2x2xAWG26	20.0

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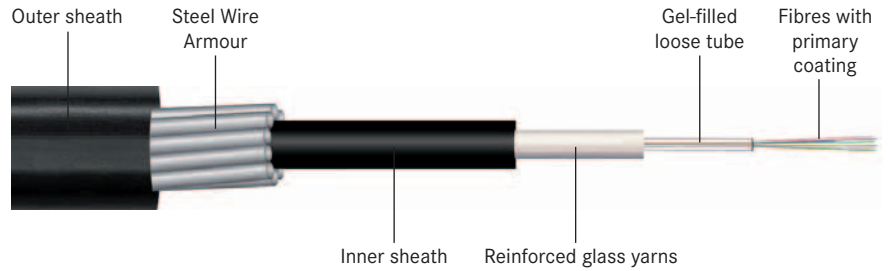
HITRONIC® Product Overview

Type of fibre	Cables	Trunks/Patchcords	Connectors
POF	POF SIMPLEX PE		F-SMA
	POF DUPLEX PE		B-FOC (ST)
	POF SIMPLEX PE-PUR		HFBR
	POF DUPLEX PE-PUR		F05 (TOCP)
	POF DUPLEX Heavy		
	POF SIMPLEX FD PE-PUR		
	POF DUPLEX FD PE-PUR		
PCF	PCF SIMPLEX Outdoor		F-SMA
	PCF DUPLEX Outdoor		B-FOC (ST)
	PCF DUPLEX Indoor		HFBR
	PCF DUPLEX FD Universal		
GOF	HITRONIC® FIRE		SC
	HITRONIC® TORSION		ST (B-FOC)
	HRM-FD Flexible		LC
	HDM Reel		
	HQN Outdoor		
	HVN Stranded Outdoor		Patchcords
	HVN-Micro Outdoor	Pigtails 	
	HQW Armoured Outdoor		
	HVW Armoured Stranded Outdoor		
	HQW-Plus Armoured Outdoor		
	HQA Aerial ADSS		
	HQA-Plus Aerial ADSS		
	HUN Universal		
	HUW Armoured Universal		
	HRH Breakout		
HDH Mini Breakout			

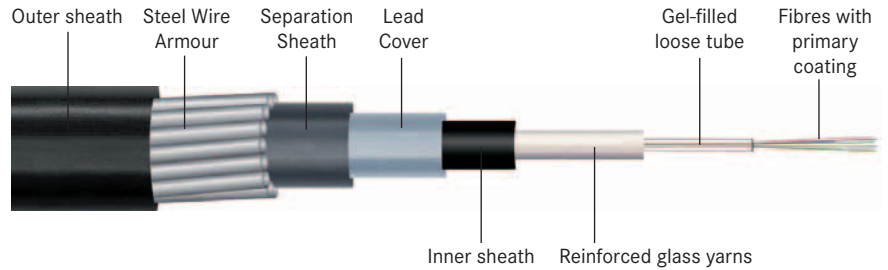
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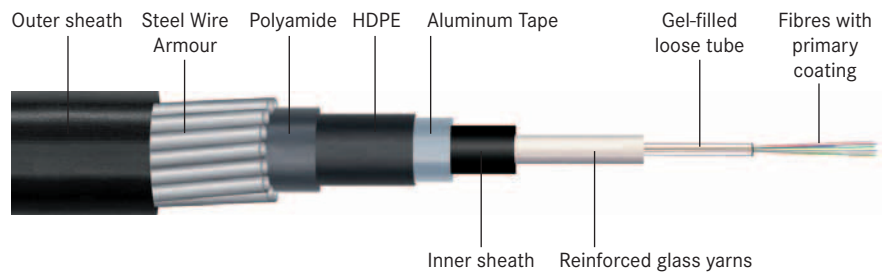
HITRONIC® ARMOUR SWA



HITRONIC® ARMOUR SWA LEAD



HITRONIC® ARMOUR SWA AL/HDPE/PA



HITRONIC® ARMOUR SWA

Fibre optic cable with steel wire armouring (SWA)

Benefits

- High mechanical protection against accidental impacts
- Excellent rodent protection
- Suitable for direct burial
- UV and water-resistant

Application range

- Heavy industrial areas
- For indoor or outdoor use
- Methods of deployment: empty plastic pipes, ducts and trays

Technical data



Fibre
Core/Cladding material: Glass/Glass
Type of fibre: Singlemode 9/125 OS2;
Multimode 50/125 OM4, 50/125 OM3,
50/125 OM2, and 62.5/125 OM1
No. of fibres: 4-144



Temperature range
-40 °C to + 70 °C



Tensile force (maximum)
3000 N

HITRONIC® ARMOUR SWA LEAD

Fibre optic cable with extruded lead armouring for chemical protection

Benefits

- Protection against hydrocarbons and other chemicals
- Excellent rodent protection
- High mechanical protection against accidental impacts

Application range

- Harsh oil and chemical environments
- Heavy industrial areas
- For direct burial, especially in the presence of oil and aggressive chemical substances

HITRONIC® ARMOUR SWA AL/HDPE/PA

Fibre optic cable with aluminum tape and additional HDPE and PA sheaths for water and chemical protection

Benefits

- Aluminum tape acts as a barrier to prevent water penetration
- Cost-effective protection against hydrocarbons and other aggressive chemicals (EN 50288-7)
- High mechanical protection

Application range

- Harsh oil and chemical environments
- Heavy industrial areas
- For direct burial, especially in the presence of oil and aggressive chemical substances

Inner and outer sheath materials are based on the area of installation:
 • For outdoors, PE or PVC is used
 • For indoor use, where flame retardance is required, LSZH material is used

Similar armouring can also be added to other cables, e.g. ETHERLINE® ARMOUR, UNITRONIC® ARMOUR

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ÖLFLEX® | UNITRONIC® | ETHERLINE® | HITRONIC® | EPIC® | SKINTOP® | SILVYN® | FLEXIMARK® | ACCESSORIES

New

HITRONIC® FIRE



Info

- A/J-DQ(ZN)BH(SR)H or U-DQ(ZN)BH(SR)H
- Fire-resistant cable designed according to IEC 60331-25
- System integrity for at least 90 minutes in the event of fire



Benefits

- Ensures that the fibres can still transmit data during and after a fire (according to IEC 60331-25)
- Suitable for installation in underground tunnels where fire safety is critical
- Additional sheath protects the fibres for use in harsh environments
- Armouring provides excellent protection against high mechanical stress and rodents
- UV-resistant longitudinally and laterally watertight

Application range

- In industrial areas that use fire as a tool
- Highly combustible or fire-prone areas
- For indoor and outdoor use
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

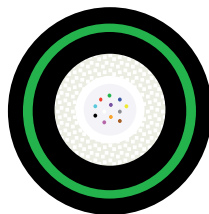
- Fire behaviour:
 - Halogen-free (IEC 60754-1)
 - Flame-retardant (IEC 60332-3)
 - Low smoke density (IEC 61034-1/2)
 - Circuit integrity (IEC 60331-25); 90 min Optical fibre cables
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Flame-retardant and halogen-free outer sheath

Approvals (Norm references)



Product Make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- LSZH inner and outer sheaths
- Colour: black (RAL 9005)



Technical data

- Optical fibre type**
 Core material: glass
 Cladding material: glass
- Temperature range**
 Fixed installation: -30°C to +70°C
- Permissible bending radius**
 Static: ≥ 15 x outer diameter
 Dynamic: ≥ 20 x outer diameter
- Permissible tensile force**
 Fixed installation: 1500 N
 Short-term: 2200 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM3					
27560304	HITRONIC® FIRE 4G 50/125 OM3	50/125 OM3	4	9.8	123
27560308	HITRONIC® FIRE 8G 50/125 OM3	50/125 OM3	8	9.8	123
27560312	HITRONIC® FIRE 12G 50/125 OM3	50/125 OM3	12	12.8	188
27560324	HITRONIC® FIRE 24G 50/125 OM3	50/125 OM3	24	12.8	188
Multimode G 50 OM2					
27560204	HITRONIC® FIRE 4G 50/125 OM2	50/125 OM2	4	9.8	123
27560208	HITRONIC® FIRE 8G 50/125 OM2	50/125 OM2	8	9.8	123
27560212	HITRONIC® FIRE 12G 50/125 OM2	50/125 OM2	12	12.8	188
27560224	HITRONIC® FIRE 24G 50/125 OM2	50/125 OM2	24	12.8	188
Multimode G 62.5 OM1					
27560104	HITRONIC® FIRE 4G 62.5/125 OM1	62.5/125 OM1	4	9.8	123
27560108	HITRONIC® FIRE 8G 62.5/125 OM1	62.5/125 OM1	8	9.8	123
27560112	HITRONIC® FIRE 12G 62.5/125 OM1	62.5/125 OM1	12	12.8	188
27560124	HITRONIC® FIRE 24G 62.5/125 OM1	62.5/125 OM1	24	12.8	188
Single-mode E 9 OS2					
27560904	HITRONIC® FIRE 4E 9/125 OS2	9/125 OS2	4	9.8	123
27560908	HITRONIC® FIRE 8E 9/125 OS2	9/125 OS2	8	9.8	123
27560912	HITRONIC® FIRE 12E 9/125 OS2	9/125 OS2	12	12.8	188
27560924	HITRONIC® FIRE 24E 9/125 OS2	9/125 OS2	24	12.8	188

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. The cables can also be supplied as pre-terminated fibre optic trunks. Photographs are not to scale and do not represent detailed images of the respective products.

New

HITRONIC® TORSION



Info

- A/J-V(ZN)H 11Y
- Breakout cable designed to withstand high torsional stresses
- Torsion-resistant and very flexible

Benefits

- Designed to withstand high torsion in the windmill drip loop
- Suitable for field assembly
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- Zero electromagnetic interference as the cable contains no metal

Application range

- For fixed and flexible installations, as well as for applications with torsional movements (e.g. machinery, wind turbines)
- Industrial environments
- In vertical installations
- As a link between moving parts
- For indoor and outdoor use

Product features

- Based on military norm MIL-C-85045
- Torsion-resistant and very flexible
- Flame-retardant and halogen-free
- Mechanically robust

Approvals (Norm references)



Product Make-up

- 2.5 mm tight-buffered sub-cable with LSZH sheath
- Aramid yarns as strain relief
- Central element
- PUR outer sheath
- Colour: black (RAL 9005)

Technical data



Optical fibre type
Core material: glass
Cladding material: glass



Temperature range
Fixed installation: -40°C to +70°C
Occasional flexing: -30°C to +70°C



Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM3					
26310302	HITRONIC® TORSION 2G 50/125 OM3	50/125 OM3	2	8.4	54
26310304	HITRONIC® TORSION 4G 50/125 OM3	50/125 OM3	4	8.4	54
26310308	HITRONIC® TORSION 8G 50/125 OM3	50/125 OM3	8	11.6	95
26310312	HITRONIC® TORSION 12G 50/125 OM3	50/125 OM3	12	12.4	122
Multimode G 50 OM2					
26310202	HITRONIC® TORSION 2G 50/125 OM2	50/125 OM2	2	8.4	54
26310204	HITRONIC® TORSION 4G 50/125 OM2	50/125 OM2	4	8.4	54
26310208	HITRONIC® TORSION 8G 50/125 OM2	50/125 OM2	8	11.6	95
26310212	HITRONIC® TORSION 12G 50/125 OM2	50/125 OM2	12	12.4	122
Multimode G 62.5 OM1					
26310102	HITRONIC® TORSION 2G 62.5/125 OM1	62.5/125 OM1	2	8.4	54
26310104	HITRONIC® TORSION 4G 62.5/125 OM1	62.5/125 OM1	4	8.4	54
26310108	HITRONIC® TORSION 8G 62.5/125 OM1	62.5/125 OM1	8	11.6	95
26310112	HITRONIC® TORSION 12G 62.5/125 OM1	62.5/125 OM1	12	12.4	122
Single-mode E 9 OS2					
26310902	HITRONIC® TORSION 2E 9/125 OS2	9/125 OS2	2	8.4	54
26310904	HITRONIC® TORSION 4E 9/125 OS2	9/125 OS2	4	8.4	54
26310908	HITRONIC® TORSION 8E 9/125 OS2	9/125 OS2	8	11.6	95
26310912	HITRONIC® TORSION 12E 9/125 OS2	9/125 OS2	12	12.4	122

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New

HITRONIC® HDM Cable



Info

- A/J-V(ZN)11Y
- Mini breakout/distribution cable designed for frequent reeling and unreeling use



Benefits

- Designed for use in temporary events' management
- Easy to coil for mobile use
- Very easy to install due to small dimensions, high flexibility, and small bending radius
- Suitable for field assembly
- Zero electromagnetic interference as the cable contains no metal

Application range

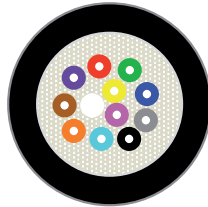
- For flexible applications
- In temporary installations
- Industrial environments
- For indoor and outdoor use

Product features

- Based on military norm MIL-C-85045
- Highly flexible
- Colour-coded fibres
- Flame-retardant and halogen-free
- Mechanically robust

Product Make-up

- Up to 12 tight-buffered fibres (900µm)
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: black (RAL 9005)



Technical data

- Optical fibre type**
Core material: glass
Cladding material: glass
- Temperature range**
Fixed installation: -40°C to +70°C
Flexible use: -20°C to +60°C
- Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM4					
26610404	HITRONIC® HDM600 4G 50/125 OM4	50/125 OM4	4	5.5	24
26610406	HITRONIC® HDM600 6G 50/125 OM4	50/125 OM4	6	5.6	29
26610408	HITRONIC® HDM700 8G 50/125 OM4	50/125 OM4	8	6.2	36
Multimode G 50 OM3					
26610304	HITRONIC® HDM600 4G 50/125 OM3	50/125 OM3	4	5.5	24
26610306	HITRONIC® HDM600 6G 50/125 OM3	50/125 OM3	6	5.6	29
26610308	HITRONIC® HDM700 8G 50/125 OM3	50/125 OM3	8	6.2	36
Multimode G 50 OM2					
26610204	HITRONIC® HDM600 4G 50/125 OM2	50/125 OM2	4	5.5	24
26610206	HITRONIC® HDM600 6G 50/125 OM2	50/125 OM2	6	5.6	29
26610208	HITRONIC® HDM700 8G 50/125 OM2	50/125 OM2	8	6.2	36
Multimode G 62.5 OM1					
26610104	HITRONIC® HDM600 4G 62.5/125 OM1	62.5/125 OM1	4	5.5	24
26610106	HITRONIC® HDM600 6G 62.5/125 OM1	62.5/125 OM1	6	5.6	29
26610108	HITRONIC® HDM700 8G 62.5/125 OM1	62.5/125 OM1	8	6.2	36

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. The cables can also be supplied as pre-terminated fibre optic trunks. Photographs are not to scale and do not represent detailed images of the respective products.

New

HITRONIC® HRM-FD Cable



Info

- A/J-V(ZN)H(ZN) 11Y
- Flexible breakout cable designed for use in power chain applications

Benefits

- Designed for use in power chains
- Suitable for field assembly
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- Zero electromagnetic interference as the cable contains no metal

Application range

- For highly flexible industrial applications
- As a link between moving parts
- In vertical installations
- Industrial environments
- For indoor and outdoor use

Product features

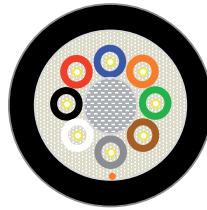
- Based on military norm MIL-C-85045
- For use in power chains and moving machinery parts in dry or damp rooms
- Flame-retardant and halogen-free
- Mechanically robust

Approvals (Norm references)



Product Make-up

- 2.0 mm tight-buffered sub-cable with LSZH sheath
- Aramid yarns as strain relief
- Central element
- PUR outer sheath
- Colour: black (RAL 9005)



Technical data



Optical fibre type
Core material: glass
Cladding material: glass



Temperature range
Fixed installation: -40°C to +70°C
Flexible use: -20°C to +60°C



Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM4					
26300402	HITRONIC® HRM-FD800 2G 50/125 OM4	50/125 OM4	2	7.8	50
26300404	HITRONIC® HRM-FD1000 4G 50/125 OM4	50/125 OM4	4	7.8	50
26300408	HITRONIC® HRM-FD1400 8G 50/125 OM4	50/125 OM4	8	10.4	93
26300412	HITRONIC® HRM-FD1800 12G 50/125 OM4	50/125 OM4	12	11.0	98
Multimode G 50 OM3					
26300302	HITRONIC® HRM-FD800 2G 50/125 OM3	50/125 OM3	2	7.8	50
26300304	HITRONIC® HRM-FD1000 4G 50/125 OM3	50/125 OM3	4	7.8	50
26300308	HITRONIC® HRM-FD1400 8G 50/125 OM3	50/125 OM3	8	10.4	93
26300312	HITRONIC® HRM-FD1800 12G 50/125 OM3	50/125 OM3	12	11.0	98
Multimode G 50 OM2					
26300202	HITRONIC® HRM-FD800 2G 50/125 OM2	50/125 OM2	2	7.8	50
26300204	HITRONIC® HRM-FD1000 4G 50/125 OM2	50/125 OM2	4	7.8	50
26300208	HITRONIC® HRM-FD1400 8G 50/125 OM2	50/125 OM2	8	10.4	93
26300212	HITRONIC® HRM-FD1800 12G 50/125 OM2	50/125 OM2	12	11.0	98
Multimode G 62.5 OM1					
26300102	HITRONIC® HRM-FD800 2G 62.5/125 OM1	62.5/125 OM1	2	7.8	50
26300104	HITRONIC® HRM-FD1000 4G 62.5/125 OM1	62.5/125 OM1	4	7.8	50
26300108	HITRONIC® HRM-FD1400 8G 62.5/125 OM1	62.5/125 OM1	8	10.4	93
26300112	HITRONIC® HRM-FD1800 12G 62.5/125 OM1	62.5/125 OM1	12	11.0	98
Single-mode E 9 OS2					
26300902	HITRONIC® HRM-FD800 2E 9/125 OS2	9/125 OS2	2	7.8	50
26300904	HITRONIC® HRM-FD1000 4E 9/125 OS2	9/125 OS2	4	7.8	50
26300908	HITRONIC® HRM-FD1400 8E 9/125 OS2	9/125 OS2	8	10.4	93
26300912	HITRONIC® HRM-FD1800 12E 9/125 OS2	9/125 OS2	12	11.0	98

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Info

- J-V2Y(ZN)11Y
- Flexible POF cable designed for moving applications

New

HITRONIC® POF FD PE-PUR



Benefits

- Designed for use in power chains
- Transmission lengths up to 70 m
- Suitable for direct connector assembly
- Easy to handle
- EMC protection

Application range

- For highly flexible applications
- As a link between moving parts
- For optical signal transmission in industrial applications with high mechanical stress

Product features

- Highly flexible
- Flame-retardant and halogen-free
- Resistant to abrasion, oil, microbes and hydrolysis

Approvals (Norm references)



Product Make-up

- Plastic fibre-optic cables
- PE buffer tube
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: orange (RAL 2003)

Technical data

- Minimum bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter
- Optical fibre type**
Core material: PMMA
Cladding material: fluoropolymers
- Temperature range**
Operation: -20 °C to +70 °C
Installation: -10 °C to +50 °C
- Permissible tensile force**
Fixed installation: 100 N
Short-term: 400 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
28320001	HITRONIC® POF SIMPLEX FD PE-PUR	980/1000 POF	1	6	32
28320002	HITRONIC® POF DUPLEX FD PE-PUR	980/1000 POF	2	8	60

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® CHAIN refer to main catalogue 2012
- SMARTSTRIP stripping tool refer to main catalogue 2012
- Mille-Tie™ cable ties refer to main catalogue 2012
- Damage-free cable bundles through: Mille-Tie™
- Connectors, tools and other accessories are available upon request



Info

- A/J-V(ZN)H11Y
- Flexible PCF cable compatible with all BUS systems

New

HITRONIC® PCF DUPLEX FD Cable



Benefits

- Designed for use in power chains
- Transmission lengths up to 500 m
- Suitable for direct connector assembly
- Good resistance to oil, petrol, acids and alkalis
- EMC protection

Application range

- For highly flexible applications
- For data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.
- As a link between moving parts
- Industrial environments

Product features

- Possible transmission wavelengths: 650 nm and 850 nm
- Complies with requirements for all BUS systems
- Flame-retardant and halogen-free

Product Make-up

- Colour-coded, tight-buffered PCF sub-cable with FRNC sheath
- Sub cable outer diameter: 2.2mm
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: orange (RAL 2003)

Technical data

- Minimum bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter
- Optical fibre type**
Core material: glass
Cladding material: fluoropolymers
- Temperature range**
Operation: -20 °C to +70 °C
Installation: -10 °C to +50 °C
- Permissible tensile force**
Fixed installation: 800 N
Short-term: 2000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
28320702	HITRONIC® PCF DUPLEX FD FRNC-PUR	200/230 PCF	2	8.8	55

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New

HITRONIC® HVN-Micro Outdoor Cable



Info

- A-DQ(ZN)B2Y
- Micro outdoor cable designed for installation by air-blowing systems (Micro Ducts)

Benefits

- Suitable for blowing into micro-ducts
- Can be installed by using compressed air-blowing machines and equipment
- UV-resistant longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal

Application range

- For outdoor use
- For installations by blowing
- Telecommunications network
- WAN applications
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

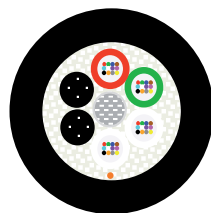
- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Rodent-protection
- Robust, halogen-free outer sheath

Approvals (Norm references)



Product Make-up

- Up to 12 stranded gel-filled loose tubes
- Central GRP strength element
- Water-blocking reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)



Technical data



Optical fibre type

Core material: glass
Cladding material: glass



Temperature range

Fixed installation: -50°C to +100°C



Permissible bending radius

Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Single-mode E 9 OS2					
26609972	HITRONIC® HVN-Micro500 6x12E 9/125 OS2	9/125 OS2	72	5,7	29
26609996	HITRONIC® HVN-Micro1200 8x12E 9/125 OS2	9/125 OS2	96	6,6	42
26609944	HITRONIC® HVN-Micro1500 12x12E 9/125 OS2	9/125 OS2	144	8,6	72

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Photographs are not to scale and do not represent detailed images of the respective products.

New

HITRONIC® HQA Aerial Cable



Info

- A-DQ(ZN)2Y - ADSS (All Dielectric Self Supporting)
- Outdoor self-supporting aerial cable with stranded loose tubes and non-metallic strain relief



Benefits

- Suitable for mild weather conditions
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal

Application range

- For outdoor use
- Hanging on poles

Product features

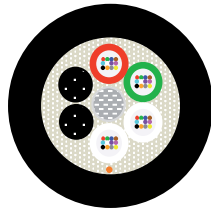
- Stranded loose tubes with up to 96 fibres
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Robust, halogen-free outer sheath
- Span wide up to 90m

Approvals (Norm references)



Product Make-up

- Up to 8 stranded gel-filled loose tubes
- Central GRP strength element
- Aramid yarns as strain relief
- PE outer sheath
- Colour: black (RAL 9005)



Technical data

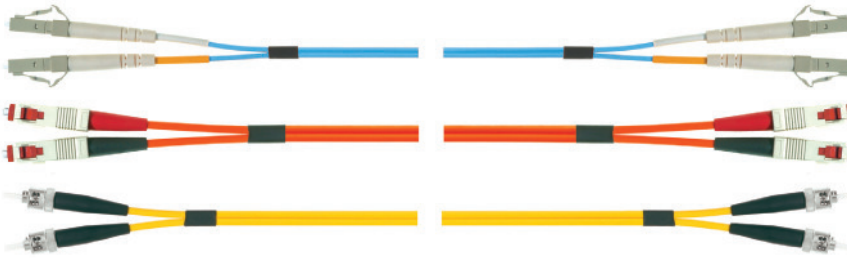
- Optical fibre type**
Core material: glass
Cladding material: glass
- Temperature range**
Fixed installation: -50°C to +100°C
Occasional flexing: -30°C to +70°C
- Permissible bending radius**
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter
- Permissible tensile force**
MAT: 800 N
EDS: 2000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Single-mode E 9 OS2					
26640912	HITRONIC® HQA800 6x2E 9/125 OS2	9/125 OS2	12	9.7	73
26640924	HITRONIC® HQA800 6x4E 9/125 OS2	9/125 OS2	24	9.7	73
26640948	HITRONIC® HQA800 6x8E 9/125 OS2	9/125 OS2	48	10.9	92
26640972	HITRONIC® HQA800 6x12E 9/125 OS2	9/125 OS2	72	10.9	94
26640996	HITRONIC® HQA800 8x12E 9/125 OS2	9/125 OS2	96	12.4	121

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New

GOF Duplex Patchcord



Info

- J-VH 2x1G/E
- Pre-terminated tight buffered duplex cable with durable ceramic ferrules

Benefits

- “Plug & Play” connection between any optical devices
- Non-permanent connections allow for easy change of equipment
- Direct connection between two active optical components
- Zero electromagnetic interference as the cable contains no metal

Application range

- For indoor use
- LAN connections

Product features

- Flame-retardant and halogen-free
- High flexibility
- Cable termination with durable ceramic ferrules

Approvals (Norm references)



Product Make-up

- Tight-buffered duplex cable with LSZH outer sheath
- Connector: LC, SC or ST
- Cable colour: violet for multimode OM4, aqua for multimode OM3, orange for multimode OM2 and OM1, yellow for single-mode OS2
- Standard length: 2 m

Technical data



Optical fibre type
Core material: glass
Cladding material: glass



Temperature range
Fixed installation: -20°C to +60°C
Occasional flexing: -5°C to +50°C



Permissible bending radius
Static: ≥ 30 mm
Dynamic: ≥ 40 mm



Permissible tensile force
Fixed installation: 100 N

Article number	Article designation	PU
Multimode G 50 OM4		
29011402	GOF Duplex Patchcord SC/SC G50 OM4, 2m	1 piece
29021402	GOF Duplex Patchcord ST/SC G50 OM4, 2m	1 piece
29022402	GOF Duplex Patchcord ST/ST G50 OM4, 2m	1 piece
29031402	GOF Duplex Patchcord LC/SC G50 OM4, 2m	1 piece
29032402	GOF Duplex Patchcord LC/ST G50 OM4, 2m	1 piece
29033402	GOF Duplex Patchcord LC/LC G50 OM4, 2m	1 piece
29044402	GOF Duplex Patchcord FC/FC G50 OM4, 2m	1 piece
Multimode G 50 OM3		
29011302	GOF Duplex Patchcord SC/SC G50 OM3, 2m	1 piece
29021302	GOF Duplex Patchcord ST/SC G50 OM3, 2m	1 piece
29022302	GOF Duplex Patchcord ST/ST G50 OM3, 2m	1 piece
29031302	GOF Duplex Patchcord LC/SC G50 OM3, 2m	1 piece
29032302	GOF Duplex Patchcord LC/ST G50 OM3, 2m	1 piece
29033302	GOF Duplex Patchcord LC/LC G50 OM3, 2m	1 piece
29044302	GOF Duplex Patchcord FC/FC G50 OM3, 2m	1 piece
Multimode G 50 OM2		
29011202	GOF Duplex Patchcord SC/SC G50 OM2, 2m	1 piece
29021202	GOF Duplex Patchcord ST/SC G50 OM2, 2m	1 piece
29022202	GOF Duplex Patchcord ST/ST G50 OM2, 2m	1 piece
29031202	GOF Duplex Patchcord LC/SC G50 OM2, 2m	1 piece
29032202	GOF Duplex Patchcord LC/ST G50 OM2, 2m	1 piece
29033202	GOF Duplex Patchcord LC/LC G50 OM2, 2m	1 piece
29044202	GOF Duplex Patchcord FC/FC G50 OM2, 2m	1 piece
Multimode G 62.5 OM1		
29011102	GOF Duplex Patchcord SC/SC G62.5, 2m	1 piece
29021102	GOF Duplex Patchcord ST/SC G62.5, 2m	1 piece
29022102	GOF Duplex Patchcord ST/ST G62.5, 2m	1 piece
29031102	GOF Duplex Patchcord LC/SC G62.5, 2m	1 piece
29032102	GOF Duplex Patchcord LC/ST G62.5, 2m	1 piece
29033102	GOF Duplex Patchcord LC/LC G62.5, 2m	1 piece
29044102	GOF Duplex Patchcord FC/FC G62.5, 2m	1 piece
Single-mode E 9 OS2		
29011902	GOF Duplex Patchcord SC/SC E9 OS2, 2m	1 piece
29021902	GOF Duplex Patchcord ST/SC E9 OS2, 2m	1 piece
29022902	GOF Duplex Patchcord ST/ST E9 OS2, 2m	1 piece
29031902	GOF Duplex Patchcord LC/SC E9 OS2, 2m	1 piece
29032902	GOF Duplex Patchcord LC/ST E9 OS2, 2m	1 piece
29033902	GOF Duplex Patchcord LC/LC E9 OS2, 2m	1 piece
29044902	GOF Duplex Patchcord FC/FC E9 OS2, 2m	1 piece

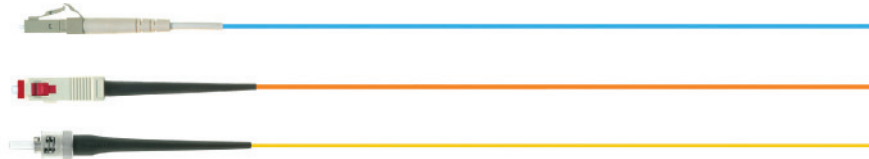
Other lengths and types of connectors are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

New

Simplex Pigtail

Info

- J-VH 1G/E
- Pre-terminated tight-buffered simplex cable with one durable ceramic ferrule



Benefits

- Create a direct plug connection for installation cables with splicing
- Ease of installation and assembly
- Zero electromagnetic interference as the cable contains no metal

Application range

- For indoor use
- Connection to an end optical device

Product features

- Flame-retardant and halogen-free
- High flexibility
- Cable termination with durable ceramic ferrules
- Set consisting of 12 colour-coded pigtails

Approvals (Norm references)



Product Make-up

- Tight-buffered simplex fibre with LSZH outer sheath
- Connector: LC, SC or ST
- Colour-coded primary and secondary coatings
- Standard length: 2 m

Technical data

- Optical fibre type**
Core material: glass
Cladding material: glass
- Temperature range**
Fixed installation: -20°C to +60°C
Occasional flexing: -5°C to +50°C
- Permissible tensile force**
Fixed installation: 100 N

Article number	Article designation	PU
Multimode G 50 OM4		
29310402	GOF Simplex Pigtail SC G50 OM4, 2m	12 piece
29320402	GOF Simplex Pigtail ST G50 OM4, 2m	12 piece
29330402	GOF Simplex Pigtail LC G50 OM4, 2m	12 piece
Multimode G 50 OM3		
29310302	GOF Simplex Pigtail SC G50 OM3, 2m	12 piece
29320302	GOF Simplex Pigtail ST G50 OM3, 2m	12 piece
29330302	GOF Simplex Pigtail LC G50 OM3, 2m	12 piece
Multimode G 50 OM2		
29310202	GOF Simplex Pigtail SC G50 OM2, 2m	12 piece
29320202	GOF Simplex Pigtail ST G50 OM2, 2m	12 piece
29330202	GOF Simplex Pigtail LC G50 OM2, 2m	12 piece
Multimode G 62.5 OM1		
29310102	GOF Simplex Pigtail SC G62.5, 2m	12 piece
29320102	GOF Simplex Pigtail ST G62.5, 2m	12 piece
29330102	GOF Simplex Pigtail LC G62.5, 2m	12 piece
Single-mode E 9 OS2		
29310902	GOF Simplex Pigtail SC E9 OS2, 2m	12 piece
29320902	GOF Simplex Pigtail ST E9 OS2, 2m	12 piece
29330902	GOF Simplex Pigtail LC E9 OS2, 2m	12 piece

Other types of connectors (e.g. LC, MTRJ, E2000) are available upon request. Judy Lim: This will not apply to Hitronic anymore, as LC will become a standard product and MTRJ/E2000 will be removed. Photographs are not to scale and do not represent detailed images of the respective products.

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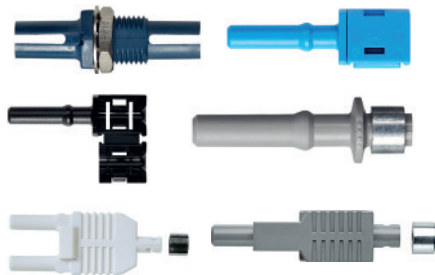
SILVYN®

FLEXIMARK®

ACCESSORIES

New

POF Connector and Adapter HFBR



Benefits

- Compatible with HP Versatile Link Connectors and Components series
- Different colours for channel coding

Application range

- Factory automation
- Medical equipment
- Telecommunications Switching Systems
- Automotive Networks
- Printed Circuit Board

Product features

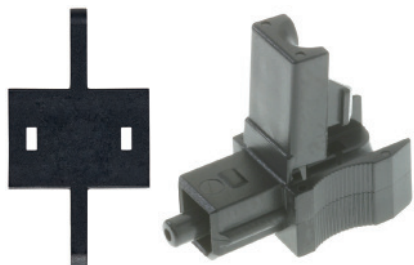
- HFBR connector series for 2.2 mm POF
- For crimping or clamping
- Simplex or Duplex variations

Article number	Article designation	PU
Connector HFBR-4501, Simplex, with Crimp Sleeve		
29140099	POF Connector HFBR4501 GY Simplex	4 piece
29140098	POF Connector HFBR4501 GY Simplex	50 piece
Latching Connector HFBR-4503, Simplex, with Crimp Sleeve		
29141099	POF Connector HFBR4503 GY Simplex	4 piece
29141098	POF Connector HFBR4503 GY Simplex	50 piece
Connector HFBR-4506, Duplex, with Crimp Sleeve		
29142099	POF Connector HFBR4506 WH Duplex	4 piece
29142098	POF Connector HFBR4506 WH Duplex	50 piece
Connector HFBR-4511, Simplex, with Crimp Sleeve		
29143099	POF Connector HFBR4511 BL Simplex	4 piece
29143098	POF Connector HFBR4511 BL Simplex	50 piece
Latching Connector HFBR-4513, Simplex, with Crimp Sleeve		
29144099	POF Connector HFBR4513 BL Simplex	4 piece
29144098	POF Connector HFBR4513 BL Simplex	50 piece
Latching Connector HFBR-4516, Duplex, with Crimp Sleeve		
29145099	POF Connector HFBR4516 GY Duplex	4 piece
29145098	POF Connector HFBR4516 GY Duplex	50 piece
Clamp Connector HFBR-4531, Simplex		
29146099	POF Connector HFBR4531 BK Simplex	4 piece
29146098	POF Connector HFBR4531 BK Simplex	50 piece
Clamp and Latching Connector HFBR-4532, Simplex		
29147099	POF Connector HFBR4532 BK Simplex	4 piece
Clamp Connector HFBR-4533, Simplex		
29148099	POF Connector HFBR4533 BL Simplex	4 piece
29148098	POF Connector HFBR4533 BL Simplex	50 piece
HFBR Adapters		
29440099	POF Adapter HFBR4505 GY Simplex	4 piece
HFBR Adapters		
29441099	POF Adapter HFBR4515 BL Simplex	4 piece

Photographs are not to scale and do not represent detailed images of the respective products.

New

POF Connector F05 Simplex



Benefits

- Easy to assemble

Application range

- Digital audio
- Factory automation
- Office Automation (Smart House)

Product features

- F-05 (TOCP) SIMPLEX clamp connector for connecting to polymer optical fibre without crimping or gluing
- Snap-In Connector
- Suitable for 2.2 mm POF



Info

- Compatible with TOCP155K

Article number	Article designation	PU
Connector F05 Simplex		
29150099	POF Connector F05 Simplex	4 piece
29150098	POF Connector F05 Simplex	50 piece
Adapter for Connector F05 Simplex		
29450099	POF Adapter F05 Simplex	4 piece

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 SKINTOP®
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 FLEXIMARK®
 ACCESSORIES

New

POF Connector F-SMA and ST(BFOC)

Benefits

- As crimp or clamp version for easy assembling

Product features

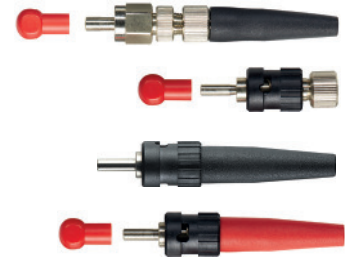
- FSMA and ST(BFOC) connector with knurled nut or hexagonal nut for crimping, gluing or easy clamping
- Suitable for 2.2 mm POF



Info

- **FSMA and ST(BFOC) connectors for POF cable assembly**

- Available for different cable diameters (2.2 mm and 6.0 mm)
- Connector including bend protection boot and dust cap
- Bend protection boot colour: black and red



Article number	Article designation	PU
FSMA Connectors with knurled nut for crimping		
29135099	POF Connector FSMA Crimp 2.2	4 piece
29135098	POF Connector FSMA Crimp 2.2	50 piece
29137099	POF Connector FSMA Crimp 6.0	4 piece
29137098	POF Connector FSMA Crimp 6.0	50 piece
FSMA Connectors with hexagonal nut for crimping		
29135089	POF Connector FSMA Hex Crimp 2.2	4 piece
29135088	POF Connector FSMA Hex Crimp 2.2	50 piece
29132089	POF Connector FSMA Hex Crimp 6.0	4 piece
29132088	POF Connector FSMA Hex Crimp 6.0	50 piece
FSMA Connectors with knurled nut for clamping		
29130099	POF Connector FSMA Clamp 2.2	4 piece
29130098	POF Connector FSMA Clamp 2.2	50 piece
FSMA Connectors with knurled nut for clamping		
29130089	POF Connector FSMA Hex Clamp 2.2	4 piece
29130088	POF Connector FSMA Hex Clamp 2.2	50 piece
ST(BFOC) Connectors for crimping		
29125099	POF Connector ST(BFOC) Crimp 2.2	4 piece
29125098	POF Connector ST(BFOC) Crimp 2.2	50 piece
ST(BFOC) Connectors for clamping		
29120099	POF Connector ST(BFOC) Clamp 2.2	4 piece
29120098	POF Connector ST(BFOC) Clamp 2.2	50 piece

Photographs are not to scale and do not represent detailed images of the respective products.

New

POF Adapter F-SMA

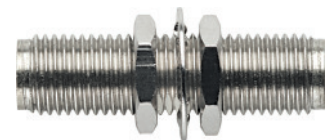
Product features

- POF Adapter FSMA: version with two fixing nuts and lock washer
- POF Adapter FSMA hexa: version with hexagonal flange, fixing nuts and lock washer



Info

- **Can be used for POF and PCF connector types**



Article number	Article designation	PU
29430099	POF Adapter FSMA	4 piece

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New

POF Adapter ST (BFOC)

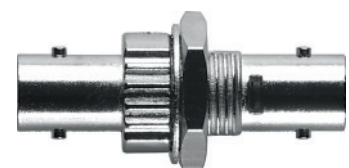
Product features

- ST(BFOC) adapter with flange, fixing nuts and lock washer



Info

- **Can be used for POF and PCF connector types**



Article number	Article designation	PU
29420099	POF Adapter ST (BFOC)	4 piece

Photographs are not to scale and do not represent detailed images of the respective products.

New

Power H-S



Info

- Very high current transfer in a small space
- Axial screw termination for assembly without special tool

Suitable housing:

- EPIC® ULTRA H-B 6 refer to main catalogue 2012
- EPIC® H-B 6 Housings refer to main catalogue 2012

Benefits

- Fast and easy assembly
- Very high current transfer
- Lower space requirement
- Axial screw termination for assembly without special tool

Application range

- Mechanical engineering
- Plant engineering
- Renewable energy

Technical data

Rated voltage (V)
1000

Rated impulse voltage
8 kV

Rated current (A)
65

Degree of soiling
3

Contact resistance
< 1 mOhm

Number of contacts
4 + PE

Termination methods
Axial screw termination
2.5 mm² ... 10.0 mm²



Material
PC, polycarbonate

Cycle of mechanical operation
500



Temperature range
-40°C ... +125°C

Article number	Article	Version	Contacts	PU
H-S Axial screw connection				
10407910	H-S 4+2xPE SAS	male	4 + PE	10
10407900	H-S 4+2xPE BAS	female	4 + PE	10
Tool for axial connection				
44424028	TOOL HEX 2x100			1

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New

EPIC® Power K 4/0



Info

- Combination insert Power

Suitable housing:

- EPIC® ULTRA H-B 16 refer to main catalogue 2012
- EPIC® H-B 16 Housings refer to main catalogue 2012

Benefits

- High power in one connector insert
- Best in combination with ÖLFLEX® SERVO

Application range

- Mechanical engineering
- Renewable energy
- Control engineering

Technical data

Rated voltage (V)
830 V Power

Rated impulse voltage
8 kV

Rated current (A)
80 A Power

Degree of soiling
3

Contact resistance
< 5 mOhm

Number of contacts
4 + PE

Termination methods
Screw termination: 1.5 - 16.0 mm²



Material
PC, polycarbonate

Cycle of mechanical operation
500



Temperature range
-40 °C ... +125 °C

Article number	Article	Version	Contacts	PU
EPIC® 4/0 screw termination				
44424041	EPIC® K 4/0 SS	male	4 + PE	10
44424042	EPIC® K 4/0 BS	female	4 + PE	10

Photographs are not to scale and do not represent detailed images of the respective products.

New

EPIC® Power K 4/2



Info

- Combination insert Power and Control

Suitable housing:

- EPIC® ULTRA H-B 16 refer to main catalogue 2012
- EPIC® H-B 16 Housings refer to main catalogue 2012

Benefits

- Power and control in one connector insert
- Best in combination with ÖLFLEX® SERVO

Application range

- Mechanical engineering
- Renewable energy
- Control engineering

Technical data

Rated voltage (V)
830 V Power
400 V Control

Rated impulse voltage
8 kV

Rated current (A)
80 A Power
16 A Control

Degree of soiling
3

Contact resistance
< 5 mOhm

Number of contacts
4 + 2 + PE

Termination methods
Screw termination: 1.5 - 16.0 mm²



Material
PC, polycarbonate

Cycle of mechanical operation
500



Temperature range
-40 °C ... +125 °C

Article number	Article	Version	Contacts	PU
EPIC® K 4/2 screw termination				
44424043	EPIC® K 4/2 SS	male	4 + 2 + PE	10
44424044	EPIC® K 4/2 BS	female	4 + 2 + PE	10

Photographs are not to scale and do not represent detailed images of the respective products.

New

EPIC® Power Module HC2



Info

- High current with only one module slot
- Versatile functions in one connector

Suitable housing:

- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® Modular 3.6 machined contacts 16mm²
- Use only EPIC® MC 3.6 contacts 16mm²!

Benefits

- High current transfer
- Only one slot in the frame needed
- The mix of modules in one plug guarantees high flexibility
- Crimp connection for permanent vibration proof contact

Technical data

Rated voltage (V)
1000 V

Rated impulse voltage
8 kV

Rated current (A)
65

Degree of soiling
3

Number of contacts
2

Termination methods
Crimp termination: 16.0 mm²



Material
PA6

Cycle of mechanical operation
500



Temperature range
-40°C ... +125°C

Application range

- Plant engineering
- Robotics industry
- Control engineering
- Mechanical engineering

Article number	Article	Version	PU
EPIC® Power Module HC2			
44424012	EPIC® MCS HC2	male	10
44424013	EPIC® MCB HC2	female	10

Due to reduced cross sections at PE contacts of frames, the PE contact has to be additionally protected against short circuits by using a protection circuit offering a sufficiently short breaking time (<0.25s). Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® MCR Frames refer to main catalogue 2012

New

EPIC® Modular 3.6 machined contacts 16mm²



Suitable tools

- For use in pneumatic crimping tool Klauke type EK 60/22-L

Technical data

Contact resistance
< 1 mOhm

Contacts
Copper alloy, hard silver-plated

Cycle of mechanical operation
500

Article number	Article	Inserts	Type of contact	Cross-section (mm ²)	Surface	PU
Contacts						
44424014	EPIC® Modular SCEM AG 16 D=3.6	Crimping contacts for HC modules	male	16.0	Ag	20
44424015	EPIC® Modular BCEM AG 16 D=3.6	Crimping contacts for HC modules	female	16.0	Ag	20
Ring lug for Protection earth						
44424029	EPIC® KB 16-4R	Ring cable lug to connect a 16mm ² protective wire to the module frame	Ringlug	16.0		10
Crimping die for contacts of HC2 modules						
44424016	EPIC® TOOL DIE D=3.6/16sqmm	Crimping dies		16.0		1

Photographs are not to scale and do not represent detailed images of the respective products.



New

EPIC® Power Module HHC2



Info

- High current for sufficient power reserves
- Versatile functions in one connector

Suitable housing:

- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® Modular 6.0 machined contacts

Benefits

- Very high current transfer
- The mix of modules in one plug guarantees high flexibility
- Crimp connection for permanent vibration proof contact

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy

Technical data

Rated voltage (V)
1000

Rated impulse voltage
8 kV

Rated current (A)
150

Degree of soiling
3

Number of contacts
2

Termination methods

Crimp termination: 16 mm² ... 35 mm²



Material
PA6

Cycle of mechanical operation
500



Temperature range
-40 °C ... +125 °C

Article number	Article	Version	PU
EPIC® Power Module HHC2			
44424017	EPIC® MCS HHC2	male	10
44424018	EPIC® MCB HHC2	female	10

Due to reduced cross sections at PE contacts of frames, the PE contact has to be additionally protected against short circuits by using a protection circuit offering a sufficiently short breaking time (<0.25s). Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® MCR Frames refer to main catalogue 2012

New

EPIC® Modular 6.0 machined contacts



Suitable tools

- For use in pneumatic crimping tool Klauke type EK 60/22-L

Technical data

Contact resistance
< 1 mOhm

Cycle of mechanical operation
500



Material
Copper alloy, hard silver-plated

Article number	Article	Inserts	Type of contact	Cross-section (mm²)	Cross-section ratio	Surface	PU
Contacts							
44424019	EPIC® Modular SCEM AG 16 D=3.6	Crimping contacts for HHC2 modules	male	16.0	1.0	Ag	20
44424022	EPIC® Modular BCEM AG 16 D=6.0	Crimping contacts for HHC2 modules	female	16.0	1.0	Ag	20
44424020	EPIC® Modular SCEM AG 25 D=6.0	Crimping contacts for HHC2 modules	male	25.0	2.0	Ag	20
44424023	EPIC® Modular BCEM AG 25 D=6.0	Crimping contacts for HHC2 modules	female	25.0	2.0	Ag	20
44424021	EPIC® Modular SCEM AG 35 D=6.0	Crimping contacts for HHC2 modules	male	35.0	3.0	Ag	20
44424024	EPIC® Modular BCEM AG 35 D=6.0	Crimping contacts for HHC2 modules	female	35.0	3.0	Ag	20
Crimping die for contacts of HHC2 modules							
44424025	EPIC® TOOL DIE D=6.0/16sqmm	Crimping dies		16.0			1
44424026	EPIC® TOOL DIE D=6.0/25sqmm	Crimping dies		25.0			1
44424027	EPIC® TOOL DIE D=6.0/35sqmm	Crimping dies		35.0			1

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Rectangular connectors

EPIC® MC Modules

New

EPIC® Power Module HHC1



Info

- Extremely high current for sufficient power reserves
- Versatile functions in one connector

Suitable housing:

- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® Modular 10.0 machined contacts

Benefits

- Extremely high current transfer
- The mix of modules in one plug guarantees high flexibility
- Crimp connection for permanent vibration proof contact

Application range

- Robotics industry
- Renewable energy
- Plant engineering
- Mechanical engineering

Technical data

Rated voltage (V)
1000

Rated impulse voltage
8 kV

Rated current (A)
220

Degree of soiling
3

Number of contacts
1

Termination methods

Crimp termination: 50 mm² ... 95mm²



Material
PA6

Cycle of mechanical operation
500



Temperature range
-40°C ... +125°C

Article number	Article	Version	PU
EPIC® Power Module HHC1			
44424030	EPIC® MCS HHC1	male	1
44424031	EPIC® MCB HHC1	female	1

Due to reduced cross sections at PE contacts of frames, the PE contact has to be additionally protected against short circuits by using a protection circuit offering a sufficiently short breaking time (<0.25s). Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® MCR Frames refer to main catalogue 2012

EPIC® Industrial connectors

Rectangular connectors

EPIC® Contacts + tools

New

EPIC® Modular 10.0 machined contacts



Info

- Crimping contacts for maximum cross sections and currents

Suitable tools

- For use in pneumatic crimping tool Klauke type EK 120/42-L

Technical data

Contact resistance
< 1 mOhm

Cycle of mechanical operation
500



Material
Copper alloy, hard silver-plated

Article number	Article	Inserts	Type of contact	Cross-section (mm²)	Surface	PU
Contacts						
44424032	EPIC® Modular SCEM AG 50 D=10.0	Crimping contacts for HHC1 modules	male	50.0	Ag	1
44424035	EPIC® Modular BCEM AG 50 D=10.0	Crimping contacts for HHC1 modules	female	50.0	Ag	1
44424033	EPIC® Modular SCEM AG 70 D=10.0	Crimping contacts for HHC1 modules	male	70.0	Ag	1
44424036	EPIC® Modular BCEM AG 70 D=10.0	Crimping contacts for HHC1 modules	female	70.0	Ag	1
44424034	EPIC® Modular SCEM AG 95 D=10.0	Crimping contacts for HHC1 modules	male	95.0	Ag	1
44424037	EPIC® Modular BCEM AG 95 D=10.0	Crimping contacts for HHC1 modules	female	95.0	Ag	1
EPIC® Power Module HHC1						
44424038	EPIC® TOOL DIE D=10.0/50sqmm	Crimping dies		50.0		1
44424039	EPIC® TOOL DIE D=10.0/70sqmm	Crimping dies		70.0		1
44424040	EPIC® TOOL DIE D=10.0/95sqmm	Crimping dies		95.0		1

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New

SKINTOP® CLICK SORTIMO® T-BOXX



Info

- The most innovative cable insertion system in the market for a fast and highly flexible assembly. Simply click in - turn to the left - turn to the right - finished. The result: fixed, centred, strain-relieved fitting and maximum protection class in a few seconds.
- Optimal order in the practical SORTIMO® T-BOXX



Benefits

- Fewer parts, counter nut no longer needed
- Save up to 70% of the time with the innovative CLICK system
- Simple, free assembly in any position
- Vibration protection
- No thread required

Application range

- Automation technology
- Solar applications
- Control cabinet manufacturing
- Air-conditioning technology
- Measurement, control and electrical applications

Product features

- Optimal order in the practical SORTIMO® T-BOXX
- Small packaging unit, wide variety
- Light and robust, shock- and impact-resistant polypropylene case
- Two sturdy locks - ideal for mounting use E.g. on site

Approvals (Norm references)



- UL File Nr. E79903

Note

- To refill standard packaging units are available

Included

- Included in all sizes: disassembly tool
- Delivery in SORTIMO® T-BOXX
- Assembly instructions
- SKINTOP® CLICK M12 / 40 Piece (Part.No. 53112692)
- SKINTOP® CLICK M16 / 55 Piece (Part.No. 53112686)
- SKINTOP® CLICK M20 / 25 Piece (Part.No. 53112687)
- SKINTOP® CLICK M25 / 25 Piece (Part.No. 53112688)
- SKINTOP® CLICK M32 / 9 Piece (Part.No. 53112694)

Technical data

RAL Colour delivered
Light grey (RAL 7035)

Material
Body: special polyamide
Seal: special elastomer

IP Protection rating
IP 68 - 4 bar (M12)
IP 68 - 5 bar (M16 - M32)

Temperature range
Dynamic: -20°C to +100°C
Fixed: -40°C to +100°C

Article number	Article designation / size	Pieces / PU
53112695	SKINTOP® CLICK SORTIMO® BOXX	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® CLICK refer to main catalogue 2012

New

SKINTOP® ST-M SORTIMO® T-BOXX



Info

- Optimal order in the practical SORTIMO® T-BOXX
- The brand for universal cable gland according to the principle: quickly fixed, centered and hermetically sealed

Benefits

- High oil-resistance for maximum reliability
- Wide, variable clamping ranges
- Easy to install
- Permanent vibration protection
- Optimum strain relief

Application range

- Control cabinet manufacturing
- Automation technology
- Measurement, control and electrical applications
- Air-conditioning technology

Product features

- Optimal order in the practical SORTIMO® T-BOXX
- Small packaging unit, wide variety
- Light and robust, shock- and impact-resistant polypropylene case
- Two sturdy locks - ideal for mounting use E.g. on site

Approvals (Norm references)



- UL File Nr. E79903

Note

- To refill standard packaging units are available

Included

- Delivery in SORTIMO® T-BOXX
- Inclusive counter nuts SKINTOP® GMP-GL-M
- Assembly instructions
- 50 Pcs. SKINTOP® ST-M M12 Art.No. 53111400
- 50 Pcs. SKINTOP® ST-M M16 Art.No. 53111410
- 40 Pcs. SKINTOP® ST-M M20 Art.No. 53111420
- 25 Pcs. SKINTOP® ST-M M25 Art.No. 53111430
- 9 Pcs. SKINTOP® ST-M M32 Art.No. 53111440

Technical data



Caution

Refer to Appendix T21 for the installation dimensions and torques



Colour delivered

Light grey (RAL 7035)



Material

Body: Polyamide
Seal: CR

Tests

GGVS: TÜ.EGG.020-95



Protection rating

IP 68 - 5 bar
IP 69 K



Temperature range

Dynamic: -20 °C to +100 °C
Fixed: -40 °C to +100 °C

Article number	Article designation / size	Pieces / PU
53110030	SKINTOP® ST-M SORTIMO® T-BOXX	1

Other colours are available upon request.
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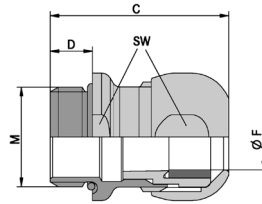
New

SKINTOP® INOX / SKINTOP® INOX-R



Info

- Stainless steel version with compact design



Benefits

- High corrosion-resistance
- Smooth surfaces - no edges
- Compact design
- Sea water-resistant
- Wide, variable clamping ranges

Application range

- Pharmaceutical industry
- Food industry (product-free zone, splash zone)
- Onshore and offshore applications
- Bottling plants and breweries

Approvals (Norm references)



- **DIN EN ISO 14 159**
Security of machinery – Hygienic requirements for the design of machinery
- **DIN EN 1672-2**
Guideline for the design of machinery
- **EHEDG**
Hygienic design for machinery and components

Product Make-up

- Metric connection thread acc. to EN 50262

Technical data

- Material**
Body: Stainless steel - V2A (1.4404 / 316L)
Insert: Polyamide
Sealing ring: Silicone
O-Ring: Silicone
- Protection rating**
IP 68 - 5 bar
IP 69 K
- Temperature range**
-40°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	Thread length, D (mm)	SW (mm)	Overall length, C (mm)	Pieces / PU
SKINTOP® INOX						
53806740	16x1,5	4,5-10	7	20	32,4	5
53806741	20x1,5	7-13	8	24	35,8	5
53806742	25x1,5	9-17	8	29	37,8	5
53806743	32x1,5	11-21	9	36	43,3	5
SKINTOP® INOX-R						
53806750	16x1,5	2-7	7	20	32,4	5
53806751	20x1,5	5-10	8	24	35,8	5
53806752	25x1,5	6-13	8	29	37,8	5
53806753	32x1,5	7-15	9	36	43,3	5

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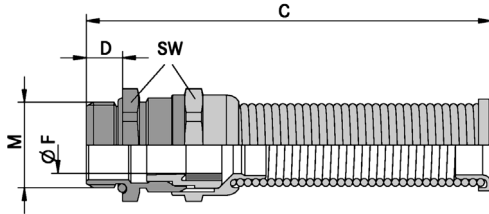
Similar products

- SKINDICHT® CN-M refer to main catalogue 2012



New

SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL



Info

- Permanent bending protection under high mechanical stress

Benefits

- High mechanical stability
- Long service life
- Optimum strain relief
- Wide, variable clamping ranges
- Maximum reliability

Application range

- In areas where mechanical stability are critical
- Mobile resources
- Building sites
- Machine and equipment manufacturing
- Typical fields of application
 - Steel and glass works
 - Cement and ceramic works
 - Foundries
 - Shipbuilding industry
 - Furnace construction

Approvals (Norm references)



Product Make-up

- Metric connection thread acc. to EN 50262

Note

- Counter nut to be used: SKINDICHT® SM-M
- Refer to SKINTOP® metric accessories for suitable accessories

Technical data



Caution

Refer to Appendix T21 for the installation dimensions and torques



Material

Body: nickel-plated brass
 Insert: polyamide
 Sealing ring: CR
 O-ring: NBR
 Spiral - springs made of stainless steel



Protection rating

IP 68
 IP 69 K



Temperature range

Dynamic: -30 °C to +100 °C

Article number	Article designation / size	Clamping range ØF (mm)	Thread length, D (mm)	SW (mm)	Overall length, C (mm)	Pieces / PU
SKINTOP® BS-M METAL						
53806761	20x1,5	7-13	8	24	95.0	25
53806762	25x1,5	9-17	8	29	105.0	25
SKINTOP® BSR-M METAL						
53806771	20x1,5	5-10	8	24	95.0	25
53806772	25x1,5	6-13	8	29	105.0	25

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to main catalogue 2012
- SKINTOP® DIX-M refer to main catalogue 2012
- SKINMATIC® MH Set refer to main catalogue 2012
- SKINTOP® DIX-M AUTOMATION refer to main catalogue 2012



New

SKINTOP® BRUSH ADD-ON

Benefits

- Optimum, low-resistance 360° screen contact
- Cutting edges cut through the insulating layer of the housing or switch cabinets, thus guaranteeing an optimum EMC contact
- Easy disassembling
- Visible, large-scale screen contact
- Uncomplicated and reliable

Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- For EMC-contact at through bore-holes
- Control cabinet manufacturing
- Automation systems
- Conveyor and transport systems

Approvals (Norm references)



Product Make-up

- Metric connection thread acc. to EN 50262



Info

- Innovative EMC add-on for SKINTOP® ST(R)-M polyamide cable glands.
- Worlds first patented active EMC lock-nut!

Technical data



Caution
Refer to Appendix T21 for the installation dimensions and torques



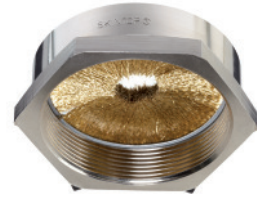
Approvals
UL pending



Material
Body: nickel-plated brass
EMC brush: brass



Temperature range
-70°C to +200°C



Article number	Article designation / size	Minimum Ø above braiding (mm)	SW (mm)	Thread length inner mm	Pieces / PU
54110840	M 16 x 1,5	5.0	24	10.0	25
54110841	M 20 x 1,5	5.0	24	10.0	10
54110842	M 25 x 1,5	5.0	30	10.0	10
54110843	M 32 x 1,5	8.0	39	12.0	10
54110844	M 40 x 1,5	10.0	47	12.0	5
54110845	M 50 x 1,5	14.0	56	12.0	5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® BS-M refer to main catalogue 2012
- SKINTOP® ST-M refer to main catalogue 2012
- SKINTOP® STR-M refer to main catalogue 2012
- SKINTOP® BT-M refer to main catalogue 2012
- SKINTOP® ST-HF-M refer to main catalogue 2012
- SKINTOP® COLD refer to main catalogue 2012
- SKINTOP® COLD-R refer to main catalogue 2012



New

SILVYN® MSK-M ATEX



Info

- ATEX Approval pending
- Availability approx. July 2013

Benefits

- Optimum cable and conduit strain relief
- Maximum cable sealing
- Fast and easy assembly
- Wide clamping range
- Anti-turn protection

Application range

- Devices, machines and apparatus of enhanced safety protection type "e"
- Chemical and petrochemical industry
- Plant engineering
- Used in areas where cables and wires need additional mechanical protection

Product features

- Combination of SILVYN® and SKINTOP®

Approvals (Norm references)



Product Make-up

- SILVYN® conduit connection via inner sleeve and cap nut
- Metric connection thread acc. to EN 50262

Suitable conduits

- SILVYN® AS refer to main catalogue 2012

Technical data



Approvals

SILVYN® MSK-M 16x1,5 AS ATEX
IBExU06ATEX1012X
II 2G EEx eII
II 1D EEx eII



Material

Basis type:
Body: nickel-plated brass
Conduit connector seal: CR/NBR
Tube seal: TPE

Tests

DIN EN 60079-0
DIN EN 60079-7



Protection rating

Cable: IP 68
Conduit: IP 40 with SILVYN® AS



Temperature range

-30°C to +90°C

Article number	Article designation	Suitable for conduit OØ (mm)	Pieces / PU
SILVYN® MSK-M for SILVYN® AS			
55506010	MSK-M 12x1,5 AS ATEX	AS 7	5
55506011	MSK-M 16x1,5 AS ATEX	AS 9	5
55506012	MSK-M 20x1,5 AS ATEX	AS 11	5
55506013	MSK-M 25x1,5 AS ATEX	AS 16	5
55506014	MSK-M 32x1,5 AS ATEX	AS 21	5
55506015	MSK-M 40x1,5 AS ATEX	AS 29	1
55506016	MSK-M 50x1,5 AS ATEX	AS 36	1
55506017	MSK-M 63x1,5 AS ATEX	AS 48	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® AS refer to main catalogue 2012
- SKINMATIC® DMG refer to main catalogue 2012

New

SILVYN® MSK-M ATEX BRUSH



Info

- ATEX Approval pending
- Availability approx. July 2013
- Optimum 360° screen contact

Benefits

- Easy installation
- Faster, easier screen contact
- Optimum cable and conduit strain relief
- Maximum cable sealing
- Wide clamping range

Application range

- Devices, machines and apparatus of enhanced safety protection type "e"
- Chemical and petrochemical industry
- Plant engineering
- Used in areas where cables and wires need additional mechanical protection

Product features

- Combination of SILVYN® and SKINTOP®

Approvals (Norm references)



Product Make-up

- SILVYN® conduit connection via inner sleeve and cap nut
- Metric connection thread acc. to EN 50262

Suitable conduits

- SILVYN® AS refer to main catalogue 2012

Technical data

Material
 Basis type:
 Body: nickel-plated brass
 Conduit connector seal: CR/NBR
 Tube seal: TPE
 EMC brush: brass

Tests
 DIN EN 60079-0
 DIN EN 60079-7

IP Protection rating
 Cable: IP 68
 Conduit: IP 40 with SILVYN® AS

Temperature range
 -30 °C to +90 °C

Article number	Article designation	Suitable for conduit Ø (mm)	Pieces / PU
SILVYN® MSK-M for SILVYN® AS			
55506042	MSK-M 25x1,5 AS ATEX BRUSH	AS 16	10
55506043	MSK-M 32x1,5 AS ATEX BRUSH	AS 21	1
55506044	MSK-M 40x1,5 AS ATEX BRUSH	AS 29	1
55506045	MSK-M 50x1,5 AS ATEX BRUSH	AS 36	1
55506030	MSK-M 63x1,5 AS ATEX BRUSH	AS 48	1

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Accessories

- SILVYN® AS refer to main catalogue 2012
- SKINMATIC® DMG refer to main catalogue 2012

New

SILVYN® FPS-EDU



SILVYN® MSK-M



SILVYN® US/US-M + US-EDU-AS IP 40



SILVYN® US-EDU-AS



SILVYN® US MS-DR



Info

- High flexible and mechanical protection at the same time

Benefits

- Protects against hot chips
- High-tensile
- Highly flexible
- Air-tight and impermeable
- Mechanical resistance

Application range

- Mechanical engineering
- Plant engineering
- Automation technology
- Used in areas where cables and wires could be damaged by welding sparks and hot chips
- Robotics industry

Approvals (Norm references)



Product Make-up

- PVC-insulated steel spring wire
- Soft PVC outer sheath
- Galvanised steel wire braiding

Note

- On request
- PU 10 m

Technical data



Material

insulated spring steel wire with Soft PVC and galvanised steel braid



Temperature range

-25°C to +80°C
Short-term: up to +100°C

Article number	Article designation	Internal Ø x external Ø (mm)	Bending radius (mm)	Inner Ø (mm)	Suitable for SILVYN® MSK-M	Suitable for SILVYN® US-M	Suitable for SILVYN® US/US-EDU-AS/US MS-DR	PU ring (m)
61802330	9	9.0 x 14.0	16	9.0	16 x 1,5	16 x 1,5	9	50
61802331	11	12.0 x 17.0	19	12.0	20 x 1,5	20 x 1,5	11	50
61802332	13,5	14.0 x 19.0	22	14.0	-	-	13,5	50
61802333	16	15.0 x 21.0	24	15.0	25 x 1,5	20 x 1,5	16	50
61802334	21	20.0 x 27.0	30	20.0	32 x 1,5	25 x 1,5	21	50
61802335	29	28.0 x 36.0	40	28.0	40 x 1,5	32 x 1,5	29	25
61802336	36	37.0 x 45.0	48	37.0	50 x 1,5	40 x 1,5	36	25
61802337	48	48.0 x 56.0	60	48.0	63 x 1,5	50 x 1,5	48	25

Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® FPS refer to main catalogue 2012
- SILVYN® EDU-AS refer to main catalogue 2012
- SILVYN® FD-PU refer to main catalogue 2012
- SILVYN® EMC AS-CU refer to main catalogue 2012

Accessories

- SILVYN® MSK-M US refer to main catalogue 2012
- SILVYN® US-M refer to main catalogue 2012
- SILVYN® US refer to main catalogue 2012

ÖLFLEX®
UNITRONIC®
ETHERLINE®
HITRONIC®
EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES

New

SILVYN® TC



Info

- No conduit gland required
- With counter nut usable
- Selected section length



Benefits

- Dimensionally stable
- Flexible
- Threaded
- Cost-saving due to quick and easy installation

Application range

- Control cabinet manufacturing
- Mechanical engineering
- Plant engineering
- For indoor and outdoor use

Product features

- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals

Approvals (Norm references)



Product Make-up

- Fine-profile corrugated polyamide 6 conduit

Note

- Other sizes are available upon request
- M10 / M12 / M16 / M40 / M50
- Section length 222 mm

Technical data

RAL	Colour delivered Black (RAL 9005), UV-resistant
	Material PA 6 Halogen-free UL 94 HB
	Temperature range -40 °C to +120 °C

Article number	Article designation	Internal Ø x external Ø (mm)	Connection thread M	Inner Ø (mm)	PU ring (m)
61221035	SILVYN® TC NW17 / M20x1,5	16.6 x 21.2	20 x 1.5	16.6	50
64400650	SILVYN® TC NW22 / M25x1,5	23.1 x 28.4	25 x 1.5	23.1	50
64400651	SILVYN® TC NW26 / M32x1,5	28.9 x 34.5	32 x 1.5	28.9	50

Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® FPAS refer to main catalogue 2012
- SILVYN® RILL PA 6 refer to main catalogue 2012

Accessories

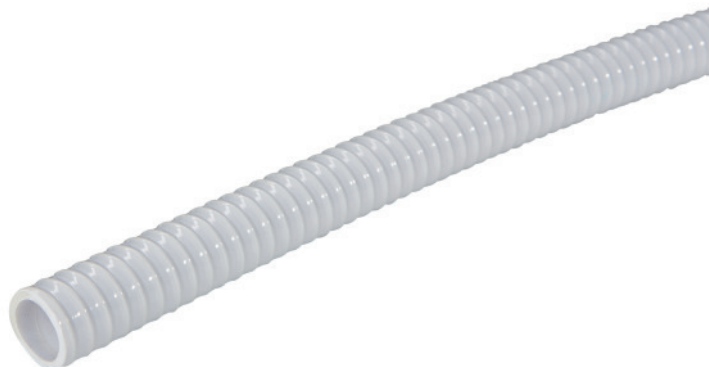
- SILVYN® CC01 refer to main catalogue 2012
- SKINTOP® GMP-GL-M refer to main catalogue 2012
- SILVYN® SPLIT COS refer to main catalogue 2012

Liquid-tight conduits

Impermeable conduits

New

SILVYN® FG NM



Info

- All-plastic conduit
- Specially made for the food and beverage industry

Benefits

- Protects against liquids
- FDA approved outer sheath
- Smooth, white surface makes it easy to clean

Application range

- Mechanical engineering
- Plant engineering
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Pharmaceutical industry
- Food packaging machinery

Product features

- Flexible
- Dimensionally stable

Approvals (Norm references)



- Approved according to FDA CFR 21 and NSF 51 (standard for the USA)

Product Make-up

- Hard PVC inner spiral
- Special, FDA-approved plastic sheath

Technical data



Colour delivered
White



Material
Special soft PVC sheath with hard PVC spiral



Temperature range
-20°C to +60°C
Short-term: +80°C

Article number	Internal Ø x external Ø (mm)	Nominal size	Bending radius (mm)	Dynamic bending radius (mm)	Inner Ø (mm)	PU ring (m)
55503360	12.6 x 17.8	3/8"	70	100	12.6	30
55503361	16.0 x 21.1	1/2"	100	135	16.0	30
55503362	21.1 x 26.4	3/4"	130	175	21.1	30
55503363	26.8 x 33.1	1"	180	220	26.8	30
55503364	35.4 x 41.8	1 1/4"	225	270	35.4	15
55503365	40.3 x 47.8	1 1/2"	255	320	40.3	15
55503366	51.6 x 59.9	2"	310	400	51.6	15

Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® FG refer to main catalogue 2012

Accessories

- SILVYN® FG AMG-M refer to main catalogue 2012

New

SILVYN® MSK-M BRUSH



Info

- Conduit gland with the innovative BRUSH solution
- Optimum 360° screen contact

Benefits

- Easy installation
- Faster, easier screen contact
- Optimum cable and conduit strain relief
- Maximum cable sealing
- Wide clamping range

Application range

- Mechanical engineering
- Plant engineering
- Heavy industry
- In EMC-sensitive environments

Product features

- Combination of SILVYN® and SKINTOP®

Approvals (Norm references)



Note

- For suitable accessories, refer to SKINTOP® metric accessories

Suitable conduits

- SILVYN® AS refer to main catalogue 2012
- SILVYN® EDU-AS refer to main catalogue 2012
- SILVYN® AS-P refer to main catalogue 2012
- SILVYN® EMC AS-CU refer to main catalogue 2012
- SILVYN® FPS-EDU refer to main catalogue 2012

Technical data

Material
 Basis type:
 Body: nickel-plated brass
 Conduit connector seal: CR/NBR
 Tube seal: TPE
 EMC brush: brass

IP **Protection rating**
 Cable: IP 68
 Conduit:
 IP 40 with SILVYN® AS, EDU-AS, EMC AS-CU
 IP 65 with SILVYN® FPS, FPS-EDU, FD-PU, AS-P

Temperature range
 -30 °C to +100 °C

Article number	Article designation	Suitable for conduit Ø (mm)	Pieces / PU
SILVYN® MSK-M for SILVYN® AS			
55506020	MSK-M 25x1,5 AS BRUSH	AS 16	10
55506021	MSK-M 32x1,5 AS BRUSH	AS 21	1
55506022	MSK-M 40x1,5 AS BRUSH	AS 29	1
55506023	MSK-M 50x1,5 AS BRUSH	AS 36	1
55506024	MSK-M 63x1,5 AS BRUSH	AS 48	1
SILVYN® MSK-M for SILVYN® EDU-AS/AS-P/EMC AS-CU			
55506025	MSK-M 25x1,5 EDU BRUSH	EDU-AS, AS-P, EMC AS-CU 16	10
55506026	MSK-M 32x1,5 EDU BRUSH	EDU-AS, AS-P, EMC AS-CU 21	1
55506027	MSK-M 40x1,5 EDU BRUSH	EDU-AS, AS-P, EMC AS-CU 29	1
55506028	MSK-M 50x1,5 EDU BRUSH	EDU-AS, AS-P, EMC AS-CU 36	1
55506029	MSK-M 63x1,5 EDU BRUSH	EDU-AS, AS-P, EMC AS-CU 48	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINMATIC® DMG refer to main catalogue 2012

New

FLEXIMARK® Cablelabel PUR



■ Benefits

- Halogen-free and flame-retardant cable marking
- Good UV-resistance

■ Application range

- For cable and conduit marking
- Can be mounted directly on the cable together with plastic cable ties
- Can be printed with a thermal transfer printer as CAB A4+ /A4+M

■ Product features

- Recommended ribbon: FLEXIMARK® Ribbon FTI-Y 55-360 BK (Artikelnr. 83260201)

■ Approvals (Norm references)



■ Product Make-up

- Is delivered in form of a roll

■ Technical data



Approvals

Flame-retardant according to UL94 VO MIL 81531 and MIL-STD-202G



Colour delivered

Standard colour: yellow/white



Material

Halogen-free PUR



Temperature range

-25°C to +80°C

Article number	Article designation	Colour	Width x length (mm)	Contents (unit)	PU
83260191	FLEXIMARK@Cablelabel PUR 60-10 YE	yellow	10.0 x 60.0	1,000	1
83260192	FLEXIMARK@Cablelabel PUR 75-15 YE	yellow	15.0 x 75.0	1,000	1
83260193	FLEXIMARK@Cablelabel PUR 75-25 YE	yellow	25.0 x 75.0	500	1
83260194	FLEXIMARK@Cablelabel PUR 60-10 WH	white	10.0 x 60.0	1,000	1
83260195	FLEXIMARK@Cablelabel PUR 75-15 WH	white	15.0 x 75.0	1,000	1
83260196	FLEXIMARK@Cablelabel PUR 75-25 WH	white	25.0 x 75.0	500	1

Photographs are not to scale and do not represent detailed images of the respective products.
Contents: roll, metre, unit, marker, label

■ Accessories

- FLEXIMARK® Software 10.0 refer to main catalogue 2012
- FLEXIMARK® Thermoprint A4+M/300* refer to main catalogue 2012
- TY - FAST®- UV-resistant cable ties refer to main catalogue 2012



New

FLEXIMARK® Organized shrink tube



Benefits

- Reduced working time
- UV-resistant, resistant against fluids (SAE-AMS-DTL-23053 tested)
- Covers a wide range of cable diameters, even applicable for single core marking
- Easy marking with the FLEXIMARK® software that can be downloaded free of charge

Application range

- For single core and cable marking
- Railway applications

Product features

- Can be printed with a thermal transfer printer as CAB A4+/A4+M
- Recommended ribbon: FLEXIMARK® Ribbon FTI-Y 55-360 BK (Artikelnr. 83260201)

Approvals (Norm references)



Product Make-up

- Is delivered in form of a roll

Technical data



On request

Halogen-free und diesel-resistant (with SNCF-NF F00-608 approval) variant available on request



Note

UL 224 approval



Colour delivered

Yellow

White and other colours available on request



Material

Polyolefine

Shrinking ratio: 3:1



Temperature range

-55 °C to +135 °C

Article number	Article designation	Colour	Shrinkage range (mm)	Length (mm)	Amount in width	Contents (unit)	PU
83260026	FLEXIMARK@Org.shr. 2.4/0.8-50(1) YE	yellow	0.8 - 2.4	50.0	1	1,000	1
83260027	FLEXIMARK@Org.shr. 3.2/1.0-50(1) YE	yellow	1.0 - 3.2	50.0	1	1,000	1
83260028	FLEXIMARK@Org.shr. 4.8/1.6-50(1) YE	yellow	1.6 - 4.8	50.0	1	1,000	1
83260029	FLEXIMARK@Org.shr. 6.4/2.0-50(1) YE	yellow	2.0 - 6.4	50.0	1	1,000	1
83260030	FLEXIMARK@Org.shr. 9.5/3.0-50(1) YE	yellow	3.0 - 9.5	50.0	1	500	1
83260031	FLEXIMARK@Org.shr.12.7/4.0-50(1)YE	yellow	4.0 - 12.7	50.0	1	500	1
83260032	FLEXIMARK@Org.shr.19.0/6.0-50(1)YE	yellow	6.0 - 19.0	50.0	1	500	1
83260033	FLEXIMARK@Org.shr. 25.4/8.0-50(1)YE	yellow	8.0 - 25.4	50.0	1	300	1
83260034	FLEXIMARK@Org.shr. 38.1/12.7-75(1)YE	yellow	12.7 - 38.1	75.0	1	100	1
83260035	FLEXIMARK@Org.shr. 2.4/0.8-38(1) YE	yellow	0.8 - 2.4	38.0	1	1,000	1
83260036	FLEXIMARK@Org.shr. 3.2/1.0-38(1) YE	yellow	1.0 - 3.2	38.0	1	1,000	1
83260037	FLEXIMARK@Org.shr. 4.8/1.6-38(1) YE	yellow	1.6 - 4.8	38.0	1	1,000	1
83260038	FLEXIMARK@Org.shr. 6.4/2.0-38(1) YE	yellow	2.0 - 6.4	38.0	1	1,000	1
83260039	FLEXIMARK@Org.shr. 9.5/3.0-38(1) YE	yellow	3.0 - 9.5	38.0	1	500	1
83260040	FLEXIMARK@Org.shr.12.7/4.0-38(1)YE	yellow	4.0 - 12.7	38.0	1	500	1
83260041	FLEXIMARK@Org.shr. 19.0/6.0-38(1)YE	yellow	6.0 - 9.0	38.0	1	500	1
83260042	FLEXIMARK@Org.shr.25.4/8.0-38(1)YE	yellow	8.0 - 25.4	38.0	1	300	1
83260043	FLEXIMARK@Org.shr. 38.1/12.7-38(1)YE	yellow	12.7 - 38.1	38.0	1	100	1
83260044	FLEXIMARK@Org.shr. 2.4/0.8-25(2) YE	yellow	0.8 - 2.4	25.0	2	2,000	1
83260045	FLEXIMARK@Org.shr. 3.2/1.0-25(2) YE	yellow	1.0 - 3.2	25.0	2	2,000	1
83260046	FLEXIMARK@Org.shr. 4.8/1.6-25(2) YE	yellow	1.6 - 4.8	25.0	2	2,000	1
83260047	FLEXIMARK@Org.shr. 6.4/2.0-25(2) YE	yellow	2.0 - 6.4	25.0	2	2,000	1
83260048	FLEXIMARK@Org.shr. 9.5/3.0-25(2) YE	yellow	3.0 - 9.5	25.0	2	1,000	1
83260049	FLEXIMARK@Org.shr. 12.7/4.0-25(2)YE	yellow	4.0 - 12.7	25.0	2	1,000	1
83260050	FLEXIMARK@Org.shr.19.0/6.0-25(2)YE	yellow	6.0 - 19.0	25.0	2	1,000	1
83260051	FLEXIMARK@Org.shr. 5.4/8.0-25(2)YE	yellow	8.0 - 25.4	25.0	2	600	1

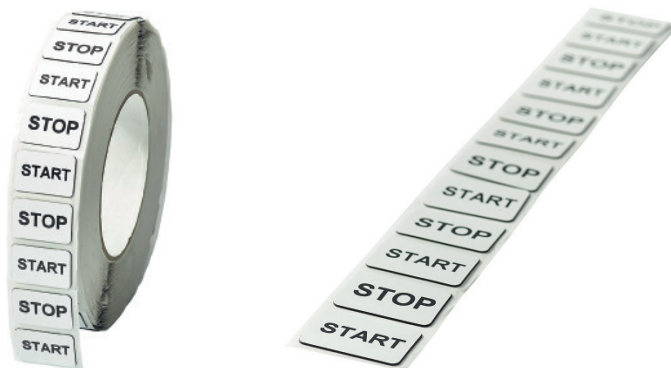
Photographs are not to scale and do not represent detailed images of the respective products.

Contents: roll, metre, unit, marker, label



New

FLEXIMARK® TA foam



Benefits

- Good UV-resistance
- Self-adhesive on many surfaces
- Can be printed with a thermal transfer printer as CAB A4+ / A4+M
- Printing with FLEXIMARK® Software

Application range

- For component and cabinet identification, CE marking and logotypes
- Components in switch cabinet construction
- Information signs etc.

Product features

- Recommended ribbon: FLEXIMARK® Ribbon FTI-Y 55-360 BK (Artikelnr. 83260201)

Product Make-up

- Is delivered in form of a roll

Technical data

- Dimensions**
Core-Ø: 76 mm
- On request**
Other sizes are available upon request
- Colour delivered**
White and silver
- Material**
Polyester foam
- Temperature range**
-40 °C to +90 °C

Article number	Article designation	Colour	Width x length (mm)	Contents (unit)	PU
83260164	FLEXIMARK®TA foam 27-8 WH	white	8.0 x 27.0	1,000	1
83260165	FLEXIMARK®TA foam 27-12.5 WH	white	12.5 x 27.0	1,000	1
83260166	FLEXIMARK®TA foam 27-12.5 SR	silver	12.5 x 27.0	1,000	1
83260167	FLEXIMARK®TA foam 27-15 SR	silver	15.0 x 27.0	1,000	1
83260168	FLEXIMARK®TA foam 27-18 SR	silver	18.0 x 27.0	1,000	1
83260169	FLEXIMARK®TA foam 27-18 WH	white	18.0 x 27.0	1,000	1
83260170	FLEXIMARK®TA foam 30-40 SR	silver	40.0 x 30.0	1,000	1
83260171	FLEXIMARK®TA foam 35-15 SR	silver	15.0 x 35.0	1,000	1
83260172	FLEXIMARK®TA foam 35-18 SR	silver	18.0 x 35.0	1,000	1
83260173	FLEXIMARK®TA foam 45-15 SR	silver	15.0 x 45.0	1,000	1
83260174	FLEXIMARK®TA foam 45-15 WH	white	15.0 x 45.0	1,000	1
83260175	FLEXIMARK®TA foam 48-19 WH	white	19.0 x 48.0	1,000	1
83260176	FLEXIMARK®TA foam 50-15 SR	silver	15.0 x 50.0	1,000	1
83260177	FLEXIMARK®TA foam 60-30 WH	silver	25.0 x 50.0	1,000	1
83260178	FLEXIMARK®TA foam 60-30 WH	white	30.0 x 60.0	750	1
83260179	FLEXIMARK®TA foam 60-30 SR	silver	30.0 x 60.0	750	1
83260180	FLEXIMARK®TA foam 70-18 SR	silver	18.0 x 70.0	1,000	1
83260181	FLEXIMARK®TA foam 90-30 WH	white	30.0 x 90.0	250	1
83260182	FLEXIMARK®TA foam 90-30 SR	silver	30.0 x 90.0	250	1
83260183	FLEXIMARK®TA foam 90-45 SR	silver	45.0 x 90.0	250	1
83260184	FLEXIMARK®TA foam 90-45 WH	white	45.0 x 90.0	250	1
83260185	FLEXIMARK®TA foam 100-30 SR	silver	30.0 x 100.0	250	1
83260186	FLEXIMARK®TA foam 100-50 SR	silver	50.0 x 100.0	250	1
83260187	FLEXIMARK®TA foam 100-50 WH	white	50.0 x 100.0	250	1
83260188	FLEXIMARK®TA foam 105-140 SR	silver	140.0 x 105.0	250	1
83260189	FLEXIMARK®TA foam 40-30 SR	silver	30.0 x 40.0	1,000	1
83260190	FLEXIMARK®TA foam 40-30 WH	white	30.0 x 40.0	1,000	1

Photographs are not to scale and do not represent detailed images of the respective products.
Contents: roll, metre, unit, marker, label

Similar products

- FLEXIMARK® Engraved markers BMK-FCC - component markers refer to main catalogue 2012

Accessories

- FLEXIMARK® Software 10.0 refer to main catalogue 2012
- FLEXIMARK® Thermoprint A4+M/300* refer to main catalogue 2012

New

DYMO® Industry Rhino Pro 4200



Benefits

- Compact, easy to use, time-saving label printer for on-the-go pros
- Marking kit consists of all elements you need for marking cables on site

Application range

- Labelling of cables and wires
- Labelling of terminal blocks
- Labelling of modules and components
- Labelling of patch panels and protective sockets

Product features

- Familiar computer-style QWERTZ keyboard for fast and easy text entry
- Large back-lit display is easy to read, even in dimly-lit work areas
- Prints 6mm (1/4"), 9mm (3/8"), 12mm (1/2") and 19mm (3/4") wide industrial strength labels in a variety of materials and colours plus print directly on heat-shrink tubes
- "Favourites" key provides single-key access to your most commonly used labels, symbols and terms
- Integrated rubber bumpers help prevent damage from accidental drops and falls

Product Make-up

- **FLEXIMARK®Kit DYMO® RHINO 4200**
 -Ready packed set in hard case-
 Content:
 1x label printer DYMO® Rhino 4200
 1x vinyl labels 9mm (or 12mm) in yellow and white
 1x special hole pliers FL52-ERA
 1x character holders PTE 9,5-1000

Technical data

- On request**
Robust hard case
- Colour delivered**
black, yellow and white
- Material**
The thermal transer printing technology ensures the labels are highly durable and resistant.
Li-Ion storage battery

Article number	Article designation	Contents (unit)
DYMO® Rhino Pro 4200		
61800337	DYMO RHINO PRO 4200	1
FLEXIMARK®Kit DYMO® Rhino 4200		
83257103	FLEXIMARK®Kit DYMO RHINO 4200 9mm	1
83257104	FLEXIMARK®Kit DYMO RHINO 4200 12mm	1

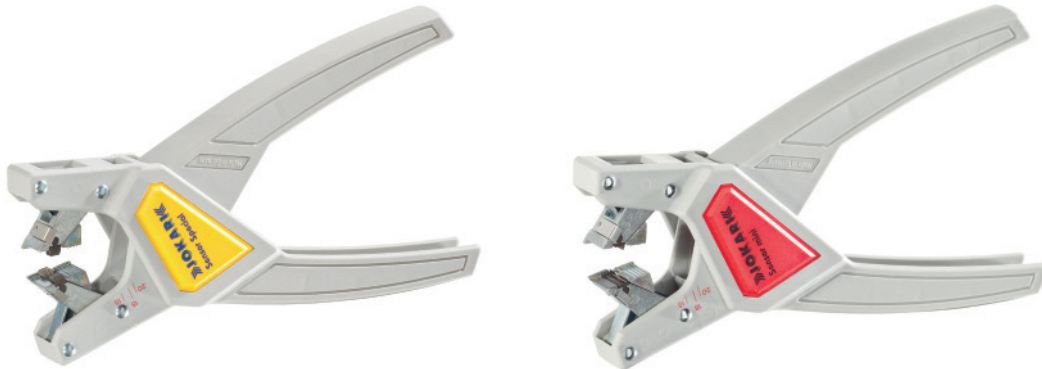
DYMO® is a registered trademark of Sanford GmbH,a Newell Rubbermaid Company
 Photographs are not to scale and do not represent detailed images of the respective products.
 Contents: roll, metre, unit, marker, label

Accessories

- DYMO® ID1 - Industry tape D1 refer to main catalogue 2012

New

Sensor stripping tool



Benefits

- Focussed to the needs of stripping the sheathing of sensor / actuator cables
- With their new blade design the tools strip PVC / PUR cable sheathings precisely from cables without causing damage to the individual conductors or shielding inside
- Fully automated adjustments to the diverse cable diameters
- Push-through opening inside handles- to strip any lengths
- Ergonomic design- user friendly, ease of use, lightweight

Application range

- PUR halogen-free sensor/actuator cables
- Highly flexible TPE-U-cables
- PUR-cables
- PUR/PVC-cables
- Multi-stranded cables, shielded and non-shielded cables

Product features

- Exchangeable blades-longer lifetime, efficient

Product Make-up

- Sensor Mini: for round cables diameters 3,2-4,4 mm
- Sensor Special: for round cables diameters 4,4-7 mm

Technical data

- Diameter in**
Sensor Mini: For outer diameter: 3,2-4,4 mm
Sensor Special: For outer diameter: 4,4-7 mm
- Weight**
126 g
- Length**
Overall dimensions: LxHxB 16,6x2,8x10,2 mm

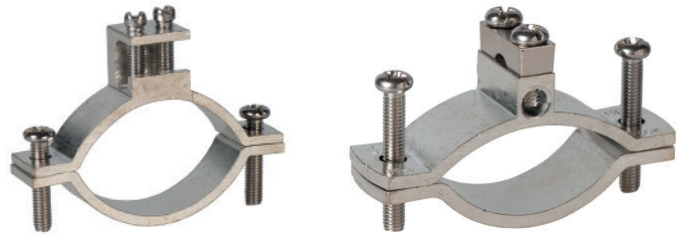
Article number	Article designation	For outer diameter (mm)	Length (mm)	Weight (kg)	Pieces / PU
61735833	Sensor Mini stripping tool	3.2 - 4.4	165	126	1
61735993	Sensor Special stripping tool	4.4 - 7.0	165	126	1
61718790	Sensor Mini replacement blade set				1
61718800	Sensor Special replacement blade set				1

Photographs are not to scale and do not represent detailed images of the respective products.

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ACCESSORIES

New

Earthing clamps



Benefits

- Type K: Only one open side- no interrupted earthing cable
- Type G: can be mounted both horizontally and vertically
- Fast and easy assembly
- Large contact surface thanks to two contact screws

Approvals (Norm references)

- Complies with DIN EN 60947-2-2:2009 and SEV 1078:1980

Product Make-up

- Proved up to a cross section of the earthing cable of 50 mm²

Technical data



Material
Brass tin-plated



Temperature range
-40°C to +200°C

Application range

- Electrical installations in buildings
- For secure contact with metallic conduits
- Secure equipotential bonding
- Easy connection of multiple adjacent conduits to the potential equalisation point without interrupting the potential equalisation conductor
- Potential equalisation is not interrupted when removing a conduit

Article number	Article description	Nominal size	Conduit diameter	Pieces / PU
61718700	Earthing clamp K 3/8-3/4	3/8" - 3/4"	16,6 - 26,5 mm	10
61718710	Earthing clamp K 1-1 1/4	1" - 1 1/4"	33,5 - 41,9 mm	10
61718720	Earthing clamp K 1 1/2-2	1 1/2" - 2"	47,9 - 59,6 mm	10
61718730	Earthing clamp K 2 1/2-3	2 1/2" - 3"	75,2 - 87,9 mm	10
61718740	Earthing clamp G 3/8-3/4	3/8" - 3/4"	16,6 - 26,5 mm	10
61718750	Earthing clamp G 3/4-1	3/4" - 1"	26,5 - 33,5 mm	10
61718760	Earthing clamp G 1 1/4-1 1/2	1 1/4" - 1 1/2"	41,9 - 47,9 mm	10
61718770	Earthing clamp G 1 1/2-2	1 1/2" - 2"	47,9 - 59,6 mm	10
61718780	Earthing clamp G 2 1/2-3	2 1/2" - 3"	75,2 - 87,9 mm	10

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- ESUY Copper Earthing Cable refer to main catalogue 2012
- X00V3-D Copper Earthing Cable refer to main catalogue 2012



For the use of our products is valid

The conformity of our products with the relevant European directives and compliance with the provisions contained therein shall be indicated by the CE marking.

The safety of our products is closely associated with how they are used. A knowledge of and adherence to the respective international/national standards of use (e.g. DIN VDE 0100; 0298) are mandatory.

There are particular risks if installed improperly. This applies to all our products/items:

Processing is only to be done by an authorized electrician! Otherwise, there is the risk of an electric shock or a fire ignited by electric current!

Safety

Without exception our products are tested for application safety in accordance with laid down standards and our own regulations, which complement the standards. Relevant legal requirements and safety regulations are also observed. Provided due care and attention is paid, the possibility of product-specific danger to the user may thus reasonably be excluded. Where products are used carelessly or incorrectly, however, considerable

danger to persons and the environment may arise. For this reason, our cables must only be processed and/or used responsibly by trained electricians or specialists. This catalogue contains general information for the application of each product. Independent of such information, the application standards DIN VDE 0298 and DIN VDE 001 for cables will apply. Excerpts from these standards, as well as complementary selection and

application tables, design and installation guidelines, are contained in the tables in the appendix to our current Main Catalogue. Our machines and installation tools are – where necessary – designed in accordance with the machine guidelines and display the CE identification mark. It must be noted, however, that our machines and installation tools must only be used by trained specialized personnel and for the purpose for

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