

THE WORLD OF LAPP

Automation & Network Guide



LAPP GROUP



Welcome

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UNITRONIC® Data communication systems

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ETHERLINE® Data communication systems for ETHERNET-Technology

105



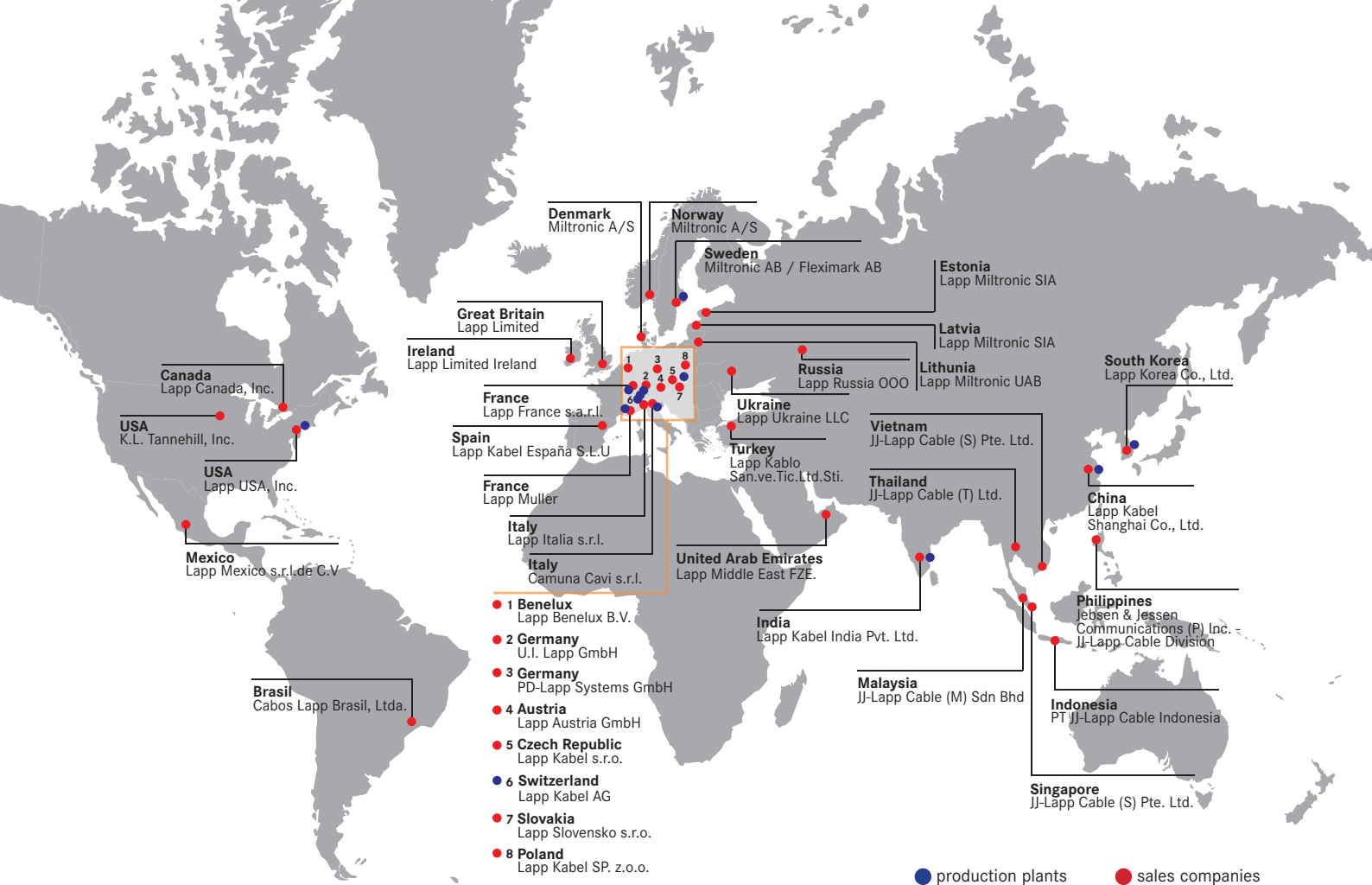
HITRONIC® Optical transmission systems

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SKINTOP® Cable glands

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At home in Stuttgart, but known all over the world

The World of Lapp is based in Stuttgart. This is where it all started for our company, which was founded in 1959 as U.I. Lapp KG (now U.I. Lapp GmbH). From its headquarters in Stuttgart we have determinedly evolved to become a global player – with currently 15 production plants in Europe, Asia and America, 41 sales companies and more than 100 sales partners, 3,000 employees. The larger Lapp companies such as Russia, India, China, Canada and Mexico have their own warehouses. The others are promptly supplied through our high-performance logistics centres. At our Lapp Centres we are also strongly committed to enhancing the knowledge of our employees and customers. After all, knowledge is the ink with which the future is written down.

One of our most successful “products” is that of proximity to our customers. On the one hand, we practice intensive dialogue with designers and planners, manufacturers and users. This enables us to identify new requirements and trends at a much earlier stage, to quickly provide you with suitable solutions. Innovation leadership put into active practice.

On the other hand, proximity to our customers really means something to us: our presence extends all round the globe. As a reliable partner on a local basis we support our customers in exploiting markets by providing them with short delivery times and low logistics costs.

Our current addresses see
www.lappgroup.com/worldwide



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.



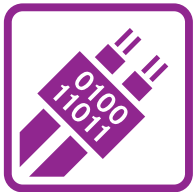
EPIC®

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®

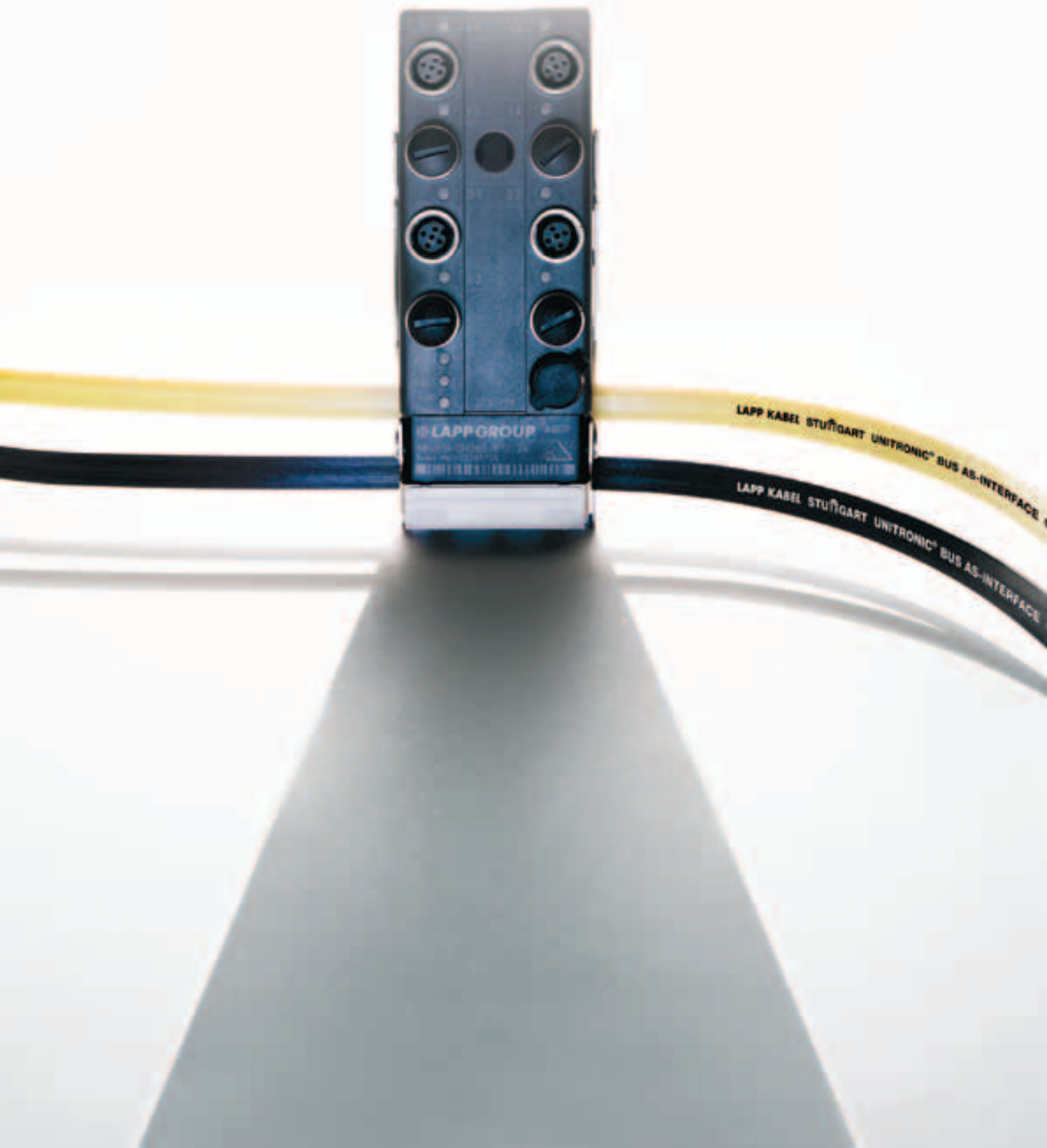
Cable marking systems

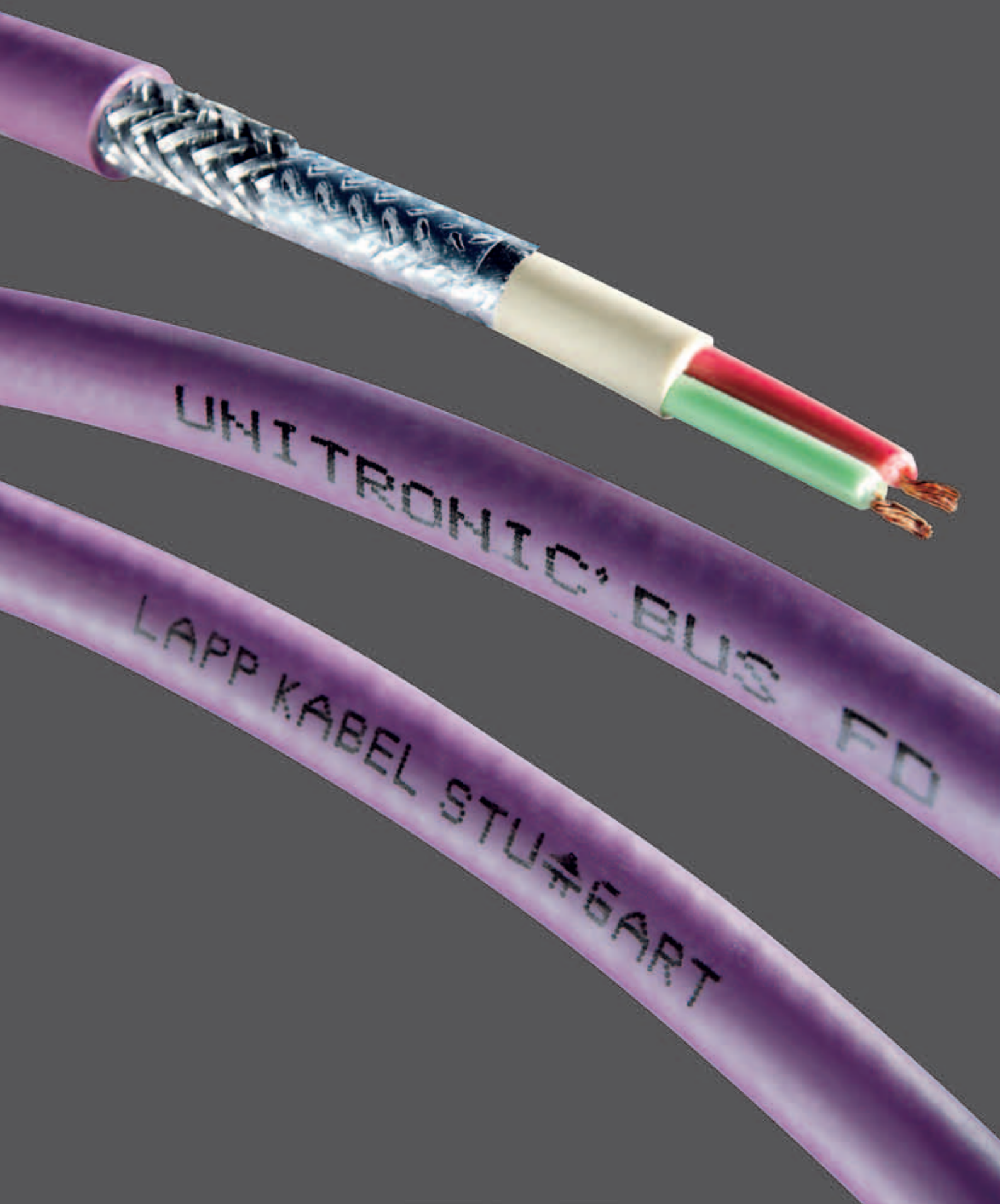
The brand for permanent, clearly-arranged cable markings.

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.

Complete system solutions for automation technology





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Fieldbussystem

Type designation UNITRONIC® Fieldbus.	9
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For current information see www.lappgroup.com/products

Application areas for bus cables

- Plant engineering and construction
- Factory Automation (field busses like PROFIBUS, INTERBUS, DeviceNet, CAN etc.)
- Process Automation (chemical, petro-chemical industry etc.)
- Building Automation (building management)

Overview of the most common bus systems

AS-Interface (AS-i)

Developed to have an inexpensive alternative on the lower Fieldbus level (sensor/actuator) of Automation. Used very often in connection with Ethernet, PROFIBUS, CAN and DeviceNet.

PROFIBUS

We distinguish between PROFIBUS DP and PROFIBUS PA. The DP variant dominates worldwide with a bit rate of 1.5 Mbit/s up to 12 Mbit/s PROFIBUS PA is the leader in Process Automation in Europe.

CAN/CANopen

Originally developed for cars. Used in industry in an extremely broad range of applications.

DeviceNet™

Prior Fieldbussystem in North America. Developed by Allen Bradley (Rockwell Automation). Based on CAN.

Fieldbus Foundation™

Bus system for use in Process Automation.

SafetyBUS

Bus systems are developed especially for safety-relevant areas. They operate either completely independently (e.g. SaftyBUS p®) or are part of an overall system (e.g. PROFIsafe, INTERBUS Saftety, DeviceNet Saftety etc.).

INTERBUS®

One of the first field bus systems used in the automotive industry.

European Installation Bus EIB/KNX

Bus system for Building Automation. Operates primarily with low bit rate.

Other bus systems

For dedicated bus systems or modified system solutions based on standardized systems.

CAN = Controller Area Network

DeviceNet™ = registered trademark of Open Device Vendors Association (ODVA)

Fieldbus Foundation™ = registered trademark of Fieldbus Foundation™

SafetyBUS p® = registered trademark of Pilz GmbH & Co. KG

INTERBUS® = registered trademark of Phoenix Contact GmbH & Co

Lapp Kabel is a member of the PROFIBUS user organisation e. V. (PNO)

Bus cables

Quickfinder

Bus system	Inst. area	Application/cabling	Outer sheath material	Approval	Characteristics
PROFIBUS DP (150 Ω)	indoor (UV = outdoor)	static	PVC		
				UL/CSA (CMX)	
				UL/CSA (CMG)	vibration resistant, UV-resistant
					Fast Connect, vibration resistant, UV-resistant, black
				UL/CSA (CMG)	Fast Connect, UV-resistant
				UL/CSA (CMG)	Fast Connect, vibration resistant, UV-resistant
					vibration resistant, COMBI 3 x 1 mm ²
				105 °C	
			H	UL/CSA (CM)	Fast Connect, halogen-free
		UL/CSA (CMG)		Fast Connect, halogen-free	
				halogen-free	
		PUR	UL/CSA (CMX)	Fast Connect, oil resistant	
		ROBUST		higher chemical resistance, UV-resistant	
		PE		Fast Connect, food & beverage industry, black, UV-resistant	
				food & beverage industry, black, UV-resistant	
		high flexible	PUR		drag chain suitable, halogen-free, oil resistant
				UL/CSA (CMX)	drag chain suitable, halogen-free, oil resistant
				UL/CSA (CMX)	Fast Connect, drag chain suitable, oil resistant
				drag chain suitable, oil resistant, COMBI 3 x 1 mm ²	
				drag chain suitable, oil resistant, COMBI 4 x 1.5 mm ²	
	PVC			UL/CSA (CMG)	drag chain suitable, oil resistant, UV-resistant, COMBI 4 x 1.5 mm ²
	FRNC		UL/CSA (CMG)	Fast Connect, drag chain suitable, halogen-free, flame retardant	
torsion	PUR		UL/CSA (CMX)	torsion, halogen-free	
festoon	PVC		UL/CSA (CMG)	cable trolley, festoon, UV-resistant	
outdoor & burial	static	PVC		UV-resistant, armoured, max. EMV-protection	
				UV-resistant, burial, black	
				UV-resistant, burial, black	
		PVC/PE		Fast Connect, UV-resistant, burial, black	
PROFIBUS PA (100 Ω)	indoor	static	PVC		Ex area, blue
	indoor/outdoor				UV-resistant, black
				UL/CSA (CMG)	Fast Connect, Ex area, oil resistant, UV-resistant, blue
					Fast Connect, oil resistant, UV-resistant, black
CAN CANopen (120 Ω)	indoor	static	PVC	UL/CSA (CMX)	vibration resistant
		high flexible	PUR	UL/CSA (CMX)	drag chain suitable, oil resistant, halogen-free
DeviceNet (120 Ω)	indoor (UV = outdoor)	static	FRNC	UL/CSA (CMG) Germ. Lloyd	vibration resistant, halogen-free, UV-resistant
			PVC	UL/CSA (CMG)	vibration resistant, oil resistant, UV-resistant
				UL/CSA (CMG)	vibration resistant, UV-resistant
		high flexible	PUR	UL/CSA (CMX)	drag chain suitable, halogen-free, UV-resistant
			PVC	UL/CSA (CMG)	drag chain suitable, oil resistant, UV-resistant

Legend

*see www.lappgroup.com/products

**data sheet on www.lappautomation.com

***second outer sheath PVC need to be removed before harnessing

****second outer sheath PE need to be removed before harnessing

Please see detailed technical information on the data sheet (www.lappautomation.com).

7-W: 7-Wire: 7-stranded litz, dedicated for vibrating machine parts

CAN: Controller Area Network

FC: Fast Connect (cable construction for fast connector harnessing)

FD: high flexible (german - "Flexible Dauerbiegung")

FRNC: Flame Retardant Not Corrosive

Bus cables

Article designation	Part number	Page	Connectors
UNITRONIC® BUS PB	2170220	27	1,2,7,8,9,10,15,16,21,22,23,24,27,28,29
UNITRONIC® BUS PB A	2170219	27	1,2,7,8,9,10,15,16,21,22,23,24,27,28,29
UNITRONIC® BUS PB 7-W A	2170824	27	1,2,7,8,15,16,21,22,23,24,30,31
UNITRONIC® BUS PB Y 7-W FC BK	2170310	32	5,6,12,14,19,20,26,30,31
UNITRONIC® BUS PB FC	2170820	27	3,4,11,13,17,18,25
UNITRONIC® BUS PB 7-W FC	2170826	27	5,6,12,14,19,20,26,30,31
UNITRONIC® BUS PB COMBI 7-W	2170225	27	
UNITRONIC® BUS PB 105	2170630	29	1,2,7,8,9,10,15,16,21,22,23,24,27,28,29
UNITRONIC® BUS PB H FC	2170326	27	3,4,11,13,17,18,25
UNITRONIC® BUS PB FRNC FC	2170853	29	3,4,11,13,17,18,25,28,29
UNITRONIC® BUS PB H 7-W	2170226	27	1,2,7,8,15,16,21,22,23,24,30,31
UNITRONIC® BUS PB P FC	2170330	27	3,4,11,13,17,18,25
UNITRONIC® BUS PB ROBUST	2170620	28	1,2,7,8,9,10,15,16,21,22,23,24
UNITRONIC® BUS PB PE FC	2170333	27	3,4,11,13,17,18,25
UNITRONIC® BUS PB PE	2170233	27	1,2,7,8,9,10,15,16,21,22,23,24,27,28,29
UNITRONIC® BUS PB FD P	2170222	33	1,2,7,8,15,16,21,22,23,24,30,31
UNITRONIC® BUS PB FD P A	2170822	33	1,2,7,8,15,16,21,22,23,24,30,31
UNITRONIC® BUS PB FD P FC	2170322	34	5,6,12,14,19,20,26,30,31
UNITRONIC® BUS PB FD P COMBI	2170227	35	
UNITRONIC® BUS PB FD P HYBRID	2170495	35	
UNITRONIC® BUS PB FD Y HYBRID	2170875	36	
UNITRONIC® BUS PB FD FRNC FC	2170854	34	5,6,12,14,19,20,26,30,31
UNITRONIC® BUS PB TORSION	2170332	37	1,2,7,8,15,16,21,22,23,24,30,31
UNITRONIC® BUS PB FESTOON	2170331	37	1,2,7,8,15,16,21,22,23,24,30,31
UNITRONIC® BUS PB ARM	2170247	30	
UNITRONIC® BUS PB Yv	2170223	30	
UNITRONIC® BUS PB YY	2170236	31	1,2,7,8,9,10,15,16,21,22,23,24,27,28,29***
UNITRONIC® BUS PB BURIAL FC	2170323	31	3,4,11,13,17,18,25****
UNITRONIC® BUS PA BU	2170234	*	30,31
UNITRONIC® BUS PA BK	2170235	*	
UNITRONIC® BUS PA FC (BU)	2170334	*	
UNITRONIC® BUS PA FC (BK)	2170335	*	
UNITRONIC® BUS CAN 1X2X0,22	2170260	40	24,35,36,32,33
UNITRONIC® BUS CAN 2X2X0,22	2170261	40	
UNITRONIC® BUS CAN 1X2X0,34	2170263	40	
UNITRONIC® BUS CAN 2X2X0,34	2170264	40	
UNITRONIC® BUS CAN 1X2X0,5	2170266	40	
UNITRONIC® BUS CAN 1X2X0,5	2170267	40	
UNITRONIC® BUS CAN 1X2X0,75	2170269	40	
UNITRONIC® BUS CAN 2X2X0,75	2170270	40	
UNITRONIC® BUS CAN FD P 1X2X0,25	2170272	40	
UNITRONIC® BUS CAN FD P 2X2X0,25	2170273	40	
UNITRONIC® BUS CAN FD P 1X2X0,34	2170275	40	
UNITRONIC® BUS CAN FD P 2X2X0,34	2170276	40	
UNITRONIC® BUS CAN FD P 1X2X0,5	2170278	40	
UNITRONIC® BUS CAN FD P 2X2X0,5	2170279	40	
UNITRONIC® BUS DN THICK FRNC	2170340	38	
UNITRONIC® BUS DN THIN FRNC	2170341	38	31,32,33,23,24
UNITRONIC® BUS DN THICK Y	2170342	38	
UNITRONIC® BUS DN THIN Y	2170343	38	31,32,33,23,24
UNITRONIC® BUS DN THICK Y ECO	2170362	*	
UNITRONIC® BUS DN THIN Y ECO	2170363	*	31,32,33,23,24
UNITRONIC® BUS DN THICK FD P	2170344	39	
UNITRONIC® BUS DN THIN FD P	2170345	39	31,32,33,23,24
UNITRONIC® BUS DN THICK FD Y	2170346	39	
UNITRONIC® BUS DN THIN FD Y	2170347	39	31,32,33,23,24

See continuation
page 8

H: halogen-free
LD: Long Distance
P: PUR – Polyurethan – oil resistant
PA: Process Automation
PB: PROFIBUS

PE: Polyethlen: can be used in food & beverage industry
PROFIBUS PA: PROFIBUS for Process Automation, especially in hazardous areas
ROBUST: extended use: Water, chemical resistance, soap, tenside
vibration resistant: Vibration resistant because single core ist 7-wire stranded
Y: PVC – Polyvinylchlorid

Bus cables

Connectors					
No.	Cable type	Core dimension	Article designation	Part number	Page
PROFIBUS D-SUB					
1	solid + flexible	≤ 1 mm ²	ED-PB-35	21700507	*
2	solid + flexible	≤ 1 mm ²	ED-PB-35-PG	21700506	*
3	solid	0.64 mm	ED-PB-35-FC	21700511	*
4	solid	0.64 mm	ED-PB-35-PG-FC	21700512	*
5	flexible	0.64 mm	ED-PB-35-FC-FLEX	21700514	*
6	flexible	0.64 mm	ED-PB-35-PG-FC-FLEX	21700515	*
7	solid + flexible	≤ 1 mm ²	ED-PB-90	21700504	*
8	solid + flexible	≤ 1 mm ²	ED-PB-90-PG	21700503	*
9	solid	≤ 0.5 mm ²	ED-PB-90-ST	21700509	*
10	solid	≤ 0.5 mm ²	ED-PB-90-PG-ST	21700508	*
11	solid	0.64 mm	ED-PB-90-FC	21700502	*
12	flexible	0.64 mm	ED-PB-90-FC-FLEX	21700528	*
13	solid	0.64 mm	ED-PB-90-PG-FC	21700501	*
14	flexible	0.64 mm	ED-PB-90-PG-FC-FLEX	21700527	*
15	solid + flexible	≤ 1 mm ²	ED-PB-90-LED	21700530	*
16	solid + flexible	≤ 1 mm ²	ED-PB-90-PG-LED	21700529	*
17	solid	0.64 mm	ED-PB-90-LED-FC	21700547	*
18	solid	0.64 mm	ED-PB-90-PG-LED-FC	21700546	*
19	flexible	0.64 mm	ED-PB-90-LED-FC-FLEX	21700549	*
20	flexible	0.64 mm	ED-PB-90-PG-LED-FC-FLEX	21700539	*
21	solid + flexible	≤ 1 mm ²	ED-PB-90-ATEX	21700543	*
22	solid + flexible	≤ 1 mm ²	ED-PB-90-PG-ATEX	21700542	*
23	solid + flexible	≤ 1 mm ²	ED-PB-90-RP-PG	21700541	*
24	solid + flexible	≤ 1 mm ²	ED-PB-AX	21700505	*
25	solid	0.64 mm	ED-PB-AX-FC	21700544	*
26	flexible	0.64 mm	ED-PB-AX-FC-FLEX	21700545	*
PROFIBUS D-SUB solid metal					
27	solid	<= 0.5 mm ²	ED-PB-35-PG-ST-PRO	21700564	*
28	solid	<= 0.5 mm ²	ED-PB-90-PG-ST-PRO	21700565	*
29	solid	<= 0.5 mm ²	ED-PB-AX-PG-ST-PRO	21700566	*
PROFIBUS M12					
30	flexible	0.25 – 0.75 mm ²	AB-C5-M12MSB-PG9-SH-AU	22260653	99
31	flexible	0.25 – 0.75 mm ²	AB-C5-M12FSB-PG9-SH-AU	22260646	99
CAN BUS/DeviceNet M12					
32	flexible	0.25 – 0.75 mm ²	AB-C5-M12MS-PG9-SH	22260135	99
33	flexible	0.25 – 0.75 mm ²	AB-C5-M12FS-PG9-SH	22260136	99
CAN/CANopen/DeviceNet					
34	solid + flexible	≤ 1 mm ²	ED-CAN-90	21700537	*
35	solid + flexible	≤ 1 mm ²	ED-CAN-90-PG	21700536	*
36	solid + flexible	≤ 1 mm ²	ED-CAN-AX	21700538	*
AS-Interface distributor					
No.	Cable type	Distributor	Article designation	Part number	Page
41	flexible	1 x AS-i → 2-pin M12	AB-ASI-J-Y-N-M12FS	22260800	92
42	flexible	2 x AS-i → 4-pin M12	AB-ASI-J-Y-B-M12FS	22260801	92
43	flexible	1 x AS-i → 2 x AS-i	AB-ASI-J-Y-Y-N	22260802	92
44	flexible	1 x AS-i → 2-pin M12 1m	AB-ASI-J-Y-N-PUR-1,0-M12FS	22260803	92
45	flexible	1 x AS-i → 2-pin M12 2m	AB-ASI-J-Y-N-PUR-2,0-M12FS	22260804	92
46	flexible	2 x AS-i → 4-pin M12 1m	AB-ASI-J-Y-B-PUR-1,0-M12FS	22260805	92
47	flexible	2 x AS-i → 4-pin M12 2m	AB-ASI-J-Y-B-PUR-2,0-M12FS	22260806	92

Legend

35°	35 degree	FSB	Female Straight Bus
90°	90 degree	MSB	Male Straight Bus
ATEX	ATEX (atmosphère explosible)	PB	PROFIBUS
AX	axial (180°)	PG	service port
CAN	CAN bus	PG9	PG9 cable screw connection
ED	EPIC® Data	RP	Repeater
FC	Fast Connect	ST	spring type
FLEX	flexible		

*see www.lappgroup.com/products

Please see detailed technical information on the data sheet (www.lappautomation.com).

Bus cables

PROFIBUS quick and easy



No.	Cable type	Article designation	Part number	Page	
PROFIBUS D-SUB / M12					
1	EPIC® DATA, metallized plastic	ED-PB-90-M12	21700521	*	
2	EPIC® DATA, metallized plastic	ED-PB-90-PG-M12	21700520	*	
3	EPIC® DATA PRO, solid metall	ED-PB-35-PG-M12-PRO	21700561	*	
4	EPIC® DATA PRO, solid metall	ED-PB-90-PG-M12-PRO	21700562	*	
5	EPIC® DATA PRO, solid metall	ED-PB-AX-PG-M12-PRO	21700563	*	

M12 PROFIBUS Termination Resistors					
6	360° metall shielded, female straight	AB-C5-M12FS-PB-TR-SH	22261001	*	
7	Plastic, male straight	AB-C4-M12MS-PB-TR	22260722	100	

PROFIBUS CORDS M12-male connector/M12-female connector					
8	UNITRONIC® PROFIBUS M12 cable, PUR high flexible, straight 0.3 m	AB-PB-M12MS-0,3PUR-M12FS	22260773	96	
9	UNITRONIC® PROFIBUS M12 cable, PUR high flexible, straight 1 m	AB-PB-M12MS-1,0-PUR-M12FS	22260774	96	
10	UNITRONIC® PROFIBUS M12 cable, PUR high flexible, straight 2 m	AB-PB-M12MS-2,0-PUR-M12FS	22260775	96	
11	UNITRONIC® PROFIBUS M12 cable, PUR high flexible, straight 5 m	AB-PB-M12MS-5,0-PUR-M12FS	22260776	96	
12	UNITRONIC® PROFIBUS M12 cable, PUR high flexible, straight 10 m	AB-PB-M12MS-10,0-PUR-M12FS	22260776	96	
13	UNITRONIC® PROFIBUS M12 cable, PUR high flexible, M12 angled 5 m	AB-PB-M12MA-5,0PUR-M12FA	22260079	96	
14	UNITRONIC® PROFIBUS M12 cable, PUR high flexible, M12 angled 10 m	AB-PB-M12MA-10,0PUR-M12FA	22260904	96	
15	UNITRONIC® PROFIBUS M12 cable, PUR hochflexibel, M12 angled 15 m	AB-PB-M12MA-15,0PUR-M12FA	22260905	96	

Legend

35°	35 degree	FS	Female straight
90°	90 degree	MA	Male angled
AB	Automation Box	MS	Male straight
AX	axial (180°)	PB	PROFIBUS
ED	EPIC® Data	PG	service port
FA	Female angled		

Please see detailed technical information on the data sheet (www.lappautomation.com).

Bus cables

Quickfinder (continuation)

Bus system	Inst. area	Application/cabling	Outer sheath material	Approval
AS-Interface (AS-i) (70 – 140 Ω)	indoor	static/flexible	EPDM (Rubber)	
			TPE	
			PVC	UL/CSA (CMG)
		high flexible	PUR	UL (AWM)
			TPE	UL (AWM) CSA
RS485, RS422 Bus systems (100 – 120 Ω)	indoor	static	PVC	UL/CSA (CMX)
		high flexible	PUR	
				UL/CSA (CMX)
Fieldbus Foundation™ (100 Ω)	indoor/outdoor	flexible	PVC	UL/CSA (CMG)
		static		
CC-Link® (110 Ω)	indoor/outdoor	flexible	PVC	UL (CM) CLPA
	indoor	high flexible	PUR	UL (AWM)
SafetyBUS (120 Ω)	indoor	static	H	
		high flexible	PUR	
INTERBUS (100 Ω)	indoor	static	PVC	UL/CSA (CMX)
		high flexible	PUR	
			PUR	UL/CSA (CMX)
	outdoor	static	PVC	
European Installation Bus EIB/KNX	indoor	static	PVC	
			H	
			PVC	

Legend

7-W: 7-Wire: 7-stranded litz, dedicated for vibrating machine parts
 CAN: Controller Area Network
 FC: Fast Connect (cable construction for fast connector harnessing)
 FD: high flexible (german – "Flexible Dauerbiegung")
 FRNC: Flame Retardant Not Corrosive
 H: halogen-free
 LD: Long Distance
 P: PUR – Polyurethan – oil resistant

PA: Process Automation
 PB: PROFIBUS
 PE: Polyethlen: can be used in food & beverage industry
 PROFIBUS PA: PROFIBUS for Process Automation, especially in hazardous areas
 ROBUST: extended use: Water, chemical resistance, soap, tensile
 vibration resistant: Vibration resistant because single core is 7-wire stranded
 Y: PVC – Polyvinylchlorid

*see www.lappgroup.com/products

***second outer sheath PVC need to be removed before harnessing

****second outer sheath PE need to be removed before harnessing

Please see detailed technical information on the data sheet (www.lappautomation.com).

Bus cables

Characteristics	Article designation	Part number	Page	Connectors
food & beverage industry, halogen-free	UNITRONIC® BUS ASI (G) YE	2170228	25	41-47
	UNITRONIC® BUS ASI (G) BK	2170229	25	
Long Distance, saving of power supplies	UNITRONIC® BUS ASI LD(G) YE 2x2,5	2170371	25	
	UNITRONIC® BUS ASI LD(G) BK 2x2,5	2170372	25	
oil resistant, cold flexible	UNITRONIC® BUS ASI (TPE) YE	2170230	25	
	UNITRONIC® BUS ASI (TPE) BK	2170231	25	
	UNITRONIC® BUS ASI (TPE) RD	2170232	25	
oil resistant	UNITRONIC® BUS ASI (PVC) A YE	2170842	25	
	UNITRONIC® BUS ASI (PVC) A BK	2170843	25	
drag chain, oil resistant, Long Distance, halogen-free	UNITRONIC® BUS ASI FD P FRNC YE	2170311	26	
	UNITRONIC® BUS ASI FD P FRNC BK	2170312	26	
drag chain, oil resistant, cold flexible, Long Distance, halogen-free	UNITRONIC® BUS ASI LD FD P YE 2x2,5	2170318	26	
	UNITRONIC® BUS ASI LD FD P BK 2x2,5	2170319	26	
drag chain suitable, oil resistant, 105 °C	UNITRONIC® BUS ASI FD (TPE) A YE	2170830	26	
	UNITRONIC® BUS ASI FD (TPE) A BK	2170831	26	

	UNITRONIC® BUS LD 1x2x0,22	2170203	*	Standard D-SUB connector 9-pos.
	UNITRONIC® BUS LD 2x2x0,22	2170204	*	
	UNITRONIC® BUS LD 3x2x0,22	2170205	*	
	UNITRONIC® BUS LD A 1x2x0,22	2170803	*	
drag chain suitable, oil resistant	UNITRONIC® BUS LD FD P 1x2x0,25	2170213	*	
	UNITRONIC® BUS LD FD P 2x2x0,25	2170214	*	
	UNITRONIC® BUS LD FD P 3x2x0,25	2170215	*	
drag chain suitable, oil resistant	UNITRONIC® BUS LD FD P A 1x2x0,25	2170813	*	
	UNITRONIC® BUS LD FD P A 2x2x0,26	2170814	*	
	UNITRONIC® BUS LD FD P A 3x2x0,27	2170815	*	

105°C, UV-resistant, yellow	UNITRONIC® BUS FF 3	2170350	*	
105°C, UV-resistant, yellow	UNITRONIC® BUS FF 2	2170352	*	
105°C, UV-resistant, armoured, ++ EMV, yellow	UNITRONIC® BUS FF 3 ARM (YE)	2170351	*	
105°C, UV-resistant, armoured, ++ EMV, blue	UNITRONIC® BUS FF 3 ARM (BU)	2170353	*	

UV-resistant	UNITRONIC® BUS CC	2170360	*	
drag chain suitable, halogen-free, oil resistant,	UNITRONIC® BUS CC FD P FRNC	2170370	*	

halogen-free, vibration resistant	UNITRONIC® BUS SAFETY	2170295	*	
drag chain suitable, halogen-free	UNITRONIC® BUS SAFETY FD P	2170885	*	

vibration resistant	UNITRONIC® BUS IBS	2170206	*	Standard D-SUB connector 9-pos.
vibration resistant	UNITRONIC® BUS IBS A	2170209	*	
vibration resistant, COMBI 3 x 1 mm²	UNITRONIC® BUS IBS P COMBI	2170208	*	
drag chain suitable	UNITRONIC® BUS IBS FD P	2170216	*	
drag chain suitable, COMBI 3 x 1 mm²	UNITRONIC® BUS IBS FD P COMBI	2170218	*	
drag chain suitable, COMBI 3 x 1 mm²	UNITRONIC® BUS IBS FD P COMBI A	2170818	*	
vibration resistant	UNITRONIC® BUS IBS Yv	2170207	*	
vibration resistant	UNITRONIC® BUS IBS Yv COMBI	2170217	*	

	UNITRONIC® BUS EIB	2170240	*	
halogen-free	UNITRONIC® BUS EIB H	2170241	*	
COMBI 3 x 1.5 mm²	UNITRONIC® BUS EIB COMBI	2170242	*	

Adapter

AS-Interface distributor						
No.	Cable type	Distributor	Article designation	Part number	Page	
41	flexible	1 x AS-i → 2-pos. M12	AB-ASI-J-Y-N-M12FS	22260800	92	
42	flexible	2 x AS-i → 4-pos. M12	AB-ASI-J-Y-B-M12FS	22260801	92	
43	flexible	1 x AS-i → 2 x AS-i	AB-ASI-J-Y-Y-N	22260802	92	
44	flexible	1 x AS-i → 2-pos. M12 1m	AB-ASI-J-Y-N-PUR-1,0-M12FS	22260803	92	
45	flexible	1 x AS-i → 2-pos. M12 2m	AB-ASI-J-Y-N-PUR-2,0-M12FS	22260804	92	
46	flexible	2 x AS-i → 4-pos. M12 1m	AB-ASI-J-Y-B-PUR-1,0-M12FS	22260805	92	
47	flexible	2 x AS-i → 4-pos. M12 2m	AB-ASI-J-Y-B-PUR-2,0-M12FS	22260806	92	

Fieldbus systems

Type designation UNITRONIC® Fieldbus

1. S/A cabling



S/A cable

Example 1.1: **AB-C3-M8MS-2,0PUR-M12FA-2L**

AB-C	3
Automation bus cordset	Number of pin
	3
	4
	5
	8

Automation bus Power cable	
AB-PC	4

Example 1.2: **AB-C3-M12MS-0,3PUR-A-1L-S**

AB-C	3
Automation bus cordset	Number of pin
	3
	4
	5
	8



Valve connector

Example 1.3: **AB-C5-M12FS-PG9-SH**

AB-C	5
Automation bus cordset	Number of pin
	3
	4
	5



Connector
(field attachable)

M8MS
Connection left
M8MS (M8 connector straight)
M12MS (M12 connector straight)

M12MS
Connection left
M12MS (M12 connector straight)

M12FS
Connectors
M8MS (M8 connector straight)
M8FS (M8 socket straight)
M12MS (M12 connector straight)
M12MA (M12 connector angled)
M12FS (M12 socket straight)
M12FA (M12 socket angled)

DSI
Mounting type (flush-type connector)
DSI (Data Socket Inside - rear mounting)

2. S/A box passiv



Example 2.1: **AB-B8-M12L-16-10,0PUR**

AB-B	8
Automation bus-Box	Number of slots
	4
	6
	8
	10

M12
S/A connection
M8
M12

3. S/A box active



Example 3.1: **AB-ASI-DI4DO4-M12-2A**

AB-	ASI
Automation bus	Interface
	ASI (AS-Interface)
	PB (PROFIBUS)
	CAN (CANopen)
	DN (DeviceNet)

DI4
Digital inputs
2
4
8
16

4. Pre-assembled bus cables



Example 4.1: **AB-PB-M12MS-10,0PUR-M12FS**

AB-	PB
Automation bus	Interface
	PB (PROFIBUS)
	CAN (CANopen)
	DN (DeviceNet)

M12MS
Connection left
M12MS (M12 connector straight)
M12MA (M12 connector angled)

Fieldbus systems

2,0	PUR	M12FA	2L	
Cable length in m	Material of cable	Connection right	Number of LEDs	
0,3	PUR	M8FA (M8 socket angled)	2L	
0,6	PVC	M8FS (M8 socket straight)	3L	
1,0		M12FA (M12 socket angled)		
2,0		M12FS (M12 socket straight)		
...				
				SH
				shielded Version
				SH

0,3	PUR	A	1L	S
Cable length in m	Material of cable	Type of valve connector	Number of LEDs	with protection
0,3	PUR	A (Typ A)	1L	S (Z diode)
0,6		AD (Typ AD)	2L	SV (Varistor)
1,0		B (Typ B)		
2,0		BI (Typ BI)		
...		C (Typ C)		
...		CI (Typ CI)		

PG9	SH
Cable connection	shielded Version
PG7	SH
PG9	
F0,34 (fast connect, max. 0.34 mm ² conductor cross-section)	
F0,75 (fast connect, max. 0.75 mm ² conductor cross-section)	
P (Piercing)	
M16 - 0,5 (flush-type connector with 0.5 m PUR litz wire)	
PG9 - 0,5 (flush-type connector with 0.5 m PUR litz wire)	
PG9 - 0,5 (flush-type connector M8 with 0.5 m PUR litz wire)	
PG9/M16-PO-0,5 (flush-type connector, can be positioned with 0.5 m PUR litz wire)	

L	16	10,0	PUR
LED	Number of inputs/outputs	Master cable connection	Material of cable
L	4	5,0 (5.0 m length of master cable)	PUR
	6	10,0 (10.0 m length of master cable)	
	8	C (pluggable, for master cable bulk stock)	
	10	M12 (M12 master cable connection)	
	12	M16 (M16 master cable connection)	
	16		

DO4	2A
Digital outputs	max. output current each channel
2	0.5A
3	2A
4	3A
8	
R4 (4 outputs (relay contacts))	

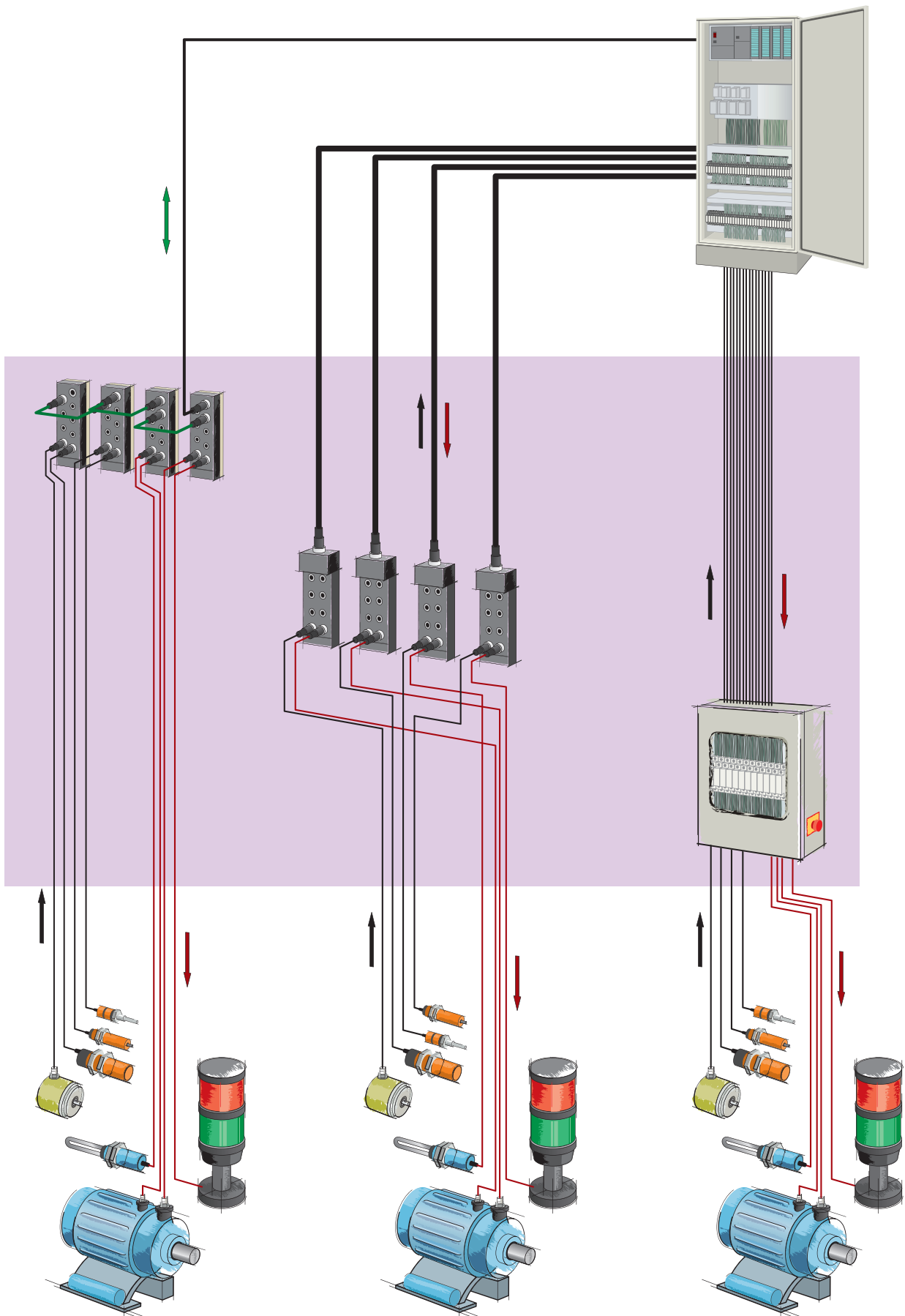
10,0	PUR	M12FS
Cable length in m	Material of cable	Connection right
0,3	PUR	M12FS (M12 socket straight)
0,6		M12FA (M12 socket angled)
1,0		
...		
10,0		

Fieldbus systems



Fieldbus systems

Fieldbus sensor/actuator cabling



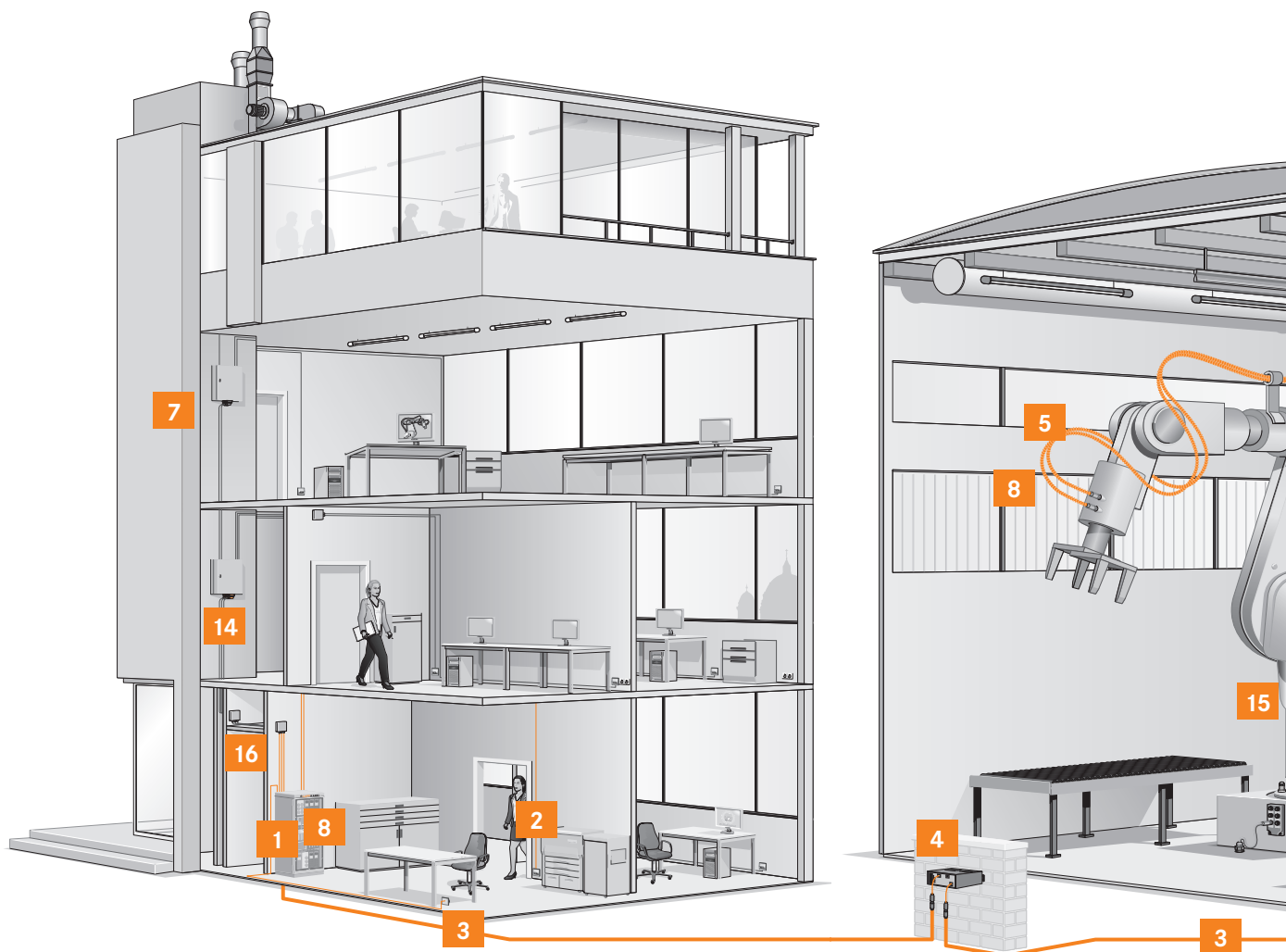
Fieldbus systems

Worldwide connections. We deliver them with systems.

1	UNITRONIC®
Data Communication Systems	
2	UNITRONIC® LAN
LAN Cables for building	
3	HITRONIC®
Glass Optical Fibre (GOF)	

4	ETHERLINE®
LAN Cables for industry	
5	SILVYN®
Protective Cable Conduit Systems	
6	ÖLFLEX®
Servo Cables, Harnessings	

7	ÖLFLEX®
Halogen-free Connection and Control Cables	
8	FLEXIMARK®
Marking Systems	
9	UNITRONIC® BUS
Bus Cables	



Fieldbus systems

10 HITRONIC®

Polymer Optical Fibre (POF)
Plastic Cladded Fiber (PCF)

11 SILVYN® CHAIN

Chain Systems

12 UNITRONIC® Feldbus

Fieldbus Systems

13 EPIC®

Rectangular Connectors

14 SKINTOP®

Cable Entry Systems

15 EPIC®

Circular Connectors

16 ÖLFLEX®

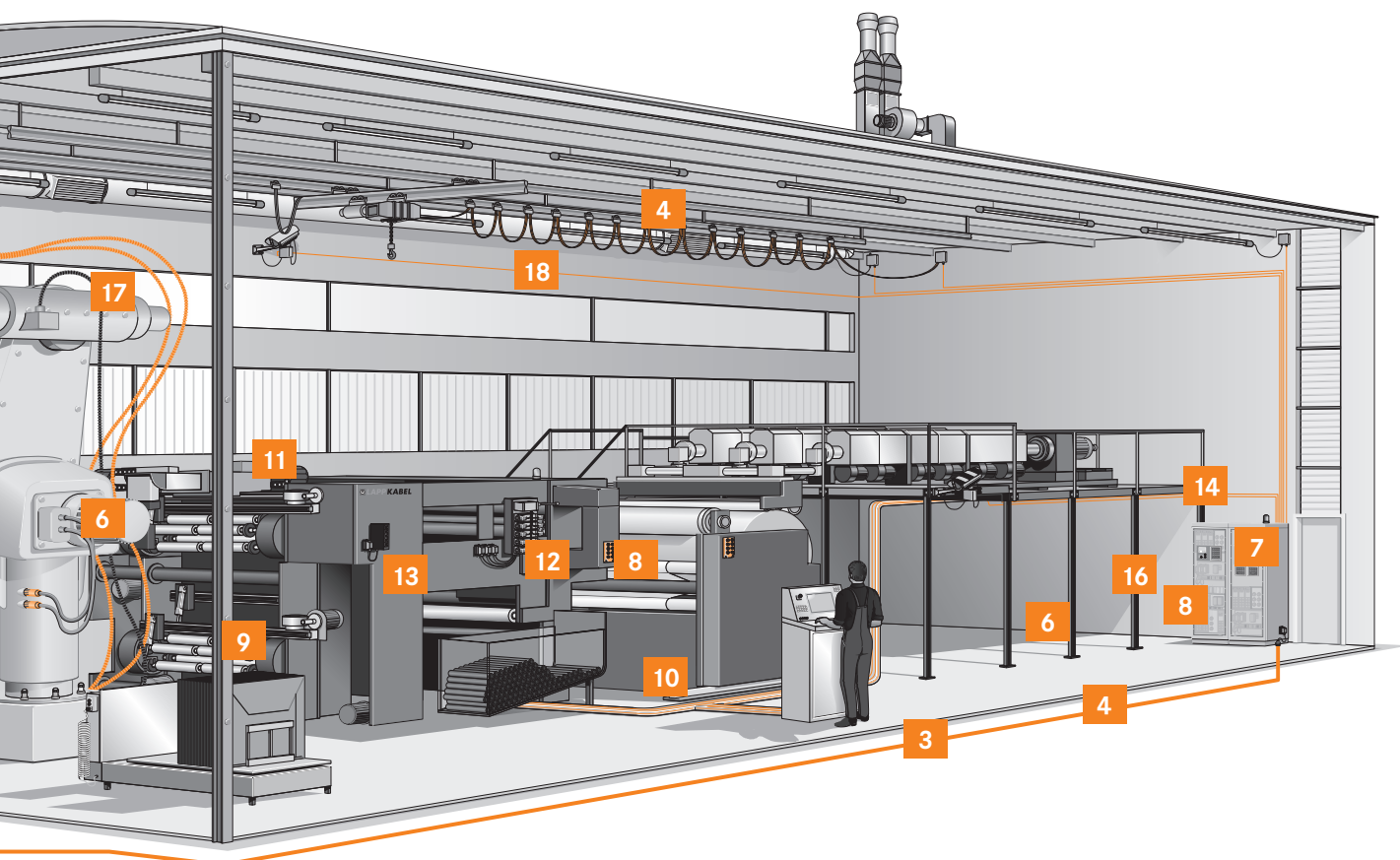
Single Cores, Ground Straps

17 ÖLFLEX®

ROBOT Cables

18 ÖLFLEX®

CRANE F Cables



1a. Sensor/actuator cordsets

S/A selector			M8 connector															
			straight (M8MS)				angled (M8MA)				straight (M12MS)							
			3-pin		4-pin		3-pin		4-pin		3-pin		4-pin		5-pin			
			Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page		
S/A cable with free conductor end to the direct connection at: – sensors/actuators and – field attachable connectors			2.0 m	22260204	45	22260300	53	22260053	45	22260056	53	22260221	41	22260320	49	22260400	56	
			5.0 m	22260205	45	22260308	53	22260987	45	22260057	53	22260222	41	22260321	49	22260401	56	
			10.0 m	22260218	45	22260318	53	22260055	45	22260058	53	22260249	41	22260342	49	22260414	56	
M8 socket			3-pin	0.3 m	22260206	47	Example: S/A cable, 3-pos., PUR halogen-free BK, straight M8 plug, on straight M8 socket, l = 0.3 m (AB-C3-M8MS-0,3PUR-M8FS)					22260225	44					
				0.6 m	22260207	47						22260226	44					
				1.0 m	22260208	47						22260227	44					
				2.0 m	22260209	47						22260228	44					
			4-pin	0.3 m			22260313	55							22260347	52		
				0.6 m			22260314	55							22260349	52		
				1.0 m			22260315	55							22260350	52		
				2.0 m			22260316	55							22260348	52		
			3-pin	0.3 m	22260210	47							22260229	44				
				0.6 m	22260211	47							22260230	44				
				1.0 m	22260212	47							22260231	44				
				2.0 m	22260213	47							22260232	44				
			4-pin	0.3 m							22260059							
				0.6 m							22260060							
				1.0 m							22260061							
				2.0 m							22260062							
			3-pin	0.3 m	22260214	47							22260267	44				
				0.6 m	22260215	47							22260268	44				
				1.0 m	22260216	47							22260269	44				
				2.0 m	22260217	47							22260270	44				
M12 socket			3-pin	0.3 m	22260241	48						22260233	43					
				0.6 m	22260242	48						22260234	43					
				1.0 m	22260243	48						22260235	43					
				2.0 m	22260244	48						22260236	43					
				4-pin	0.3 m										22260328	51		
					0.6 m										22260329	51		
					1.0 m										22260330	51		
					2.0 m										22260331	51		
			5-pin	0.3 m													22260410	58
				0.6 m													22260411	58
				1.0 m													22260412	58
				2.0 m													22260413	58
			8-pin	0.3 m														
				0.6 m														
				1.0 m														
				2.0 m														
			3-pin	0.3 m														
				0.6 m														
				1.0 m														
				2.0 m														
4-pin	0.3 m																	
	0.6 m																	
	1.0 m																	
	2.0 m																	

Please see detailed technical information on the data sheet (www.lappautomation.com).

Fieldbus systems

M12 connector										M12 connector shielded (SH)						Free conductor end to the direct connection at field attachable connectors		Page
angled (M12MA)										straight (M12MS ... SH)								
8-pin		3-pin		4-pin		5-pin		8-pin		3-pin		4-pin		5-pin				
Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page			
22260091	59	22260223	41	22260301	49	22260402	56	22260094	59	22260453	61	22260459	61	22260465	61			
22260092	59	22260224	41	22260302	49	22260403	56	22260095	59	22260454	61	22260460	61	22260466	61			
22260093	59	22260256	41	22260303	49	22260417	56	22260096	59	22260455	61	22260461	61	22260467	61			
																2.0 m	22260202	46
																5.0 m	22260200	46
																10.0 m	22260219	46
																2.0 m	22260309	54
																5.0 m	22260310	54
																10.0 m	22260317	54
																2.0 m	22260203	46
																5.0 m	22260201	46
																10.0 m	22260220	46
																2.0 m	22260311	54
																5.0 m	22260312	54
																10.0 m	22260319	54
																2.0 m	22260275	46
																5.0 m	22260276	46
																10.0 m	22260277	46
																2.0 m	22260257	42
																5.0 m	22260250	42
																10.0 m	22260251	42
				22260304	51											2.0 m	22260322	50
				22260305	51											5.0 m	22260323	50
				22260306	51											10.0 m	22260343	50
				22260307	51													
																2.0 m	22260404	57
																5.0 m	22260405	57
																10.0 m	22260415	57
22260097	60															2.0 m	22260726	59
22260098	60															5.0 m	22260728	59
22260099	60															10.0 m	22260729	59
22260042	60																	
																2.0 m	22260252	42
																5.0 m	22260265	42
																10.0 m	22260266	42
																2.0 m	22260344	50
																5.0 m	22260345	50
																10.0 m	22260346	50

1a. Sensor/actuator cordsets (continuation)

S/A selector				M8 connector															
				straight (M8MS)				angled (M8MA)				straight (M12MS)							
				3-pin		4-pin		3-pin		4-pin		3-pin		4-pin		5-pin			
				Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page
M12 socket	angled socket (M12FA)	3-pin	0.3 m	22260245	48							22260237	43						
			0.6 m	22260246	48							22260238	43						
			1.0 m	22260247	48							22260239	43						
			2.0 m	22260248	48							22260240	43						
		4-pin	0.3 m											22260332	51				
			0.6 m											22260333	51				
			1.0 m											22260334	51				
			2.0 m											22260335	51				
		5-pin	0.3 m													22260063	58		
			0.6 m													22260064	58		
			1.0 m													22260065	58		
			2.0 m													22260066	58		
		8-pin	0.3 m																
			0.6 m																
			1.0 m																
			2.0 m																
	angled socket with LEDs (M12FA-xL)	3-pin	0.3 m	22260271	48							22260261	43						
			0.6 m	22260272	48							22260262	43						
			1.0 m	22260273	48							22260263	43						
			2.0 m	22260274	48							22260264	43						
		4-pin	0.3 m											22260336	51				
			0.6 m											22260337	51				
			1.0 m											22260338	51				
			2.0 m											22260339	51				
		5-pin	0.3 m													22260067	58		
			0.6 m													22260068	58		
			1.0 m													22260069	58		
			2.0 m													22260070	58		
M12 socket shielded	straight socket shielded (M12FS-SH)	3-pin																	
		4-pin																	
		5-pin																	
	angled socket shielded (M12FA-SH)	3-pin																	
		4-pin																	
		5-pin																	

Special cable lengths, other outer sheath materials (e.g. PVC) and individual connector types on request.
Please see detailed technical information on the data sheet (www.lappautomation.com).

Fieldbus systems

M12 connector										M12 connector shielded (SH)						Free conductor end to the direct connection at field attachable connectors		Page
angled (M12MA)										straight (M12MS ... SH)								
8-pin		3-pin		4-pin		5-pin		8-pin		3-pin		4-pin		5-pin				
Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page			
																2.0 m	22260258	42
																5.0 m	22260259	42
																10.0 m	22260260	42
																2.0 m	22260324	50
																5.0 m	22260325	50
																10.0 m	22260341	50
																2.0 m	22260406	57
																5.0 m	22260407	57
																10.0 m	22260418	57
22260137	60															2.0 m	22260141	59
22260138	60															5.0 m	22260615	59
22260139	60															10.0 m	22260616	59
22260140	60																	
																2.0 m	22260253	42
																5.0 m	22260254	42
																10.0 m	22260255	42
																2.0 m	22260326	50
																5.0 m	22260327	50
																10.0 m	22260340	50
																2.0 m	22260408	57
																5.0 m	22260409	57
																10.0 m	22260416	57
																25.0 m	22260760	57
																2.0 m	22260450	62
																5.0 m	22260451	62
																10.0 m	22260452	62
																2.0 m	22260456	62
																5.0 m	22260457	62
																10.0 m	22260458	62
																20.0 m	22260823	62
																2.0 m	22260462	62
																5.0 m	22260463	62
																10.0 m	22260464	62
																2.0 m	22260071	62
																5.0 m	22260072	62
																10.0 m	22260073	62
																2.0 m	22260074	62
																5.0 m	22260675	62
																10.0 m	22260680	62
																2.0 m	22260946	62
																5.0 m	22260714	62
																10.0 m	22260991	62

Fieldbus systems

1b. Selector: M8/M12 connectors (field attachable) – sensor

Connectors							Sensor cable		
								S-LiYY (3x0,25)	S-LiYY (3x0,34)
							Outer diameter [mm]	4.2	4.8
							Part number	7038883	7038859
Connection	Number of pin	Version	Connection type	Conductor cross-section [mm²]	Cable diameter [mm]	Part number	Page	*	82
M8	3-pin	socket, straight	Screw	0.14 – 0.5	3.5 – 5.0	22260125	81	X	X
		connector, straight	Screw	0.14 – 0.5	3.5 – 5.0	22260120	81	X	X
		socket, straight	Piercing	0.14 – 0.38	3.0 – 5.0	22260124	81	X	X
		connector, straight	Piercing	0.14 – 0.38	3.0 – 5.0	22260122	81	X	X
		socket, straight	IDC	0.08 – 0.25	2.5 – 5.0	22260994	81	X	
		socket, straight	IDC	0.25 – 0.5	2.5 – 5.0	22260986	81	X	X
		connector, straight	IDC	0.08 – 0.25	2.5 – 5.0	22260993	81	X	
	4-pin	connector, straight	IDC	0.25 – 0.5	2.5 – 5.0	22260985	81	X	X
		socket, straight	Screw	0.14 – 0.5	3.5 – 5.0	22260126	81		
		connector, straight	Screw	0.14 – 0.5	3.5 – 5.0	22260121	81		
		socket, straight	IDC	0.08 – 0.25	2.5 – 5.0	22260045	81		
		socket, straight	IDC	0.25 – 0.5	2.5 – 5.0	22260046	81		
		connector, straight	IDC	0.08 – 0.25	2.5 – 5.0	22260043	81		
		connector, straight	IDC	0.25 – 0.5	2.5 – 5.0	22260044	81		
M12	4-pin	socket, straight	Piercing	0.14 – 0.38	3.5 – 5.0	22260119	81		
		connector, straight	Piercing	0.14 – 0.38	3.0 – 5.0	22260123	81		
		socket, straight	Screw	0.25 – 0.75	4.0 – 6.0	22260640	80		
		socket, straight	Screw	0.25 – 0.75	6.0 – 8.0	22260641	80		
		socket, angled	Screw	0.25 – 0.75	4.0 – 6.0	22260636	80		
		connector, straight	Screw	0.25 – 0.75	4.0 – 6.0	22260649	80		
		connector, angled	Screw	0.25 – 0.75	6.0 – 8.0	22260995	80		
		socket, angled	Screw	0.25 – 0.75	4.0 – 6.0	22260647	80		
		connector, straight	IDC	0.14 – 0.34	3.5 – 6.0	22260131	80		
		socket, straight	IDC	0.34 – 0.75	4.0 – 8.0	22260133	80		
	5-pin	connector, straight	IDC	0.14 – 0.34	3.5 – 6.0	22260132	80		
		connector, straight	IDC	0.34 – 0.75	4.0 – 8.0	22260134	80		
		socket, straight	Screw	0.25 – 0.75	4.0 – 6.0	22260127	80		
		socket, straight	Screw	0.25 – 0.75	6.0 – 8.0	22260644	80		
		socket, straight	SKINTOP®	0.25 – 0.75	6.0 – 8.0	22260997	80		
		socket, angled	Screw	0.25 – 0.75	4.0 – 6.0	22260128	80		
		socket, angled	Screw	0.25 – 0.75	6.0 – 8.0	22260638	80		
		connector, straight	Screw	0.25 – 0.75	4.0 – 6.0	22260129	80		
		connector, straight	Screw	0.25 – 0.75	6.0 – 8.0	22260651	80		
		connector, straight	SKINTOP®	0.25 – 0.75	6.0 – 8.0	22260996	80		
		connector, angled	Screw	0.25 – 0.75	4.0 – 6.0	22260130	80		
		connector, angled	Screw	0.25 – 0.75	6.0 – 8.0	22260648	80		
8-pin		connector, straight, shielded	Screw	0.25 – 0.75	6.0 – 8.0	22260135	80		
		socket, straight, shielded	Screw	0.25 – 0.75	6.0 – 8.0	22260136	80		
		connector, straight, shielded	Screw	0.25 – 0.75	6.0 – 8.0	22260825	80		
		socket, straight, shielded	Screw	0.25 – 0.75	6.0 – 8.0	22260826	80		

Legend

*see www.lappgroup.com/products

Please see detailed technical information on the data sheet (www.lappautomation.com).

Fieldbus systems

cable

UNITRONIC® SENSOR					UNITRONIC® SENSOR FD UL/AWM					UNITRONIC®						
S-LiYY (4x0,25)	S-LiYY (4x0,34)	DESINA (4x0,34)	S-LiYY11Y (4x0,34)	S-LiYY11Y (5x0,25)	LiYY11Y (3x0,34)	LiYY11Y (4x0,34)	LiYY11Y (5x0,34)	LiYY11Y (5x0,25)	LiYY11Y (8x0,25)	LiYY 4x0,75	LiYY 5x0,75	LiYY 4x0,75	LiYY 5x0,75	LiYY 8x0,25	FD CP plus 5x0,25)	FD CP plus 5x0,34)
4.5	4.8	5.2	4.8	4.9	4.6	4.7	5.1	4.7	5.9	6.1	6.9	7.0	7.6	7.1	6.2	6.8
7038884	7038860	0040434	7038861	7038862	7038864	7038865	7038866	7038867	7038868	0028604	0028605	0034704	0034705	0034408	0028892	0028901
*	82	82	82	82	82	82	82	82	82	*	*	*	*	*	*	*
					X											
					X											
					X											
					X											
					X											
					X											
X					X											
X						X										
X																
X	X					X										
X	X															
X	X					X										
X	X					X										
										X		X				
X	X					X										
X	X					X										
X	X					X										
	X															
	X															
	X															
	X	X	X			X										
	X	X	X			X										
	X	X	X			X										
				X			X	X								
											X		X			
											X		X			
				X												
									X					X		
									X					X		

1c. Valve connectors



S/A

Connectortyp		with M12 connector straight					
Article designation	Version	Length	3-pos.	Page	5-pos.	Page	Length
Typ A (18 mm)	PE bridged with 1 LED and protective circuit (Z diode) PUR cable	0.3 m	22260550	68			2.0 m
		0.6 m	22260551	68			5.0 m
		1.0 m	22260552	68			10.0 m
		2.0 m	22260553	68			
Typ B (10 mm)		0.3 m	22260558	68			2.0 m
		0.6 m	22260559	68			5.0 m
		1.0 m	22260560	68			10.0 m
		2.0 m	22260561	68			
Typ BI (11 mm)		0.3 m	22260554	68			2.0 m
		0.6 m	22260555	68			5.0 m
		1.0 m	22260556	68			10.0 m
		2.0 m	22260557	68			
Typ C (8 mm)		0.3 m	22260566	68			2.0 m
		0.6 m	22260567	68			5.0 m
		1.0 m	22260568	68			10.0 m
		2.0 m	22260569	68			
Typ CI (9.4 mm)		0.3 m	22260562	68			2.0 m
		0.6 m	22260563	68			5.0 m
		1.0 m	22260564	68			10.0 m
		2.0 m	22260565	68			
Typ AD (18 mm)	for pressure switch 2 LEDs PUR cable	0.3 m			22260573	70	2.0 m
		0.6 m			22260572	70	5.0 m
		1.0 m			22260571	70	10.0 m
		2.0 m			22260570	70	

Description						
Typ	Version	Protection	Glands	Description code	3-pin	Page
Typ A (18 mm)	PE bridged, with 1 LED and protective circuit	without	M16	AB-C3-M16-A-1L-S	22260048	71
		Z-Diode	PG9	AB-C3-P69-A-1L-S	22260050	71
Typ B (10 mm)		Z-Diode	PG9	AB-C3-P69-B-1L-S	22260051	71
Typ BI (11 mm)		Z-Diode	PG9	AB-C3-P69-BI-1L-S	22260052	71
Typ C (8 mm)		Varistor	PG9	AB-C3-P69-C-1L-SV	22260142	71
Typ CI (9,4 mm)		Varistor	PG9	AB-C3-P69-CI-1L-SV	22260143	71
Typ AD (18 mm)	for pressure switch, 2 LEDs	without	M16	AB-C5-M16-AD-2L-S		

Fieldbus systems

Free conductor end to the direct connection at field attachable connectors			
3-pos.	Page	5-pos.	Page
22260584	67		
22260576	67		
22260577	67		
22260585	67		
22260578	67		
22260579	67		
22260586	67		
22260580	67		
22260581	67		
22260587	67		
22260582	67		
22260583	67		
22260588	67		
22260574	67		
22260575	67		
		22260589	69
		22260590	69
		22260591	69



Suitable field attachable connectors (screw connection)				
Connector			Part number	Page
M8	3-pos.	Connector straight	22260120	81
	4-pos.	Connector straight	22260134	81
M12	5-pos.	Connector straight	22260129	81
		Connector angled	22260130	81

5-pin	Page	Suitable cable	Page
		0027546	*
		0027546	*
		0027546	*
		0027546	*
		0027546	*
		0027546	*
22260049	71	0027532	*

1d. Selector: Flush-type connectors

Flush-type connector with 0.5 m PUR single liz						
	Connection	Number of poles	Mounting type	Article designation	Part number	Page
Front mounting	M8 socket	3	M8 x 0.5 (SW 10 mm)	AB-C3-M8FS-0,5	22260102	85
		4		AB-C4-M8FS-0,5	22260103	85
	M8 connector	3		AB-C3-M8MS-0,5	22260100	85
		4		AB-C4-M8MS-0,5	22260101	85
	M12 socket	4	M16 x 1.5 (SW 17 mm)	AB-C4-M12FS-M16-0,5	22260107	83
		4	M16 x 1.5 (SW 17 mm)	AB-C4-M12FS-M16-PO-0,5	22260085	83
		4	PG9 (SW 17 mm)	AB-C4-M12FS-PG9-0,5	22260114	84
		4	PG9 (SW 17 mm)	AB-C4-M12FS-PG9-PO-0,5	22260089	84
		5	M16 x 1.5 (SW 17 mm)	AB-C5-M12FS-M16-0,5	22260105	83
		5	M16 x 1.5 (SW 17 mm)	AB-C5-M12FS-M16-PO-0,5	22260086	83
		5	PG9 (SW 17 mm)	AB-C5-M12FS-PG9-0,5	22260111	84
		5	PG9 (SW 17 mm)	AB-C5-M12FS-PG9-PO-0,5	22260090	84
	M12 connector	4	M16 x 1.5 (SW 17 mm)	AB-C4-M12MS-M16-0,5	22260108	83
		4	M16 x 1.5 (SW 17 mm)	AB-C4-M12MS-M16-PO-0,5	22260083	83
		4	PG9 (SW 17 mm)	AB-C4-M12MS-PG9-0,5	22260113	84
		4	PG9 (SW 17 mm)	AB-C4-M12MS-PG9-PO-0,5	22260087	84
		5	M16 x 1.5 (SW 17 mm)	AB-C5-M12MS-M16-0,5	22260106	83
		5	M16 x 1.5 (SW 17 mm)	AB-C5-M12MS-M16-PO-0,5	22260084	83
		5	PG9 (SW 17 mm)	AB-C5-M12MS-PG9-0,5	22260112	84
		5	PG9 (SW 17 mm)	AB-C5-M12MS-PG9-PO-0,5	22260088	84
Rear mounting	M12 socket	4	PG9 (SW 17 mm)	AB-C4-DSI-M12FS-PG9-0,5	22260118	84
		5	PG9 (SW 17 mm)	AB-C5-DSI-M12FS-PG9-0,5	22260116	84
	M12 connector	4	PG9 (SW 17 mm)	AB-C4-DSI-M12MS-PG9-0,5	22260117	84
		5	PG9 (SW 17 mm)	AB-C5-DSI-M12MS-PG9-0,5	22260115	84

2. Selector: Structured Fieldbus wiring for passive S/A

S/A connection (box)					Status indication (box)	Characteristics of S/A distribution box
Socket**	Number of S/A slots	S/A type of signal	PE-connection	Pins than a single slot		
M12	4	2-/3-wire, PNP	x	simply	Power-/Signal-LED	S/A distribution box M12 with fixed assembled master cable , PUR, metal thread with quick locking system, drag chain suitable
	4	2-/3-/4-wire, PNP	x	double		
	4	2-/3-wire, PNP/NPN	x	simply		
	4	2-/3-/4-wire, PNP/NPN	x	double		
	6	2-/3-wire, PNP	x	simply	Power-/Signal-LED	
	8	2-/3-wire, PNP	x	simply		
	8	2-/3-/4-wire, PNP	x	double		
	8	2-/3-wire, PNP/NPN	x	simply		
M8	8	2-/3-/4-wire, PNP/NPN	x	double		
	4	2-/3-wire, PNP		simply	Power-/Signal-LED	S/A distribution box M8 with fixed assembled master cable , PUR, metal thread, drag chain suitable
	6	2-/3-wire, PNP				
	8	2-/3-wire, PNP				
10	2-/3-wire, PNP					
M8	4	2-/3-wire, PNP		simply	Power-/Signal-LED	S/A distribution box M8 and master cable connection M16
	6	2-/3-wire, PNP				
	8	2-/3-wire, PNP				
	10	2-/3-wire, PNP				S/A distribution box M8 and master cable connection M12
	4	2-/3-wire, PNP				
M12	6	2-/3-wire, PNP				
	4	2-/3-wire, PNP/NPN	x	simply		S/A distribution box M12 with pluggable master cable connection , metal thread with quick locking system, master cable as bulk stock (optional connection hood 22260009)
	4	2-/3-wire, PNP	x		Power-/Signal-LED	
	4	2-/3-/4-wire, PNP/NPN	x	double		
	4	2-/3-/4-wire, PNP	x		Power-/Signal-LED	
	8	2-/3-/4-wire, PNP/NPN	x	simply		
	8	2-/3-wire, PNP	x		Power-/Signal-LED	
	8	2-/3-/4-wire, PNP/NPN	x	double		
8	2-/3-/4-wire, PNP	x	Power-/Signal-LED			

Legend: *see www.lappgroup.com/products **Screw plug for unoccupied sockets: M12: 22260605, M8: 22260606.
Please see detailed technical information on the data sheet (www.lappautomation.com).

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Suitable fitting nut		
SW [mm]	Part number	Page
10	22260104	86
19	22260110	86
18	22260109	86
19	22260110	86
18	22260109	86
19	22260110	86
18	22260109	86
19	22260110	86
18	22260109	86
19	22260110	86
18	22260109	86
18	included	
18	included	
18	included	
18	included	

Suitable S/A connection		
Number of poles	straight connector	angled connector
3	C3-M8MS	C3-M8MA
4	C4-M8MS	C4-M8MA
3	C3-M8FS	C3-M8FA
4	C4-M8FS	C4-M8FA
4	C4-M12MS	C4-M12MA
5	C5-M12MS	C5-M12MA
4	C4-M12FS	C4-M12FA
5	C5-M12FS	C5-M12FA
4	C4-M12MS	C4-M12MA
5	C5-M12MS	C5-M12MA
4	C4-M12FS	C4-M12FA
5	C5-M12FS	C5-M12FA

distribution box to PLC I/O

Article designation	Part number							
		S/A box incl. master cable						
		5.0 m	Page	10.0 m	Page			
AB-B4-M12L-4-x,yPUR		22260018	74	22260019	74			
AB-B4-M12L-8-x,yPUR		22260020	74	22260021	74			
AB-B4-M12-4-x,yPUR		22260010	74	22260011	74			
AB-B4-M12-8-x,yPUR		22260012	74	22260013	74			
AB-B6-M12L-6-5.0PUR		22260970	74					
AB-B8-M12L-8-x,yPUR		22260022	74	22260023	74			
AB-B8-M12L-16-x,yPUR		22260024	74	22260025	74			
AB-B8-M12-8-x,yPUR		22260014	74	22260015	74			
AB-B8-M12-16-x,yPUR		22260016	74	22260017	74			
AB-B4-M8L-4-x,yPUR		22260026	72	22260027	72			
AB-B6-M8L-6-x,yPUR		22260028	72	22260029	72			
AB-B8-M8L-8-x,yPUR		22260030	72	22260031	72			
AB-B10-M8L-10-x,yPUR		22260032	72	22260033	72			
	S/A box	Page	Master cable, optional accessories for the S/A box					
			5.0 m	Page	10.0 m	Page	100 m ring	Page
AB-B4-M8L-4-M16	22260034	73	22260607	77	22260608	77		
AB-B6-M8L-6-M16	22260035	73	22260609	77	22260610	77		
AB-B8-M8L-8-M16	22260036	73	22260611	77	22260612	77		
AB-B10-M8L-10-M16	22260037	73	22260613	77	22260614	77		
AB-B4-M8L-4-M12	22260038	73	22260615	78	22260616	78		
AB-B6-M8L-6-M12	22260039	73	22260615	78	22260616	78		
AB-B4-M12-4-C	22260005	75					7038880	76
AB-B4-M12L-4-C	22260001	75						
AB-B4-M12-8-C	22260006	75						
AB-B4-M12L-8-C	22260002	75					7038881	76
AB-B8-M12-8-C	22260007	75						
AB-B8-M12L-8-C	22260003	75						
AB-B8-M12-16-C	22260008	75					7038882	76
AB-B8-M12L-16-C	22260004	75						

PLC

3. Selector: Bus-compatible S/A boxes active (IP65/67)



Bus	Digital inputs/outputs						Type of connection (M12)/type of signal			Article designation	Page
	Inputs			Outputs			PNP		max. connectable type of connection (input)		
	4	8	16	4	8	I _{max} /channel	Sensor	Actuator			
PROFIBUS		x					2-/3-,4-wire		4x 4-wire 3x 4-wire + 2x 3-/2-wire 2x 4-wire + 4x 3-/2-wire 1x 4-wire + 6x 3-/2-wire 8x 3-/2-wire	AB-PB-DI8-M12 22260738	89
			x				2-/3-,4-wire		8x 4-wire 7x 4-wire + 2x 2-/3-wire 6x 4-wire + 4x 2-/3-wire ... 16x 2-/3-wire	AB-PB-DI16-M12 22260739	89
	x			x		2 A	2-/3-,4-wire	2-/3-wire	2x 4-wire 1x 4-wire + 2x 2-/3-wire 4x 2-/3-wire	AB-PB-DI4DO4-M12-2A 22260740	89
		x			x	0,5 A	2-/3-,4-wire	2-/3-wire	4x 4-wire 3x 4-wire + 2x 3-/2-wire 2x 4-wire + 4x 3-/2-wire 1x 4-wire + 6x 3-/2-wire 8x 3-/2-wire	AB-PB-DI8DO8-M12A-0,5A 22260762	89
					x	2 A		2-/3-wire		AB-PB-DO8-M12-2A 22260742	89
DeviceNet		x					2-/3-,4-wire		4x 4-wire 3x 4-wire + 2x 3-/2-wire 2x 4-wire + 4x 3-/2-wire 1x 4-wire + 6x 3-/2-wire 8x 3-/2-wire	AB-DN-DI8-M12 22260743	90
			x				2-/3-,4-wire		8x 4-wire 7x 4-wire + 2x 2-/3-wire 6x 4-wire + 4x 2-/3-wire ... 16x 2-/3-wire	AB-DN-DI16-M12 22260744	90
	x			x		2 A	2-/3-,4-wire	2-/3-wire	2x 4-wire 1x 4-wire + 2x 2-/3-wire 4x 2-/3-wire	AB-DN-DI4DO4-M12-2A 22260745	90
		x			x	0,5 A	2-/3-,4-wire	2-/3-wire	4x 4-wire 3x 4-wire + 2x 3-/2-wire 2x 4-wire + 4x 3-/2-wire 1x 4-wire + 6x 3-/2-wire 8x 3-/2-wire	AB-DN-DI8DO8-M12A-0,5A 22260763	90
					x	2 A		2-/3-wire		AB-DN-DO8-M12-2A 22260747	90
CANopen		x					2-/3-,4-wire		4x 4-wire 3x 4-wire + 2x 3-/2-wire 2x 4-wire + 4x 3-/2-wire 1x 4-wire + 6x 3-/2-wire 8x 3-/2-wire	AB-CAN-DI8-M12 22260748	91
			x				2-/3-,4-wire		8x 4-wire 7x 4-wire + 2x 2-/3-wire 6x 4-wire + 4x 2-/3-wire ... 16x 2-/3-wire	AB-CAN-DI16-M12 22260749	91
	x			x		2 A	2-/3-,4-wire	2-/3-wire	2x 4-wire 1x 4-wire + 2x 2-/3-wire 4x 2-/3-wire	AB-CAN-DI4DO4-M12-2A 22260750	91
		x			x	0,5 A	2-/3-,4-wire	2-/3-wire	4x 4-wire 3x 4-wire + 2x 3-/2-wire 2x 4-wire + 4x 3-/2-wire 1x 4-wire + 6x 3-/2-wire 8x 3-/2-wire	AB-CAN-DI8DO8-M12A-0,5A 22260764	91
					x	2 A		2-/3-wire		AB-CAN-DO8-M12-2A 22260752	91

Power connection cable** (power cable) for external and operation voltage

S/A box	Length	M12 connector straight on M12 socket straight		M12 connector straight on free conductor end		M12 socket straight on free conductor end	
		Part number	Page	Part number	Page	Part number	Page
PROFIBUS DeviceNet CANopen	0.3 m	22260784	104				
	1 m	22260785	104				
	2 m	22260786	104	22260778	103	22260781	103
	5 m	22260787	104	22260779	103	22260782	103
	10 m	22260788	104	22260780	103	22260783	103

Fieldbus systems

		Pre-assembled bus cables double-sided		Pre-assembled bus cables single-sided				Bus cable as bulk stock	Suitable M12 connector		Suitable EPIC® data connector (9-pos. D-Sub.) (see page 7)		PLC interface	
		M12 connector on M12 socket		M12 connector on free conductor end		M12 socket on free conductor end			Part number	Page	Part number	Page		
Length	Part number	Page	Part number	Page	Part number	Page								
0.3 m	22260773	96					see UNITRONIC® bus cables	M12 socket 22260646	99	21700507 (35°)	*	PROFIBUS		
1 m	22260774	96								21700506 (35°, PG)	*			
2 m	22260775	96	22260767	95	22260770	95				21700504 (90°)	*			
5 m	22260776	96	22260768	95	22260771	95				21700503 (90°, PG)	*			
10 m	22260777	96	22260769	95	22260772	95				21700530 (90°, LED)	*			
										21700529 (90°, PG, LED)	*			
										21700543 (90°, ATEX)	*			
										21700542 (90°, PG, ATEX)	*			
										21700505 (AX)	*			
0.3 m	22260795	98					see UNITRONIC® bus cables	M12 socket 22260135	99	21700537 (90°)	*		DeviceNet	
1 m	22260796	98								21700536 (90°, PG)	*			
2 m	22260797	98	22260789	97	22260792	97				21700538 (AX)	*			
5 m	22260798	98	22260790	97	22260793	97								
10 m	22260799	98	22260791	97	22260794	97								
0.3 m	22260795	98					see UNITRONIC® bus cables	M12 socket 22260135	99	21700537 (90°)	*	CANopen		
1 m	22260796	98								21700536 (90°, PG)	*			
2 m	22260797	98	22260789	97	22260792	97				21700538 (AX)	*			
5 m	22260798	98	22260790	97	22260793	97								
10 m	22260799	98	22260791	97	22260794	97								

PLC

Legend

*see www.lappgroup.com/products

**One operation voltage supply is needed for DI boxes

Operation voltage and external supply voltage is needed for DI/DO boxes

Special cable lengths, other outer sheath materials (e.g. PVC) and individual connector types on request.

Please see detailed technical information on the data sheet (www.lappautomation.com).

4. Selector: Bus-compatible S/A boxes active (IP30/IP67)

PLC interface	Digital inputs/outputs								Type of connection/ type of signal		S/A distribution box (active), AS-Interface				
	Inputs			Outputs					PNP		Article designation	Part number	Page	Product features	Type of connection
AS-Interface		x				x**		3 A	2-/3-wire	2-/3-wire	AB-ASI-DI4DOR4-3A	22260807	88	AS-Interface module (IP30), LED, metal housing, plug-in connection	Screw/tension plug terminal (see table AS-Interface network components (AB-ASI-XS/ AB-ASI-XT))
		x				x		2 A	2-/3-wire	2-/3-wire	AB-ASI-DI4DO4-2A	22260808	88		
			x				x	2 A	2-/3-wire	2-/3-wire	AB-ASI-DI8DO8-2A	22260809	88		
		x				x		1 A	2-/3-wire	2-/3-wire	AB-ASI-M12-DI4DO4-M8-1A	22260759	87	AS-Interface module (IP67), LED, metal thread	3-pos. M8
		x							2-/3-wire	2-/3-wire	AB-ASI-M12-DI4-M8	22260758	87		
	x			x				2A	2-/3-/4-wire	2-/3-wire	AB-ASI-DI2DO2-M12-2A	22260755	87		
		x			x			2 A	2-/3-/4-wire	2-/3-wire	AB-ASI-DI4DO3-M12-2A	22260756	87		
		x				x		2 A	2-/3-/4-wire	2-/3-wire	AB-ASI-DI4DO4-M12-2A	22260757	87		
		x							2-/3-/4-wire		AB-ASI-DI4-M12	22260753	87		
						x		2 A		2-/3-wire	AB-ASI-DO4-M12-2A	22260754	87		4-pos. M12

Legend

*see www.lappgroup.com/products

**Relay contact

Please see detailed technical information on the data sheet (www.lappautomation.com).

AS-Interface network components						
Product	Article designation	Part number	Page	Suitable accessories	Part number	Page
AS-Interface network extension with LED diagnostic	AB-ASI-NE200LED	22260813	94	Distributor M12 on AS-Interface bus cable	22260800	92
AS-Interface network extension with remote diagnostic	AB-ASI-NE200	22260814				
AS-Interface counter module	AB-ASI-C	22260810	93	Screw plug terminal (4x4 pos.)	22260817	94
				Tension plug terminal (4x4 pos.)	22260818	
AS-Interface power supply	AB-ASI-PS-1A	22260812	93			
AS-Interface clip clamp	ASI-clip clamp	61825000	*			
AS-Interface end sealing	AB-ASI-PC-BK	22260047	*			
H-Distributor	AB-ASI-J-Y-Y-N	22260802	92			
Screw plug terminal (4x4 pos.)	AB-ASI-XS4	22260817	94			
Screw plug terminal (2x16 pos.)	AB-ASI-XS16	22260815	94			
Tension plug terminal (4x4 pos.)	AB-ASI-XT4	22260818	94			
Tension plug terminal (8x4 pos.)	AB-ASI-XT16	22260816	94			
SKINTOP® cable glands, black, M20	SKINTOP® ST-M 20x1,5 BK	53111220	*	SKINTOP® DIX-M ASI M20, seals for 1 AS-Interface bus cable	53611001	*
SKINTOP® cable glands, black, M25	SKINTOP® ST-M 25x1,5 BK	53111230	*	SKINTOP® DIX-M ASI DUO M25, seals for 2 AS-Interface bus cables	53611004	*
				SKINTOP® DIX-M RJ45 M25, seals for pre-assembled cable with RJ-45 connector	53440980	*
SKINTOP® cable glands, black, M32	SKINTOP® ST-M 32x1,5 BK	53111240	*	SKINTOP® DIX-M Fieldbus M32, seals for pre-assembled S/A cable	53440970	*

Fieldbus systems

Distributor on AS-Interface								Bus cable as bulk stock
for 1 AS-Interface flat cable				for 2 AS-Interface flat cable				
1 m	2 m	5 m	10 m	1 m	2 m	5 m	10 m	see UNITRONIC® bus cable
	22260800 & Power cable (22260778) see page 103	22260800 & Power cable (22260779) see page 103	22260800 & Power cable (22260780) see page 103		22260801 & Power cable (22260778) see page 103	22260801 & Power cable (22260779) see page 103	22260801 & Power cable (22260780) see page 103	
22260803 see page 92	22260804 see page 92			22260805 see page 92	22260806 see page 92			
integrated bus connection (UNITRONIC® BUS AS-i)								

PLC

ETHERNET in Automation

ETHERNET in Automation

The Ethernet standard is a permanent fixture in corporate IT departments due to its simplicity. The reason for the acceptance and popularity not only lies in the integrated networking for a company, but rather in the fact that it forms the basic technology for the world's largest network – the Internet. The Ethernet is the world's most-used standard. The advantages of the Ethernet and the related networking are obvious:

- Simple, unliwithed expansion possibilities
- Fast commissioning due to simple connection technology with RJ45 or M12
- Dynamic bandwidth adjustment with 10/100 Mbit/s, 1 Gbit up to a current 10 Gbit/s
- Networking of various applications areas (industrial, building, Automation, IT, ...)

Because of this reasons from time to time more companies are using the performance of Ethernet for their machine and plant control. In combination of using Ethernet protocols and components which are specified for industrial enviroment, there are more advantages over commercial fieldbussystems like PROFIBUS:

- Company-wide access to data and applications
- High data transmission rate for fast exange of information
- Improvement of efficiency and speed of work flow and furthermore an increase of energy efficiency and machine performance
- Continuously and coordinated monitoring and machine control for a optimized manufacturing process
- Wiring from office till machine is possible

The user can choose between copper cable (Twisted Pair-cable), fibre optics or wireless for physical connection of the devices. There are different maximum transmission lenght for the media.

	Medium	Cable	Installation length
ETHERNET	10 Base-T	Twisted Pair	100 m
	10 Base-FL	62.5 µm, 50 µm Multimode LWL	2.000 m
Fast ETHERNET	100 Base-TX	Twisted Pair	100 m
	100 Base-FX	62.5 µm, 50 µm Multimode LWL FDX	412 m
		62.5 µm, 50 µm Multimode LWL HDX	2.000 m
Gigabit ETHERNET	1000 Base-CX	Twinax STP (150 Ohm)	25 m
	1000 Base-T	Twisted Pair	100 m
	1000 Base-SX 850 nm	62.5 µm Multimode LWL	275 m
		50 µm Multimode LWL	550 m
		62.5 µm Multimode LWL	550 m
		50 µm Multimode LWL	550 m
10 Gigabit ETHERNET	10G Base-LX 1300 nm	Singlemode LWL	5.000 m
	10G Base-T	Twisted Pair	100 m
	10G Base-LX4 WWDM	Singlemode LWL	10.000 m
	10G Base-LX4 WWDM	Multimode LWL	300 m
	10G Base-SR/SW 850 nm	62.5 µm Multimode LWL	26 m
		50 µm Multimode LWL	82 m
	10G Base-LR/LW 850 nm	Singlemode LWL	10.000 m
	10G Base-ER/EW 1550 nm	Singlemode LWL	40.000 m

ETHERNET in Automation

Application classes (LAN copper cabling)			
Application class	Category	Frequency	Services and applications
Class A	-	Up to 100 kHz	
Class B	-	Up to 1 MHz	Telephone, ISDN
Class C	Cat.3	Up to 16 MHz	Tel, ISDN, TokenRing, Ethernet
Class D	Cat.5/5e	Up to 100 MHz	Fast Ethernet, Gigabit Ethernet
Class E	Cat.6	Up to 250 MHz	Fast Ethernet, Gigabit Ethernet
Class E _A	Cat.6 _A	Up to 500 MHz	10 Gigabit Ethernet
Class F	Cat.7	Up to 600 MHz	10 Gigabit Ethernet
Class F _A	Cat.7 _A	Up to 1 GHz	10 Gigabit Ethernet

In the field of Industrial Automation more than 20 different Industrial Ethernet protocols are defined by companies. All of them differ from their application field and technical functions to each other

ProfiNet (PNO – ProfibusNutzerOrganisation)

The installation guide defines three different types of cables for their optimal use in different applications and environments:

- Type A stationary, no movement after installation, solid wire
- Type B flexible, occasional movement of vibration, 7-stranded wire
- Type C special applications (high flexible, drag chain, ...)

This guideline defines also the design of the cable types.

Using a two pair cable with a min. category Cat.5, the design has to be:

- Type A 2x2xAWG22/1
- Type B 2x2xAWG22/7
- Type C 2x2xAWG22/...

Mostly the cables have a design of a quad star.

Using a four pair cable with a min category Cat.5, the design has to be:

- Type A 4x2xAWG23/1
- Type B 4x2xAWG23/7
- Type C 4x2xAWG24/...

EtherNet/IP™ and EtherCAT are using Cat.5 standard cable, which are specified for industrial applications. Sercos III uses also standard components like Cat.5 cable with a double shielding.

ETHERNET in Automation

Quickfinder

Automation area	Inst. area	Category	Application/cabling	halogen-free	Shielding (standard description)	AWG	Outer diameter [mm]	Characteristics
Building 4-pairs	indoor	Cat.5e	static	x	U/UTP	4x2xAWG24/1	5,6	
					SF/UTP	4x2xAWG24/1	6,7	
					U/UTP	4x2xAWG24/1	5,6	
					F/UTP	4x2xAWG24/1	6,4	
			flexible		SF/UTP	4x2xAWG24/1	6,7	
					F/UTP	4x2xAWG26/7	5,6	
					SF/UTP	4x2xAWG26/7	6	
				x	F/UTP	4x2xAWG26/7	5,6	
					SF/UTP	4x2xAWG26/7	6	
		Cat.6	static	x	U/UTP	4x2xAWG24/1	6,5	
					F/UTP	4x2xAWG24/1	7,5	
					U/UTP	4x2xAWG24/1	6,5	
		Cat.6 _A	static	x	U/FTP	4x2xAWG24/1	7,4	
					F/FTP	4x2xAWG24/1	7,6	
					S/FTP	4x2xAWG23/1	7,1	
		Cat.7	static	x	S/FTP	4x2xAWG23/1	7,7	
			flexible		S/FTP	4x2xAWG26/7	6,5	DUPLEX
		Cat.7 _A	static	x	S/FTP	4x2xAWG22/1	8,1	
					S/FTP	4x2xAWG22/1	8,5	
	outdoor ground	Cat.7	static	x	S/FTP	4x2xAWG23/1	10	PE-AL-outer sheath; direct burial
					S/FTP	4x2xAWG23/1	9,6	PE-outer sheath

Automation area	Inst. area	Category	Application/cabling	halogen-free	Sheath material	AWG	Outer diameter [mm]	Characteristics
Industrial 2-pairs	indoor	Cat.5e	static	x	H	2x2xAWG24/1	5,8	
		Cat.5e	static		PVC	2x2xAWG22/1	6,4	QP
		Cat.5e	flexible	x	H	2x2xAWG26/7	5,4	
		Cat.5e	high flexible	x	PUR	2x2xAWG26/19	6,1	power chain
		Cat.5	high flexible	x	PUR	2x2xAWG22/7	6,5	QP, power chain, Fast Connect
		Cat.5	torsion	x	PUR	2x2xAWG22/19	6,5	QP, Torsion
	indoor and outdoor	Cat.5	static		PVC	2x2xAWG22/1	6,5	QP, UV resistant, Fast Connect
		Cat.5e	static		PUR	2x2xAWG24/1	5,8	limited UV resistance
		Cat.5	flexible		PVC	2x2xAWG22/7	6,5	QP, UV resistant, Fast Connect
		Cat.5e	flexible		PVC	2x2xAWG22/7	6,2	QP, black, UV resistant
		Cat.5e	flexible		PUR	2x2xAWG26/7	5,8	limited UV resistance
	outdoor and ground	Cat.5	static		PVC/PE	2x2xAWG22/1	9,3	QP, steel armoured, black, UV resistant
		Cat.5e	static		PVC/PVC	2x2xAWG22/1	7,8	QP, double sheath, black, UV resistant
Industrial 2-pairs combi	indoor	Cat.5	flexible	x	FRNC	2x2xAWG22/7 + 4x1.5	10,3	hybrid
Industrial 4-pairs	indoor	Cat.5e	static	x	H	4x2xAWG24/1	6,3	
					H/H	4x2xAWG24/1	7,5	double sheath
			flexible		H	4x2xAWG26/7	6,1	
	indoor and outdoor	Cat.5e	static		PUR	4x2xAWG24/1	6,3	limited UV resistance
			flexible		PUR	4x2xAWG26/7	6,1	limited UV resistance
		Cat.5	high flexible	x	PUR	4x2xAWG26/19	6,3	easy to wind, best for stage, power chain, black, UV resistant
					PUR	4x2xAWG26/19	6,1	power chain, limited UV resistance
		Cat.6			PUR	4x2xAWG26/19	7,8	power chain, limited UV resistance
	indoor	Cat.6 _A	static		PVC	4x2xAWGG22/1	8,7	
				x	PUR			
				x	H			
					PVC			
				x	PUR			
				x	H			
	outdoor and ground	Cat.7	static	x	S/FTP	4x2xAWG23/1	10	PE-AL-outer sheath; direct burial
					S/FTP	4x2xAWG23/1	9,6	PE-outer sheath

ISO/IEC-11801 (2002)	LAPP-product-designations	Construction (outdoor/indoor)
U/UTP	UTP	Unshielded/Unshielded Twisted Pair
F/UTP	F/UTP	Foiled/Unshielded Twisted Pair
SF/UTP	S-FTP	Screened+Foiled/Unshielded Twisted Pair
S/FTP	STP/S PiMF	Screened/Foiled Twisted Pair

ETHERNET in Automation

Approvals	Article designation	Part number	Page	Connectors	Socket (SnapIn)
	UNITRONIC® LAN 200 U/UTP Cat.5e LSZH	2170185	119		
	UNITRONIC® LAN 200 SF/UTP Cat.5e LSZH	2170138	119	3,4	6
	UNITRONIC® LAN 200 U/UTP Cat.5e Y	2170125	119	1,2,3,4	6
	UNITRONIC® LAN 200 F/UTP Cat.5e Y	2170126	119	3,4	6
	UNITRONIC® LAN 200 SF/UTP Cat.5e Y	2170128	119	3,4	6
	UNITRONIC® LAN 200 F/UTP Cat.5e Y Flex	2170127	124	1,2,3,4	7
	UNITRONIC® LAN 200 SF/UTP Cat.5e Y Flex	2170129	124	1,2,3,4	7
	UNITRONIC® LAN 200 F/UTP Cat.5e H Flex	2170137	124	1,2,3,4	7
	UNITRONIC® LAN 200 SF/UTP Cat.5e H Flex	2170139	124	1,2,3,4	7
	UNITRONIC® LAN 250 U/UTP Cat.6 LSZH	2170193	120	13,14	16,17
	UNITRONIC® LAN 250 F/UTP Cat.6 LSZH	2170194	120	13,14	16,17
	UNITRONIC® LAN 250 U/UTP Cat.6 Y	2170186	120	13,14	16,17
	UNITRONIC® LAN 500 U/FTP Cat.6 _A LSZH	2170195	121	13,14	16,17
	UNITRONIC® LAN 500 F/FTP Cat.6 _A LSZH	2170196	121	13,14	16,17
	UNITRONIC® LAN 500 S/FTP Cat.6 _A Y	2170143	121	4	8,10,11
	UNITRONIC® LAN 1000 S/FTP Cat.7 LSZH	2170614	122	4	10,11,12
	UNITRONIC® LAN 1000 S/FTP Cat.7 LSZH D	2170634	122	4	10,11,12
	UNITRONIC® LAN 600 S/FTP Cat.7 Y	2170144	124	3,4	7,9
	UNITRONIC® LAN 1200 S/FTP Cat.7 _A LSZH	2170615	123	4	10,11,12
	UNITRONIC® LAN 1500 S/FTP Cat.7 _A LSZH	2170199	123	13,14	16,17
	UNITRONIC® LAN 1000 S/FTP Cat.7 (L)PE	2170198	124		
	UNITRONIC® LAN 1000 S/FTP Cat.7 PE	2170197	124		

Approvals	Article designation	Part number	Page	Connectors	Socket (SnapIn)
	ETHERLINE® H CAT.5e	2170280	105	3,4,5	6,8,10,11
PN, UL/CSA(CMX)	ETHERLINE® Y UL/CSA CAT.5e	2170891	108	4,5	6,8,10,11
	ETHERLINE® H FLEX CAT.5e	2170283	105	3,4,5	7,9
	ETHERLINE® FD P CAT.5e	2170289	106	3,4,5	7,9
PN, UL/CSA(CMX)	ETHERLINE® FD P FC UL/CSA (CMX) CAT.5	2170894	108	4,5	11
PN, UL/CSA (AWM)	ETHERLINE® TORSION CAT.5	2170888	109	4,5	6,8,10,11
PN, UL/CSA (CMG)	ETHERLINE® Y FC UL/CSA (CMG) CAT.5	2170893	108	4,5	6,8,10,11
	ETHERLINE® P CAT.5e	2170281	105	3,4,5	6,8,10,11
PN, UL/CSA (CMG)	ETHERLINE® Y FLEX FC UL/CSA (CMG) CAT.5	2170886	108	4,5	11
PN	ETHERLINE® Y CAT.5e BK	2170901	109	3,4,5	11
	ETHERLINE® P FLEX CAT.5e	2170284	105	3,4,5	7,9
PN	ETHERLINE® Y2Y ARM Type A CAT.5	2170496	107		
PN, UL/CSA (CMG)	ETHERLINE® YY UL/CSA (CMG) CAT.5e	2170494	108	4,5	6,8,10,11
PN, UL (AWM)	ETHERLINE® FRNC HYBRID FLEX UL (AWM) CAT.5	2170887	107		
	ETHERLINE® H CAT.5e	2170296	105	3,4,15	6,8,10,11
	ETHERLINE® H-H CAT.5e	2170298	105	4,15	6,8,10,11
	ETHERLINE® H FLEX CAT.5e	2170299	105	3,4,15	7,9
	ETHERLINE® P CAT.5e	2170297	105	3,4,15	6,8,10,11
	ETHERLINE® P FLEX CAT.5e	2170300	105	3,4,15	7,9
	ETHERLINE® FD BK CAT.5	CE217489	106	3,4,15	7,9
	ETHERLINE® FD P CAT.5	2170489	106	3,4,15	7,9
UL/CSA (CMX)	ETHERLINE® FD P CAT.6	2170488	110	4,13,14,15	7,9,16,17
	ETHERLINE® Y CAT6 _A	2170464	110	13,14	10,12,16,17
	ETHERLINE® P CAT6 _A	2170465	110	13,14	10,12,16,17
	ETHERLINE® H CAT6 _A	2170466	110	13,14	10,12,16,17
	ETHERLINE® Y CAT7	2170474	110	13,14	10,12,16,17
	ETHERLINE® P CAT7	2170475	110	13,14	10,12,16,17
	ETHERLINE® H CAT7	2170476	110	13,14	10,12,16,17
	UNITRONIC® LAN 1000 S/FTP Cat.7 (L)PE	2170198	124		
	UNITRONIC® LAN 1000 S/FTP Cat.7 PE	2170197	124		

Legend

PN = PROFINET, cables acc. to PROFINET standard

QP = Quad Pair, star quad cable

**data sheet on www.lappautomation.com

Please see detailed technical information on the data sheet (www.lappautomation.com).

ETHERNET in Automation

Connectors							
No.	Cable type	Max. Ø-cable	Category	Core dimension	Article designation	Part number	Page
RJ45 connector							
1	flexible	5.8 mm	Cat.5	AWG26	RJ45 connector TM11 Hirose, beige	CE6321	125
2	flexible	5.72 mm	Cat.5	AWG26	RJ45 connector Stewart, grey	CE6323	125
3	solid + flexible	6.6 mm	Cat.6	solid: Ø 0.5 mm flexible: AWG26 – 24	RJ45 connector TM21 Hirose, beige	CE6324	126
4	solid + flexible	8 mm	Cat.5e	AWG26 – 22	RJ45 connector FM45	21700540	125
13	solid + flexible	9 mm	Cat.6 _A	AWG27 – 22	RJ45 connector Cat.6 _A field attachable TIA568A	21700600	126
14	solid + flexible	9 mm	Cat.6 _A	AWG27 – 22	RJ45 connector Cat.6 _A field attachable TIA568B	21700601	126



M12 connector							
5	solid + flexible	8 mm	Cat.5e	AWG26 – 22	AB-C4-M12MSD-SH (PROFINET)	22260820	99
15	solid + flexible	8.2 mm	Cat.6 _A	AWG26 – 24	ED-IE-AX-M12X-6A-67-FC	21700602	*



LANmark SnapIn RJ45 socket							
6	solid	–	Cat.5e	AWG24/1 – 22/1	LANmark-5 EVO Snap-In connector	61103	*
7	flexible	–	Cat.5e	AWG26/7	Lanmark-5 EVO Snap-In connector AWG26	61102	*
8	solid	–	Cat.6	AWG24/1 – 22/1	LANmark-6 EVO 250 MHz Snap-In connector	62104	*
9	flexible	–	Cat.6	AWG26/7	LANmark-6 EVO 250MHz Snap-In for AWG26	62105	*
10	solid	–	Cat.6a	AWG24/1 – 22/1	LANmark-6 EVO 10 G Snap-In connector	62106	*
16	solid + flexible		Cat.6 _A	AWG27 – 22	ED-IE-AX-RJ45F-6A-A-FC	21700611	
17	solid + flexible		Cat.6 _A	AWG27 – 22	ED-IE-AX-RJ45F-6A-B-FC	21700612	
11	solid + flexible	–	Cat.6	AWG24 – 22	SnapIn Rail mount adapter 1-single incl. Cat.6	60795	*



LANmark SnapIn GG45 socket							
12	solid	–	Cat.7	AWG24/1 – 22/1	LANmark-7, 600 MHz Snap-In GG45 connector	63103	*



Connector pin assignment RJ45			
PIN	TIA 568-A	TIA 568-B	PROFINET
1	White/Green	White/Orange	Yellow
2	Green	Orange	Orange
3	White/Orange	White/Green	White
4	Blue	Blue	–
5	White/Blue	White/Blue	–
6	Orange	Green	Blue
7	White/Brown	White/Brown	–
8	Brown	Brown	–

Legend

*see www.lappgroup.com/products

Please see detailed technical information on the data sheet (www.lappautomation.com).

ETHERNET in Automation

Industrial Ethernet patchcords																	
Industrial Ethernet protocol			2-pair cable										4-pair cable				
			Profinet						Industrial Ethernet (EtherCAT EtherNet/IP)				Industrial Ethernet (EtherCAT EtherNet/IP)				
			Typ A		Typ B		Typ C		halogenfree		PUR		halogenfree		PUR		
			length in m	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page
Connection type of cable	Connector to connector	M12-M12 (straight)	1	2171001	111	2171025	112	2171049	113	2171073	116	2171097	114				
			2	2171002	111	2171026	112	2171050	113	2171074	116	2171098	114				
			3	2171003	111	2171027	112	2171051	113	2171075	116	2171099	114				
			5	2171004	111	2171028	112	2171052	113	2171076	116	2171100	114				
			10	2171005	111	2171029	112	2171053	113	2171077	116	2171101	114				
			20	2171006	111	2171030	112	2171054	113	2171078	116	2171102	114				
		M12-RJ45 (straight)	1							2171085	117	2171109	115				
			2							2171086	117	2171110	115				
			3							2171087	117	2171111	115				
			5							2171088	117	2171112	115				
			10							2171089	117	2171113	115				
			20							2171090	117	2171114	115				
		RJ45-RJ45 (straight)	1							2171091	118	2171115	115	2171513	118	2171501	115
			2							2171092	118	2171116	115	2171514	118	2171502	115
			3							2171093	118	2171117	115	2171515	118	2171503	115
			5							2171094	118	2171118	115	2171516	118	2171504	115
			10							2171095	118	2171119	115	2171517	118	2171505	115
			20							2171096	118	2171120	115	2171518	118	2171506	115
	Connector on free conductor end (OE)	M12 (straight) – OE	1	2171007	111	2171031	112	2171055	113	2171079	117	2171103	114				
			2	2171008	111	2171032	112	2171056	113	2171080	117	2171104	114				
			3	2171009	111	2171033	112	2171057	113	2171081	117	2171105	114				
			5	2171010	111	2171034	112	2171058	113	2171082	117	2171106	114				
			10	2171011	111	2171035	112	2171059	113	2171083	117	2171107	114				
			20	2171012	111	2171036	112	2171060	113	2171084	117	2171108	114				
		RJ45 (straight) -OE	1											2171519	118	2171507	116
			2											2171520	118	2171508	116
			3											2171521	118	2171509	116
			5											2171522	118	2171510	116
			10											2171523	118	2171511	116
			20											2171524	118	2171512	116

used cable			Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page
			2170893	108	2170886	108	2170894	108	2170283	105	2170284	105	2170299	105	2170300	105

Fibre optic cables

Quickfinder

FO-fibre type	Cable type/standardisation (DIN VDE 0888)	Area of Installation	Cabling	Fibre Specification	No. of fibres	Max. ten- sile force (long-term) in [N]	Outer sheath material	
GOF – Glass Optical Fibre	Outdoor Cable A-DQ(ZN)B2Y (4 – 24 fibres)	Outdoor	Static	Multimode 50/125 µm OM3	4	1500	PE	
					8	1500	PE	
					12	1500	PE	
					24	1500	PE	
				Multimode 50/125 µm OM2	4	1500	PE	
					8	1500	PE	
					12	1500	PE	
					24	1500	PE	
				Multimode 62.5/125 µm OM1	4	1500	PE	
					8	1500	PE	
					12	1500	PE	
					24	1500	PE	
				Singlemode 9/125 µm OS2	4	1500	PE	
					8	1500	PE	
					12	1500	PE	
					24	1500	PE	
	Outdoor Cable A-DQ(ZN)B2Y (12 – 144 fibres)	Outdoor	Static	Multimode 50/125 µm OM3	24	5000	PE	
					48	5000	PE	
				Multimode 50/125 µm OM2	24	5000	PE	
					48	5000	PE	
				Multimode 62.5/125 µm OM1	24	5000	PE	
					48	5000	PE	
				Singlemode 9/125 µm OS2	24	5000	PE	
					48	5000	PE	
	Armoured Outdoor Cable A-DQ(ZN)(SR)2Y or A-DQ(ZN)BW2Y (4 – 24 fibres)	Outdoor	Static	Multimode 50/125 µm OM3	4	3000	PE	
					8	3000	PE	
					12	3000	PE	
					24	3000	PE	
				Multimode 50/125 µm OM2	4	3000	PE	
					8	3000	PE	
					12	3000	PE	
					24	3000	PE	
				Multimode 62.5/125 µm OM1	4	3000	PE	
					8	3000	PE	
					12	3000	PE	
					24	3000	PE	
				Singlemode 9/125 µm OS2	4	3000	PE	
					8	3000	PE	
					12	3000	PE	
					24	3000	PE	
	Universal Cable J/A-DQ(ZN)BH (4 – 24 fibres)	Indoor/Outdoor	Static	Multimode 50/125 µm OM3	4	1500	FRNC	
					8	1500	FRNC	
					12	1500	FRNC	
					24	1500	FRNC	

Please see detailed technical information on the data sheet (www.lappautomation.com).

Fibre optic cables

Product Benefits	Article designation	Part number	Page
compact, central loose tube, direct burial, UV resistance, halogen-free, rodent and moisture protection, watertight, low friction	HITRONIC® HQN1500 4 G 50/125 OM3	27600304	132
	HITRONIC® HQN1500 8 G 50/125 OM3	27600308	132
	HITRONIC® HQN1500 12 G 50/125 OM3	27600312	132
	HITRONIC® HQN1500 24 G 50/125 OM3	27600324	132
compact, central loose tube, direct burial, UV resistance, halogen-free, rodent and moisture protection, watertight, low friction	HITRONIC® HQN1500 4 G 50/125 OM2	27600204	132
	HITRONIC® HQN1500 8 G 50/125 OM2	27600208	132
	HITRONIC® HQN1500 12 G 50/125 OM2	27600212	132
	HITRONIC® HQN1500 24 G 50/125 OM2	27600224	132
compact, central loose tube, direct burial, UV resistance, halogen-free, rodent and moisture protection, watertight, low friction	HITRONIC® HQN1500 4 G 62.5/125 OM1	27600104	132
	HITRONIC® HQN1500 8 G 62.5/125 OM1	27600108	132
	HITRONIC® HQN1500 12 G 62.5/125 OM1	27600112	132
	HITRONIC® HQN1500 24 G 62.5/125 OM1	27600124	132
compact, central loose tube, direct burial, UV resistance, halogen-free, rodent and moisture protection, watertight, low friction	HITRONIC® HQN1500 4 E 9/125 OS2	27600904	132
	HITRONIC® HQN1500 8 E 9/125 OS2	27600908	132
	HITRONIC® HQN1500 12 E 9/125 OS2	27600912	132
	HITRONIC® HQN1500 24 E 9/125 OS2	27600924	132
compact, stranded loose tubes, UV resistance, halogen-free, rodent and moisture protection, low friction	HITRONIC® HVN5000 2x12 G 50/125 OM3	26600324	133
	HITRONIC® HVN5000 4x12 G 50/125 OM3	26600348	133
compact, stranded loose tubes, UV resistance, halogen-free, rodent and moisture protection, low friction	HITRONIC® HVN5000 2x12 G 50/125 OM2	26600224	133
	HITRONIC® HVN5000 4x12 G 50/125 OM2	26600248	133
compact, stranded loose tubes, UV resistance, halogen-free, rodent and moisture protection, low friction	HITRONIC® HVN5000 2x12 G 62.5/125 OM1	26600124	133
	HITRONIC® HVN5000 4x12 G 62.5/125 OM1	26600148	133
compact, stranded loose tubes, UV resistance, halogen-free, rodent and moisture protection, low friction	HITRONIC® HVN5000 2x12 E 9/125 OS2	26600924	133
	HITRONIC® HVN5000 4x12 E 9/125 OS2	26600948	133
compact, central loose tube, metallic armoured (corrugated steel tape), higher mechanical and chemical resistance, excellent rodent protection, halogen-free, UV resistance, moisture protected, watertight, low friction	HITRONIC® HQW3000 4 G 50/125 OM3	27900304	134
	HITRONIC® HQW3000 8 G 50/125 OM3	27900308	134
	HITRONIC® HQW3000 12 G 50/125 OM3	27900312	134
	HITRONIC® HQW3000 24 G 50/125 OM3	27900324	134
compact, central loose tube, metallic armoured (corrugated steel tape), higher mechanical and chemical resistance, excellent rodent protection, halogen-free, UV resistance, moisture protected, watertight, low friction	HITRONIC® HQW3000 4 G 50/125 OM2	27900204	134
	HITRONIC® HQW3000 8 G 50/125 OM2	27900208	134
	HITRONIC® HQW3000 12 G 50/125 OM2	27900212	134
	HITRONIC® HQW3000 24 G 50/125 OM2	27900224	134
compact, central loose tube, metallic armoured (corrugated steel tape), higher mechanical and chemical resistance, excellent rodent protection, halogen-free, UV resistance, moisture protected, watertight, low friction	HITRONIC® HQW3000 4 G 62.5/125 OM1	27900104	134
	HITRONIC® HQW3000 8 G 62.5/125 OM1	27900108	134
	HITRONIC® HQW3000 12 G 62.5/125 OM1	27900112	134
	HITRONIC® HQW3000 24 G 62.5/125 OM1	27900124	134
compact, central loose tube, metallic armoured (corrugated steel tape), higher mechanical and chemical resistance, excellent rodent protection, halogen-free, UV resistance, moisture protected, watertight, low friction	HITRONIC® HQW3000 4 E 9/125 OS2	27900904	134
	HITRONIC® HQW3000 8 E 9/125 OS2	27900908	134
	HITRONIC® HQW3000 12 E 9/125 OS2	27900912	134
	HITRONIC® HQW3000 24 E 9/125 OS2	27900924	134
compact, flexible, central loose tube, flame retardant, low smoke emission, UV resistance, halogen-free, rodent and moisture protection, watertight	HITRONIC® HUN1500 4 G 50/125 OM3	27400304	-
	HITRONIC® HUN1500 8 G 50/125 OM3	27400308	-
	HITRONIC® HUN1500 12 G 50/125 OM3	27400312	-
	HITRONIC® HUN1500 24 G 50/125 OM3	27400324	-

Fibre optic cables

Quickfinder (continuation)

FO-fibre type	Cable type/standardisation (DIN VDE 0888)	Area of Installation	Cabling	Fibre Specification	No. of fibres	Max. ten- sile force (long-term) in [N]	Outer sheath material	
GOF – Glass Optical Fibre	Universal Cable J/A-DQ(ZN)BH (4 – 24 fibres)	Indoor/Outdoor	Static	Multimode 50/125 µm OM2	4	1500	FRNC	
					8	1500	FRNC	
					12	1500	FRNC	
					24	1500	FRNC	
				Multimode 62.5/125 µm OM1	4	1500	FRNC	
					8	1500	FRNC	
					12	1500	FRNC	
					24	1500	FRNC	
				Singlemode 9/125 µm OS2	4	1500	FRNC	
					8	1500	FRNC	
					12	1500	FRNC	
					24	1500	FRNC	
	Breakoutkabel J-V(ZN)HH (2 – 12 fibres)	Indoor	Static/Flexible	Multimode 50/125 µm OM3	2	400	FRNC	
					4	600	FRNC	
					8	1200	FRNC	
					12	1700	FRNC	
				Multimode 50/125 µm OM2	2	400	FRNC	
					4	600	FRNC	
					8	1200	FRNC	
					12	1700	FRNC	
				Multimode 62.5/125 µm OM1	2	400	FRNC	
					4	600	FRNC	
					8	1200	FRNC	
					12	1700	FRNC	

FO-fibre type	Cable type/standardisation (DIN VDE 0888)	Area of Installation	Cabling	Fibre Specification	No. of fibres	Outer sheath material	
POF – Polymer Optical Fibre	J-V2Y 1P980/1000	Indoor (industrial & automation areas)	Flexible	POF 980/100 µm	1 (Simplex)	PE	
	J-V2Y(ZN)11Y 1P980/1000				1 (Simplex)	PUR	
	J-V2Y 2P980/1000			POF 980/1000 µm	2 (Duplex)	PE	
	J-V2Y(ZN)11Y 2P980/1000				2 (Duplex)	PUR	
	J-V2Y(ZN)11Y 2P980/1000				2 (Duplex)	PUR	
	J-V2Y(ZN)11Y 1P980/1000 flex		Highly Flexible	POF 980/1000 µm	1 (Simplex)	PUR	
	J-V2Y(ZN)11Y 2P980/1000 flex				2 (Duplex)	PUR	
PCF – Polymer Cladded Fibre	J-V(ZN)H11Y 2K200/230	Indoor	Flexible	PCF 200/230 µm	2 (Duplex)	PUR	
	AT-VQ(ZN)HB2Y 2K200/230	Outdoor	Static	PCF 200/230 µm	2 (Duplex)	PE	

Please see detailed technical information on the data sheet (www.lappautomation.com).

Fibre optic cables

Product Benefits	Article designation	Part number	Page
compact, flexible, central loose tube, flame retardant, low smoke emission, UV resistance, halogen-free, rodent and moisture protection, watertight	HITRONIC® HUN1500 4 G 50/125 OM2	27400204	–
	HITRONIC® HUN1500 8 G 50/125 OM2	27400208	–
	HITRONIC® HUN1500 12 G 50/125 OM2	27400212	–
	HITRONIC® HUN1500 24 G 50/125 OM2	27400224	–
compact, flexible, central loose tube, flame retardant, low smoke emission, UV resistance, halogen-free, rodent and moisture protection, watertight	HITRONIC® HUN1500 4 G 62.5/125 OM1	27400104	–
	HITRONIC® HUN1500 8 G 62.5/125 OM1	27400108	–
	HITRONIC® HUN1500 12 G 62.5/125 OM1	27400112	–
	HITRONIC® HUN1500 24 G 62.5/125 OM1	27400124	–
compact, flexible, central loose tube, flame retardant, low smoke emission, UV resistance, halogen-free, rodent and moisture protection, watertight	HITRONIC® HUN1500 4 E 9/125 OS2	27400904	–
	HITRONIC® HUN1500 8 E 9/125 OS2	27400908	–
	HITRONIC® HUN1500 12 E 9/125 OS2	27400912	–
	HITRONIC® HUN1500 24 E 9/125 OS2	27400924	–
halogen-free, flame-retardant, low smoke emission, highly flexible, suitable for direct connector assembly, simplex sheath diameter: 2.1 mm	HITRONIC® HRH400 2 G 50/125 OM3	26000302	–
	HITRONIC® HRH600 4 G 50/125 OM3	26000304	135
	HITRONIC® HRH1200 8 G 50/125 OM3	26000308	135
	HITRONIC® HRH1700 12 G 50/125 OM3	26000312	135
halogen-free, flame-retardant, low smoke emission, highly flexible, suitable for direct connector assembly, simplex sheath diameter: 2.1 mm	HITRONIC® HRH400 2 G 50/125 OM2	26000202	135
	HITRONIC® HRH600 4 G 50/125 OM2	26000204	135
	HITRONIC® HRH1200 8 G 50/125 OM2	26000208	135
	HITRONIC® HRH1700 12 G 50/125 OM2	26000212	135
halogen-free, flame-retardant, low smoke emission, highly flexible, suitable for direct connector assembly, simplex sheath diameter: 2.1 mm	HITRONIC® HRH400 2 G 62.5/125 OM1	26000102	135
	HITRONIC® HRH600 4 G 62.5/125 OM1	26000104	135
	HITRONIC® HRH1200 8 G 62.5/125 OM1	26000108	135
	HITRONIC® HRH1700 12 G 62.5/125 OM1	26000112	135

Product Benefits	Article designation	Part number	Page
fibre sheath halogen-free, non-ageing, direct connector assembly	HITRONIC® POF SIMPLEX PE	28000001	128
PUR outer sheath halogen-free, flame-retardant, direct connector assembly	HITRONIC® POF SIMPLEX PE-PUR	28020001	128
fibre sheath halogen-free, non-ageing, direct connector assembly	HITRONIC® POF DUPLEX PE	28000002	129
PUR outer sheath halogen-free, flame-retardant, direct connector assembly	HITRONIC® POF DUPLEX PE-PUR	28020002	130
thicker outer sheath for increased mechanical resistance, halogen-free	HITRONIC® POF DUPLEX HEAVY PE-PUR	28030002	130
power chain, for highly flexible industrial applications, halogen-free outer sheath	HITRONIC® POF SIMPLEX FD PE-PUR	2185207	–
power chain, for highly flexible industrial applications, halogen-free outer sheath	HITRONIC® POF DUPLEX FD PE-PUR	2185213	–
PUR sheath, halogen-free outer sheath, for direct connector assembly	HITRONIC® BUS PCF PUR DUPLEX indoor	2185311	131
PE sheath, halogen-free outer sheath, for direct connector assembly	HITRONIC® BUS PCF PE DUPLEX outdoor	2185302	131



New

UNITRONIC® BUS ASI



Info

- "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.
- The rubber versions are halogen-free

Application range

- Communication at sensor/actuator level
- UNITRONIC® Fieldbus sensor-/actuator wiring
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- The TPE version has an oil-resistant outer sheath. It is suitable for wet areas, in particular in conjunction with water-soluble cooling lubricants.

Product features

- 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



- ASI is standardised Europe-wide in EN 50295 and internationally in IEC 62026-2.
- PVC version has UL/CSA (CMG) approval.

Design

- Extra-fine wire, tinned copper strands
- Core insulation: blue and brown
- Profiled outer sheath made of rubber (G), thermoplastic elastomers (TPE) or PVC
- Colour: yellow (RAL 1023) or black (RAL 9005)
- Colour: red (RAL 3000)

Technical data

	Approvals UL/CSA version: CMGc(UL)us or (UL)CL2 or AWM 300V FT4 approval
	Peak operating voltage Yellow: 300 V (not for power applications) Black: 300 V (not for power applications) Red: 300 V
	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 Flexible use 24 mm
	Test voltage Core/core: 2000 V
	Temperature range Dependent on outer sheath material: PVC: -30°C to +90°C Other materials: -40°C to +85°C During installation: PVC -20 °C to +90 °C Other materials: -30 °C to +85 °C

Article number	Article designation	Outer sheath material	Outer sheath colour	Application	Number of cores and mm² per conductor	Copper index (kg/km)	Weight (kg/km)
For fixed and flexible applications (19-wire stranded conductor)							
2170228	UNITRONIC® BUS ASI (G)	EPDM (rubber)	yellow	Data and power transmission	2 x 1,5	29.0	85
2170229	UNITRONIC® BUS ASI (G)	EPDM (rubber)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29.0	85
2170371	UNITRONIC® BUS ASI LD (G)	EPDM (rubber)	yellow	Data and power transmission	2 x 2,5	48.0	85
2170372	UNITRONIC® BUS ASI LD (G)	EPDM (rubber)	black	Transmission of 30 V DC auxiliary power	2 x 2,5	48.0	85
2170230	UNITRONIC® BUS ASI (TPE)	TPE	yellow	Data and power transmission	2 x 1,5	29.0	64
2170231	UNITRONIC® BUS ASI (TPE)	TPE	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29.0	64
2170232	UNITRONIC® BUS ASI (TPE)	TPE	red	Transmission of 230 V AC auxiliary power	2 x 1,5	29.0	64
2170842	UNITRONIC® BUS ASI (PVC) A	PVC UL/CSA (CMG)	yellow	Data and power transmission	2 x 1,5	29.0	70
2170843	UNITRONIC® BUS ASI (PVC) A	PVC UL/CSA (CMG)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29.0	70

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 Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths

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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 STUTTGART UNITRONIC® BUS ASI FD

LAPP KABEL STUTTGART 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. ASI 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



- 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

Design

- 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)							
2170311	UNITRONIC® BUS ASI FD P FRNC	PUR UL/CSA (AWM)	yellow	Data and power transmission	2 x 1,5	29.0	64
2170312	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 Main Catalogue 2012/13 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.

UNITRONIC® BUS PB

Fixed installation



Info

- Lapp Kabel is a member of the PROFIBUS User Organisation (PNO)
- A for Advanced here: UL and CSA approvals



Application range

- For fixed installation
- Maximum electromagnetic screening
- Dry or damp rooms
- Item nos. 2170233, 2170333, 2170820, 2170824, 2170826 are all UV-resistant

Product features

- These bus cables can be used for PROFIBUS-DP as well as for PROFIBUS-FMS and FIP
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):
93.75 kbit/s = 1200 m
187.5 kbit/s = 1000 m
500 kbit/s = 400 m
1.5 Mbit/s = 200 m
12.0 Mbit/s = 100 m

Approvals



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

Design

- FC: "Fast Connect" cable design
- P: Polyurethane
- H: Halogen-free
- PE: polyethylene, e.g. for the food and beverage industry
- 7-W: 7-wire, e.g. for applications where vibrations occur
- COMBI: Data transmission and power supply in one cable

Technical data



Approvals

See below for UL approval type

Resistant

UV-resistant products
Item nos. 2170233, 2170333, 2170820, 2170824, 2170826 are all UV-resistant



Mutual capacitance

(800 Hz): max. 30 nF/km



Peak operating voltage

(not for power applications) 250 V



Conductor resistance

(loop): max. 133 ohm/km



Minimum bending radius

Fixed installation: see data sheet



Test voltage

Core/core: 1500 V



Characteristic impedance

150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
For fixed installation - conventional cable assembly					
2170220	UNITRONIC® BUS PB	1 x 2 x 0.64	8.0	30.1	74
2170233	UNITRONIC® PB PE	1 x 2 x 0.64	8.0	30.1	57
2170226	UNITRONIC® BUS PB H 7-W	1 x 2 x 0.64	8.0	30.1	55
2170225	UNITRONIC® BUS PB COMBI 7-W	1 x 2 x 0.64 Ø + 3 x 1.0 mm²	9.8	59.0	92
For fixed installation - UL/CSA CMX approval					
2170219	UNITRONIC® BUS PB A	1 x 2 x 0.64	8.0	30.1	57
For fixed installation - UL/CSA CMG approval					
2170824	UNITRONIC® BUS PB 7-W A	1 x 2 x 0.64	8.0	30.1	55
For fixed installation - "Fast Connect" cable assembly					
2170333	UNITRONIC® BUS PB PE FC	1 x 2 x 0.64	8.0	26.0	67
For fixed installation - UL/CSA CMX approval					
2170330	UNITRONIC® BUS PB P FC	1 x 2 x 0.64	8.0	26.0	71
For fixed installation - "Fast Connect" cable assembly - UL/CSA CMG approval					
2170820	UNITRONIC® BUS PB FC	1 x 2 x 0.64	8.0	26.0	84
2170826	UNITRONIC® BUS PB 7-W FC	1 x 2 x 0.64	8.0	26.0	67
2170326	UNITRONIC® BUS PB-H FC	1 x 2 x 0.64	8.0	26.0	72

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 Main Catalogue 2012/13 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).

SIMATIC NET® is a registered trademark of Siemens AG

Lapp Kabel is a member of the PROFIBUS user organisation (PNO)

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

UNITRONIC® BUS PB ROBUST

Fixed installation



Benefits

- Robust PROFIBUS cable for use under harsh environmental conditions

Application range

- For use for PROFIBUS-DP or FIP in harsh industrial environments
- Fixed installation

Product features

- Significantly extended use and application areas, water and chemical resistance for use in industrial conditions.
- High resistance to tensides, soaps etc.
- UV-resistant
- Flame-retardant according to IEC 60332.1.2

- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):
 93.75 kbit/s = 1200 m
 187.5 kbit/s = 1000 m
 500 kbit/s = 400 m
 1.5 Mbit/s = 200 m
 12.0 Mbit/s = 100 m

Approvals



Design

- Solid and bare copper conductor
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- With conventional cable design, but with an outer sheath made of special TPE

	Mutual capacitance (1 kHz): approx. 28.5 nF/km
	Peak operating voltage (not for power applications) 250 V
	Minimum bending radius Fixed installation: 75 mm
	Test voltage Core/core: 1500 V Core/screen: 1500 V
	Temperature range -40 °C to +80 °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)	Weight (kg/km)
For fixed installation					
2170620	UNITRONIC® BUS PB ROBUST	1 x 2 x 0.64	8.0	26.0	55

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 Main Catalogue 2012/13 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).

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UNITRONIC® BUS PB 105

Fixed installation



Benefits

- A standard PROFIBUS cable can only be used up to a max. temperature of 80°C
- This enables an extended area of application

Application range

- Cable has been designed for use in factory halls where temperatures up to max. 105°C may occur.

Product features

- Flame-retardant according to IEC 60332.1.2
- Oil-resistant

Approvals



Design

- Stranded conductor, 7-wire, bare
- Core insulation: PP
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- PVC outer sheath for use up to 105°C

Suitable connectors

- EPIC® Data connectors
see Main Catalogue 2012/13 page 312

Technical data

	Mutual capacitance Approx. 28.5 nF/km
	Peak operating voltage max. 100 V (not for power applications)
	Minimum bending radius Fixed installation: 45 mm once Flexing: 65 mm
	Test voltage Core/core: 1500 V Core/screen: 1500 V
	Temperature range -30°C to +105°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)	Weight (kg/km)
2170630	UNITRONIC® BUS PB 105	1 x 2 x 0.64	8.0	30.1	72

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 Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
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UNITRONIC® BUS PB FRNC FC

Fixed installation



Info

- **FRNC = Flame Retardant Non Corrosive**
- Reduction of flame-propagation and density and toxicity of smoke gases in the event of fire
- Minimisation of damage to buildings and production facilities
- Safety for staff and in areas with high density of people

Benefits

- Halogen-free and highly flame-retardant
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Fast Connect (FC) cable design

Application range

- This cable provides special advantages for use in sensitive areas where fire propagation must be avoided and the presence of toxic fumes would cause personal injury and damage to equipment.

Product features

- The cable is UL/CSA-approved (CMG)
- Halogen-free
- High flame retardancy in accordance with IEC 60332-3 and FT4
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):
93.75 kbit/s = 1200 m
187.5 kbit/s = 1000 m
500 kbit/s = 400 m
1.5 Mbit/s = 200 m
12.0 Mbit/s = 100 m

Approvals



Design

- Solid, bare, single-wire copper conductor
- PE core insulation
- Inner sheath, screening foil and braiding
- Thermoplastic outer sheath
- Colour: violet (RAL 4001)

Technical data

	Approvals UL/CSA (CMG)
	Mutual capacitance Approx. 28.5 nF/km
	Peak operating voltage (not for power applications) 250 V
	Minimum bending radius 80mm
	Test voltage Core/core: 1500 V Core/screen: 1500 V
	Temperature range -30°C to +80°C
	Characteristic impedance (3 - 20 MHz): 150 ± 15 Ohm

Suitable connectors

- EPIC® Data connectors
see Main Catalogue 2012/13 page 312

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170853	UNITRONIC® BUS PB FRNC FC	1 x 2 x 0.64	8.0	30.1	75

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 Main Catalogue 2012/13 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).
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UNITRONIC® BUS PB ARM

Fixed installation



Benefits

- EMC-optimised

Application range

- For use for PROFIBUS-DP or FIP in harsh industrial environments
- PROFIBUS® (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- Flame-retardant according to IEC 60332.1.2
- UV-resistant

Approvals



Design

- Solid and bare copper conductor
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Overlapping plastic tape
- Copper tape, welded longitudinally
- Outer sheath: PVC

Technical data



Mutual capacitance
(800 Hz): max. 30 nF/km



Peak operating voltage
(not for power applications) 100 V



Minimum bending radius
Fixed installation: 7.5 x outer diameter
Fixed installation: 3.5 x cable diameter once



Test voltage
3600 V DC (3 sec.)



Temperature range
-40 °C to +70 °C



Characteristic impedance
150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170247	UNITRONIC® BUS PB ARM	1 x 2 x 0.65	11.1	80.9	131

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 Main Catalogue 2012/13 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).

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UNITRONIC® BUS PB Yv

Suitable for outdoor use and direct burial, UV-resistant



Benefits

- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

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

Product features

- Reinforced PVC outer sheath

Approvals



Design

- Solid and bare copper conductor
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- Outer sheath: reinforced PVC, black

Technical data



Mutual capacitance
(800 Hz): max. 30 nF/km



Peak operating voltage
(not for power applications) 250 V



Minimum bending radius
Fixed installation: 75 mm once
Fixed installation: 150 mm



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



Temperature range
Flexible use: -5 °C to +50 °C
Fixed installation: -40 °C to +80 °C



Characteristic impedance
150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170223	UNITRONIC® BUS PB Yv	1 x 2 x 0.64	9.4	30.1	106

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 Main Catalogue 2012/13 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).

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UNITRONIC® BUS PB YY

Suitable for outdoor use and direct burial, UV-resistant



Benefits

- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

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

Product features

- Dual PVC outer sheath

Approvals



Design

- Solid and bare copper conductor
- PE core insulation
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- PVC outer sheath, violet, OD 7.5 mm
- PVC outer sheath, black, OD 9.5 mm

Technical data

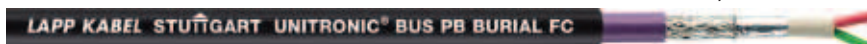
	Mutual capacitance (800 Hz): max. 30 nF/km
	Peak operating voltage (not for power applications) 250 V
	Minimum bending radius Fixed installation: 75 mm once Fixed installation: 150 mm
	Test voltage Core/core: 1500 V Core/screen: 1500 V
	Temperature range Flexible use: -5°C to +50°C Fixed installation: -40°C to +80°C
	Characteristic impedance 150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170236	UNITRONIC® BUS PB YY	1 x 2 x 0.64	9.5	30.1	87

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 Main Catalogue 2012/13 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).
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UNITRONIC® BUS PB BURIAL FC

Suitable for outdoor use and direct burial, UV-resistant



Benefits

- Fast Connect (FC) cable design
- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

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

Product features

- Second PE outer sheath

Approvals



Design

- Solid and bare copper conductor
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- PVC outer sheath, violet, OD 8 mm
- PE outer sheath, black, OD 10.8 mm

Technical data

	Mutual capacitance (800 Hz): max. 30 nF/km
	Peak operating voltage (not for power applications) 100 V
	Minimum bending radius Fixed installation: 3.5 x cable diameter once Fixed installation: 7.5 x cable diameter
	Test voltage 3600 V DC (3 sec.)
	Temperature range -40 °C to +60 °C
	Characteristic impedance 150 ± 15 Ohm

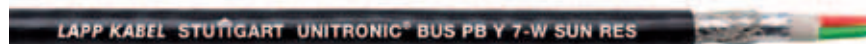
Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170323	UNITRONIC® BUS PB BURIAL FC	1 x 2 x 0.64	10.8	26.0	115

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 Main Catalogue 2012/13 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).
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New

UNITRONIC® BUS PB Y 7-W FC BK

Suitable for outdoor use, UV-resistant



■ Benefits

- UV and weather-resistant in black
- 7-W: 7-wire, e.g. for applications where vibrations occur
- Fast Connect (FC) cable design
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

■ Application range

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

■ Product features

- PVC compound TM2 acc. to VDE 0281-1 or HD 21.1
- Resistant to acids, alkalis and certain oils at room temperature

■ Approvals



■ Design

- Stranded conductor, 7-wire, bare
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- PVC outer sheath, black

■ Suitable tools

- FC Strip stripping tool refer to Main Catalogue 2012/13 page 908

■ Technical data



Mutual capacitance
(800 Hz): max. 30 nF/km



Peak operating voltage
(not for power applications) 250 V



Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter



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



Temperature range
Flexing: -10°C to +70°C
Fixed installation: -40°C to +80°C



Characteristic impedance
150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170310	UNITRONIC® BUS PB Y 7-W FC BK	1 x 2 x 0.64	7.8	30.1	80

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 Main Catalogue 2012/13 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).

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UNITRONIC® BUS PB FD P

Highly flexible application

Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- For highly flexible applications (power chains, moving machine parts)
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

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

Product features

- Halogen-free
- Flame-retardant according to IEC 60332.1.2
- Oil-resistant

- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):
93.75 kbit/s = 1200 m
187.5 kbit/s = 1000 m
500 kbit/s = 400 m
1.5 Mbit/s = 200 m
12.0 Mbit/s = 100 m

Approvals



Design

- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- Outer sheath: PUR compound

Technical data

	Mutual capacitance (800 Hz): max. 30 nF/km
	Peak operating voltage (not for power applications) 250 V
	Minimum bending radius 65mm
	Test voltage Core/core: 1500 V
	Temperature range Flexing: -30°C to +70°C Fixed installation: -40°C to +80°C
	Characteristic impedance 150 ± 15 Ohm

Suitable connectors

- EPIC® Data connectors
see Main Catalogue 2012/13 page 312

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
For highly flexible applications (e.g. power chains) - conventional cable assembly					
2170222	UNITRONIC® BUS PB FD P 1x2x0,64	1 x 2 x 0.64	8.0	30.1	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 Main Catalogue 2012/13 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).
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UNITRONIC® BUS PB FD P A

Highly flexible application



Info

- A for Advanced**
here: UL and CSA approvals

Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- For highly flexible applications (power chains, moving machine parts)

Application range

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

Product features

- Halogen-free
- Flame-retardant according to IEC 60332.1.2
- Oil-resistant

- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):
93.75 kbit/s = 1200 m
187.5 kbit/s = 1000 m
500 kbit/s = 400 m
1.5 Mbit/s = 200 m
12.0 Mbit/s = 100 m

Approvals



- Approval: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214-02

Design

- Stranded bare copper wire
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil

Technical data

	Mutual capacitance (800 Hz): max. 30 nF/km
	Peak operating voltage (not for power applications) 250 V
	Minimum bending radius 65mm
	Test voltage Core/core: 1500 V
	Temperature range Flexing: -30°C to +70°C Fixed installation: -40°C to +80°C
	Characteristic impedance 150 ± 15 Ohm

- Screening: wrapped with braided tinned-copper wires
- Outer sheath: PUR compound

Suitable connectors

- EPIC® Data connectors
see Main Catalogue 2012/13 page 312

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170822	UNITRONIC® BUS PB FD P A	1 x 2 x 0.64	8.0	30.1	58

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 Main Catalogue 2012/13 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).
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UNITRONIC® BUS PB FD P FC

Highly flexible application

LAPP KABEL STUTTGART UNITRONIC® BUS PB FD P FC

Benefits

- Fast Connect (FC) cable design
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- For highly flexible applications (power chains, moving machine parts)

500 kbit/s = 400 m
1.5 Mbit/s = 200 m
12.0 Mbit/s = 100 m

Approvals



- Approval: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214-02

Design

- Stranded bare copper wire
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Screening: wrapped with braided tinned-copper wires
- Outer sheath: PUR compound

Suitable connectors

- EPIC® Data connectors
see Main Catalogue 2012/13 page 312

Technical data

	Mutual capacitance (800 Hz): max. 30 nF/km
	Peak operating voltage (not for power applications) 250 V
	Minimum bending radius Flexing: 15 x outer diameter
	Test voltage 3600 V DC (3 sec.)
	Temperature range Flexing: -30°C to +70°C Fixed installation: -40°C to +80°C
	Characteristic impedance 150 ± 15 Ohm

Product features

- Flame-retardant according to IEC 60332.1.2
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):
93.75 kbit/s = 1200 m
187.5 kbit/s = 1000 m

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170322	UNITRONIC® BUS PB FD P FC	1 x 2 x 0.64	8.0	26.0	79

UNITRONIC® BUS PB FD FRNC FC

Highly flexible application

LAPP KABEL STUTTGART UNITRONIC® BUS PB FD FRNC FC

Benefits

- Fast Connect (FC) system
- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- For highly flexible applications (power chains, moving machine parts)
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

- High flame retardancy in accordance with IEC 60332-3 and FT4
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):
93.75 kbit/s = 1200 m
187.5 kbit/s = 1000 m
500 kbit/s = 400 m
1.5 Mbit/s = 200 m
12.0 Mbit/s = 100 m

Approvals



Design

- Stranded bare copper wire
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Screening: wrapped with braided tinned-copper wires
- Outer sheath: PUR compound

Technical data

	Mutual capacitance nom. 28 nF/km
	Peak operating voltage (not for power applications) 250 V
	Minimum bending radius Fixed installation: 10 x outer diameter Flexing: 15 x outer diameter
	Test voltage Core/core: 1500 V
	Temperature range Flexing: -30°C to +70°C Fixed installation: -40°C to +80°C
	Characteristic impedance (3 - 20 MHz): 150 ± 15 Ohm

Suitable connectors

- EPIC® Data connectors
see Main Catalogue 2012/13 page 312

Product features

- The cable is UL/CSA-approved (CMG)
- Halogen-free

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170854	UNITRONIC® BUS PB FD FRNC FC	1x2x0.64	8.0	26.0	75

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 Main Catalogue 2012/13 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).

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UNITRONIC® BUS PB FD P COMBI

Highly flexible application

LAPP KABEL STUTTGART UNITRONIC® BUS PB FD P COMBI



Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- For highly flexible applications (power chains, moving machine parts)
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

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

Product features

- HYBRID: cable for data transmission + power supply
- Flame-retardant according to IEC 60332.1.2

Approvals



Design

- Cores for Power Supply
3 x 1.0 mm² (AWG18)

Technical data

	Mutual capacitance (800 Hz): max. 30 nF/km
	Peak operating voltage (not for power applications) 100 V
	Minimum bending radius Flexing: 145 mm
	Test voltage Core/core: 600 V
	Temperature range Flexible use: -5°C to +50°C Fixed installation: -40°C to +80°C
	Characteristic impedance 150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170227	UNITRONIC® BUS PB FD P COMBI	1 x 2 x 0.64 Ø + 3 x 1.0 mm ²	10.1	59.0	125

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 Main Catalogue 2012/13 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).
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Photographs are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS PB FD P HYBRID

Highly flexible application

LAPP KABEL STUTTGART UNITRONIC® BUS PB FD P HYBRID



Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- For highly flexible applications (power chains, moving machine parts)
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

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

Product features

- HYBRID: cable for data transmission + power supply
- Flame-retardant according to IEC 60332.1.2
- Oil-resistant

Approvals



Design

- Cores for Power Supply
4 x 1.5 mm² (AWG16)

Technical data

	Mutual capacitance (800 Hz): max. 30 nF/km
	Peak operating voltage (not for power applications) 100 V
	Minimum bending radius Flexing: 15 x outer diameter
	Test voltage Core/core: 600 V Core/screen: 600 V
	Temperature range Flexing: -30°C to +60°C Fixed installation: -40°C to +70°C
	Characteristic impedance 150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170495	UNITRONIC® BUS PB FD P HYBRID	1 x 2 x 0.64 Ø + 4 x 1.5 mm ²	11.3	89.0	148

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 Main Catalogue 2012/13 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).
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UNITRONIC® BUS PB FD Y HYBRID

Highly flexible application



Benefits

- For highly flexible applications (power chains, moving machine parts)
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- CL3 for installation on trays

Application range

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

Product features

- HYBRID: cable for data transmission + power supply

Approvals

- 


- With UL/CSA approval (CMG, CL3, SUN RES, Oil Res I)
 - Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
 - Oil-resistant according to UL OIL RES I

Design

- Outer sheath: special PVC compound
- Cores for Power Supply
4 x 1.5 mm² (AWG16)

Technical data

-  **Peak operating voltage**
600 V (not for power applications)
-  **Minimum bending radius**
Fixed installation:
10 x cable diameter
Flexing: 15 x outer diameter
-  **Test voltage**
Core/core: 2000 V
Core/screen: 2000 V
-  **Temperature range**
-5 °C to +80 °C
-  **Characteristic impedance**
150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170875	UNITRONIC® BUS PB FD Y HYBRID	1 x 2 x 0.64 Ø + 4 x 1.5 mm ²	11.3	89.0	155

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 Main Catalogue 2012/13 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).

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UNITRONIC® BUS PB TORSION

Highly flexible application

LAPP KABEL STUTTGART UNITRONIC® BUS PB TORSION

Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

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

Product features

- TORSION: for torsional stress, e.g. robot application; $\pm 180^\circ$ per 1 m
- Halogen-free
- Flame-retardant according to IEC 60332.1.2
- Based on the bit rates listed, in accordance with PNO specifications the following maxi-

mum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):

93.75 kbit/s = 1200 m
187.5 kbit/s = 1000 m
500 kbit/s = 400 m
1.5 Mbit/s = 200 m
12.0 Mbit/s = 100 m

Approvals



- Approval: UL type CMX in accordance with UL 444

Design

- PE core insulation

Suitable connectors

- EPIC® Data connectors see Main Catalogue 2012/13 page 312

Technical data

	Mutual capacitance (800 Hz): max. 30 nF/km
	Peak operating voltage (not for power applications) 300 V
	Minimum bending radius Fixed installation: 4 x outer diameter Flexing: 7.5 x outer diameter
	Test voltage 3600 V DC (3 sec.)
	Temperature range Operating temperature: -25°C to 75°C Storage temp.: -40°C to 80°C
	Characteristic impedance 150 $\pm$ 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170332	UNITRONIC® BUS PB TORSION	1 x 2 x 0.8	8.0	31.0	66

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 Main Catalogue 2012/13 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 $\leq$ 30 kg or $\leq$ 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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UNITRONIC® BUS PB FESTOON

Highly flexible application

LAPP KABEL STUTTGART UNITRONIC® BUS PB FESTOON

Benefits

- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- CL3 for installation on trays

Application range

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

Product features

- FESTOON: for cable trolley (festoon)
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):
93.75 kbit/s = 1200 m
187.5 kbit/s = 1000 m
500 kbit/s = 400 m
1.5 Mbit/s = 200 m
12.0 Mbit/s = 100 m

Approvals



- With UL/CSA approval (CMG, CL3, SUN RES, Oil Res I)
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I

Design

- Outer sheath: special PVC compound

Suitable connectors

- EPIC® Data connectors see Main Catalogue 2012/13 page 312

Technical data

	Mutual capacitance (800 Hz): max. 30 nF/km
	Peak operating voltage 600 V (not for power applications)
	Minimum bending radius Flexing: 70 mm Fixed installation: 30 mm once
	Test voltage Core/core: 2000 V
	Temperature range Flexing: -5°C to +70°C Fixed installation: -40°C to +80°C
	Characteristic impedance 150 $\pm$ 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170331	UNITRONIC® BUS PB Festoon	1 x 2 x 0.64	8.0	26.0	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 Main Catalogue 2012/13 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 $\leq$ 30 kg or $\leq$ 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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UNITRONIC® DeviceNet THICK + THIN



Application range

- Fixed installation
- DeviceNet™ connects industrial devices e.g. limit switches, photoelectric switches, valve islands, motor starters, drives, PLCs, etc.

Product features

- Oil-resistant
- Based on proven CAN (Controller Area Network) technology.
- Permissible cable lengths vary with the data rate and the cable thickness
- Refer to data sheet for more details

Approvals



- CMG UL/CSA approval 75 °C or PLTC, Sun Res
- FRNC variant with Germanischer Lloyd approval

Design

- A) Halogen-free (2170340 + 2170341)
- B) Polyvinylchloride (PVC) (2170342 + 2170343, 2170362 + 2170363)

Technical data

	Core identification code Data pair: light blue + white Power supply: red + black
	Mutual capacitance (800 Hz): max. 39.8 nF/km
	Peak operating voltage 300 V (not for power applications)
	Conductor resistance Thick (loop): max. 45 ohm/km Thin (loop): max. 180 ohm/km
	Minimum bending radius Fixed installation: 15 x cable diameter
	Test voltage Core/core: 2000 V
	Temperature range Fixed installation: -25 °C to +80 °C
	Characteristic impedance 120 ohm

Article number	Article designation	Number of pairs and AWG size	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/m)
Halogen-free					
2170340	UNITRONIC® BUS DN THICK FRNC	1x2xAWG18 + 1x2xAWG15	12.2	88.4	195
2170341	UNITRONIC® BUS DN THIN FRNC	1x2xAWG24 + 1x2xAWG22	6.9	33.4	69.5
With PVC outer sheath					
2170342	UNITRONIC® BUS DN THICK Y	1x2xAWG18 + 1x2xAWG15	12.2	88.4	192
2170343	UNITRONIC® BUS DN THIN Y	1x2xAWG24 + 1x2xAWG22	6.9	33.4	66.9

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 Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths

FRNC means Flame-Retardant, Non-Corrosive; and DeviceNet is a registered trademark of ODVA.

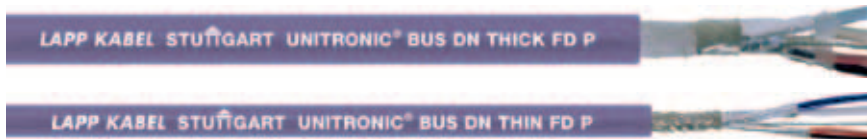
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ECO is the cost-efficient version of article no. 2170342 and 2170343, with a slight modification to the outer sheath and UL/CSA-approved (CMG).

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

UNITRONIC® DeviceNet FD THICK+THIN

Highly flexible and UL/CSA-approved



Application range

- For highly flexible applications
- DeviceNet™ connects industrial devices e.g. limit switches, photoelectric switches, valve islands, motor starters, drives, PLCs, etc.

Product features

- Based on proven CAN (Controller Area Network) technology.
- Permissible cable lengths vary with the data rate and the cable thickness
- Refer to data sheet for more details

Approvals



- PUR: UL/CSA-approved (CMX) (2170344 + 2170345)
- PVC: UL/CSA CMG 75°C or PLTC FT4 Sun Res Oil Res

Design

- Polyurethane (PUR) (2170344 + 2170345)
- Polyvinylchloride (PVC) (2170346 + 2170347)

Technical data

- Core identification code**
Data pair: light blue + white
Power supply: red + black
- Mutual capacitance**
(800 Hz): max. 39.8 nF/km
- Peak operating voltage**
300 V (not for power applications)
- Conductor resistance**
Thick (loop): max. 45 ohm/km
Thin (loop): max. 180 ohm/km
- Minimum bending radius**
Fixed installation: 7.5 x cable diameter
Flexing: 15 x outer diameter
- Test voltage**
Core/core: 2000 V
- Temperature range**
PUR: -40°C to +80°C
PVC: -10°C to +80°C
- Characteristic impedance**
120 ohm

Article number	Article designation	Number of pairs and AWG size	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/m)
Version P (PUR)					
2170344	UNITRONIC® BUS DN THICK FD P	1x2xAWG18 + 1x2xAWG15	12.2	94.0	184
2170345	UNITRONIC® BUS DN THIN FD P	1x2xAWG24 + 1x2xAWG22	6.9	33.4	67.7
Version Y (PVC)					
2170346	UNITRONIC® BUS DN THICK FD Y	1x2xAWG18 + 1x2xAWG15	12.2	94.0	195
2170347	UNITRONIC® BUS DN THIN FD Y	1x2xAWG24 + 1x 2xAWG22	6.9	33.4	69.8

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 Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
DeviceNet is a registered trademark of ODVA
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UNITRONIC® BUS CAN

LAPP KABEL STUTTGART UNITRONIC® BUS CAN



Info

- CAN = Controller Area Network

UNITRONIC® BUS CAN FD P

LAPP KABEL STUTTGART UNITRONIC® BUS CAN FD P

■ Application range

UNITRONIC® BUS CAN

- Fixed installation

UNITRONIC® BUS CAN FD P

- For highly flexible applications

■ Product features

UNITRONIC® BUS CAN

- Maximum bit rate: 1 Mbit/s for 40 m segment length
- Larger conductor cross-section is necessary with increasing length. Refer to the table below (reference values from ISO 11898).
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- Flame-retardant according to IEC 60332.1.2

UNITRONIC® BUS CAN FD P

- Halogen-free
- Maximum bit rate: 1 Mbit/s for 40 m segment length
- Larger conductor cross-section is necessary with increasing length. Refer to the table below (reference values from ISO 11898).
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- Flame-retardant according to IEC 60332.1.2

■ Approvals



- Standardised internationally in ISO 11898
- UL/CSA type CMX (UL 444)

■ Design

UNITRONIC® BUS CAN

- 0.22 + 0.34 + 0.5: bare stranded conductor, 7-wire
- 0.75: bare stranded conductor, fine-wire
- Colour-coded in accordance with DIN 47100
- Copper braiding
- PVC outer sheath
- Colour: violet (RAL 4001)

UNITRONIC® BUS CAN FD P

- Stranded bare conductor
- Screening: wrapped with braided copper wires
- PUR outer sheath
- Colour: violet (RAL 4001)
- UV-resistant (but colour may change after some time)

■ Technical data



Mutual capacitance

UNITRONIC® BUS CAN

(800 Hz): max. 40 nF/km

UNITRONIC® BUS CAN FD P

(800 Hz): max. 60 nF/km



Peak operating voltage

UNITRONIC® BUS CAN

(not for power applications) 250 V

UNITRONIC® BUS CAN FD P

250 V (not for power transmission)



Conductor resistance

UNITRONIC® BUS CAN

(loop):

max. 186 ohm/km

UNITRONIC® BUS CAN FD P

(loop): max. 159.8 ohm/km



Minimum bending radius

UNITRONIC® BUS CAN

Fixed installation: 8 x outer diameter

UNITRONIC® BUS CAN FD P

Flexing: 15 x outer diameter



Test voltage

Core/core: 1500 V



Temperature range

UNITRONIC® BUS CAN

Fixed installation:

-30°C to +80°C

Flexing: -5°C to +70°C

UNITRONIC® BUS CAN FD P

Fixed installation: -40°C to +80°C

Flexing: -30°C to +70°C



Characteristic impedance

120 ohm

Article number	Article designation	Number of pairs/conductor cross section (mm ²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
for fixed installation					
2170260	UNITRONIC® BUS CAN	1 x 2 x 0,22	5.7	16.7	42.0
2170261	UNITRONIC® BUS CAN	2 x 2 x 0,22	7.6	34.8	68.0
2170263	UNITRONIC® BUS CAN	1 x 2 x 0,34	6.8	25.0	55.0
2170264	UNITRONIC® BUS CAN	2 x 2 x 0,34	8.5	46.4	88.0
2170266	UNITRONIC® BUS CAN	1 x 2 x 0,5	7.5	41.6	90.0
2170267	UNITRONIC® BUS CAN	2 x 2 x 0,5	9.7	59.4	106.0
2170269	UNITRONIC® BUS CAN	1 x 2 x 0,75	8.7	52.7	108.0
2170270	UNITRONIC® BUS CAN	2 x 2 x 0,75	11.5	80.6	142.0
For highly flexible applications (power chains, moving machine parts)					
2170272	UNITRONIC® BUS CAN FD P	1 x 2 x 0,25	6.4	24.0	40.0
2170273	UNITRONIC® BUS CAN FD P	2 x 2 x 0,25	8.4	33.0	65.0
2170275	UNITRONIC® BUS CAN FD P	1 x 2 x 0,34	6.8	32.8	60.0
2170276	UNITRONIC® BUS CAN FD P	2 x 2 x 0,34	9.6	52.4	88.0
2170278	UNITRONIC® BUS CAN FD P	1 x 2 x 0,5	8.0	41.9	74.0
2170279	UNITRONIC® BUS CAN FD P	2 x 2 x 0,5	10.8	59.4	100.0

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 Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

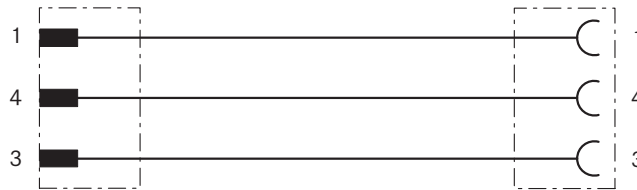
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths

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).

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

S/A cable: M12 connector on free conductor end



S/A cable: M12 connector on free conductor end

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-pin connector
- Plug with M12 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 3 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N (A)	PU
Straight connector					
22260221	AB-C3-M12MS-2,0PUR	2	250	4	1
22260222	AB-C3-M12MS-5,0PUR	5	250	4	1
22260249	AB-C3-M12MS-10,0PUR	10	250	4	1
Angled connector					
22260223	AB-C3-M12MA-2,0PUR	2	250	4	1
22260224	AB-C3-M12MA-5,0PUR	5	250	4	1
22260256	AB-C3-M12MA-10,0PUR	10	250	4	1

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

Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.

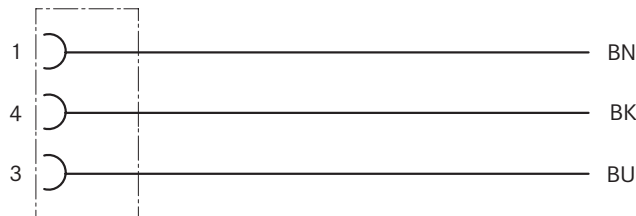
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For detailed technical information please refer to the data sheet (www.lappautomation.com)

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

New

S/A cable: M12 socket on free conductor end



S/A cable: M12 socket on free conductor end

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-pin connector
- Socket with M12 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 3 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free/PVC
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K

**Ambient temperature (operation)**

Plug/socket
-25°C to +90°C (PUR/PVC)
Cable, fixed installation
-40°C to +80°C (PUR)
-25°C to +80°C (PVC)
Cable, flexible installation
-5°C to +80°C (PUR/PVC)

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Straight socket						
22260257	AB-C3-2,0PUR-M12FS	2	250	4	no	1
22260250	AB-C3-5,0PUR-M12FS	5	250	4	no	1
22260251	AB-C3-10,0PUR-M12FS	10	250	4	no	1
22260080	AB-C3-2,0PVC-M12FS	2	250	4	no	1
22260663	AB-C3-5,0PVC-M12FS	5	250	4	no	1
22260081	AB-C3-10,0PVC-M12FS	10	250	4	no	1
Angled socket						
22260258	AB-C3-2,0PUR-M12FA	2	250	4	no	1
22260259	AB-C3-5,0PUR-M12FA	5	250	4	no	1
22260260	AB-C3-10,0PUR-M12FA	10	250	4	no	1
Straight socket with LEDs						
22260252	AB-C3-2,0PUR-M12FS-2L	2	24	4	2 LEDs	1
22260265	AB-C3-5,0PUR-M12FS-2L	5	24	4	2 LEDs	1
22260266	AB-C3-10,0PUR-M12FS-2L	10	24	4	2 LEDs	1
Angled socket with LEDs						
22260253	AB-C3-2,0PUR-M12FA-2L	2	24	4	2 LEDs	1
22260254	AB-C3-5,0PUR-M12FA-2L	5	24	4	2 LEDs	1
22260255	AB-C3-10,0PUR-M12FA-2L	10	24	4	2 LEDs	1

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

Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.

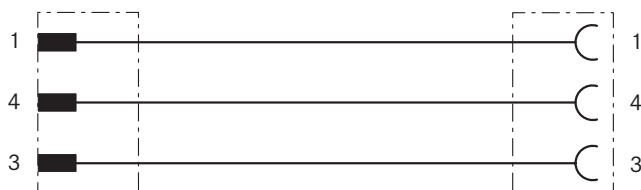
Photographs are not to scale and do not represent detailed images of the respective products.

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

UL approvals can be found in the data sheet (www.lappautomation.com)

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: M 12 connector on M 12 socket



S/A cable: M 12 connector on M 12 socket

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-pin connector
- Plug with M 12 thread to socket with M 12 thread
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 3 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

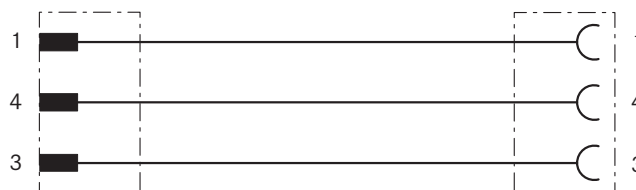
Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Straight connector to straight socket						
22260233	AB-C3-M12MS-0,3PUR-M12FS	0.3	250	4	no	1
22260234	AB-C3-M12MS-0,6PUR-M12FS	0.6	250	4	no	1
22260235	AB-C3-M12MS-1,0PUR-M12FS	1	250	4	no	1
22260236	AB-C3-M12MS-2,0PUR-M12FS	2	250	4	no	1
Straight connector to angled socket						
22260237	AB-C3-M12MS-0,3PUR-M12FA	0.3	250	4	no	1
22260238	AB-C3-M12MS-0,6PUR-M12FA	0.6	250	4	no	1
22260239	AB-C3-M12MS-1,0PUR-M12FA	1	250	4	no	1
22260240	AB-C3-M12MS-2,0PUR-M12FA	2	250	4	no	1
Straight connector to angled socket with LEDs						
22260261	AB-C3-M12MS-0,3PUR-M12FA-2L	0.3	24	4	2 LEDs	1
22260262	AB-C3-M12MS-0,6PUR-M12FA-2L	0.6	24	4	2 LEDs	1
22260263	AB-C3-M12MS-1,0PUR-M12FA-2L	1	24	4	2 LEDs	1
22260264	AB-C3-M12MS-2,0PUR-M12FA-2L	2	24	4	2 LEDs	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
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 (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: M12 connector on M8 socket



S/A cable: M12 connector on M8 socket

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-pin connector
- Plug with M12 thread to socket with M8 thread
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 3 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Straight connector to straight socket						
22260225	AB-C3-M12MS-0,3PUR-M8FS	0.3	60	3	no	1
22260226	AB-C3-M12MS-0,6PUR-M8FS	0.6	60	3	no	1
22260227	AB-C3-M12MS-1,0PUR-M8FS	1	60	3	no	1
22260228	AB-C3-M12MS-2,0PUR-M8FS	2	60	3	no	1
Straight connector to angled socket						
22260229	AB-C3-M12MS-0,3PUR-M8FA	0.3	60	3	no	1
22260230	AB-C3-M12MS-0,6PUR-M8FA	0.6	60	3	no	1
22260231	AB-C3-M12MS-1,0PUR-M8FA	1	60	3	no	1
22260232	AB-C3-M12MS-2,0PUR-M8FA	2	60	3	no	1
Straight connector to angled socket with LEDs						
22260267	AB-C3-M12MS-0,3PUR-M8FA-2L	0.3	24	3	2 LEDs	1
22260268	AB-C3-M12MS-0,6PUR-M8FA-2L	0.6	24	3	2 LEDs	1
22260269	AB-C3-M12MS-1,0PUR-M8FA-2L	1	24	3	2 LEDs	1
22260270	AB-C3-M12MS-2,0PUR-M8FA-2L	2	24	3	2 LEDs	1

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

Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.

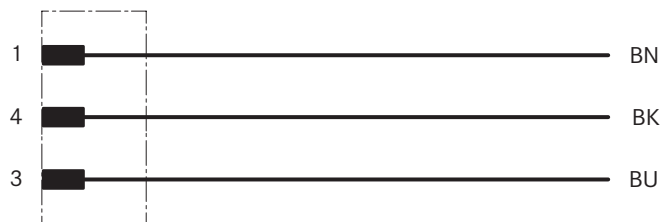
Photographs are not to scale and do not represent detailed images of the respective products.

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

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

New

S/A cable: M8 connector on free conductor end



S/A cable: M8 connector on free conductor end

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-pin connector
- Plug with M8 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 3 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free/PVC
- Outer sheath colour: black

Technical data



Protection rating
IP65 / IP68 / IP69K



Ambient temperature (operation)

Plug/socket
-25°C to +90°C (PUR/PVC)
Cable, fixed installation
-40°C to +80°C (PUR)
-25°C to +80°C (PVC)
Cable, flexible installation
-5°C to +80°C (PUR/PVC)

Contact material

CuSn

Contact surface material

Ni/Au

Coding

A - Standard

Knurl material

Zinc die-cast, nickel-plated

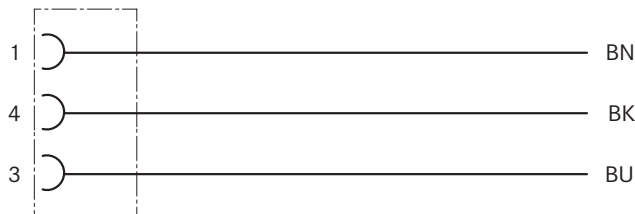
Gripping body material

TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N (A)	PU
Straight connector					
22260204	AB-C3-M8MS-2,0PUR	2	60	3	1
22260205	AB-C3-M8MS-5,0PUR	5	60	3	1
22260218	AB-C3-M8MS-10,0PUR	10	60	3	1
22260847	AB-C3-M8MS-2,0PVC	2	60	3	1
22260665	AB-C3-M8MS-5,0PVC	5	60	3	1
22260848	AB-C3-M8MS-10,0PVC	10	60	3	1
Angled connector					
22260053	AB-C3-M8MA-2,0PUR	2	60	3	1
22260987	AB-C3-M8MA-5,0PUR	5	60	3	1
22260055	AB-C3-M8MA-10,0PUR	10	60	3	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
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 (www.lappautomation.com)
UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: M8 socket on free conductor end



S/A cable: M8 socket on free conductor end

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-pin connector
- Socket with M8 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 3 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Straight socket						
22260202	AB-C3-2,0PUR-M8FS	2	60	3	no	1
22260200	AB-C3-5,0PUR-M8FS	5	60	3	no	1
22260219	AB-C3-10,0PUR-M8FS	10	60	3	no	1
Angled socket						
22260203	AB-C3-2,0PUR-M8FA	2	60	3	no	1
22260201	AB-C3-5,0PUR-M8FA	5	60	3	no	1
22260220	AB-C3-10,0PUR-M8FA	10	60	3	no	1
Angled socket with LEDs						
22260275	AB-C3-2,0PUR-M8FA-2L	2	24	3	2 LEDs	1
22260276	AB-C3-5,0PUR-M8FA-2L	5	24	3	2 LEDs	1
22260277	AB-C3-10,0PUR-M8FA-2L	10	24	3	2 LEDs	1

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

Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

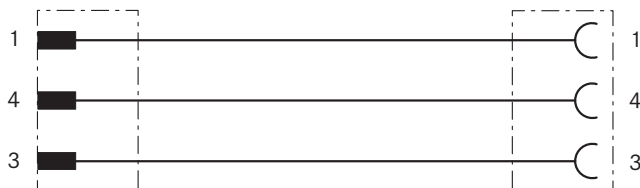
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.

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 (www.lappautomation.com)

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: M8 connector on M8 socket



S/A cable: M8 connector on M8 socket

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-pin connector
- Plug with M8 thread to socket with M8 thread
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 3 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

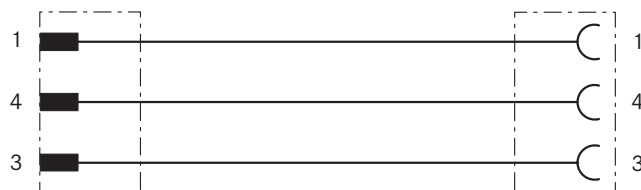
Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Straight connector to straight socket						
22260206	AB-C3-M8MS-0,3PUR-M8FS	0.3	60	3	no	1
22260207	AB-C3-M8MS-0,6PUR-M8FS	0.6	60	3	no	1
22260208	AB-C3-M8MS-1,0PUR-M8FS	1	60	3	no	1
22260209	AB-C3-M8MS-2,0PUR-M8FS	2	60	3	no	1
Straight connector to angled socket						
22260210	AB-C3-M8MS-0,3PUR-M8FA	0.3	60	3	no	1
22260211	AB-C3-M8MS-0,6PUR-M8FA	0.6	60	3	no	1
22260212	AB-C3-M8MS-1,0PUR-M8FA	1	60	3	no	1
22260213	AB-C3-M8MS-2,0PUR-M8FA	2	60	3	no	1
Straight connector to angled socket with LEDs						
22260214	AB-C3-M8MS-0,3PUR-M8FA-2L	0.3	24	3	2 LEDs	1
22260215	AB-C3-M8MS-0,6PUR-M8FA-2L	0.6	24	3	2 LEDs	1
22260216	AB-C3-M8MS-1,0PUR-M8FA-2L	1	24	3	2 LEDs	1
22260217	AB-C3-M8MS-2,0PUR-M8FA-2L	2	24	3	2 LEDs	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors 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 Main Catalogue 2012/13 table T6

S/A cable: M8 connector on M12 socket



S/A cable: M8 connector on M12 socket

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-pin connector
- Plug with M8 thread to socket with M12 thread
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 3 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Straight connector to straight socket						
22260241	AB-C3-M8MS-0,3PUR-M12FS	0.3	60	3	no	1
22260242	AB-C3-M8MS-0,6PUR-M12FS	0.6	60	3	no	1
22260243	AB-C3-M8MS-1,0PUR-M12FS	1	60	3	no	1
22260244	AB-C3-M8MS-2,0PUR-M12FS	2	60	3	no	1
Straight connector to angled socket						
22260245	AB-C3-M8MS-0,3PUR-M12FA	0.3	60	3	no	1
22260246	AB-C3-M8MS-0,6PUR-M12FA	0.6	60	3	no	1
22260247	AB-C3-M8MS-1,0PUR-M12FA	1	60	3	no	1
22260248	AB-C3-M8MS-2,0PUR-M12FA	2	60	3	no	1
Straight connector to angled socket with LEDs						
22260271	AB-C3-M8MS-0,3PUR-M12FA-2L	0.3	24	3	2 LEDs	1
22260272	AB-C3-M8MS-0,6PUR-M12FA-2L	0.6	24	3	2 LEDs	1
22260273	AB-C3-M8MS-1,0PUR-M12FA-2L	1	24	3	2 LEDs	1
22260274	AB-C3-M8MS-2,0PUR-M12FA-2L	2	24	3	2 LEDs	1

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

Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

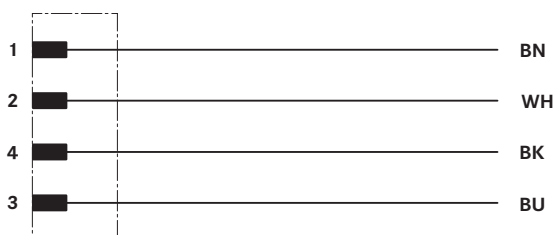
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.

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 (www.lappautomation.com)

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: M12 connector on free conductor end



S/A cable: M12 connector on free conductor end

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

- 4-pin connector
- Plug with M12 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 4 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown, white, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data

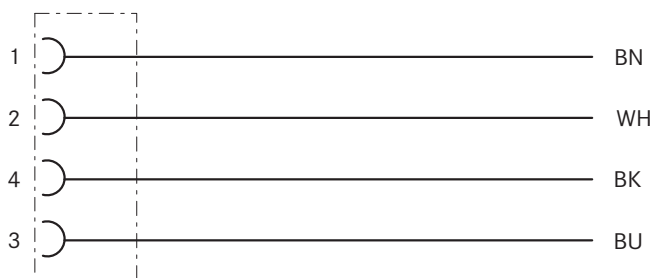
IP	Protection rating IP65/IP68/IP69K
0	Ambient temperature (operation) Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -5°C to +80°C
	Contact material CuSn
	Contact surface material Ni/Au
	Coding A - Standard
	Knurl material Zinc die-cast, nickel-plated
	Gripping body material TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	PU
Straight connector					
22260320	AB-C4-M12MS- 2,0PUR	2	250	4	1
22260321	AB-C4-M12MS- 5,0PUR	5	250	4	1
22260342	AB-C4-M12MS-10,0PUR	10	250	4	1
Angled connector					
22260301	AB-C4-M12MA-2,0PUR	2	250	4	1
22260302	AB-C4-M12MA-5,0PUR	5	250	4	1
22260303	AB-C4-M12MA-10,0PUR	10	250	4	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
 Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
 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 (www.lappautomation.com)
 For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

New

S/A cable: M12 socket on free conductor end



S/A cable: M12 socket on free conductor end

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

- 4-pin connector
- Socket with M12 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 4 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown, white, blue, black
- Outer sheath: PUR, halogen-free/PVC
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K

**Ambient temperature (operation)**

Plug/socket
-25°C to +90°C (PUR/PVC)
Cable, fixed installation
-40°C to +80°C (PUR)
-25°C to +80°C (PVC)
Cable, flexible installation
-5°C to +80°C (PUR/PVC)

Contact material

CuSn

Contact surface material

Ni/Au

Coding

A - Standard

Knurl material

Zinc die-cast, nickel-plated

Gripping body material

TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Straight socket						
22260322	AB-C4- 2,0PUR-M12FS	2	250	4	no	1
22260323	AB-C4- 5,0PUR-M12FS	5	250	4	no	1
22260343	AB-C4-10,0PUR-M12FS	10	250	4	no	1
22260688	AB-C4- 2,0PVC-M12FS	2	250	4	no	1
22260689	AB-C4-5,0PVC-M12FS	5	250	4	no	1
22260685	AB-C4-10,0PVC-M12FS	10	250	4	no	1
Angled socket						
22260324	AB-C4- 2,0PUR-M12FA	2	250	4	no	1
22260325	AB-C4- 5,0PUR-M12FA	5	250	4	no	1
22260341	AB-C4-10,0PUR-M12FA	10	250	4	no	1
22260841	AB-C4- 2,0PVC-M12FA	2	250	4	no	1
22260678	AB-C4-5,0PVC-M12FA	5	250	4	no	1
22260683	AB-C4-10,0PVC-M12FA	10	250	4	no	1
Straight socket with LEDs						
22260344	AB-C4- 2,0PUR-M12FS-2L	2	24	4	2 LEDs	1
22260345	AB-C4- 5,0PUR-M12FS-2L	5	24	4	2 LEDs	1
22260346	AB-C4-10,0PUR-M12FS-2L	10	24	4	2 LEDs	1
Angled socket with LEDs						
22260326	AB-C4- 2,0PUR-M12FA-3L	2	24	4	3 LEDs	1
22260327	AB-C4- 5,0PUR-M12FA-3L	5	24	4	3 LEDs	1
22260340	AB-C4-10,0PUR-M12FA-3L	10	24	4	3 LEDs	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.

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

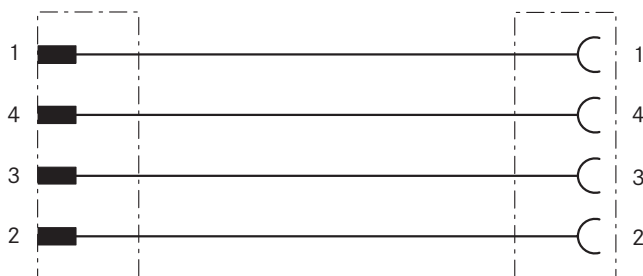
For detailed technical information please refer to the data sheet (www.lappautomation.com)

UL approvals can be found in the data sheet (www.lappautomation.com)

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

New

S/A cable: M12 connector on M12 socket



S/A cable: M12 connector on M12 socket

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

- 4-pin connector
- Plug with M12 thread to socket with M12 thread
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 4 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown, white, blue, black
- Outer sheath: PUR, halogen-free/PVC
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K



Ambient temperature (operation)

Plug/socket
-25°C to +90°C (PUR/PVC)
Cable, fixed installation
-40°C to +80°C (PUR)
-25°C to +80°C (PVC)
Cable, flexible installation
-5°C to +80°C (PUR/PVC)

Contact material

CuSn

Contact surface material

Ni/Au

Coding

A - Standard

Knurl material

Zinc die-cast, nickel-plated

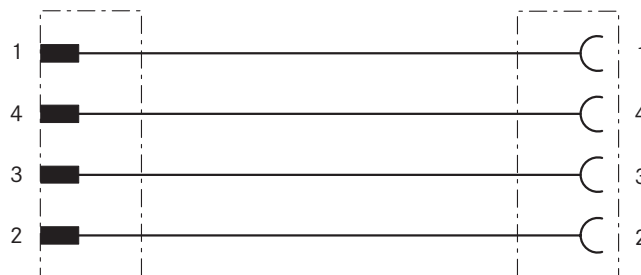
Gripping body material

TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Straight connector to straight socket						
22260328	AB-C4-M12MS-0,3PUR-M12FS	0.3	250	4	no	1
22260329	AB-C4-M12MS-0,6PUR-M12FS	0.6	250	4	no	1
22260330	AB-C4-M12MS-1,0PUR-M12FS	1	250	4	no	1
22260331	AB-C4-M12MS-2,0PUR-M12FS	2	250	4	no	1
Straight connector to angled socket						
22260332	AB-C4-M12MS-0,3PUR-M12FA	0.3	250	4	no	1
22260333	AB-C4-M12MS-0,6PUR-M12FA	0.6	250	4	no	1
22260334	AB-C4-M12MS-1,0PUR-M12FA	1	250	4	no	1
22260335	AB-C4-M12MS-2,0PUR-M12FA	2	250	4	no	1
22260832	AB-C4-M12MS-2,0PVC-M12FA	2	250	4	no	1
22260705	AB-C4-M12MS-5,0PVC-M12FA	5	250	4	no	1
22260833	AB-C4-M12MS-10,0PVC-M12FA	10	250	4	no	1
Angled connector to straight socket						
22260304	AB-C4-M12MA-0,3PUR-M12FS	0.3	250	4	no	1
22260305	AB-C4-M12MA-0,6PUR-M12FS	0.6	250	4	no	1
22260306	AB-C4-M12MA-1,0PUR-M12FS	1	250	4	no	1
22260307	AB-C4-M12MA-2,0PUR-M12FS	2	250	4	no	1
Straight connector to angled socket with LEDs						
22260336	AB-C4-M12MS-0,3PUR-M12FA-3L	0.3	24	4	3 LEDs	1
22260337	AB-C4-M12MS-0,6PUR-M12FA-3L	0.6	24	4	3 LEDs	1
22260338	AB-C4-M12MS-1,0PUR-M12FA-3L	1	24	4	3 LEDs	1
22260339	AB-C4-M12MS-2,0PUR-M12FA-3L	2	24	4	3 LEDs	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
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UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: M 12 connector on M8 socket



S/A cable: M 12 connector on M8 socket

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

- 4-pin connector
- Plug with M 12 thread to socket with M8 thread
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 4 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, white, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Straight connector to straight socket						
22260347	AB-C4-M12MS-0,3PUR-M8FS	0.3	30	3	no	1
22260349	AB-C4-M12MS-0,6PUR-M8FS	0.6	30	3	no	1
22260350	AB-C4-M12MS-1,0PUR-M8FS	1	30	3	no	1
22260348	AB-C4-M12MS-2,0PUR-M8FS	2	30	3	no	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.

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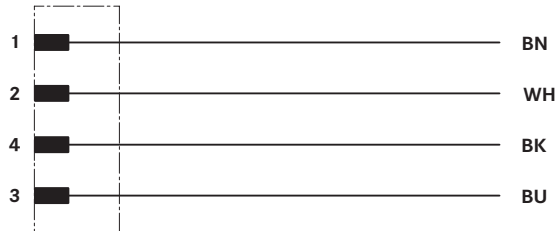
For detailed technical information please refer to the data sheet (www.lappautomation.com)

UL approvals can be found in the data sheet (www.lappautomation.com)

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

New

S/A cable: M8 connector on free conductor end



S/A cable: M8 connector on free conductor end

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

- 4-pin connector
- Plug with M8 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 4 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, white, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

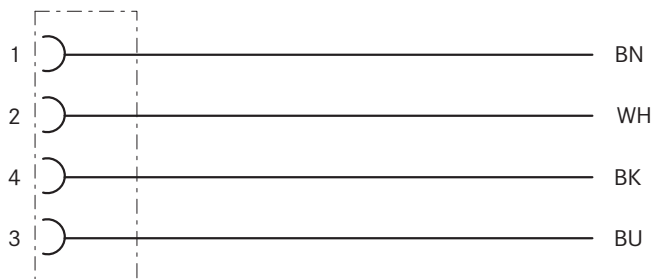
Technical data

IP	Protection rating IP65/IP68/IP69K
0-1	Ambient temperature (operation) Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -5°C to +80°C
	Contact material CuSn
	Contact surface material Ni/Au
	Coding A - Standard
	Knurl material Zinc die-cast, nickel-plated
	Gripping body material TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	PU
Straight connector					
22260300	AB-C4-M8MS-2,0PUR	2	30	3	1
22260308	AB-C4-M8MS-5,0PUR	5	30	3	1
22260318	AB-C4-M8MS-10,0PUR	10	30	3	1
Angled connector					
22260056	AB-C4-M8MA-2,0PUR	2	30	3	1
22260057	AB-C4-M8MA-5,0PUR	5	30	3	1
22260058	AB-C4-M8MA-10,0PUR	10	30	3	1

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 Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
 Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
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 For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: M8 socket on free conductor end



S/A cable: M8 socket on free conductor end

■ 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

- 4-pin connector
- Socket with M8 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

■ Approvals



■ Design

- Fixed flexible control cable
- Design: 4 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, white, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

■ Technical data



Protection rating
IP65/IP68/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Straight socket						
22260309	AB-C4- 2,0PUR-M8FS	2	30	3	no	1
22260310	AB-C4- 5,0PUR-M8FS	5	30	3	no	1
22260317	AB-C4-10,0PUR-M8FS	10	30	3	no	1
Angled socket						
22260311	AB-C4- 2,0PUR-M8FA	2	30	3	no	1
22260312	AB-C4- 5,0PUR-M8FA	5	30	3	no	1
22260319	AB-C4-10,0PUR-M8FA	10	30	3	no	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.

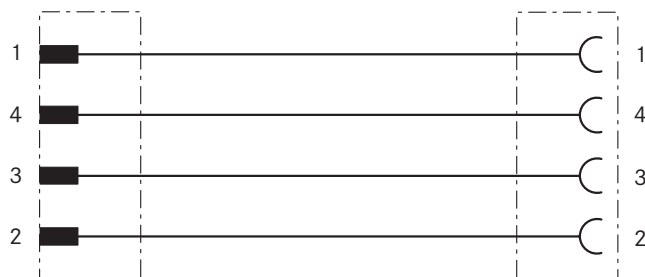
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For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

New

S/A cable: M8 connector on M8 socket



S/A cable: M8 connector on M8 socket

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

- 4-pin connector
- Plug with M8 thread to socket with M8 thread
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 4 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, white, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K



Ambient temperature (operation)

Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Straight connector to straight socket						
22260313	AB-C4-M8MS-0,3PUR-M8FS	0.3	30	3	no	1
22260314	AB-C4-M8MS-0,6PUR-M8FS	0.6	30	3	no	1
22260315	AB-C4-M8MS-1,0PUR-M8FS	1	30	3	no	1
22260316	AB-C4-M8MS-2,0PUR-M8FS	2	30	3	no	1
Straight connector to angled socket						
22260059	AB-C4-M8MS-0,3PUR-M8FA	0.3	30	3	no	1
22260060	AB-C4-M8MS-0,6PUR-M8FA	0.6	30	3	no	1
22260061	AB-C4-M8MS-1,0PUR-M8FA	1	30	3	no	1
22260062	AB-C4-M8MS-2,0PUR-M8FA	2	30	3	no	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
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UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: M 12 connector on free conductor end



S/A cable: M 12 connector on free conductor end

■ 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

- 5-pin connector
- Plug with M 12 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

■ Approvals



■ Design

- Fixed flexible control cable
- Design: 5 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown, white, blue, black, green/yellow
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

■ Technical data



Protection rating
IP65/IP68/IP69K

**Ambient temperature (operation)**

Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _n (V)	Nominal current I _n in (A)	PU
Straight connector					
22260400	AB-C5-M12MS-2,0PUR	2	60	4	1
22260401	AB-C5-M12MS-5,0PUR	5	60	4	1
22260414	AB-C5-M12MS-10,0PUR	10	60	4	1
Angled connector					
22260402	AB-C5-M12MA-2,0PUR	2	60	4	1
22260403	AB-C5-M12MA-5,0PUR	5	60	4	1
22260417	AB-C5-M12MA-10,0PUR	10	60	4	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.

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For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: M 12 socket on free conductor end



S/A cable: M 12 socket on free conductor end

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

- 5-pin connector
- Socket with M 12 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 5 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown, white, blue, black, green/yellow
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

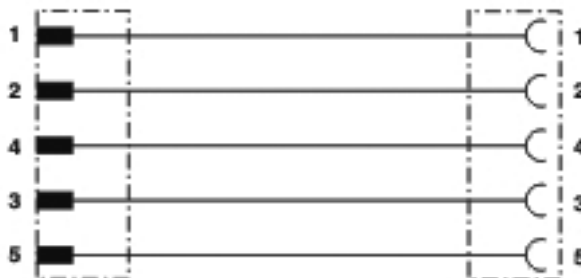
Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Straight socket						
22260404	AB-C5- 2,0PUR-M12FS	2	60	4	no	1
22260405	AB-C5- 5,0PUR-M12FS	5	60	4	no	1
22260415	AB-C5-10,0PUR-M12FS	10	60	4	no	1
Angled socket						
22260406	AB-C5- 2,0PUR-M12FA	2	60	4	no	1
22260407	AB-C5- 5,0PUR-M12FA	5	60	4	no	1
22260418	AB-C5-10,0PUR-M12FA	10	60	4	no	1
Angled socket with LEDs						
22260408	AB-C5- 2,0PUR-M12FA-3L	2	24	4	3 LEDs	1
22260409	AB-C5- 5,0PUR-M12FA-3L	5	24	4	3 LEDs	1
22260416	AB-C5-10,0PUR-M12FA-3L	10	24	4	3 LEDs	1
22260760	AB-C5-25,0PUR-M12FA-3L	25	24	4	3 LEDs	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
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New

S/A cable: M12 connector on M12 socket



S/A cable: M12 connector on M12 socket

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

- 5-pin connector
- Plug with M12 thread to socket with M12 thread
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 5 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown, white, blue, black, green/yellow
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K

**Ambient temperature (operation)**

Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Straight connector to straight socket						
22260410	AB-C5-M12MS-0,3PUR-M12FS	0.3	60	4	no	1
22260411	AB-C5-M12MS-0,6PUR-M12FS	0.6	60	4	no	1
22260412	AB-C5-M12MS-1,0PUR-M12FS	1	60	4	no	1
22260413	AB-C5-M12MS-2,0PUR-M12FS	2	60	4	no	1
Straight connector to angled socket						
22260063	AB-C5-M12MS-0,3PUR-M12FA	0.3	60	4	no	1
22260064	AB-C5-M12MS-0,6PUR-M12FA	0.6	60	4	no	1
22260065	AB-C5-M12MS-1,0PUR-M12FA	1	60	4	no	1
22260066	AB-C5-M12MS-2,0PUR-M12FA	2	60	4	no	1
Straight connector to angled socket with LEDs						
22260067	AB-C5-M12MS-0,3PUR-M12FA-3L	0.3	24	4	3 LEDs	1
22260068	AB-C5-M12MS-0,6PUR-M12FA-3L	0.6	24	4	3 LEDs	1
22260069	AB-C5-M12MS-1,0PUR-M12FA-3L	1	24	4	3 LEDs	1
22260070	AB-C5-M12MS-2,0PUR-M12FA-3L	2	24	4	3 LEDs	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.

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

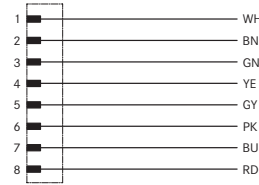
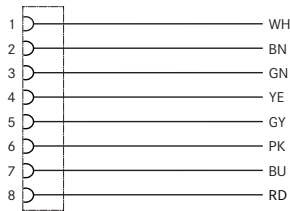
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UL approvals can be found in the data sheet (www.lappautomation.com)

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

New

S/A cable: M12 connector/socket on free conductor end



S/A cable: M12 connector/socket on free conductor end

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

- 8-pin connector
- Design: plug/socket with M12 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 8 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, blue, white, grey, pink, red, yellow, green
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K



Ambient temperature (operation)

Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	PU
Straight connector					
22260091	AB-C8-M12MS-2,0PUR	2	30	2	1
22260092	AB-C8-M12MS-5,0PUR	5	30	2	1
22260093	AB-C8-M12MS-10,0PUR	10	30	2	1
Angled connector					
22260094	AB-C8-M12MA-2,0PUR	2	30	2	1
22260095	AB-C8-M12MA-5,0PUR	5	30	2	1
22260096	AB-C8-M12MA-10,0PUR	10	30	2	1
Straight socket					
22260726	AB-C8-2,0PUR-M12FS	2	30	2	1
22260728	AB-C8-5,0PUR-M12FS	5	30	2	1
22260729	AB-C8-10,0PUR-M12FS	10	30	2	1
8 pole angled socket					
22260615	AB-C8-5,0PUR-M12FA	5	30	2	1
22260616	AB-C8-10,0PUR-M12FA	10	30	2	1
22260141	AB-C8-2,0PUR-M12FA	2	30	2	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
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 (www.lappautomation.com)
UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

New

S/A cable: M12 connector on M12 socket



S/A cable: M12 connector on M12 socket

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

- 8-pin connector
- Plug with M12 thread to socket with M12 thread
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 8 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, blue, white, grey, pink, red, yellow, green
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K

**Ambient temperature (operation)**

Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +90°C
Cable, flexible installation
-5°C to 80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _n (V)	Nominal current I _n (A)	PU
Straight connector to straight socket					
22260097	AB-C8-M12MS-0,3PUR-M12FS	0.3	30	2	1
22260098	AB-C8-M12MS-0,6PUR-M12FS	0.6	30	2	1
22260099	AB-C8-M12MS-1,0PUR-M12FS	1	30	2	1
22260042	AB-C8-M12MS-2,0PUR-M12FS	2	30	2	1
Straight connector to angled socket					
22260137	AB-C8-M12MS-0,3PUR-M12FA	0.3	30	2	1
22260138	AB-C8-M12MS-0,6PUR-M12FA	0.6	30	2	1
22260139	AB-C8-M12MS-1,0PUR-M12FA	1	30	2	1
22260140	AB-C8-M12MS-2,0PUR-M12FA	2	30	2	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.

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

UL approvals can be found in the data sheet (www.lappautomation.com)

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: shielded, M12 connector on free conductor end



Info

- Suitable for drag chains



S/A cable: shielded, M12 connector on free conductor end

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, 4 and 5-pin version
- Plug with M12 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design:
 - 3 x 0.34 mm² (42 x 0.1 mm)
 - 4 x 0.34 mm² (42 x 0.1 mm)
 - 5 x 0.34 mm² (42 x 0.1 mm)
- Outer sheath: PUR, halogen-free, screened
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP67/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-25°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N (A)	PU
3-pin straight connector					
22260453	AB-C3-M12MS- 2,0PUR-SH	2	250	4	1
22260454	AB-C3-M12MS- 5,0PUR-SH	5	250	4	1
22260455	AB-C3-M12MS-10,0PUR-SH	10	250	4	1
4-pin straight connector					
22260459	AB-C4-M12MS- 2,0PUR-SH	2	250	4	1
22260460	AB-C4-M12MS- 5,0PUR-SH	5	250	4	1
22260461	AB-C4-M12MS-10,0PUR-SH	10	250	4	1
5-pin straight connector					
22260465	AB-C5-M12MS- 2,0PUR-SH	2	60	4	1
22260466	AB-C5-M12MS- 5,0PUR-SH	5	60	4	1
22260467	AB-C5-M12MS-10,0PUR-SH	10	60	4	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
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 (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

New

S/A cable: shielded, M 12 socket on free conductor end



S/A cable: shielded, M 12 socket on free conductor end



Info

- Suitable for drag chains

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, 4 and 5-pin version
- Socket with M 12 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design:
 - 3 x 0.34 mm² (42 x 0.1 mm)
 - 4 x 0.34 mm² (42 x 0.1 mm)
 - 5 x 0.34 mm² (42 x 0.1 mm)
- Outer sheath: PUR, halogen-free, screened
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP67/IP69K



Ambient temperature (operation)

Plug/socket
-25°C to +90°C
Cable, fixed installation
-25°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
3-pin straight socket						
22260450	AB-C3- 2,0PUR-M12FS-SH	2	250	4	no	1
22260451	AB-C3- 5,0PUR-M12FS-SH	5	250	4	no	1
22260452	AB-C3-10,0PUR-M12FS-SH	10	250	4	no	1
3-pin angled socket						
22260071	AB-C3- 2,0PUR-M12FA-SH	2	250	4	no	1
22260072	AB-C3- 5,0PUR-M12FA-SH	5	250	4	no	1
22260073	AB-C3-10,0PUR-M12FA-SH	10	250	4	no	1
4-pin straight socket						
22260456	AB-C4- 2,0PUR-M12FS-SH	2	250	4	no	1
22260457	AB-C4- 5,0PUR-M12FS-SH	5	250	4	no	1
22260458	AB-C4-10,0PUR-M12FS-SH	10	250	4	no	1
22260823	AB-C4-20,0PUR-M12FS-SH	20	250	4	no	1
4-pin angled socket						
22260074	AB-C4- 2,0PUR-M12FA-SH	2	250	4	no	1
22260675	AB-C4- 5,0PUR-M12FA-SH	5	250	4	no	1
22260680	AB-C4-10,0PUR-M12FA-SH	10	250	4	no	1
5-pin straight socket						
22260462	AB-C5- 2,0PUR-M12FS-SH	2	60	4	no	1
22260463	AB-C5- 5,0PUR-M12FS-SH	5	60	4	no	1
22260464	AB-C5-10,0PUR-M12FS-SH	10	60	4	no	1
5-pin angled socket						
22260946	AB-C5- 2,0PUR-M12FA-SH	2	60	4	no	1
22260714	AB-C5- 5,0PUR-M12FA-SH	5	60	4	no	1
22260991	AB-C5-10,0PUR-M12FA-SH	10	60	4	no	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.

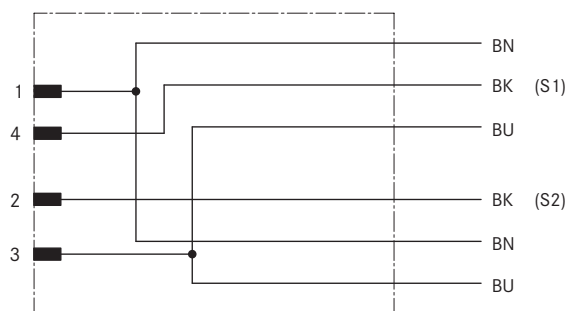
Photographs are not to scale and do not represent detailed images of the respective products.

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UL approvals can be found in the data sheet (www.lappautomation.com)

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: straight M12 Y plug on 2x free conductor end



S/A cable: straight M12 Y plug on 2x free conductor end

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

- 4-pin M12 Y connector
- Straight M12 Y plug to 2 conductor ends
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 3 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

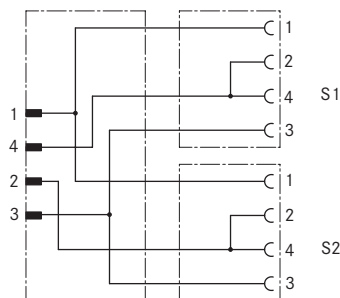
Technical data

IP	Protection rating IP65/IP68/IP69K
0	Ambient temperature (operation) Plug/socket -25°C to +90°C Cable, fixed installation -40°C to +80°C Cable, flexible installation -5°C to +80°C
	Contact material CuSn
	Contact surface material Ni/Au
	Coding A - Standard
	Knurl material Zinc die-cast, nickel-plated
	Gripping body material TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal current I _n in (A)	PU
Y plug to 2 x free conductor end				
22260500	AB-C3-M12Y-2,0PUR	2	4	1
22260513	AB-C3-M12Y-5,0PUR	5	4	1
22260526	AB-C3-M12Y-10,0PUR	10	4	1

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 Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
 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 (www.lappautomation.com)
 For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: straight M 12 Y plug on 2x M 12 socket



S/A cable: straight M 12 Y plug on 2x M 12 socket



Info

- PIN 2+4 are bridged on M 12 sockets

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

- 4-pin M 12 Y connector on 2 x M 12 socket (4-pin)
- Straight M 12 Y plug to 2 conductor ends
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 3 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal current I _N in (A)	Status display	PU
Y plug to straight socket					
22260501	AB-C3-M12Y-0,3PUR-M12FS-B	0.3	4	no	1
22260502	AB-C3-M12Y-0,6PUR-M12FS-B	0.6	4	no	1
22260503	AB-C3-M12Y-1,0PUR-M12FS-B	1	4	no	1
22260504	AB-C3-M12Y-2,0PUR-M12FS-B	2	4	no	1
Y plug to angled socket					
22260505	AB-C3-M12Y-0,3PUR-M12FA-B	0.3	4	no	1
22260506	AB-C3-M12Y-0,6PUR-M12FA-B	0.6	4	no	1
22260507	AB-C3-M12Y-1,0PUR-M12FA-B	1	4	no	1
22260508	AB-C3-M12Y-2,0PUR-M12FA-B	2	4	no	1
Y plug to angled socket with LEDs					
22260509	AB-C3-M12Y-0,3PUR-M12FA-2L-B	0.3	4	2 LEDs	1
22260510	AB-C3-M12Y-0,6PUR-M12FA-2L-B	0.6	4	2 LEDs	1
22260511	AB-C3-M12Y-1,0PUR-M12FA-2L-B	1	4	2 LEDs	1
22260512	AB-C3-M12Y-2,0PUR-M12FA-2L-B	2	4	2 LEDs	1

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

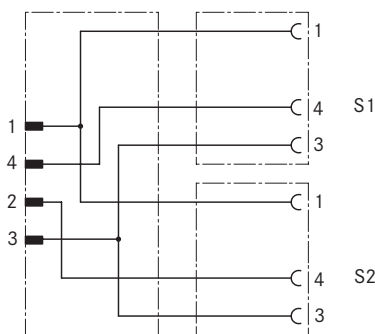
Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

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

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For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: straight M12 Y plug on 2x M8 socket



S/A cable: straight M12 Y plug on 2x M8 socket

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

- 4-pin M12 Y connector on 2 x M8 socket (3-pin)
- Straight M12 Y plug to 2 conductor ends
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- Fixed flexible control cable
- Design: 3 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data



Protection rating
IP65/IP68/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

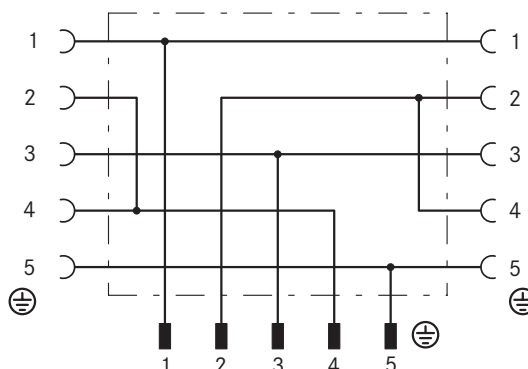
Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal current I _N in (A)	Status display	PU
Y plug to straight socket					
22260514	AB-C3-M12Y-0,3PUR-M8FS	0.3	3	no	1
22260515	AB-C3-M12Y-0,6PUR-M8FS	0.6	3	no	1
22260516	AB-C3-M12Y-1,0PUR-M8FS	1	3	no	1
22260517	AB-C3-M12Y-2,0PUR-M8FS	2	3	no	1
Y plug to angled socket					
22260518	AB-C3-M12Y-0,3PUR-M8FA	0.3	3	no	1
22260519	AB-C3-M12Y-0,6PUR-M8FA	0.6	3	no	1
22260520	AB-C3-M12Y-1,0PUR-M8FA	1	3	no	1
22260521	AB-C3-M12Y-2,0PUR-M8FA	2	3	no	1
Y plug to angled socket with LEDs					
22260522	AB-C3-M12Y-0,3PUR-M8FA-2L	0.3	3	2 LEDs	1
22260523	AB-C3-M12Y-0,6PUR-M8FA-2L	0.6	3	2 LEDs	1
22260524	AB-C3-M12Y-1,0PUR-M8FA-2L	1	3	2 LEDs	1
22260525	AB-C3-M12Y-2,0PUR-M8FA-2L	2	3	2 LEDs	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
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 (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

Y distributor



Y distributor

■ 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

- M12 and M8 design
- M12 design with screw hole
- Free of substances that could hinder paint or varnish

■ Approvals



■ Technical data



Protection rating
IP65/IP67



Ambient temperature (operation)
Plug/socket
-25°C to +90°C

Contact material
CuZn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Nominal voltage U_N (V)	Nominal current I_N in (A)	PU
M12 Y distributor, 3-pin, +PE, straight M12 connector to 2 x straight M12 socket, PIN 2+4 bridged				
22260600	AB-C3-M12Y-2XM12FS B E	60	4	5
M12 Y distributor, 3-pin, +PE, straight M12 connector to 2 x straight M12 socket				
22260601	AB-C3-M12Y-2XM12FS E	60	4	5
M12 Y distributor, 5-pin, straight M12 connector to 2 x straight M12 socket, parallel distributor				
22260602	AB-C5-M12Y-2XM12FS V	60	4	5
M8 Y distributor, with 4-pin M8 connector to 2 x 3-pin M8 socket				
22260603	AB-C3-M8Y-2XM8FS	30	3	5
M8 Y distributor, with M8 connector to M8 socket, 3-pin parallel distributor				
22260604	AB-C3-M8Y-2XM8FS V	60	3	5

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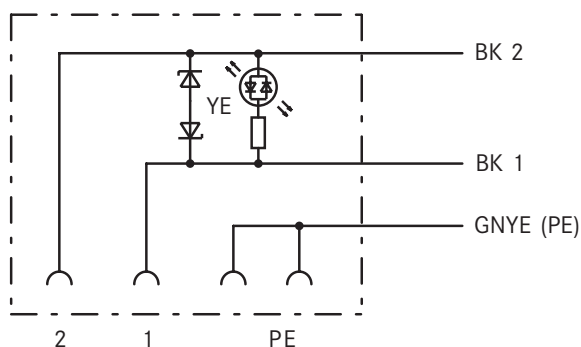
Photographs are not to scale and do not represent detailed images of the respective products.

Note: the table value 'Number of pins' corresponds to the number of pins for sockets

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

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: 3-pos., valve connector on free conductor end



S/A cable: 3-pos., valve connector on free conductor end

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-pin valve connector
- With protective circuit (Z diode) PE-bridged
- With LED status indicator (yellow)
- The cables have marker carriers
- Free of substances that could hinder paint or varnish

Approvals



Design

- Cable design: 3 x 0.5 mm² (28 x 0.15 mm)
- Core colours: black 1, black 2, green/yellow
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black (RAL 7021)
- Outer diameter: 4.5 mm
- Suitable for drag chains

Technical data



Protection rating
IP 67



Ambient temperature (operation)
Valve connector
-20°C to +85°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-15°C to +80°C

Contact material
CuSn

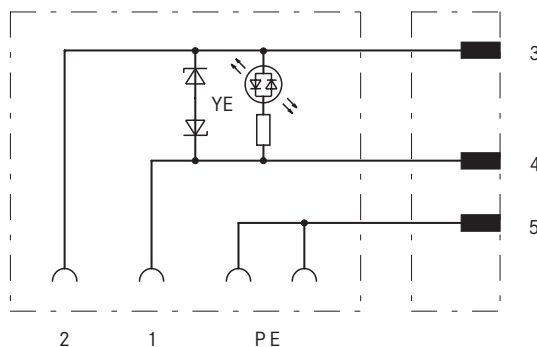
Contact surface material
Ag

Coding
A - Standard

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Valve connector type A (18 mm)						
22260584	AB-C3- 2,0PUR-A-1L-S	2	24	4	1 LED	1
22260576	AB-C3- 5,0PUR-A-1L-S	5	24	4	1 LED	1
22260577	AB-C3-10,0PUR-A-1L-S	10	24	4	1 LED	1
Valve connector type B (10 mm)						
22260585	AB-C3- 2,0PUR-B-1L-S	2	24	4	1 LED	1
22260578	AB-C3- 5,0PUR-B-1L-S	5	24	4	1 LED	1
22260579	AB-C3-10,0PUR-B-1L-S	10	24	4	1 LED	1
Valve connector type BI (11 mm)						
22260586	AB-C3- 2,0PUR-BI-1L-S	2	24	4	1 LED	1
22260580	AB-C3- 5,0PUR-BI-1L-S	5	24	4	1 LED	1
22260581	AB-C3-10,0PUR-BI-1L-S	10	24	4	1 LED	1
Valve connector type C (8 mm)						
22260587	AB-C3- 2,0PUR-C-1L-S	2	24	4	1 LED	1
22260582	AB-C3- 5,0PUR-C-1L-S	5	24	4	1 LED	1
22260583	AB-C3-10,0PUR-C-1L-S	10	24	4	1 LED	1
Valve connector type CI (9.4 mm)						
22260588	AB-C3- 2,0PUR-CI-1L-S	2	24	4	1 LED	1
22260574	AB-C3- 5,0PUR-CI-1L-S	5	24	4	1 LED	1
22260575	AB-C3-10,0PUR-CI-1L-S	10	24	4	1 LED	1
22260921						

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
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 (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: 3-pos., valve connector on straight M12 plug



S/A cable: 3-pos., valve connector on straight M12 plug

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-pin valve connector
- With protective circuit (Z diode)
PE-bridged
- With LED status indicator (yellow)
- The cables have marker carriers
- Free of substances that could hinder paint or varnish

Approvals



Design

- Cable design: 3 x 0.5 mm² (28 x 0.15 mm)
- Core colours: black 1, black 2, green/yellow
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black (RAL 7021)
- Outer diameter: 4.5 mm
- Suitable for drag chains

Technical data



Protection rating
IP 67



Ambient temperature (operation)

Valve connector
-20°C to +85°C
Connector/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-15°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Straight connector to valve connector type A (18 mm)						
22260550	AB-C3-M12MS-0,3PUR-A-1L-S	0.3	24	4	1 LED	1
22260551	AB-C3-M12MS-0,6PUR-A-1L-S	0.6	24	4	1 LED	1
22260552	AB-C3-M12MS-1,0PUR-A-1L-S	1	24	4	1 LED	1
22260553	AB-C3-M12MS-2,0PUR-A-1L-S	2	24	4	1 LED	1
Straight connector to valve connector type B (10 mm)						
22260558	AB-C3-M12MS-0,3PUR-B-1L-S	0.3	24	4	1 LED	1
22260559	AB-C3-M12MS-0,6PUR-B-1L-S	0.6	24	4	1 LED	1
22260560	AB-C3-M12MS-1,0PUR-B-1L-S	1	24	4	1 LED	1
22260561	AB-C3-M12MS-2,0PUR-B-1L-S	2	24	4	1 LED	1
Straight connector to valve connector type BI (11 mm)						
22260554	AB-C3-M12MS-0,3PUR-BI-1L-S	0.3	24	4	1 LED	1
22260555	AB-C3-M12MS-0,6PUR-BI-1L-S	0.6	24	4	1 LED	1
22260556	AB-C3-M12MS-1,0PUR-BI-1L-S	1	24	4	1 LED	1
22260557	AB-C3-M12MS-2,0PUR-BI-1L-S	2	24	4	1 LED	1
Straight connector to valve connector type C (8 mm)						
22260566	AB-C3-M12MS-0,3PUR-C-1L-S	0.3	24	4	1 LED	1
22260567	AB-C3-M12MS-0,6PUR-C-1L-S	0.6	24	4	1 LED	1
22260568	AB-C3-M12MS-1,0PUR-C-1L-S	1	24	4	1 LED	1
22260569	AB-C3-M12MS-2,0PUR-C-1L-S	2	24	4	1 LED	1
Straight connector to valve connector type CI (9.4 mm)						
22260562	AB-C3-M12MS-0,3PUR-CI-1L-S	0.3	24	4	1 LED	1
22260563	AB-C3-M12MS-0,6PUR-CI-1L-S	0.6	24	4	1 LED	1
22260564	AB-C3-M12MS-1,0PUR-CI-1L-S	1	24	4	1 LED	1
22260565	AB-C3-M12MS-2,0PUR-CI-1L-S	2	24	4	1 LED	1

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

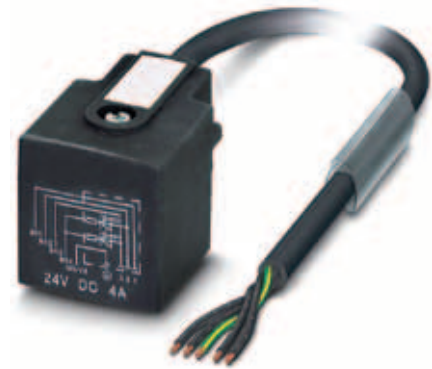
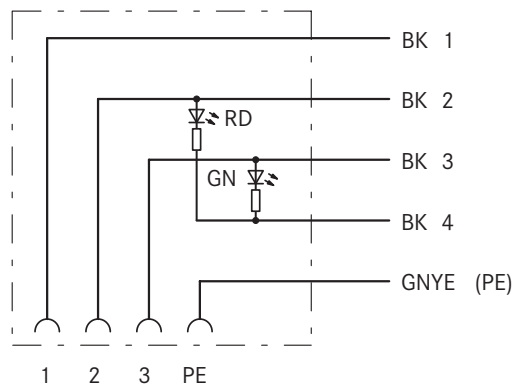
Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

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 (www.lappautomation.com)

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A cable: 5-pos., valve connector on free conductor end, for pressure switch



S/A cable: 5-pos., valve connector on free conductor end, for pressure switch

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

- 5-pin valve connector
- Valve connector for pressure switch, 18 mm contact spacing
- With display switch state (2 LEDs, red/green)
- The cables have marker carriers
- Free of substances that could hinder paint or varnish

Approvals



Design

- Cable design: 5 x 0.5 mm² (28 x 0.15 mm)
- Core colours: black 1, black 2, black 3, black 4, green/yellow
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black (RAL 7021)
- Outer diameter: 5.3 mm
- Suitable for drag chains

Technical data



Protection rating
IP 67



Ambient temperature (operation)
Valve connector
-20°C to +85°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-15°C to +80°C

Contact material
CuSn

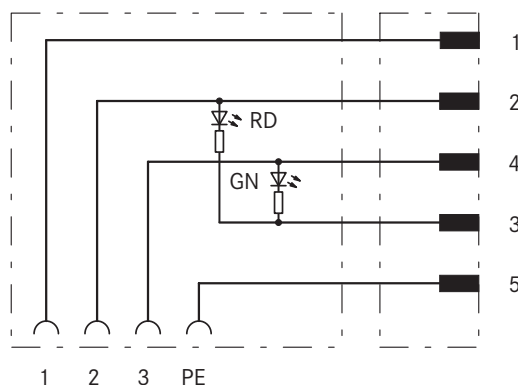
Contact surface material
Ag

Coding
A - Standard

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Valve connector for pressure switch (18 mm)						
22260589	AB-C5-2,0PUR-AD-2L	2	24	4	2 LEDs	1
22260590	AB-C5-5,0PUR-AD-2L	5	24	4	2 LEDs	1
22260591	AB-C5-10,0PUR-AD-2L	10	24	4	2 LEDs	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
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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 Main Catalogue 2012/13 table T6

S/A cable: 5-pos., valve connector on straight M 12 plug, for pressure switch



S/A cable: 5-pos., valve connector on straight M 12 plug, for pressure switch

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

- 5-pin valve connector
- Valve connector for pressure switch, 18 mm contact spacing
- With display switch state (2 LEDs, red/green)
- The cables have marker carriers
- Free of substances that could hinder paint or varnish

Approvals



Design

- Cable design: 5 x 0.5 mm² (28 x 0.15 mm)
- Core colours: black 1, black 2, black 3, black 4, green/yellow
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black (RAL 7021)
- Outer diameter: 5.3 mm
- Suitable for drag chains

Technical data



Protection rating
IP 67



Ambient temperature (operation)

Valve connector
-20°C to +85°C
Connector/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-15°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Status display	PU
Straight connector to valve connector for pressure switch						
22260573	AB-C5-M12MS-0,3PUR-AD-2L	0.3	24	4	2 LEDs	1
22260572	AB-C5-M12MS-0,6PUR-AD-2L	0.6	24	4	2 LEDs	1
22260571	AB-C5-M12MS-1,0PUR-AD-2L	1	24	4	2 LEDs	1
22260570	AB-C5-M12MS-2,0PUR-AD-2L	2	24	4	2 LEDs	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

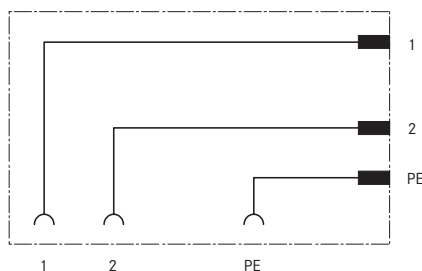
Photographs are not to scale and do not represent detailed images of the respective products.

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

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

New

Field mountable valve connectors



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

Approvals



Suitable cables

- UNITRONIC® SENSOR see page 82

Technical data



Protection rating
IP 65



Ambient temperature (operation)
Valve connector
-25°C to +60°C

Standards/stipulations
Valve connector according to EN 175301-803

Article number	Article designation	Nominal voltage U_N (V)	Nominal current I_N in (A)	Status display	Protective circuit	PU
Valve connector type A (18 mm)						
22260048	AB-C3-M16-A	230	10	Without	Without	1
22260050	AB-C3-PG9-A-1L-S	24	4	1 LED	Z diode	1
Valve connector type B (10 mm)						
22260051	AB-C3-PG9-B-1L-S	24	4	1 LED	Z diode	1
Valve connector type BI (11 mm)						
22260052	AB-C3-PG9-BI-1L-S	24	4	1 LED	Z diode	1
Valve connector type C (8 mm)						
22260142	AB-C3-PG9-C-1L-SV	24	1.5	1 LED	Varistor	1
Valve connector type CI (9.4 mm)						
22260143	AB-C3-PG9-CI-1L-SV	24	1.5	1 LED	Varistor	1
Valve connector for pressure switch (18 mm)						
22260049	AB-C5-M16-AD-2L	24	1.5	2 LEDs	Without	1

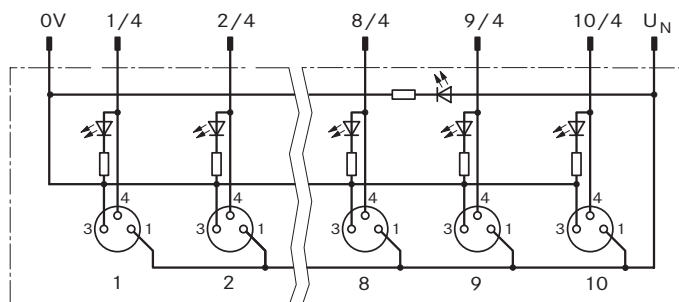
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For detailed technical information please refer to the data sheet (www.lappautomation.com)

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A box with M8 slots and master cable



S/A box with M8 slots and master cable

■ Benefits

- Inexpensive and efficient wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- The master cable is designed as a hybrid that transmits signals and power.
- There are no assembly costs as the master cable is already pre-assembled

■ Application range

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

■ Product features

- With fixed master cable connection
- Single-occupied sensor/actuator box
- LEDs indicate the operating mode of the distributor and the status of the sensors
- Free of substances that could hinder paint or varnish

■ Approvals



■ Design

- PUR/PVC cable
- Fixed flexible control cable
- Outer sheath colour: black

■ Suitable tools

- Suitable tools are available upon request (e.g. M8 torque screwdriver)

■ Technical data



Protection rating
IP65/IP67



Ambient temperature (operation)
-30°C to +80°C
Cable, fixed installation
-40°C to +90°C
Cable, flexible installation
-5°C to 80°C



Current rating per slot
2 A

Article number	Article designation	Length (m)	Number of slots	Nominal voltage U_N (V)	SACB total current (A)	Status display	PU
With M8 master cable connection							
22260026	AB-B4-M8L-4-5,0PUR	5.0	4	24	6	With LEDs	1
22260027	AB-B4-M8L-4-10,0PUR	10.0	4	24	6	With LEDs	1
22260028	AB-B6-M8L-6-5,0PUR	5.0	6	24	6	With LEDs	1
22260029	AB-B6-M8L-6-10,0PUR	10.0	6	24	6	With LEDs	1
22260030	AB-B8-M8L-8-5,0PUR	5.0	8	24	6	With LEDs	1
22260031	AB-B8-M8L-8-10,0PUR	10.0	8	24	6	With LEDs	1
22260032	AB-B10-M8L-10-5,0PUR	5.0	10	24	6	With LEDs	1
22260033	AB-B10-M8L-10-10,0PUR	10.0	10	24	6	With LEDs	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

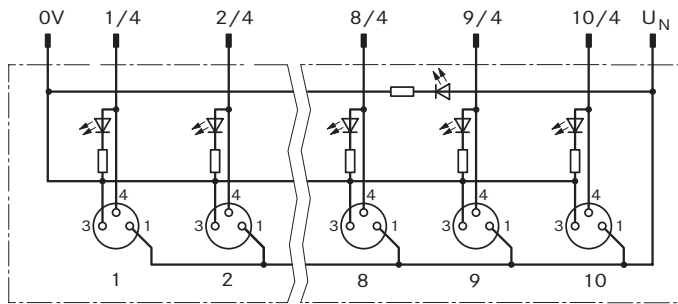
Photographs are not to scale and do not represent detailed images of the respective products.

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

Unused female connectors must be covered with protective caps (see accessories)

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

S/A box, M8 slots and master cable connection M16/M12



S/A box, M8 slots and master cable connection M16/M12

Benefits

- Inexpensive and efficient wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- The detachable screw connection ensures universal pluggability and simple on-site assembly

Application range

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

Product features

- With M12/M16 plug-in connection
- Single-occupied sensor/actuator box
- LEDs indicate the operating mode of the distributor and the status of the sensors
- Free of substances that could hinder paint or varnish

Approvals



Suitable cables

- M16 socket with connected master cable see page 77
- M12 socket with connected master cable see page 78

Suitable tools

- Suitable tools are available upon request (e.g. M8 torque screwdriver)

Technical data

IP	Protection rating IP65/IP67
0	Ambient temperature (operation) -30 °C to +80 °C
Amp.	Current rating per slot 2 A

Article number	Article designation	Number of slots	Nominal voltage U_N (V)	SACB total current (A)	Status display	PU
With M16, 8-pin master cable connection						
22260034	AB-B4-M8L-4-M16	4	24	6	With LEDs	1
With M16, 10-pin master cable connection						
22260035	AB-B6-M8L-6-M16	6	24	6	With LEDs	1
With M16, 12-pin master cable connection						
22260036	AB-B8-M8L-8-M16	8	24	6	With LEDs	1
With M16, 14-pin master cable connection						
22260037	AB-B10-M8L-10-M16	10	24	6	With LEDs	1
With M12, 8-pin master cable connection						
22260038	AB-B4-M8L-4-M12	4	24	4	With LEDs	1
22260039	AB-B6-M8L-6-M12	6	24	4	With LEDs	1

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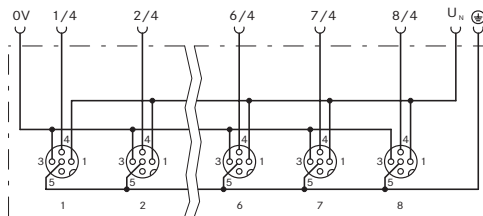
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

Unused female connectors must be covered with protective caps (see accessories)

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

New

S/A box with M12 slots and master cable



S/A box with M12 slots and master cable

■ Benefits

- Inexpensive and efficient wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- The master cable is designed as a hybrid that transmits signals and power.
- There are no assembly costs as the master cable is already pre-assembled

■ Application range

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

■ Product features

- With fixed master cable connection
- Single or double-occupied sensor/actuator box
- With M12 quick-locking system, metal thread
- With LED diagnostic indicator
- Free of substances that could hinder paint or varnish

■ Approvals



■ Design

- PUR/PVC cable
- Fixed flexible control cable
- Outer sheath colour: black

■ Suitable tools

- Suitable tools are available upon request (e.g. M12 torque screwdriver)

■ Technical data

IP	Protection rating IP65/IP67/IP69K
Amp.	Max. current rating per path 2 A
Amp.	Current rating per slot 4 A

Article number	Article designation	Length (m)	Number of slots	Nominal voltage U _N (V)	SACB total current (A)	Status display	PU
Single-occupied boxes, without LEDs							
22260010	AB-B4-M12-4-5,0PUR	5.0	4	120	12	no	1
22260011	AB-B4-M12-4-10,0PUR	10.0	4	120	12	no	1
22260014	AB-B8-M12-8-5,0PUR	5.0	8	120	12	no	1
22260015	AB-B8-M12-8-10,0PUR	10.0	8	120	12	no	1
Single occupied boxes, with LEDs							
22260018	AB-B4-M12L-4-5,0PUR	5.0	4	24	12	With LEDs	1
22260019	AB-B4-M12L-4-10,0PUR	10.0	4	24	12	With LEDs	1
22260970	AB-B6-M12L-6-5,0PUR	5.0	6	24	12	With LEDs	1
22260022	AB-B8-M12L-8-5,0PUR	5.0	8	24	12	With LEDs	1
22260023	AB-B8-M12L-8-10,0PUR	10.0	8	24	12	With LEDs	1
Double-occupied boxes, without LEDs							
22260012	AB-B4-M12-8-5,0PUR	5.0	4	120	12	no	1
22260013	AB-B4-M12-8-10,0PUR	10.0	4	120	12	no	1
22260016	AB-B8-M12-16-5,0PUR	5.0	8	120	12	no	1
22260017	AB-B8-M12-16-10,0PUR	10.0	8	120	12	no	1
Double-occupied boxes, with LEDs							
22260020	AB-B4-M12L-8-5,0PUR	5.0	4	24	12	With LEDs	1
22260021	AB-B4-M12L-8-10,0PUR	10.0	4	24	12	With LEDs	1
22260024	AB-B8-M12L-16-5,0PUR	5.0	8	24	12	With LEDs	1
22260025	AB-B8-M12L-16-10,0PUR	10.0	8	24	12	With LEDs	1

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

Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

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

Unused female connectors must be covered with protective caps (see accessories)

For detailed technical information please refer to the data sheet (www.lappautomation.com). For the type code, please refer to table T6.

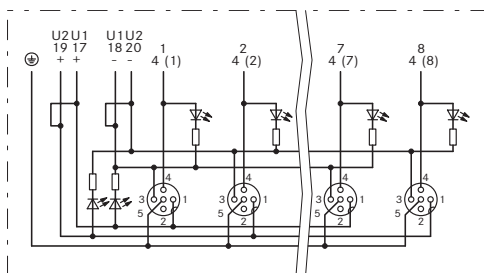
UL approvals can be found in the data sheet (www.lappautomation.com)

S/A box with M12 slots and master cable connection



Info

- For individual master cable assembly



S/A box with M12 slots and master cable connection

Benefits

- Inexpensive and efficient wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- The detachable screw connection ensures universal pluggability and simple on-site assembly

Application range

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

Product features

- With detachable screw connection
- Single or double-occupied sensor/actuator box
- With M12 quick-locking system, metal thread
- With LED diagnostic indicator
- Free of substances that could hinder paint or varnish

Approvals



Suitable cables

- UNITRONIC® SENSOR master cable bulk stock see page 76

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 156
- Suitable tools are available upon request (e.g. M12 torque screwdriver)

Technical data

IP	Protection rating IP65/IP67/IP69K
0	Ambient temperature (operation) -30 °C to +80 °C
Amp.	Max. current rating per path 2 A
Amp.	Current rating per slot 4 A

Article number	Article designation	Number of slots	Nominal voltage U_N (V)	SACB total current (A)	Status display	PU
Single-occupied boxes, without LEDs, 4 slots, 1.)						
22260005	AB-B4-M12-4-C	4	120	10	no	1
Single-occupied boxes, without LEDs, 8 slots, 2.)						
22260007	AB-B8-M12-8-C	8	120	10	no	1
Single-occupied boxes, with LEDs, 4 slots, 1.)						
22260001	AB-B4-M12L-4-C	4	24	10	With LEDs	1
Single-occupied boxes, with LEDs, 8 slots, 2.)						
22260003	AB-B8-M12L-8-C	8	24	10	With LEDs	1
Double-occupied boxes, without LEDs, 4 slots, 2.)						
22260006	AB-B4-M12-8-C	4	120	10	no	1
Double-occupied boxes, without LEDs, 8 slots, 3.)						
22260008	AB-B8-M12L-16-C	8	120	10	no	1
Double-occupied boxes, with LEDs, 4 slots, 2.)						
22260002	AB-B4-M12L-8-C	4	24	10	With LEDs	1
Double-occupied boxes, with LEDs, 8 slots, 3.)						
22260004	AB-B8-M12L-16-C	8	24	10	With LEDs	1

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.

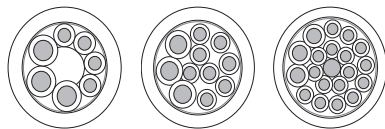
Unused female connectors must be covered with protective caps (see accessories)

For detailed technical information please refer to the data sheet (www.lappautomation.com). For the type code, please refer to table T6.

1.) Compatible master cable: 7038880; 2.) Compatible master cable: 7038881; 3.) Compatible master cable: 7038882

New

UNITRONIC® SENSOR master cable bulk stock



Info

- Customised construction can be supported

■ Benefits

- Inexpensive and efficient wiring for S/A boxes with detachable master cable connection
- Can be used universally for S/A installations

■ Application range

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

■ Product features

- Cores for Power Supply:
3 x 0.75 mm² and 3 x 1.0 mm²
- Cores for Signalling cable:
4 x 0.34 mm², 8 x 0.5 mm², 16 x 0.5 mm²
- Suitable for drag chains
- Halogen-free

■ Design

- UNITRONIC® SENSOR Li9Y11 COMBI
Conductor: bare copper strand, single wire diameter: 0.1 mm for 0.34 mm², 0.18 mm for 0.5 mm², 0.205 mm for 0.75 mm², 0.15 mm for 1.0 mm². Core insulation: halogen-free PP, outer sheath: halogen-free PUR acc. to DIN VDE 0250 part 818.
- Outer sheath colour: black (similar to RAL 9005)
Core colors: see data sheet
- AWM UL Style 21198, 80°C / 300V

Article number	Article designation	Dimensions (mm ²)	Outer diameter (mm)	Core/outer sheath material	Colour	Copper index (kg/km)
UNITRONIC® SENSOR COMBI						
7038880	Li9Y11Y	3 x 0.75 + 4 x 0.34	6.6	PP/PUR	black	34.5
7038881	Li9Y11Y	3 x 1.0 + 8 x 0.5	8.4	PP/PUR	black	67.2
7038882	Li9Y11Y	3 x 1.0 + 16 x 0.5	9.8	PP/PUR	black	105.6

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 Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Packaging size: Coil 100m

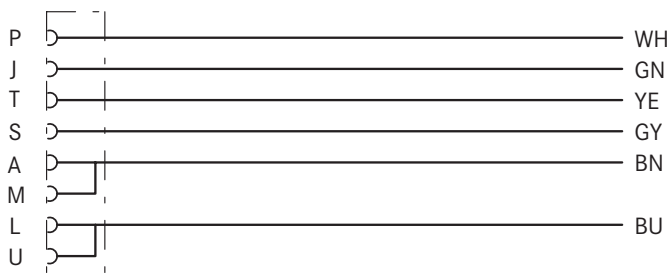
Cables are printed

Other variations are available upon request.

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 (www.lappautomation.com)

M 16 socket with connected master cable



M 16 socket with connected master cable

Benefits

- Connecting cable for M8 boxes with 4 to 10 slots
- M 16 connection

Application range

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

Product features

- Angled socket with M 16 thread
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- PUR/PVC cable
- Fixed flexible control cable
- Outer sheath colour: black
- Core cross-section for power supply: 0.75 mm²
- Core cross-section for signalling cable: 0.34 mm²

Technical data



Protection rating
IP 67



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +90°C
Cable, flexible installation
-5°C to 80°C

Contact material
CuZn

Contact surface material
Ni/Au

Coding
A - Standard

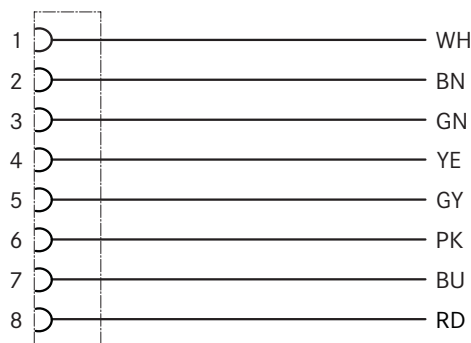
Knurl material
Nickel-plated brass

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	PU
8 pole angled socket, 4 signalling cables, 2 power supply cables					
22260607	AB-C8- 5,0PUR-M 16FA	5	125	4	1
22260608	AB-C8-10,0PUR-M 16FA	10	125	4	1
10-pin angled-socket, 6 signalling cables, 2 power supply cables					
22260609	AB-C 10- 5,0PUR-M 16FA	5	125	4	1
22260610	AB-C 10-10,0PUR-M 16FA	10	125	4	1
12-pin angled socket, 8 signalling cables, 2 power supply cables					
22260611	AB-C 12- 5,0PUR-M 16FA	5	125	4	1
22260612	AB-C 12-10,0PUR-M 16FA	10	125	4	1
14-pin angled socket, 10 signalling cables, 2 power supply cables					
22260613	AB-C 14- 5,0PUR-M 16FA	5	125	4	1
22260614	AB-C 14-10,0PUR-M 16FA	10	125	4	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths are available upon request.
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 (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

M 12 socket with connected master cable



M 12 socket with connected master cable

■ Benefits

- Connecting cable for M8 boxes with 4 to 6 slots
- M 12 connection

■ Application range

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

■ Product features

- Angled socket with M 12 thread
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

■ Approvals



■ Design

- PUR/PVC cable
- Fixed flexible control cable
- Outer sheath colour: black
- Core cross section: 0.25 mm²

■ Technical data



Protection rating
IP65/IP68/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuZn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U _n (V)	Nominal current I _n (A)	PU
8 pole angled socket					
22260615	AB-C8-5,0PUR-M12FA	5	30	2	1
22260616	AB-C8-10,0PUR-M12FA	10	30	2	1

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

Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Customised cable lengths are available upon request.

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 (www.lappautomation.com)

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

Screw plug for unoccupied sockets



Screw plug for unoccupied sockets

Benefits

- Protective cap for unused M8/M12 slots
- Protective cap for unused connectors (e.g. S/A boxes)

Application range

- Automation technology
- Mechanical engineering

- Plant engineering
- Tool shop
- Automotive industry

Product features

- Free of substances that could hinder paint or varnish

Approvals



Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 156

Article number	Article designation	PU
M8		
22260606	AB-B-M8-PC	10
M12		
22260605	AB-B-M12-PC	10

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

Complete connection hood with 4, 6 or 8 slots



Complete connection hood with 4, 6 or 8 slots

Benefits

- Pluggable screw connection as accessory for S/A box with detachable master cable connection
- The detachable screw connection ensures universal pluggability and simple on-site assembly

Application range

- Automation technology

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

Product features

- Accessory for S/A box with detachable master cable connection
- With detachable screw connection

Approvals



Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 156

Article number	Article designation	PU
Accessories		
22260009	AB-B-HC	1

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

New

Field mountable S/A connectors M 12



Field mountable S/A connectors M 12

■ Benefits

- Quick and easy on-site assembly
- Creating individual cable lengths
- Standardised interfaces
- No special tools required for connecting the cables (fast-connect designs)

■ Application range

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

■ Product features

- 4, 5 and 8-pin version
- Screened and non-screened version
- Fast-connect and screw connection design
- Free of substances that could hinder paint or varnish

■ Approvals



■ Suitable cables

- Cable for sensor / actuator components

■ Technical data



Protection rating
IP 65/IP 67 (IDC)
IP 67 (screw)



Ambient temperature (operation)
Plug/socket
-25°C to +80°C (IDC)
-25°C to +85°C (piercing)
-40°C to +85°C (screw)

Contact material
CuZn

Contact surface material
CuSnZn

Coding
A - Standard

Article number	Article designation	Number of pins	Min. conductor cross-section, flexible, in mm ²	Max. conductor cross-section, flexible, in mm ²	Min. cable diameter (mm)	Max. cable diameter (mm)	Nominal voltage U _N (V)	Nominal current I _N in (A)	PU
Straight connector, fast-connect (insulation displacement)									
22260132	AB-C4-M12MS-F0,34	4	0.14	0.34	3.5	6	125	4	1
22260134	AB-C4-M12MS-F0,75	4	0.34	0.75	4	8	250	4	1
Straight connector, screw connection									
22260649	AB-C4-M12MS-PG7	4	0.25	0.75	4	6	250	4	1
22260995	AB-C4-M12MS-PG9	4	0.25	0.75	6	8	250	4	1
22260129	AB-C5-M12MS-PG7	5	0.25	0.75	4	6	60	4	1
22260651	AB-C5-M12MS-PG9	5	0.25	0.75	6	8	60	4	1
22260996	AB-C5-M12MS-PG9-SKINTOP®	5	0.25	0.75	6	8	125	4	1
Straight socket, fast-connect (insulation displacement)									
22260131	AB-C4-M12FS-F0,34	4	0.14	0.34	3.5	6	125	4	1
22260133	AB-C4-M12FS-F0,75	4	0.34	0.75	4	8	250	4	1
Straight socket, screw connection									
22260640	AB-C4-M12FS-PG7	4	0.25	0.75	4	6	250	4	1
22260641	AB-C4-M12FS-PG9	4	0.25	0.75	6	8	250	4	1
22260127	AB-C5-M12FS-PG7	5	0.25	0.75	4	6	60	4	1
22260644	AB-C5-M12FS-PG9	5	0.25	0.75	6	8	60	4	1
22260997	AB-C5-M12FS-PG9-SKINTOP®	5	0.25	0.75	6	8	125	4	1
Angled connector, screw connection									
22260647	AB-C4-M12MA-PG7	4	0.25	0.75	4	6	250	4	1
22260130	AB-C5-M12MA-PG7	5	0.25	0.75	4	6	60	4	1
22260648	AB-C5-M12MA-PG9	5	0.25	0.75	6	8	60	4	1
Angled socket, screw connection									
22260636	AB-C4-M12FA-PG7	4	0.25	0.75	4	6	250	4	1
22260128	AB-C5-M12FA-PG7	5	0.25	0.75	4	6	60	4	1
22260638	AB-C5-M12FA-PG9	5	0.25	0.75	6	8	60	4	1
Straight connector, shielded, screw connection									
22260135	AB-C5-M12MS-PG9-SH	5	0.25	0.75	6	8	60	4	1
22260825	AB-C8-M12MS-PG9-SH	8	0.25	0.75	6	8	30	2	1
Straight socket, shielded, screw connection									
22260136	AB-C5-M12FS-PG9-SH	5	0.25	0.75	6	8	60	4	1
22260826	AB-C8-M12FS-PG9-SH	8	0.25	0.75	6	8	30	2	1

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.

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

IDC = insulation displacement connector

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

New

Field mountable S/A connectors M8



Field mountable S/A connectors M8

Benefits

- Quick and easy on-site assembly
- Creating individual cable lengths
- Standardised interfaces

Application range

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

Product features

- 3 and 4-pin version
- Fast-connect and screw connection design
- Free of substances that could hinder paint or varnish

Approvals



Suitable cables

- Cable for sensor / actuator components

Technical data



Protection rating
IP 65/IP 67 (IDC)
IP 68 (piercing)
IP 67 (screw)



Ambient temperature (operation)
Plug/socket
-25°C to +80°C (IDC)
-25°C to +85°C (piercing)
-40°C to +85°C (screw)

Contact material
CuZn

Contact surface material
Au

Coding
A - Standard

Article number	Article designation	Number of pins	Min. conductor cross-section, flexible, in mm²	Max. conductor cross-section, flexible, in mm²	Min. cable diameter (mm)	Max. cable diameter (mm)	Nominal voltage U _N (V)	Nominal current I _N in (A)	PU
Straight connector, fast-connect (insulation displacement)									
22260993	AB-C3-M8MS-F0,25	3	0.08	0.25	2.5	5	60	4	1
22260985	AB-C3-M8MS-F0,5	3	0.25	0.5	2.5	5	60	4	1
22260043	AB-C4-M8MS-F0,25	4	0.08	0.25	2.5	5	30	4	1
22260044	AB-C4-M8MS-F0,5	4	0.25	0.5	2.5	5	30	4	1
Straight connector, fast-connect (piercing)									
22260122	AB-C3-M8MS-P	3	0.14	0.38	3	5	60	4	1
22260123	AB-C4-M8MS-P	4	0.14	0.38	3	5	30	4	1
Straight connector, screw connection									
22260120	AB-C3-M8MS	3	0.14	0.5	3.5	5	60	4	1
22260121	AB-C4-M8MS	4	0.14	0.5	3.5	5	30	4	1
Straight socket, fast-connect (insulation displacement)									
22260994	AB-C3-M8FS-F0,25	3	0.08	0.25	2.5	5	60	4	1
22260986	AB-C3-M8FS-F0,5	3	0.25	0.5	2.5	5	60	4	1
22260045	AB-C4-M8FS-F0,25	4	0.08	0.25	2.5	5	30	4	1
22260046	AB-C4-M8FS-F0,5	4	0.25	0.5	2.5	5	30	4	1
Straight socket, fast-connect (piercing)									
22260124	AB-C3-M8FS-P	3	0.14	0.38	3	5	60	4	1
22260119	AB-C4-M8FS-P	4	0.14	0.38	3	5	30	4	1
Straight socket, screw connection									
22260125	AB-C3-M8FS	3	0.14	0.5	3.5	5	60	4	1
22260126	AB-C4-M8FS	4	0.14	0.5	3.5	5	30	4	1

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.

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

IDC = insulation displacement connector

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

UNITRONIC® SENSOR



Application range

- Cables for UNITRONIC® field bus sensor/actuator wiring
- Data transmission cable 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 0.34 mm²
1= brown, 2= blue, 3= black
- 4x 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



Design

- 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® LiFY 11Y
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 LiFY 11Y 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-LiFY 11Y	4 x 0.34	4.8	PVC/PUR	black	13.1
7038862	S-LiFY 11Y	5 x 0.25	4.9	PVC/PUR	black	12.0
UNITRONIC® SENSOR FD						
7038864	LiFY 11Y	3 x 0.34	4.6	PP/PUR	black	9.8
7038865	LiFY 11Y	4 x 0.34	4.7	PP/PUR	black	13.0
7038866	LiFY 11Y	5 x 0.34	5.1	PP/PUR	black	16.0
7038867	LiFY 11Y	5 x 0.25	4.7	PP/PUR	black	12.0
7038868	LiFY 11Y	8 x 0.25	5.9	PP/PUR	black	19.0
UNITRONIC® SENSOR FD screened						
7038885	LiFYC 11Y	3 x 0.34	4.6	PP/PUR	black	19.1
7038886	LiFYC 11Y	4 x 0.34	4.7	PP/PUR	black	23.5
7038887	LiFYC 11Y	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 Main Catalogue 2012/13 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 variations are available upon request.

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

New

S/A M 12 flush-type connectors with M 16 fastening thread



S/A M 12 flush-type connectors with M 16 fastening thread

Benefits

- Flexible connection solutions for individual device concepts
- Simple installation in devices (e.g. cabinet)
- Standardised interfaces

Application range

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

Product features

- M 12 panel feed-through with punched-on single litz wires
- Panel feed-through with M 16 fastening thread
- Front wall-mounting
- M 12 A-coded with quick-locking system
- Free of substances that could hinder paint or varnish
- Can be positioned

Approvals



Design

- Halogen-free PUR, single litz wires, l = 0.5 m
- 0,34 mm²

Technical data

IP	Protection rating IP 67
0-1	Ambient temperature (operation) Plug/socket -25 °C to +85 °C
	Contact material CuZn
	Contact surface material Au
	Coding A - Standard

Article number	Article designation	Number of pins	Conductor cross-section (mm ²)	Nominal voltage U _N (V)	Nominal current I _N in (A)	PU
M 12 flush-type connector pin for front-mounting ^{1.)}						
22260108	AB-C4-M 12MS-M 16-0,5	4	0.34	250	4	1
22260106	AB-C5-M 12MS-M 16-0,5	5	0.34	60	4	1
M 12 flush-type connector pin for front-mounting, can be positioned ^{1.)}						
22260083	AB-C4-M 12MS-M 16-PO-0,5	4	0.34	250	4	1
22260084	AB-C5-M 12MS-M 16-PO-0,5	5	0.34	60	4	1
M 12 flush-type connector socket for front-mounting ^{1.)}						
22260107	AB-C4-M 12FS-M 16-0,5	4	0.34	250	4	1
22260105	AB-C5-M 12FS-M 16-0,5	5	0.34	60	4	1
M 12 flush-type connector socket for front-mounting, can be positioned ^{1.)}						
22260085	AB-C4-M 12FS-M 16-PO-0,5	4	0.34	250	4	1
22260086	AB-C5-M 12FS-M 16-PO-0,5	5	0.34	60	4	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
 Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/ 13 Appendix T17 for the definition and calculation of copper-related surcharges.
 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 (www.lappautomation.com)
 For the UNITRONIC® field bus type code, please see Main Catalogue 2012/ 13 table T6
 1.) with quick-locking system

New

S/A M12 flush-type connectors with PG9 fastening thread



S/A M12 flush-type connectors with PG9 fastening thread

Benefits

- Flexible connection solutions for individual device concepts
- Simple installation in devices (e.g. cabinet)
- Standardised interfaces

Application range

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

Product features

- M12 panel feed-through with punched-on single litz wires
- Panel feed-through with PG9 fastening thread
- Designs for front and rear wall-mounting
- Free of substances that could hinder paint or varnish
- Can be positioned

Approvals



Design

- Halogen-free PUR, single litz wires, l = 0.5 m
- 0,34 mm²

Technical data



Protection rating
IP 67



Ambient temperature (operation)
Plug/socket
-25°C to +85°C

Contact material
CuZn

Contact surface material
Au

Coding
A - Standard

Article number	Article designation	Number of pins	Conductor cross-section (mm ²)	Nominal voltage U _N (V)	Nominal current I _N in (A)	PU
M12 flush-type connector pin for rear-mounting (fitting nut included) ^{1.)}						
22260117	AB-C4-DSI-M12MS-PG9-0,5	4	0.34	250	4	1
22260115	AB-C5-DSI-M12MS-PG9-0,5	5	0.34	60	4	1
M12 flush-type connector socket for rear-mounting (fitting nut included) ^{1.)}						
22260118	AB-C4-DSI-M12FS-PG9-0,5	4	0.34	250	4	1
22260116	AB-C5-DSI-M12FS-PG9-0,5	5	0.34	60	4	1
M12 flush-type connector pin for front-mounting ^{1.)}						
22260113	AB-C4-M12MS-PG9-0,5	4	0.34	250	4	1
22260112	AB-C5-M12MS-PG9-0,5	5	0.34	60	4	1
M12 flush-type connector pin for front-mounting, can be positioned ^{1.)}						
22260087	AB-C4-M12MS-PG9-PO-0,5	4	0.34	250	4	1
22260088	AB-C5-M12MS-PG9-PO-0,5	5	0.34	60	4	1
M12 flush-type connector socket for front-mounting ^{1.)}						
22260114	AB-C4-M12FS-PG9-0,5	4	0.34	250	4	1
22260111	AB-C5-M12FS-PG9-0,5	5	0.34	60	4	1
M12 flush-type connector socket for front-mounting, can be positioned ^{1.)}						
22260089	AB-C4-M12FS-PG9-PO-0,5	4	0.34	250	4	1
22260090	AB-C5-M12FS-PG9-PO-0,5	5	0.34	60	4	1

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

Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

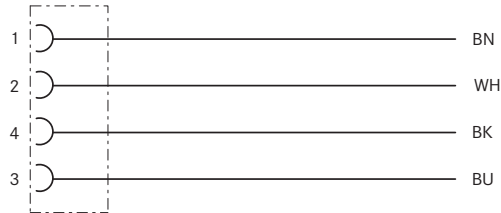
Photographs are not to scale and do not represent detailed images of the respective products.

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

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

1.) with quick-locking system

S/A M8 flush-type connectors



S/A M8 flush-type connectors

Benefits

- Flexible connection solutions for individual device concepts
- Simple installation in devices (e.g. cabinet)
- Standardised interfaces

Application range

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

Product features

- M8 panel feed-through with punched-on single litz wires

- Panel feed-through with M8 fastening thread
- Front wall-mounting
- Protection rating: IP65/IP67
- Free of substances that could hinder paint or varnish

Approvals



Design

- Halogen-free PUR, single litz wires, l = 0.5 m
- 0,25 mm²

IP	Protection rating IP 67
0	Ambient temperature (operation) Plug/socket -25°C to +85°C
	Contact material Copper alloy
	Contact surface material Au
	Coding A - Standard

Article number	Article designation	Number of pins	Conductor cross-section (mm ²)	Nominal voltage U _N (V)	Nominal current I _N in (A)	PU
M8 flush-type connector pin for front-mounting						
22260100	AB-C3-M8MS-0,5	3	0.25	60	4	1
22260101	AB-C4-M8MS-0,5	4	0.25	30	4	1
M8 flush-type connector socket for front-mounting						
22260102	AB-C3-M8FS-0,5	3	0.25	60	4	1
22260103	AB-C4-M8FS-0,5	4	0.25	30	4	1

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

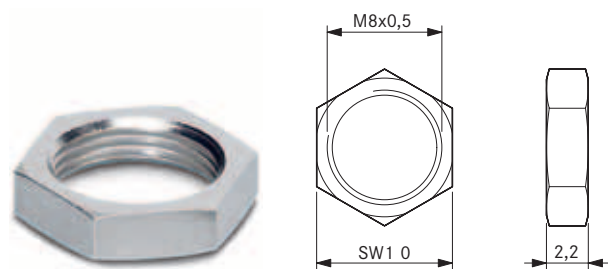
Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/ 13 Appendix T17 for the definition and calculation of copper-related surcharges.

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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 Main Catalogue 2012/ 13 table T6

Fitting nut for flush-type connectors



Fitting nut for flush-type connectors

■ Benefits

- Flat nut as accessory for flush-type connectors

■ Product features

- Material: nickel-plated brass

■ Approvals



Article number	Article designation	PU
M8 thread (M8 x 0.5 - SW 10), h = 2.2 mm		
22260104	AB-C-M8-CN	100
PG9 thread (PG9 - SW 18), h = 2.8 mm		
22260109	AB-C-PG9-CN	100
M16 thread (M16 x 1.5 - SW 19), h = 2.8 mm		
22260110	AB-C-M16-CN	100
M12 thread, EMC version (M12x1-SW 15), h=4.7 mm		
22261062	AB-C-M12-CN-SH	100

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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 (www.lappautomation.com)

AS-Interface Modules (IP67)



Info

- With M12 quick-locking system, metal thread
- AS-Interface installation without tools



AS-Interface Modules (IP67)

Benefits

- Standardised interfaces
- For decentralised automation
- Space-saving due to compact dimensions
- Easy to install
- Fast and easy error tracking

Application range

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

Product features

- AS-Interface module slave
- Integration of field bus activation and input/output level
- Digital inputs/outputs with M12 or M8 connection method for sensors/actuators
- Flat cable penetration technique as connection type for M12 module
- M12 connection type for M8 modules
- LED diagnostic and status indicators
- Short circuit/overload protection

Approvals



Suitable cables

- UNITRONIC® BUS ASI see page 25
- UNITRONIC® BUS ASI FD see page 26

Suitable tools

- Suitable tools are available upon request (e.g. M12 torque screwdriver)

Technical data

Fieldbus system
AS-Interface

Connection type
Flat cable penetration technique/M12 connection type

Installation
Panel mounting for M12/M8 modules
Top-hat rail (35 mm) for M12 modules

Number of pins
2



Protection rating
IP67

Protection class
III



Ambient temperature (operation)
-25 °C to +70 °C

Temperature (storage/transport)
-25 °C to +85 °C

Supply voltage
26.5 V DC PELV to 31.6 V DC PELV

Article number	Article designation	Connection systems (sensor/actuator)	Number of inputs	Number of outputs	Slave type	AS-i specification	Master specification	PU
With digital inputs/outputs, M8, total current: 4 A								
22260759	AB-ASI-M12-DI4DO4-M8-1A	2, 3-wire	4	4	Single-Slave	2	>= 2.0	1
With digital inputs/outputs, M12, total current: 4 A								
22260755	AB-ASI-DI2DO2-M12-2A	2, 3, 4-wire	2	2	A/B-Slave	2.1	>= 2.0	1
22260756	AB-ASI-DI4DO3-M12-2A	2, 3, 4-wire	4	3	A/B-Slave	2.1	>= 2.0	1
22260757	AB-ASI-DI4DO4-M12-2A	2, 3, 4-wire	4	4	A/B-Slave	3	>= 3.0	1
With digital inputs, M8								
22260758	AB-ASI-M12-DI4-M8	2, 3-wire	4		Single-Slave	2	>= 2.0	1
With digital inputs, M12								
22260753	AB-ASI-DI4-M12	2, 3, 4-wire	4		A/B-Slave	2.1	>= 2.0	1
With digital outputs, M12, total current: 4 A								
22260754	AB-ASI-DO4-M12-2A	2, 3-wire		4	Single-Slave	2	>= 2.0	1

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

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

Unused female connectors must be covered with protective caps (see accessories)

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

AS-Interface Modules (IP30)



Info

- Fully industrialised

AS-Interface Modules (IP30)

Benefits

- Standardised interfaces
- For decentralised automation
- Space-saving due to compact dimensions
- Easy to install
- Fast and easy error tracking

Application range

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

Product features

- AS-Interface module slave
- Integration of field bus activation and input/output level
- Metal housing
- Connection by optional screw-plug terminals or spring-plug terminals
- Digital inputs/outputs for connecting sensors/actuators
- LED diagnostic and status indicators
- Short circuit/overload protection

Approvals



Suitable cables

- UNITRONIC® BUS ASI see page 25
- UNITRONIC® BUS ASI FD see page 26

Technical data

Fieldbus system
AS-Interface



Dimensions W x H x D (mm)
105 mm x 22.5 mm x 85 mm

Connection type

Plug-in connection for screw-plug terminals or spring-plug terminals

Installation

Top-hat rail (35 mm)



Protection rating
IP30

Protection class
II



Ambient temperature (operation)
-25°C to +60°C

Temperature (storage/transport)
-40°C to +85°C

Permissible humidity (storage/transport)
max. 95 %, not condensing

Supply voltage
26.5 V DC to 31.6 V DC

Article number	Article designation	Connection systems (sensor/actuator)	Number of inputs	Number of outputs	Slave type	AS-i specification	Master specification	PU
4 outputs, 3A relay								
22260807	AB-ASI-DI4DOR4-3A	2, 3-wire	4	4	Single-Slave	3.01	>= 3.0	1
4 outputs 2A								
22260808	AB-ASI-DI4DO4-2A	2, 3-wire	4	4	Single-Slave	3.01	>= 3.0	1
8 Outputs 2A								
22260809	AB-ASI-DI8DO8-2A	2, 3-wire	8	8	Single-Slave	3.01	>= 3.0	1

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

Plug terminals are not included, but can be purchased as an accessory.

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)

Other AS-Interface modules available on request

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6



Info

- With M12 quick-locking system, metal thread

PROFIBUS Modules



PROFIBUS Modules

■ Benefits

- Standardised interfaces
- For decentralised automation
- Space-saving due to compact dimensions
- Easy to install
- Fast and easy error tracking

■ Application range

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

■ Product features

- PROFIBUS interface
- Integration of field bus activation and input/output level
- Connection to PROFIBUS DP using M12 connectors (B-coded)
- Digital inputs/outputs with M12 connection method for sensors/actuators
- LED diagnostic and status indicators
- Flexible power supply concept
- Short circuit/overload protection

■ Approvals



■ Suitable cables

- PROFIBUS cable: M12 connector on free conductor end see page 95
- PROFIBUS Cable: M12 connector M12 on M12 socket see page 96

■ Suitable tools

- Suitable tools are available upon request (e.g. M12 torque screwdriver)

■ Technical data

Fieldbus system
PROFIBUS-DP

Transmission speed
12 MBit/s
Automatic baud rate detection

Transmission physics
PROFIBUS-DP-compliant copper cable

Space allocated for address
1 ... 99, can be set from front side

Connection type
2 M12 plug connectors, B-coded

Installation
Panel mounting

Number of pins
5



Protection rating
IP65/IP67 according to IEC 60529

Protection class
Class 3 as per VDE 0106, IEC 61440



Ambient temperature (operation)
-25 °C to +60 °C

Temperature (storage/transport)
-25 °C to +85 °C

Permissible humidity (storage/transport)
95 %

Transmission rate
9.6 Kbaud to 12 Mbaud automatic detection

Supply voltage
24V DC

Article number	Article designation	Connection systems (sensor/actuator)	Number of inputs	Number of outputs	Maximum output current per channel (A)	PU
With digital inputs/outputs						
22260740	AB-PB-DI4DO4-M12-2A	2, 3, 4-wire	4	4	2	1
22260762	AB-PB-DI8DO8-M12-0,5A	2, 3, 4-wire	8	8	0.5	1
With digital inputs						
22260738	AB-PB-DI8-M12	2, 3, 4-wire	8			1
22260739	AB-PB-DI16-M12	2, 3, 4-wire	16			1
With digital outputs						
22260742	AB-PB-DO8-M12-2A	2, 3-wire		8	2	1

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For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

Unused female connectors must be covered with protective caps (see accessories)

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

DeviceNet Modules



DeviceNet Modules

Benefits

- Standardised interfaces
- For decentralised automation
- Space-saving due to compact dimensions
- Easy to install
- Fast and easy error tracking

Application range

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

Product features

- DeviceNet Interface
- Integration of field bus activation and input/output level
- Connection to DeviceNet™ using M12 connectors (A-coded)
- Digital inputs/outputs with M12 connection method for sensors/actuators
- LED diagnostic and status indicators
- Flexible power supply concept
- Short circuit/overload protection

Approvals



Suitable cables

- DeviceNet/CANopen Cable, M12 connector on free conductor end see page 97
- S/A DeviceNet/CANopen cable, M12 connector on M12 socket see page 98

Suitable tools

- Suitable tools are available upon request (e.g. M12 torque screwdriver)



Info

- With M12 quick-locking system, metal thread

Technical data

Fieldbus system
DeviceNet

Transmission speed
125 kBit/s, 250 kBit/s, 500 kBit/s
Automatic baud rate detection

Transmission physics
Copper cable in acc. with 176524 specification

Space allocated for address
0 ... 63, can be set

Connection type
2 M12 plug connectors, A-coded

Installation
Panel mounting

Number of pins
5



Protection rating
IP65/IP67

Protection class
Class 3 as per VDE 0106, IEC 61440



Ambient temperature (operation)
-25 °C to +60 °C

Temperature (storage/transport)
-25 °C to +85 °C

Permissible humidity (storage/transport)
95 %

Transmission rate
125 kBaud, 250 kBaud, 500 kBaud automatic detection

Supply voltage
24V DC

Article number	Article designation	Connection systems (sensor/actuator)	Number of inputs	Number of outputs	Maximum output current per channel (A)	PU
With digital inputs/outputs						
22260745	AB-DN-DI4DO4-M12-2A	2, 3, 4-wire	4	4	2.0	1
22260763	AB-DN-DI8DO8-M12-0,5A	2, 3, 4-wire	8	8	0.5	1
With digital inputs						
22260743	AB-DN-DI8-M12	2, 3, 4-wire	8			1
22260744	AB-DN-DI16-M12	2, 3, 4-wire	16			1
With digital outputs						
22260747	AB-DN-DO8-M12-2A	2, 3-wire		8	2.0	1

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

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

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

Unused female connectors must be covered with protective caps (see accessories)

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



Info

- With M12 quick-locking system, metal thread

CANopen Modules



CANopen Modules

Benefits

- Standardised interfaces
- For decentralised automation
- Space-saving due to compact dimensions
- Easy to install
- Fast and easy error tracking

Application range

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

Product features

- CANopen Interface
- Integration of field bus activation and input/output level
- Connection to CANopen using M12 connectors (A-coded)
- Digital inputs/outputs with M12 connection method for sensors/actuators
- LED diagnostic and status indicators
- Flexible power supply concept
- Short circuit/overload protection

Approvals



Suitable cables

- DeviceNet/CANopen Cable, M12 connector on free conductor end see page 97
- S/A DeviceNet/CANopen cable, M12 connector on M12 socket see page 98

Suitable tools

- Suitable tools are available upon request (e.g. M12 torque screwdriver)

Suitable connectors

- EPIC® Data Connectors see Main Catalogue 2012/13 page 330

Technical data

Fieldbus system
CANopen

Transmission speed
10, 20, 50, 125, 250, 500, 1000 kBit/s
Automatic baud rate detection

Transmission physics
Copper cable with optional power supply in acc. with CAN standard

Space allocated for address
1 ... 126, can be set

Connection type
2 M12 plug connectors, A-coded

Installation
Panel mounting

Number of pins
5



Protection rating
IP65/IP67

Protection class
Class 3 as per VDE 0106, IEC 61440



Ambient temperature (operation)
-25 °C to +60 °C

Temperature (storage/transport)
-25 °C to +85 °C

Permissible humidity (storage/transport)
95 %

Transmission rate
Maximum 1 Mbaud automatic detection

Supply voltage
24V DC

Article number	Article designation	Connection systems (sensor/actuator)	Number of inputs	Number of outputs	PU
With digital inputs/outputs					
22260750	AB-CAN-DI4DO4-M12-2A	2, 3, 4-wire	4	4	1
22260764	AB-CAN-DI8DO8-M12-0,5A	2, 3, 4-wire	8	8	1
With digital inputs					
22260748	AB-CAN-DI8-M12	2, 3, 4-wire	8		1
22260749	AB-CAN-DI16-M12	2, 3, 4-wire	16		1
With digital outputs					
22260752	AB-CAN-DO8-M12-2A	2, 3-wire		8	1

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

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

Unused female connectors must be covered with protective caps (see accessories)

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

AS-Interface Distributor



AS-Interface Distributor



Info

- Adapter for data and power supply

Benefits

- Inexpensive and efficient wiring for AS-Interface installations
- Space-saving due to compact dimensions
- Easy to install
- Standardised interfaces

Application range

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

Product features

- Passive AS-Interface distributor for 1 or 2 AS-Interface flat cables
- Distributor with integrated M12 socket (A-coded)
- H distributor for distribution from 1 to 2 flat cables
- Distributor with round cable and M12 socket (A-coded)
- Colour: black
- Rated current ≤ 4 A
(H-distributor: $I \leq 8$ A)

Approvals



Design

- Fixed flexible control cable
- Design: 4×0.34 mm² (42×0.1 mm)
- Core colours: brown, white, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Suitable cables

- UNITRONIC® BUS ASI see page 25
- UNITRONIC® BUS ASI FD see page 26

Technical data

Fieldbus system

AS-Interface

Connection type

Flat cable penetration technique

Installation

Panel mounting



Protection rating

IP 67
(H-distributor: IP69k)

Ambient temperature (operation)

-25°C to +75°C

Article number	Article designation	PU
Distributor with 1 flat cable and integrated 2-pin M12 socket		
22260800	AB-ASI-J-Y-N-M12FS	1
Distributor with 2 flat cables and integrated 4-pin M12 socket		
22260801	AB-ASI-J-Y-B-M12FS	1
H distributor for distribution from 1 to 2 flat cables		
22260802	AB-ASI-J-Y-Y-N	1
Distributor with 1 flat cable, and 1 m PUR round cable to straight 2-pin M12 socket		
22260803	AB-ASI-J-Y-N-PUR-1,0-M12FS	1
Distributor with 1 flat cable, and 2 m PUR round cable to straight 2-pin M12 socket		
22260804	AB-ASI-J-Y-N-PUR-2,0-M12FS	1
Distributor with 2 flat cables, and 1 m PUR round cable to straight 4-pin M12 socket		
22260805	AB-ASI-J-Y-B-PUR-1,0-M12FS	1
Distributor with 2 flat cables, and 2 m PUR round cable to straight 4-pin M12 socket		
22260806	AB-ASI-J-Y-B-PUR-2,0-M12FS	1

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Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

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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 Main Catalogue 2012/13 table T6

AS-Interface counter module



Info

- Universal AS-Interface counter module



AS-Interface counter module

Benefits

- Standardised interfaces
- Easy to install
- Fast and easy assembly
- Compact AS-Interface counter module for counting events, distance and speed measurement

Application range

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

Product features

- Set-point value of counter reading and pre-switching value can be parameterised via AS-Interface
- Output switching action selectable if preset value is reached
- Detect goods to be counted or measured with any 2 or 3-wire binary sensor
- AS-Interface Version 3.0
- Connection by optional screw-plug terminals or spring-plug terminals

Approvals



Technical data

Fieldbus system
AS-Interface

Connection type

Plug-in connection for screw-plug terminals or spring-plug terminals

Installation

Top-hat rail (35 mm)



Protection rating
IP 20

Protection class
II



Ambient temperature (operation)
-25 °C to +60 °C

Article number	Article designation	PU
22260810	AB-ASI-C	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Plug terminals are not included, but can be purchased as an accessory.

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)

AS-Interface power supply



Info

- Fully industrialised



Benefits

- Compact AS-Interface power supply for mounting on top-hat rail
- Easy to install
- Space-saving due to compact dimensions
- For small AS-Interface networks

Application range

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

Product features

- Supplies a nominal output current of $I_N = 1.0 \text{ A}$
- Primary voltage range: 85 to 265 V AC (50/60 Hz)
- AS-Interface voltage: 29.5 to 31.6 V DC PELV (acc. to IEC61640)
- AS-Interface Specification 3.01
- Short circuit/overload protection

Approvals



Technical data

Fieldbus system
AS-Interface

Connection type

Cage clamp termination: 0.3 - 3.5 mm²

Installation

Top-hat rail (35 mm)



Protection rating
IP 20

Protection class
II



Ambient temperature (operation)
-10 °C to +60 °C

Temperature (storage/transport)
-25 °C to +85 °C

Article number	Article designation	PU
22260812	AB-ASI-PS-1A	1

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.

PELV ("protective extra low voltage" according to IEC61640)

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

AS-Interface network extension



Benefits

- Extension of AS-Interface network lengths without additional repeaters
- Every topology is possible
- Standardised interfaces
- Easy to install

Application range

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

Product features

- AS-Interface network lengths of 100 m to 200 m without repeaters

- Under-voltage limit detection (threshold: app. 26.5 V) flashes if supply voltage is too low.
 - Alarm indication by flashing LED (Part: 22260813)
 - Alarm indication occurs remotely via the AS-Interface to the master (Part: 22260814)
- AS-Interface Specification 3.01
- Diameter: 20 mm; Height: 45 mm
- Can be screwed directly to AS-Interface distributor (see accessories)

Approvals



Design

- Compact design (Z plug)



Info

- With integrated under-voltage limit detection

Technical data

Fieldbus system
AS-Interface

Connection type
M12 A-coded connectors

Installation
Screw termination

Number of pins
4



Protection rating
IP 67



Ambient temperature (operation)
-25°C to +70°C

Article number	Article designation	PU
With optical voltage indication by green LED		
22260813	AB-ASI-NE200LED	1
With voltage control via response to the master (without LED)		
22260814	AB-ASI-NE200	1

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AS-Interface plug terminals



Benefits

- Easy to assemble
- Fast-connect adapter terminals
- Enables individual use as tension or screw plug terminals
- Flexible connection solutions

Application range

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

Product features

- Optional plug terminals for AS-Interface module IP20/IP30



Info

- Fully industrialised

- Fast-connect connection type
- 1 packing unit for 12, 16 or 32 contacts
- Black

Approvals



Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 156

Article number	Article designation	PU
AS-Interface screw plug terminals, 2 x 16-pin, 0.14-2.5 mm		
22260815	AB-ASI-XS16	1
AS-Interface screw plug terminals, 4 x 4-pin, 0.14-2.5 mm		
22260817	AB-ASI-XS4	1
AS-Interface screw plug terminals, 4 x 3-pin, 0.14-2.5 mm		
22260041	AB-ASI-XS3	1
AS-Interface tension plug terminals, 8 x 4-pin, 0.2-2.5 mm		
22260816	AB-ASI-XT16	1
AS-Interface tension plug terminals, 4 x 4-pin, 0.2-2.5 mm		
22260818	AB-ASI-XT4	1

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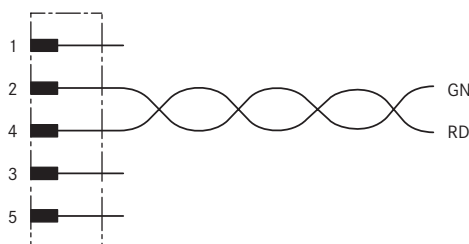
New

PROFIBUS cable: M12 connector on free conductor end



Info

- Pre-assembled PROFIBUS data network cable



PROFIBUS cable: M12 connector on free conductor end

Benefits

- Inexpensive and efficient wiring for PROFIBUS installations
- 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

- 2-pole PROFIBUS cable, shielded
- 5-pin connector, M12 B-coded (inverse) with quick locking system
- Design: socket or plug to free conductor end
- The cables have marker carriers
- Suitable for drag chains

Approvals



Design

- Halogen-free PUR, screened cable
- Fixed flexible control cable
- Design: 19 x 0.13 mm
- Core colours: red, green
- Outer sheath colour: violet

Suitable connectors

- EPIC® Data connectors see page 99
- BUS M12 connectors that can be assembled see page 99

Technical data

Number of pins
2



Protection rating
IP65/IP67/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-20°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
B - inverse

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Core colour
red, green

Outer cable diameter
7,8 mm



Conductor cross-section
0,25 mm²

Outer sheath, colour
violet (RAL 4001)

Outer sheath, material
PUR

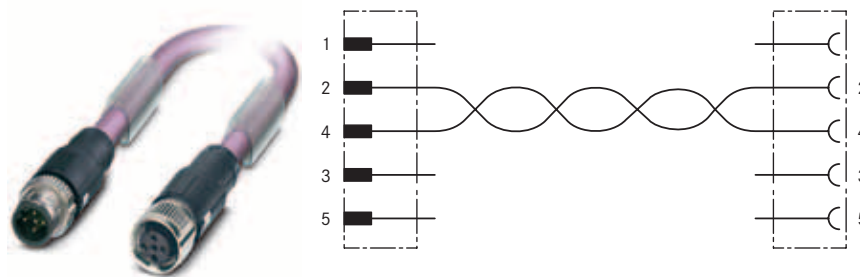
Shielding
Tinned-copper braiding

Article number	Article designation	Length (m)	Nominal current I _N in (A)	Nominal voltage U _N (V)	Number of pins	PU
Straight connector						
22260767	AB-PB-M12MS-2,0PUR	2	4	250	2	1
22260768	AB-PB-M12MS-5,0PUR	5	4	250	2	1
22260769	AB-PB-M12MS-10,0PUR	10	4	250	2	1
Straight socket						
22260770	AB-PB-2,0PUR-M12FS	2	4	250	2	1
22260771	AB-PB-5,0PUR-M12FS	5	4	250	2	1
22260772	AB-PB-10,0PUR-M12FS	10	4	250	2	1
Angled connector						
22260956	AB-PB-M12MA-2,0PUR	2	4	250	2	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths are available upon request.
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 (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

New

PROFIBUS Cable: M 12 connector M 12 on M 12 socket



Info

- PROFIBUS data network cable, ready for connection

PROFIBUS Cable: M 12 connector M 12 on M 12 socket

Benefits

- Inexpensive and efficient wiring for PROFIBUS installations
- 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

- 2-pole PROFIBUS cable, shielded
- 5-pin connector, M12 B-coded (inverse) with quick locking system
- Design: plug to socket
- The cables have marker carriers
- Suitable for drag chains

Approvals



Design

- Halogen-free PUR, screened cable
- Fixed flexible control cable
- Design: 19 x 0.13 mm
- Core colours: red, green
- Outer sheath colour: violet

Suitable connectors

- EPIC® Data PROFIBUS Connectors 90° M12 see Main Catalogue 2012/13 page 323

Technical data

Number of pins
2



Protection rating
IP65/IP67/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-20°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
B - inverse

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Core colour
red, green

Outer cable diameter
7,8 mm



Conductor cross-section
0,25 mm²

Outer sheath, colour
violet (RAL 4001)

Outer sheath, material
PUR

Shielding
Tinned-copper braiding

Article number	Article designation	Length (m)	Nominal current I_n in (A)	Nominal voltage U_n (V)	Number of pins	PU
Straight connector to straight socket						
22260955	AB-PB-M12MS-0,2PUR-M12FS	0.2	4	250	2	1
22260773	AB-PB-M12MS-0,3PUR-M12FS	0.3	4	250	2	1
22260774	AB-PB-M12MS-1,0PUR-M12FS	1	4	250	2	1
22260775	AB-PB-M12MS-2,0PUR-M12FS	2	4	250	2	1
22260776	AB-PB-M12MS-5,0PUR-M12FS	5	4	250	2	1
22260777	AB-PB-M12MS-10,0PUR-M12FS	10	4	250	2	1
Angled plug to angled socket						
22260079	AB-PB-M12MA-5,0PUR-M12FA	5	4	250	2	1
22260904	AB-PB-M12MA-10,0PUR-M12FA	10	4	250	2	1
22260905	AB-PB-M12MA-15,0PUR-M12FA	15	4	250	2	1

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

Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Customised cable lengths are available upon request.

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 (www.lappautomation.com)

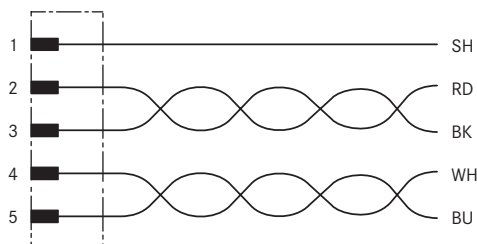
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

DeviceNet/CANopen Cable, M12 connector on free conductor end



Info

- Pre-assembled DeviceNet/CANopen data network cable



DeviceNet/CANopen Cable, M12 connector on free conductor end

Benefits

- Cost-effective and efficient wiring of field bus installations, sensors and actuators
- Space-saving due to compact dimensions
- Robust design
- Standardised interfaces

Application range

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

Product features

- 5-pin DeviceNet/CANopen cable, shielded
- M12 A-coded with quick-locking system
- Straight socket or straight plug to free conductor end
- The cables have marker carriers
- Suitable for drag chains

Approvals



Design

- Halogen-free PUR, screened cable
- Fixed flexible control cable
- Design (signal line): 19 x 0.12 mm
- Core colours: red-black, blue-white

Suitable connectors

- EPIC® Data Connectors see Main Catalogue 2012/13 page 330
- Field mountable S/A connectors M12 see page 80

Technical data



Protection rating
IP65/IP67/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-20°C to +80°C

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Outer cable diameter
6,7 mm



Conductor cross-section
0,2 mm²

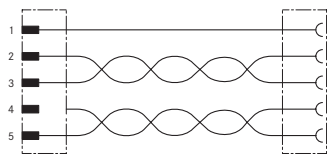
Outer sheath, colour
violet (RAL 4001)

Outer sheath, material
PUR

Article number	Article designation	Length (m)	Nominal voltage U _N (V)	Nominal current I _N in (A)	Number of pins	PU
5-pin straight connector						
22260789	AB-DN-M12MS-2,0PUR	2	60	4	5	1
22260790	AB-DN-M12MS-5,0PUR	5	60	4	5	1
22260791	AB-DN-M12MS-10,0PUR	10	60	4	5	1
5-pin straight socket						
22260792	AB-DN-2,0PUR-M12FS	2	60	4	5	1
22260793	AB-DN-5,0PUR-M12FS	5	60	4	5	1
22260794	AB-DN-10,0PUR-M12FS	10	60	4	5	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths are available upon request.
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 (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A DeviceNet/CANopen cable, M 12 connector on M 12 socket



S/A DeviceNet/CANopen cable, M 12 connector on M 12 socket



Info

- DeviceNet/CANopen data network cable, ready for connection

■ Benefits

- Cost-effective and efficient wiring of field bus installations, sensors and actuators
- 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

- 5-pin DeviceNet/CANopen cable, shielded
- M12 A-coded with quick-locking system
- Straight plug to straight socket
- The cables have marker carriers
- Suitable for drag chains

■ Approvals



DeviceNet™

■ Design

- Halogen-free PUR, screened cable
- Fixed flexible control cable
- Design (signal line): 19 x 0.12 mm
- Design (voltage line): 19 x 0.15 mm
- Core colours: red-black, blue-white

■ Technical data



Protection rating
IP65/IP67/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-20°C to +75°C

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Outer cable diameter
6,7 mm



Conductor cross-section
0,2 mm²

Outer sheath, colour
violet (RAL 4001)

Outer sheath, material
PUR

Article number	Article designation	Length (m)	Nominal voltage U_N (V)	Nominal current I_N in (A)	Number of pins	PU
Straight connector to straight socket						
22260795	AB-DN-M12MS-0,3PUR-M12FS	0.3	60	4	5	1
22260796	AB-DN-M12MS-1,0PUR-M12FS	1	60	4	5	1
22260797	AB-DN-M12MS-2,0PUR-M12FS	2	60	4	5	1
22260798	AB-DN-M12MS-5,0PUR-M12FS	5	60	4	5	1
22260799	AB-DN-M12MS-10,0PUR-M12FS	10	60	4	5	1

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

DeviceNet is a registered trademark of ODVA

Customised cable lengths are available upon request.

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 (www.lappautomation.com)

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

BUS M12 connectors that can be assembled



Info

- For
 - PROFIBUS
 - CANopen
 - DeviceNet
 - PROFINET
 - ETHERNET



BUS M12 connectors that can be assembled

Benefits

- Quick and easy on-site assembly
- Creating individual cable lengths
- Inexpensive and efficient wiring for BUS installations
- Space-saving due to compact dimensions
- Standardised interfaces

Application range

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

Product features

- Screened version
- For CANopen/DeviceNet applications (A-coded)
- For PROFIBUS applications (B-inverse coded)
- For PROFINET applications (D-coded)
- For Ethernet applications (D-coded)

Approvals



Suitable cables

- Cables for BUS-Systems PROFIBUS-DP/FMS/FIP see page 27
- Cables for Bus-System CAN see page 40
- Cables for Bus-System DeviceNet see page 38
- PROFIBUS cable: M12 connector on free conductor end see page 95
- ETHERLINE® 2-pairs CAT.5/5e see page 105

Technical data

Number of pins

5 (PROFIBUS/CANopen/DeviceNet)
4 (PROFINET/ETHERNET)



Protection rating

IP67



Ambient temperature (operation)

Plug/socket
-40°C to +85°C

Contact material

CuSn

Contact surface material

Au (PROFIBUS/CANopen/DeviceNet)
Ni/Au (PROFINET/ETHERNET)

Coding

A - CANopen/DeviceNet
B - inverse (PROFIBUS)
D - data (PROFINET/ETHERNET)

Knurl material

Nickel-plated brass

Gripping body material

Zinc die-cast, nickel-plated

Sealing material

NBR (PROFIBUS/CANopen/DeviceNet)
Neoprene (PROFINET/ETHERNET)

Contact carrier material

PA 66

Nominal voltage U_N

60 V

Nominal current I_N

4 A (PROFIBUS/CANopen/DeviceNet)
1,75 A (PROFINET/ETHERNET)

PG screw connection

PG 9 (PROFIBUS/CANopen/DeviceNet)

Article number	Article designation	Min. conductor cross-section, flexible, in mm ²	Max. conductor cross-section, flexible, in mm ²	Min. conductor cross-section AWG/kcmil	Max. conductor cross-section AWG/kcmil	Min. cable diameter (mm)	Max. cable diameter (mm)	PU
PROFIBUS, 5-pin straight connector, screw connection								
22260653	AB-C5-M12MSB-PG9-SH-AU	0.25	0.75	24	18	6	8.5	1
PROFIBUS, 5-pin straight socket, screw connection								
22260646	AB-C5-M12FSB-PG9-SH-AU	0.25	0.75	24	18	6	8.5	1
PROFINET/ETHERNET, 4-pin straight connector, fast-connection								
22260820	AB-C4-M12MSD-SH	0.14	0.34	26	22	4	8	1
CANopen/DeviceNet, 5-pin straight connector, screw connection								
22260135	AB-C5-M12MS-PG9-SH	0.25	0.75	24	18	6	8	1
CANopen/DeviceNet, 5-pin straight socket, screw connection								
22260136	AB-C5-M12FS-PG9-SH	0.25	0.75	24	18	6	8	1

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

DeviceNet is a registered trademark of ODVA

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

Terminating resistor M12 for DeviceNet/CANopen/PROFIBUS



Info

- Fully industrialised

Terminating resistor M12 for DeviceNet/CANopen/PROFIBUS

Benefits

- Inexpensive termination of BUS cables
- Space-saving due to compact dimensions
- Robust design
- Standardised interfaces

Application range

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

Product features

- Free of substances that could hinder paint or varnish
- For DeviceNet und CANopen applications (A-Standard coded)
- For PROFIBUS applications (B-inverse coded)

Approvals



Design

- Straight connector M12 with integrated termination resistor

Technical data



Protection rating
IP65/IP67/IP69K



Ambient temperature (operation)
Plug/socket
-25°C to +90°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
B - inverse (PROFIBUS)
A - Standard (DeviceNet/CANopen)

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Contact carrier material
TPU GF

Nominal voltage U_N
60 V

Nominal current I_N
4 A

Article number	Article designation	Nominal current I_N in (A)	Nominal voltage U_N (V)	Coding	Number of pins	PU
For PROFIBUS applications (B-inverse coded)						
22260722	AB-C4-M12MS-PB-TR	4	60	B - inverse	4	5
For DeviceNet und CANopen applications (A-Standard coded)						
22260766	AB-C5-M12MS-DN-TR	4	60	A - Standard	5	5

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

DeviceNet is a registered trademark of ODVA

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 (www.lappautomation.com)

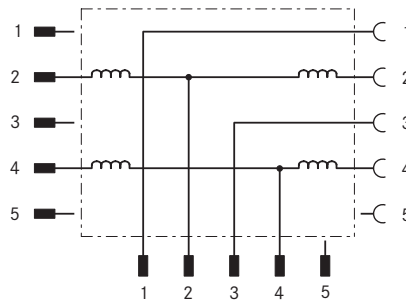
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

M12 T distributor for PROFIBUS



Info

- Fully industrialised



M12 T distributor for PROFIBUS

Benefits

- Inexpensive and efficient wiring for PROFIBUS installations
- Space-saving due to compact dimensions
- Robust design
- Standardised interfaces

Application range

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

Product features

- 4-pin PROFIBUS T-connector
- M12 B-coded (inverse)
- Screened version
- M12 plug to M12 plug and M12 socket
- Free of substances that could hinder paint or varnish

Approvals



Technical data



Protection rating
IP 67



Ambient temperature (operation)
Plug/socket
-25 °C to +80 °C

Contact material
Copper alloy

Contact surface material
Ni/Au

Coding
B - inverse

Knurl material
Nickel-plated brass

Gripping body material
PUR

Sealing material
VITON®

Contact carrier material
PUR

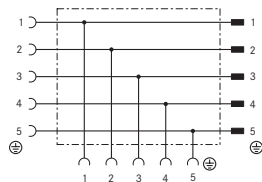
Nominal voltage U_N
60 V

Nominal current I_N
4 A

Article number	Article designation	Nominal current I_N in (A)	Nominal voltage U_N (V)	Number of pins	PU
22260761	AB-C2-M12T-2XM12FS PB	4	30	4	1

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.
For detailed technical information please refer to the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

S/A T-connector M 12 as parallel distributor



S/A T-connector M 12 as parallel distributor



Info

- For DeviceNet and CANopen!

■ Benefits

- Cost-effective and efficient wiring of field bus installations, sensors and actuators
- Space-saving due to compact dimensions
- Robust design
- Standardised interfaces

■ Application range

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

■ Product features

- 5-pin DeviceNet/CANopen T-Connector
- M 12 A-coded
- Parallel distributor with M 12 socket to M 12 plug and M 12 socket
- Free of substances that could hinder paint or varnish

■ Approvals



DeviceNet™

■ Technical data

Number of pins
5



Protection rating
IP65/IP67



Ambient temperature (operation)
Plug/socket
-25°C to +90°C

Contact material
CuZn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Sealing material
NBR

Contact carrier material
TPU GF

Nominal voltage U_N
60 V

Nominal current I_N
4 A

Article number	Article designation	Nominal current I_N in (A)	Nominal voltage U_N (V)	Number of pins	PU
22260765	AB-C5-M12T-2XM12FS DN	4	60	5	5

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

DeviceNet is a registered trademark of ODVA

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 (www.lappautomation.com)

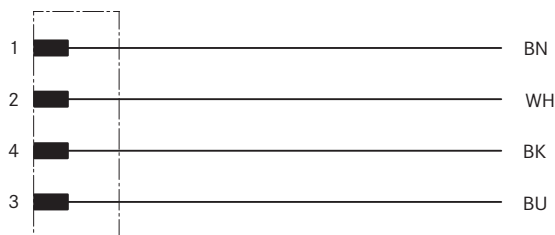
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

Power cable: M12 connector on free conductor



Info

- All-purpose



Power cable: M12 connector on free conductor

Benefits

- Cost-effective and efficient wiring of field bus installations, sensors and actuators
- Space-saving due to compact dimensions
- Customise the construction on the free conductor end
- Standardised interfaces

Application range

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

Product features

- 4-pin power cable for field bus applications
- M12 A-coded with quick-locking system
- Straight plug or straight socket to free conductor end
- The cables have marker carriers
- Suitable for drag chains

Approvals



Design

- PUR outer sheath
- Fixed flexible control cable
- PVC core insulation
- Design: 4 x 0.75 mm² (42 x 0.15 mm)

Suitable connectors

- Field mountable S/A connectors M12 see page 80

Technical data



Protection rating
IP65/IP67/IP69K



Ambient temperature (operation)

Plug/socket
-25°C to +90°C
Cable, fixed installation
-25°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Core colour
brown, white, blue, black

Outer cable diameter
5,9 mm



Conductor cross-section
0,75 mm²

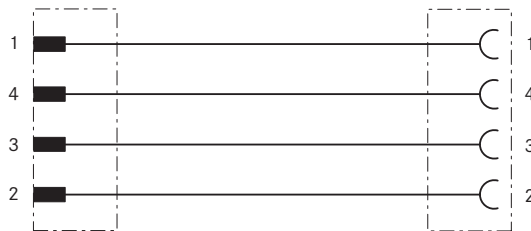
Outer sheath, colour
Black (RAL 9005)

Outer sheath, material
PUR

Article number	Article designation	Length (m)	Nominal current I _N in (A)	Nominal voltage U _N (V)	Number of pins	PU
4-pin straight connector						
22260778	AB-PC4-M12MS-2,0PUR	2	4	250	4	1
22260779	AB-PC4-M12MS-5,0PUR	5	4	250	4	1
22260783	AB-PC4-10,0PUR-M12FS	10	4	250	4	1
4-pin straight socket						
22260781	AB-PC4-2,0PUR-M12FS	2	4	250	4	1
22260782	AB-PC4-5,0PUR-M12FS	5	4	250	4	1
22260780	AB-PC4-M12MS-10,0PUR	10	4	250	4	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to www.lappautomation.com
For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

Power cable: straight M12 connector on straight M12 socket



Info

- All-purpose

Power cable: straight M12 connector on straight M12 socket

Benefits

- Cost-effective and efficient wiring of field bus installations, sensors and actuators
- Space-saving due to compact dimensions
- Fast and easy assembly
- Standardised interfaces

Application range

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

Product features

- 4-pin power cable for field bus applications
- M12 A-coded with quick-locking system
- Straight plug to straight socket
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals



Design

- PUR outer sheath
- Fixed flexible control cable
- PVC core insulation
- Design: 4 x 0.75 mm² (42 x 0.15 mm)

Technical data



Protection rating
IP65/IP67/IP69K

**Ambient temperature (operation)**

Plug/socket
-25°C to +90°C
Cable, fixed installation
-25°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Outer cable diameter
5,9 mm



Conductor cross-section
0,75 mm²

Outer sheath, colour
Black (RAL 9005)

Outer sheath, material
PUR

Article number	Article designation	Length (m)	Nominal current I _N in (A)	Nominal voltage U _N (V)	Number of pins	PU
Straight connector to straight socket						
22260784	AB-PC4-M12MS-0,3PUR-M12FS	0.3	4	250	4	1
22260785	AB-PC4-M12MS-1,0PUR-M12FS	1	4	250	4	1
22260786	AB-PC4-M12MS-2,0PUR-M12FS	2	4	250	4	1
22260787	AB-PC4-M12MS-5,0PUR-M12FS	5	4	250	4	1
22260788	AB-PC4-M12MS-10,0PUR-M12FS	10	4	250	4	1

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

Copper price basis: inclusive of copper. Refer to Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.

Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.

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 (www.lappautomation.com)

For the UNITRONIC® field bus type code, please see Main Catalogue 2012/13 table T6

ETHERLINE® Cat.5e

Fixed installation



Info

- Industrial Ethernet cable
- Cat.5e

Benefits

- Very low installation cost due to the use of Ethernet cables
- Screened against interference

Application range

- 10/100 Mbit/s for Industrial Ethernet
- Seamless communication from the sensor/ actuator level to the Internet
- Industrial use
- Suitable for fixed installation in dry and damp rooms

Product features

- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference



- PUR outer sheath is highly resistant to mineral oils and abrasion
- Halogen-free and flame-retardant FRNC outer sheath

Approvals



Design

- Solid conductor
- Core insulation made of foam skin
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath as either PUR or LSZH
- Colour: water blue (RAL 5021)
- 2 or 4-pair version

Technical data

- Peak operating voltage**
(not for power applications) 125 V
- Minimum bending radius**
Fixed installation: see data sheet
- Test voltage**
Core/core: 1000 V
Core/screen: 500 V
- Temperature range**
During installation: -5 °C to +60 °C
Operation: see data sheet
- Characteristic impedance**
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2-pair version					
Halogen-free compound					
2170280	ETHERLINE® H CAT.5e	2 x 2 x AWG24/1	5.8	22.0	45
PUR outer sheath, halogen-free					
2170281	ETHERLINE® P CAT.5e	2 x 2 x AWG24/1	5.8	22.0	53
4-pair version					
Halogen-free compound					
2170296	ETHERLINE® H CAT.5e	4 x 2 x AWG24/1	6.3	32.0	54
2170298	ETHERLINE® H-H CAT.5e	4 x 2 x AWG24/1	6.0 / 7.5	32.0	80
Outer sheath: PUR, halogen-free					
2170297	ETHERLINE® P CAT.5e	4 x 2 x AWG24/1	6.3	32.0	62

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.

ETHERLINE® Cat.5e FLEX

Flexible use



Info

- Industrial Ethernet cable
- Cat.5e
- Only for patch cable applications (max. 60 m)

Benefits

- For directly connecting two electric components
- Very low installation cost due to the use of Ethernet cables
- Screened against interference

Application range

- Suitable for fixed installation in dry and damp rooms
- 10/100 Mbit/s for Industrial Ethernet
- For flexible applications (7-wire stranded conductor)
- Industrial use

Product features

- Premium screening against electromagnetic interference
- Halogen-free outer sheath
- PUR outer sheath is highly resistant to mineral oils and abrasion

Design

- Stranded conductor, 7-wire, bare
- Core insulation made of foam skin
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath as either PUR or LSZH
- Colour: water blue (RAL 5021)
- 2 or 4-pair version

Technical data

- Peak operating voltage**
(not for power applications) 125 V
- Minimum bending radius**
See data sheet
- Test voltage**
Core/core: 1000 V
Core/screen: 500 V
- Temperature range**
During installation: -5 °C to +60 °C
Operation: see data sheet
- Characteristic impedance**
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2-pair version					
Halogen-free compound					
2170283	ETHERLINE® H Flex CAT.5e	2 x 2 x AWG26/7	5.4	19.0	43
PUR outer sheath, halogen-free					
2170284	ETHERLINE® P Flex CAT.5e	2 x 2 x AWG26/7	5.8	19.0	45
4-pair version					
Halogen-free compound					
2170299	ETHERLINE® H Flex CAT.5e	4 x 2 x AWG26/7	6.1	25.0	48
Outer sheath: PUR, halogen-free					
2170300	ETHERLINE® P Flex CAT.5e	4 x 2 x AWG26/7	6.1	25.0	54

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.

ETHERLINE® Cat.5e FD

Highly flexible application

Benefits

- Very low installation cost due to the use of Ethernet cables
- Screened against interference
- Seamless communication from the sensor/ actuator level to the Internet

Application range

- 10/100 Mbit/s for Industrial Ethernet
- Industrial use
- Power chain applications
- Dry or damp rooms

Product features

- High-quality, double screening ensures high transmission reliability in areas with electro-magnetic interference
- PUR outer sheath is highly resistant to mineral oils and abrasion

Design

- Braided conductor, 19-wire
- Inner sheath: thermoplastic elastomer, halogen-free
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- PUR outer sheath
- Colour: water blue (RAL 5021)
- 2 or 4-pair version

**Info**

- Industrial Ethernet cable
- For highly flexible applications
- Only for patch cable applications (max. 60 m)

Technical data

Peak operating voltage
(not for power applications) 125 V



Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 8 x outer diameter



Test voltage
Core/core: 1000 V
Core/screen: 500 V



Temperature range
Flexing: -20 °C to +70 °C
Fixed installation:
-30 °C to +80 °C



Characteristic impedance
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2-pair version					
2170289	ETHERLINE® FD P CAT.5e	2 x 2 x AWG26/19	6.1	20.0	48
4-pair version					
2170489	ETHERLINE® FD P CAT.5e	4 x 2 x AWG26/19	6.3	27.0	54

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.

ETHERLINE® Cat.5 FD BK

The Ethernet cable for installation in events

LAPP KABEL STUTTGART ETHERLINE® CAT.5 FD BK

Benefits

- Very low installation cost due to the use of Ethernet cables
- Additional application options thanks to suitability for outdoor use, UV-resistant
- Good flexibility - easy installation with tight space requirements
- Screened against interference
- Easy to coil for mobile use

Application range

- Suitable for the transfer of audio signals (ETHERSOUND), light control signals (DMX over Ethernet), or for computer networking

Product features

- ETHERLINE® CAT.5 FD BK is a highly flexible, halogen-free, CATEGORY 5 high-speed data transmission cable, which specifically developed for road environments.
- Complies with standards EIA/TIA-568, TSB-36 and ISO/IEC IS 11801

Approvals**Design**

- Bare stranded copper wire, 26AWG (19 x 0.10), (0.14 mm²)
- Insulation: foam skin, max. core diameter 1.0 mm
- Twisting: 2 twisted-pair cores, stranding from 4 pairs
- Inner sheath: halogen-free TPE compound
- Screening: braided tinned-copper wires, coverage of 85% ± 5
- Outer sheath: halogen-free PUR, black

**Info**

- Suitable for outdoor use and direct burial
- Usable on the roads
- CAT.5-Performance

Technical data

Minimum bending radius
95 mm



Temperature range
Flexible use: -5 °C to +50 °C
Fixed installation: -40 °C to +70 °C

Article number	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
CE217489	4x2xAWG26/19	6.3	27.0	54

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 Main Catalogue 2012/13 Appendix T17 for the definition and calculation of copper-related surcharges.
Standard lengths: (100; 500; 1000) m
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.

ETHERLINE® Cat.5 ARM

Fixed installation



Info

- Industrial Ethernet cable
- With armouring for improved rodent protection



Benefits

- Very low installation cost due to the use of Ethernet cables
- EMC-optimised
- Rodent-protection

Application range

- Can be used for Industrial Ethernet in harsh industrial environments
- 10/100 Mbit/s for Industrial Ethernet

Product features

- CAT.5-Performance

Design

- Solid and bare copper conductor
- Core insulation: PE
- Overlapping plastic tape
- Overall screening with copper braid and plastic-laminated aluminium foil
- Inner sheath made of PVC (green)
- 2 layer galvanizid steel tape
- Outer sheath made of black polyethylene (PE)

Technical data



Minimum bending radius

Fixed installation:
10 x cable diameter
Fixed installation: 5 x cable diameter, once



Test voltage

Core/core: 2000 V
Core/screen: 2000 V



Temperature range

Operation: -40 °C to +70 °C
During installation: -20 °C to +60 °C



Characteristic impedance

100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170496	ETHERLINE® Cat.5 ARM	2 x 2 x AWG22/1	9.3	30.4	124

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.

ETHERLINE® Cat.5 FRNC HYBRID

Flexible use



Info

- HYBRID: cable for data transmission + power supply



Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required

Application range

- Industrial Ethernet cable
- 10/100 Mbit/s for Industrial Ethernet
- High-quality, double screening ensures high transmission reliability in areas with electro-magnetic interference

Product features

- Flame-retardant according to IEC 60332.1.2
- HYBRID: cable for data transmission + power supply

Design

- Colour: green (based on RAL 6018)
- Cores for Power Supply
4 x 1.5 mm² (AWG 16)
- Data transfer: braided conductor, 7-wire, bare
- Screening: wrapped with foil and braided copper wires
- Twisting: data pairs and power supply pairs twisted together
- Overlapping plastic tape
- FRNC outer sheath

Technical data



Minimum bending radius

Fixed installation:
10 x cable diameter
Fixed installation: 5 x cable diameter, once



Test voltage

See data sheet



Temperature range

Operation: -20 °C to +70 °C



Characteristic impedance

100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170887	ETHERLINE® Cat.5 FRNC HYBRID	2x2xAWG22/7 + 4x1.5	10.3	94.2	153

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.

ETHERLINE® PN Cat.5

Fixed installation

LAPP KABEL STUTTGART ETHERLINE CAT.5e

Benefits

- For Profinet applications
- Screened against interference

Application range

- for industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702

Product features

- Fixed installation
- FC: "Fast Connect" cable design

- Flame-retardant according to IEC 60332-1-2

- ETHERLINE® Y FC version: flame-retardant according to IEC 60332-3

Design

- Solid and bare copper conductor
- Core insulation: PE
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC



Info

- Conductor: AWG22 = PROFINET-compliant
- CAT.5/5e

Technical data



Minimum bending radius
See data sheet



Test voltage
See data sheet



Temperature range
See data sheet



Characteristic impedance
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170891	ETHERLINE® PN Cat.5e Y	2 x 2 x AWG22/1	6.4	30.4	56
FC: "Fast Connect" cable design					
2170893	ETHERLINE® Y FC UL/CSA (CMG) CAT.5	2 x 2 x AWG22/1	6.5	30.4	70
Suitable for outdoor use and direct burial					
2170494	ETHERLINE® PN Cat.5e YY	2 x 2 x AWG22/1	7.8	30.4	62

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.

ETHERLINE® PN FLEX

LAPP KABEL STUTTGART ETHERLINE® Flex CAT.5

Benefits

- Screened against interference
- Conductor: AWG22 = PROFINET-compliant

Application range

- for industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702

Product features

- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test

Design

- Stranded 7-wire bare conductor
- Core insulation: PE
- Inner sheath made of PVC
- Overall screening with copper braid and plastic-laminated aluminium foil
- PVC-based outer sheath
- Colour: green



Info

- for Profinet applications
- CAT.5-Performance
- Flexible use

Technical data



Minimum bending radius
Fixed installation: 7 x outer diameter
Fixed installation: 3 x outer diameter



Test voltage
Core/core: 2000 V
Core/screen: 2000 V



Temperature range
Operation: -40 °C to +70 °C



Characteristic impedance
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170886	ETHERLINE® PN Cat.5 Y FLEX FC	2 x 2 x AWG22/7	6.5	31.3	67

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.

ETHERLINE® PN Cat.5 FD

LAPP KABEL STUTTGART ETHERLINE® FD P CAT.5 2x2xAWG22/19

Benefits

- Screened against interference
- Conductor: AWG22 = PROFINET-compliant

Application range

- Power chain applications
- Dry or damp rooms
- Industrial use

Product features

- PUR outer sheath is highly resistant to mineral oils and abrasion

- Flame-retardant according to IEC 60332.1.2

Design

- Stranded 7-wire bare conductor
- Inner sheath: thermoplastic copolymer (FRNC)
- Overall screening with copper braid and plastic-laminated aluminium foil
- PUR outer sheath
- Colour: green (based on RAL 6018)



Info

- Highly flexible application
- for Profinet applications



Minimum bending radius
Flexing: 7.5 x outer diameter
Fixed installation: 5 x cable diameter, once



Test voltage
Core/core: 700 V
Core/screen: 700 V



Temperature range
Operation: -20 °C to +70 °C



Characteristic impedance
100 Ohm +/- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
For highly flexible applications (7-wire stranded conductor) = type C					
2170894	ETHERLINE® FD P FC CAT.5	2 x 2 x AWG22/7	6.5	31.3	63

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

For current information see: www.lappgroup.com

New

ETHERLINE® Y Cat.5e BK 2x2AWG22/7



Benefits

- UV and weather-resistant in black
- For flexible applications (7-wire stranded conductor) = type B
- FAST ETHERNET = 100 Mbit/s

Application range

- Many applications with Industrial Ethernet, e.g. PROFINET type B, i.e. fixed installation and flexible use.
- Resistant to acids, alkalis and certain oils at room temperature

Product features

- PVC compound TM2 acc. to VDE 0281-1 or HD 21.1

Approvals



Design

- Stranded conductor, 7-wire, bare
- Core insulation: Based on Polyolefin
- Star quad
- Aluminum-coated foil
- Screening braid made of tinned-copper wires
- PVC outer sheath

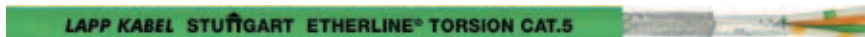
Technical data

- Peak operating voltage**
(not for power applications) 125 V
- Minimum bending radius**
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter
- Test voltage**
Core/core: 1000 V
Core/screen: 500 V
- Temperature range**
Flexing: -10°C to +70°C
Fixed installation: -40°C to +80°C
- Characteristic impedance**
At 1 - 100 MHz: 100 ± 15 Ohm

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170901	ETHERLINE® Y CAT.5e BK 2x2xAWG22/7	2 x 2 x AWG22/7	6.2	30.4	59

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 Main Catalogue 2012/13 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).
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Photographs are not to scale and do not represent detailed images of the respective products.

ETHERLINE® TORSION Cat. 5



Info

- Industrial Ethernet Cable, 2-pair, suitable for torsion stress

Benefits

- This cable is an important supplement to the range of ETHERLINE® Industrial Ethernet cables.
- Cable suitable for high torsion stress. Tested with more than 1 million bending cycles and a right/left movement of 180° per metre.

Application range

- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible and highly flexible use as well as TORSION.

Product features

- Flame-retardant according to IEC 60332.1.2
- Outer sheath with high abrasion-resistance

Approvals



- UL AWM (Style 21161)

Design

- Stranded conductor, tinned
- AWG 22 (19-wire)
- PE core insulation
- Star quad
- PUR outer sheath, halogen-free

Technical data

- Peak operating voltage**
max. 100 V (not for power applications)
- Minimum bending radius**
Installation: 5 x outer diameter
- Test voltage**
700 V
- Temperature range**
-40°C to +80°C
- Characteristic impedance**
At 1 - 100 MHz: 100 ± 15 Ohm

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170888	ETHERLINE® TORSION CAT.5	2 x 2 x AWG22/19	6.5	31.3	52

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 Main Catalogue 2012/13 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).
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Photographs are not to scale and do not represent detailed images of the respective products.

ETHERLINE® Cat.6_A + Cat.7

Fixed installation



■ Benefits

- Screened against interference
- Cat.6_A = 500 MHz
- CAT.7 = 600 MHz

■ Application range

- Can be used for Industrial Ethernet in harsh industrial environments
- Can be used in dry or damp rooms

■ Product features

- PUR outer sheath is highly resistant to mineral oils and abrasion

- Robust, halogen-free outer sheath
- PVC outer sheath

■ Approvals



■ Design

- Solid bare copper wire AWG22
- Core insulation made of polyethylene (PE)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Colour: green

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170466	ETHERLINE® Cat. 6 _A H	4 x 2 x AWG22 / 1	8.7	53.0	99
2170476	ETHERLINE® CAT.7 H	4 x 2 x AWG22 / 1	8.7	53.0	99
2170465	ETHERLINE® CAT. 6 _A P	4 x 2 x AWG22 / 1	8.7	53.0	91
2170475	ETHERLINE® Cat.7 P	4 x 2 x AWG22 / 1	8.7	53.0	91
2170464	ETHERLINE® Cat. 6 _A Y	4 x 2 x AWG22 / 1	8.7	53.0	98
2170474	ETHERLINE® Cat.7 Y	4 x 2 x AWG22 / 1	8.7	53.0	98

Copper price basis: EUR 150/100kg. Refer to Main Catalogue 2012/13 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).

PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)

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

New

ETHERLINE® CAT.6 FD



■ Benefits

- PUR outer sheath is highly resistant to most oils, abrasion, and UV-radiation
- Premium screening against electromagnetic interference

■ Application range

- For use in power chains and moving machinery parts in dry or damp rooms

■ Product features

- Flame-retardant according to IEC 60332.1.2

■ Approvals



- UL/CSA type CMX (UL 444)

■ Design

- Stranded conductor, tinned
- AWG 26 (19-wire)
- PP core insulation
- Inner sheath: thermoplastic copolymer (FRNC)
- PUR outer sheath, halogen-free
- Colour: green (based on RAL 6018)

■ Suitable connectors

- Field-Terminable Connector RJ45 CAT.5e FM45 see Main Catalogue 2012/13 page 418
- Connector RJ45 Cat.6A fieldmountable see Main Catalogue 2012/13 page 419

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170488	ETHERLINE® FD P CAT.6	4 x 2 x AWG26 / 19	7.8	31.7	63

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 Main Catalogue 2012/13 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).

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

For current information see: www.lappgroup.com



Info

- Industrial Ethernet cable

■ Technical data



Characteristic impedance

100 ohm at 1 - 100 MHz



Info

- CAT.6 for drag chain!
- Only for patch cable applications (max. 60 m)

■ Technical data



Peak operating voltage

max. 100 V (not for power applications)



Minimum bending radius

Fixed installation:

4 x outer diameter

Flexing: 7.5 x outer diameter



Test voltage

700 V



Temperature range

Fixed installation: -40°C to +80°C

Flexing: -30°C to +80°C



Characteristic impedance

At 1 - 100 MHz: 100 ± 15 Ohm

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

Application range

- Suitable for use in industrial applications
- For indoor use

- For fixed installation (solid conductor) = type A

Product features

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

Design

- 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
Straight connector on straight connector		
2171001	IE-PNA-5-M 12D-S-1-Y-2-22-1-M 12D-S	2x2
2171002	IE-PNA-5-M 12D-S-2-Y-2-22-1-M 12D-S	2x2
2171003	IE-PNA-5-M 12D-S-3-Y-2-22-1-M 12D-S	2x2
2171004	IE-PNA-5-M 12D-S-5-Y-2-22-1-M 12D-S	2x2
2171005	IE-PNA-5-M 12D-S-10-Y-2-22-1-M 12D-S	2x2
2171006	IE-PNA-5-M 12D-S-20-Y-2-22-1-M 12D-S	2x2
Angled connector on straight connector		
2171013	IE-PNA-5-M 12D-A-1-Y-2-22-1-M 12D-S	2x2
2171014	IE-PNA-5-M 12D-A-2-Y-2-22-1-M 12D-S	2x2
2171015	IE-PNA-5-M 12D-A-3-Y-2-22-1-M 12D-S	2x2
2171016	IE-PNA-5-M 12D-A-5-Y-2-22-1-M 12D-S	2x2
2171017	IE-PNA-5-M 12D-A-10-Y-2-22-1-M 12D-S	2x2
2171018	IE-PNA-5-M 12D-A-20-Y-2-22-1-M 12D-S	2x2

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

Industrial Ethernet PN A Patchcord M 12 on free conductor end



Info

- For PROFINET applications (D-coded)



Industrial Ethernet PN A Patchcord M 12 on free conductor end

Benefits

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

Application range

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

Design

- Solid and bare copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC

Article number	Article designation	Number of pairs and AWG per conductor
Angled connector on free conductor end		
2171019	IE-PNA-5-M 12D-A-1-Y-2-22-1-OE	2x2
2171020	IE-PNA-5-M 12D-A-2-Y-2-22-1-OE	2x2
2171021	IE-PNA-5-M 12D-A-3-Y-2-22-1-OE	2x2
2171022	IE-PNA-5-M 12D-A-5-Y-2-22-1-OE	2x2
2171023	IE-PNA-5-M 12D-A-10-4-2-22-1-OE	2x2
2171024	IE-PNA-5-M 12D-A-20-Y-2-22-1-OE	2x2
straight connector on free conductor end		
2171007	IE-PNA-5-M 12D-S-3-Y-2-22-1-OE	2x2
2171008	IE-PNA-5-M 12D-S-2-Y-2-22-1-OE	2x2
2171009	IE-PNA-5-M 12D-S-3-Y-2-22-1-OE	2x2
2171010	IE-PNA-5-M 12D-S-5-Y-2-22-1-OE	2x2
2171011	IE-PNA-5-M 12D-S-3-Y-2-22-1-OE	2x2
2171012	IE-PNA-5-M 12D-S-20-Y-2-22-1-OE	2x2

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

Industrial Ethernet PN B patchcord M 12



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)

Design

- 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 M 12 D-coded connector on both sides
- Connector with vibration protection

Article number	Article designation	Number of pairs and AWG per conductor
Angled connector on straight connector		
2171037	IE-PNB-5-M12D-S-1-Y-2-22-7-M12D-S	2x2
2171038	IE-PNB-5-M12D-S-20-Y-2-22-7-M12D-S	2x2
2171039	IE-PNB-5-M12D-A-3-Y-2-22-7-M12D-S	2x2
2171040	IE-PNB-5-M12D-S-5-Y-2-22-7-M12D-S	2x2
2171041	IE-PNB-5-M12D-A-10-Y-2-22-7-M12D-S	2x2
2171042	IE-PNB-5-M12D-A-20-Y-2-22-7-M12D-S	
Straight connector on straight connector		
2171025	IE-PNB-5-M12D-A-1-Y-2-22-7-M12D-S	2x2
2171026	IE-PNB-5-M12D-S-2-Y-2-22-7-M12D-S	2x2
2171027	IE-PNB-5-M12D-S-3-Y-2-22-7-M12D-S	2x2
2171028	IE-PNB-5-M12D-S-5-Y-2-22-7-M12D-S	2x2
2171029	IE-PNB-5-M12D-A-10-Y-2-22-7-M12D-S	2x2
2171030	IE-PNB-5-M12D-S-20-Y-2-22-7-M12D-S	2x2

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

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)

Design

- 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
- Design: 2x2xAWG22

Article number	Article designation
Angled connector on straight connector	
2171043	IE-PNB-5-M12D-A-1-Y-2-22-7-OE
2171044	IE-PNB-5-M12D-A-2-Y-2-22-7-OE
2171045	IE-PNB-5-M12D-A-3-Y-2-22-7-OE
2171046	IE-PNB-5-M12D-A-5-Y-2-22-7-OE
2171047	IE-PNB-5-M12D-A-10-Y-2-22-7-OE
2171048	IE-PNB-5-M12D-A-20-Y-2-22-7-OE
Straight connector on straight connector	
2171031	IE-PNB-5-M12D-S-1-Y-2-22-7-OE
2171032	IE-PNB-5-M12D-S-2-Y-2-22-7-OE
2171033	IE-PNB-5-M12D-S-3-Y-2-22-7-OE
2171034	IE-PNB-5-M12D-S-5-Y-2-22-7-OE
2171035	IE-PNB-5-M12D-S-10-Y-2-22-7-OE
2171036	IE-PNB-5-M12D-S-20-Y-2-22-7-OE

Industrial Ethernet PN C patchcord M 12



Info

- For PROFINET applications (D-coded)



Industrial Ethernet PN C patchcord M 12

Benefits

- Non-permanent connections allow for easy change of equipment
- 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

Design

- 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
Angled connector on straight connector	
2171061	IE-PNC-5-M 12D-A-1-P-2-22-FD-M 12D-S
2171062	IE-PNC-5-M 12D-A-2-P-2-22-FD-M 12D-S
2171063	IE-PNC-5-M 12D-A-3-P-2-22-FD-M 12D-S
2171064	IE-PNC-5-M 12D-A-5-P-2-22-FD-M 12D-S
2171065	IE-PNC-5-M 12D-A-10-P-2-22-FD-M 12D-S
2171066	IE-PNC-5-M 12D-A-20-P-2-22-FD-M 12D-S
Straight connector on straight connector	
2171049	IE-PNC-5-M 12D-S-1-P-2-22-FD-M 12D-S
2171050	IE-PNC-5-M 12D-S-2-P-2-22-FD-M 12D-S
2171051	IE-PNC-5-M 12D-S-3-P-2-22-FD-M 12D-S
2171052	IE-PNC-5-M 12D-S-5-P-2-22-FD-M 12D-S
2171053	IE-PNC-5-M 12D-S-10-P-2-22-FD-M 12D-S
2171054	IE-PNC-5-M 12D-S-20-P-2-22-FD-M 12D-S

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

Industrial Ethernet PN C Patchcord M 12 on free conductor end



Info

- For PROFINET applications (D-coded)



Industrial Ethernet PN C 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 highly flexible applications (power chains, moving machine parts)

Design

- 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

Article number	Article designation
Straight connector on free conductor end	
2171055	IE-PNC-5-M 12D-S-1-P-2-22-FD-OE
2171056	IE-PNC-5-M 12D-S-2-P-2-22-FD-OE
2171057	IE-PNC-5-M 12D-S-5-P-2-22-FD-OE
2171058	IE-PNC-5-M 12D-S-5-P-2-22-FD-OE
2171059	IE-PNC-5-M 12D-S-10-P-2-22-FD-OE
2171060	IE-PNC-5-M 12D-S-20-P-2-22-FD-OE
Angled connector on free conductor end	
2171067	IE-PNC-5-M 12D-A-1-P-2-22-FD-OE
2171068	IE-PNC-5-M 12D-A-2-P-2-22-FD-OE
2171069	IE-PNC-5-M 12D-A-3-P-2-22-FD-OE
2171070	IE-PNC-5-M 12D-A-5-P-2-22-FD-OE
2171071	IE-PNC-5-M 12D-A-10-P-2-22-FD-OE
2171072	IE-PNC-5-M 12D-A-20-P-2-22-FD-OE

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

Industrial Ethernet patchcord P M 12-M 12



Industrial Ethernet patchcord P M 12-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)

Design

- Flexible fine-wire copper conductor
- Stranded conductor, 7-wire, 4 x 2 x AWG26/7



Info

- Industrial Ethernet cable

Article number	Article designation
2171101	IE-5-M12D-S-10-P-2-26-7-M12D-S
2171102	IE-5-M12D-S-20-P-2-26-7-M12D-S
2171097	IE-5-M12D-S-1-P-2-26-7-M12D-S
2171098	IE-5-M12D-S-2-P-2-26-7-M12D-S
2171099	IE-5-M12D-S-3-P-2-26-7-M12D-S
2171100	IE-5-M12D-S-5-P-2-26-7-M12D-S

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

Industrial Ethernet connection line P M 12 on free conductor end



Industrial Ethernet connection line P M 12 on free 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

Design

- Fine-wire, tinned-copper conductor



Info

- Industrial Ethernet cable

Article number	Article designation
2171103	IE-5-M12D-S-1-P-2-26-7-OE
2171104	IE-5-M12D-S-2-P-2-26-7-OE
2171105	IE-5-M12D-S-3-P-2-26-7-OE
2171106	IE-5-M12D-S-5-P-2-26-7-OE
2171107	IE-5-M12D-S-10-P-2-26-7-OE
2171108	IE-5-M12D-S-20-P-2-26-7-OE

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

Industrial Ethernet Patchcord M 12-RJ45 P



Industrial Ethernet Patchcord M 12-RJ45 P

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
- Flexible use

Design

- Stranded conductor, 7-wire, 4 x 2 x AWG26/7
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PUR, halogen-free
- Pre-assembled connection cable with M 12 connector, "D" coded and RJ45-connector

Article number	Article designation
2171109	IE-5-M12D-S-1-P-2-26-7-RJ45
2171110	IE-5-M12D-S-2-P-2-26-7-RJ45
2171111	IE-5-M12D-S-3-P-2-26-7-RJ45
2171112	IE-5-M12D-S-5-P-2-26-7-RJ45
2171113	IE-5-M12D-S-10-P-2-26-7-RJ45
2171114	IE-5-M12D-S-20-P-2-26-7-RJ45

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

Industrial Ethernet Patchcord RJ45-RJ45 P



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

Design

- Stranded conductor, 7-wire, 4 x 2 x AWG26/7

- 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
2-pair version	
2171501	IE-5-RJ45-1-P-4-26-7-RJ45
2171502	IE-5-RJ45-2-P-4-26-7-RJ45
2171503	IE-5-RJ45-3-P-4-26-7-RJ45
2171504	IE-5-RJ45-5-P-4-26-7-RJ45
2171505	IE-5-RJ45-10-P-4-26-7-RJ45
2171506	IE-5-RJ45-20-P-4-26-7-RJ45
4-pair version	
2171115	IE-5-RJ45-1-P-2-26-7-RJ45
2171116	IE-5-RJ45-2-P-2-26-7-RJ45
2171117	IE-5-RJ45-3-P-2-26-7-RJ45
2171118	IE-5-RJ45-5-P-2-26-7-RJ45
2171119	IE-5-RJ45-10-P-2-26-7-RJ45
2171120	IE-5-RJ45-20-P-2-26-7-RJ45

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

Industrial Ethernet connection line P RJ45 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

Design

- Stranded conductor, 7-wire, 4 x 2 x AWG26/7
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR

Article number	Article designation
2171507	IE-5-RJ45-1-P-4-26-7-OE
2171508	IE-5-RJ45-2-P-4-26-7-OE
2171509	IE-5-RJ45-3-P-4-26-7-OE
2171510	IE-5-RJ45-5-P-4-26-7-OE
2171511	IE-5-RJ45-10-P-4-26-7-OE
2171512	IE-5-RJ45-20-P-4-26-7-OE

Industrial Ethernet Verbindungsleitung H M 12-M 12



Industrial Ethernet Verbindungsleitung H M 12-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
- Flexible use

Design

- Stranded conductor, 7-wire, 4 x 2 x AWG26/7
- For flexible applications (7-wire stranded conductor)

- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flame-retardant compound
- Pre-assembled patchcord with a M12 D-coded connector on both sides

Article number	Article designation
2171073	IE-5-M12D-S-1-H-2-26-7-M12D-S
2171074	IE-5-M12D-S-2-H-2-26-7-M12D-S
2171075	IE-5-M12D-S-3-H-2-26-7-M12D-S
2171076	IE-5-M12D-S-5-H-2-26-7-M12D-S
2171077	IE-5-M12D-S-10-H-2-26-7-M12D-S
2171078	IE-5-M12D-S-20-H-2-26-7-M12D-S

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

Industrial Ethernet connection line H M 12 on free conductor end



Industrial Ethernet connection line H 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
- Flexible use

Design

- For flexible applications (7-wire stranded conductor)
- Stranded conductor, 7-wire, 4 x 2 x AWG26/7

- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flame-retardant compound

Article number	Article designation
2171079	IE-5-M12D-S-1-H-2-26-7-OE
2171080	IE-5-M12D-S-2-H-2-26-7-OE
2171081	IE-5-M12D-S-3-H-2-26-7-OE
2171082	IE-5-M12D-S-5-H-2-26-7-OE
2171083	IE-5-M12D-S-10-H-2-26-7-OE
2171084	IE-5-M12D-S-20-H-2-26-7-OE

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

Industrial Ethernet patchcord H M 12-RJ45



Industrial Ethernet patchcord H M 12-RJ45

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

Design

- For flexible applications (7-wire stranded conductor)

- Stranded conductor, 7-wire, 4 x 2 x AWG26/7
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flame-retardant compound
- Pre-assembled connection cable with M12 connector, "D" coded and RJ45-connector

Article number	Article designation
2171085	IE-5-M12D-S-1-H-2-26-7-RJ45
2171086	IE-5-M12D-S-2-H-2-26-7-RJ45
2171087	IE-5-M12D-S-3-H-2-26-7-RJ45
2171088	IE-5-M12D-S-5-H-2-26-7-RJ45
2171089	IE-5-M12D-S-10-H-2-26-7-RJ45
2171090	IE-5-M12D-S-20-H-2-26-7-RJ45

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

Industrial Ethernet patchcord H RJ45-Rj45



Industrial Ethernet patchcord H RJ45-Rj45

Benefits

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

Application range

- Automation technology

- Suitable for use in industrial applications

Design

- For flexible applications (7-wire stranded conductor)
- Stranded conductor, 7-wire, 4 x 2 x AWG26/7

- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flame-retardant compound
- Pre-assembled patchcord with a RJ45 connector on both sides

Article number	Article designation
2-pair version	
2171091	IE-5-RJ45-1-H-4-26-7-RJ45
2171092	IE-5-RJ45-2-H-4-26-7-RJ45
2171093	IE-5-RJ45-3-H-4-26-7-RJ45
2171094	IE-5-RJ45-5-H-4-26-7-RJ45
2171095	IE-5-RJ45-10-H-4-26-7-RJ45
2171096	IE-5-RJ45-20-H-4-26-7-RJ45
4-pair version	
2171513	IE-5-RJ45-1-H-2-26-7-RJ45
2171514	IE-5-RJ45-2-H-2-26-7-RJ45
2171515	IE-5-RJ45-3-H-2-26-7-RJ45
2171516	IE-5-RJ45-5-H-2-26-7-RJ45
2171517	IE-5-RJ45-10-H-2-26-7-RJ45
2171518	IE-5-RJ45-20-H-2-26-7-RJ45

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

Industrial Ethernet connection line H RJ45 on free conductor end

Benefits

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

Application range

- Automation technology
- For indoor use

Design

- For flexible applications (7-wire stranded conductor)

- Stranded conductor, 7-wire, 4 x 2 x AWG26/7
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flame-retardant compound

Article number	Article designation
2171519	IE-5-RJ45-1-H-4-26-7-OE
2171520	IE-5-RJ45-2-H-4-26-7-OE
2171521	IE-5-RJ45-3-H-4-26-7-OE
2171522	IE-5-RJ45-5-H-4-26-7-OE
2171523	IE-5-RJ45-10-H-4-26-7-OE
2171524	IE-5-RJ45-20-H-4-26-7-OE

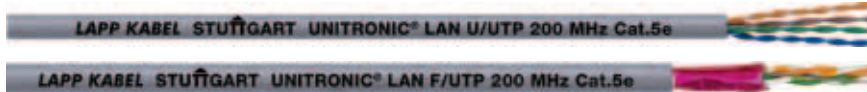
New

UNITRONIC® LAN 200 - CAT.5e



Info

- EIA = Electronic Industries Association
- TIA = Telecommunication Industries Association
- TSB = Technical Systems Bulletin



Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range

- Mainly used where the terminal density is very high, e.g. for wiring office, administration and development buildings in the tertiary area (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Product features

- Transfer of digital and analogue data signals
- The characteristic impedance of this cable is 100 Ohm ± 15 %
- IEEE 802.3: 10/100/1000Base-T
IEEE 802.5: ISDN; FDDI; ATM

Approvals



- Class D in ISO/IEC 11801 standard corresponds to CAT.5
- LAN CAT.5e cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class D).

Design

- U/UTP: no overall or pair shielding
- F/UTP: foil screening as overall screening
- SF/UTP: copper braid and foil screening as overall screening
- Solid conductor
- Outer sheath either as PVC or LSZH

Technical data

- Minimum bending radius**
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter
- Temperature range**
Operating temperature: -20°C to +60°C
During installation: 0 °C to +50 °C
- Characteristic impedance**
100 Ohm ± 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PVC version					
2170125	200 U/UTP Cat.5e	4 x 2 x AWG24/1	5.6	17.0	32
2170126	200 F/UTP Cat.5e	4 x 2 x AWG24/1	6.4	18.0	42
2170128	200 SF/UTP Cat.5e	4 x 2 x AWG24/1	6.7	32.0	60
Halogen-free versions					
2170185	200 U/UTP Cat.5e LSZH	4 x 2 x AWG24/1	5.6	17.0	
2170138	200 SF/UTP Cat.5e LSZH	4 x 2 x AWG24/1	6.7	32.0	61

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 Main Catalogue 2012/13 Appendix T 17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 100 m; Drum (500; 1000) m
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs are not to scale and do not represent detailed images of the respective products.

New

UNITRONIC® LAN 250 - CAT.6



Info

- EIA = Electronic Industries Association
- TIA = Telecommunication Industries Association
- TSB = Technical Systems Bulletin

■ Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

■ Application range

- Mainly used where the terminal density is very high, e.g. for wiring office, administration and development buildings in the tertiary area (floor wiring).

■ Product features

- Transfer of digital and analogue data signals
- LAN Cat.6 cables are specified up to 350 MHz
- The characteristic impedance of this cable is 100 Ohm $\pm$ 15 %
- IEEE 802.3: 10/100/1000Base-T
IEEE 802.5: ISDN; FDDI; ATM

■ Approvals



- Class E out of the standard ISO/IEC 11801 corresponds to CAT.6
- LAN CAT.6 cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class E - permanent link).

■ Design

- U/UTP: no overall or pair shielding
- F/UTP: foil screening as overall screening
- Solid conductor
- Outer sheath either as PVC or LSZH

■ Technical data



Minimum bending radius

during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter



Temperature range

Operating temperature: -20°C to +60°C
During installation: 0 °C to +50 °C



Characteristic impedance

100 Ohm $\pm$ 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)
PVC versions				
2170186	250 U/UTP Cat.6	4 x 2 x AWG24/1	6.5	18.0
Halogen-free versions				
2170193	250 U/UTP Cat.6 LSZH	4 x 2 x AWG24/1	6.5	18.0
2170194	250 F/UTP Cat.6 LSZH	4 x 2 x AWG24/1	7.5	19.0

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.

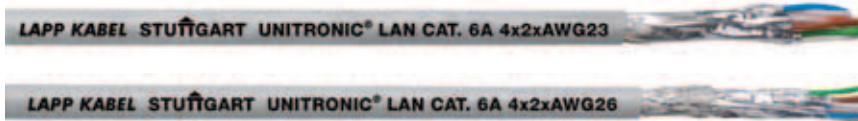
New

UNITRONIC® LAN 500 - Cat.6_A



Info

- EIA = Electronic Industries Association
- TIA = Telecommunication Industries Association
- TSB = Technical Systems Bulletin



Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range

- Mainly used where the terminal density is very high, e.g. for wiring office, administration and development buildings in the tertiary area (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Product features

- Transfer of digital and analogue data signals
- The characteristic impedance of this cable is 100 Ohm ± 15 %
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T
IEEE 802.5: ISDN; FDDI; ATM

Approvals



- Class E_A out of the standard ISO/IEC 11801 corresponds to Cat.6_A
- LAN Cat.6_A cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class E_A - permanent link).

Design

- U/FTP: aluminium compound foil as pair screening
- F/FTP: aluminium compound foil as overall screening and pair screening
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Solid conductor
- Outer sheath either as PVC or LSZH

Technical data



Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter



Temperature range
Operating temperature: -20°C to +60°C
During installation: 0 °C to +50 °C



Characteristic impedance
100 Ohm ± 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PVC version					
2170143	500 S/FTP Cat.6 _A	4 x 2 x AWG23/1	7.7	27.0	53
Halogen-free versions					
2170195	500 U/FTP Cat.6 _A LSZH	4 x 2 x AWG23/1	7.4	21.0	
2170196	500 F/FTP Cat.6 _A LSZH	4 x 2 x AWG23/1	7.6	22.0	

Copper price basis: EUR 150/100kg. Refer to Main Catalogue 2012/13 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 100 m; Drum (500; 1000) m

CAT.6a is available as a draft

Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.

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

New

UNITRONIC® LAN 1000 S/FTP Cat.7



Info

- EIA = Electronic Industries Association
- TIA = Telecommunication Industries Association
- TSB = Technical Systems Bulletin

■ Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

■ Application range

- Mainly used where the terminal density is very high, e.g. for wiring office, administration and development buildings in the tertiary area (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

■ Product features

- Transfer of digital and analogue data signals
- The characteristic impedance of this cable is 100 Ohm ± 15 %
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T
IEEE 802.5: ISDN; FDDI; ATM; cable sharing
IEEE 802.3at: suitable for PoE

■ Approvals



- Class F in the ISO/IEC 11801 standard corresponds to CAT.7

■ Design

- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Solid conductor
- Outer sheath: halogen-free, flame-retardant compound

■ Technical data



Minimum bending radius

during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter



Temperature range

Operating temperature: -20 °C to +60 °C
During installation: 0 °C to +50 °C



Characteristic impedance

100 Ohm ± 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Halogen-free versions					
2170614	1000 S/FTP Cat.7 LSZH	4 x 2 x AWG23/1	7.7	27.0	78
2170634	1000 S/FTP Cat.7 duplex	2 x (4 x 2 x AWG23/1)	7.7 x 15.4	54.0	156

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 Main Catalogue 2012/13 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 100 m; Drum (500; 1000) m

Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.

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

New

UNITRONIC® LAN 1200 S/FTP Cat.7_A

LAPP KABEL STUTTGART UNITRONIC® LAN S/FTP 1200 MHz Cat.7A



Info

- Complies with the EN 50173 and ISO/IEC 11801 standards

Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range

- Mainly used where the terminal density is very high, e.g. for wiring office, administration and development buildings in the tertiary area (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Product features

- Transfer of digital and analogue data signals
- The cable is specified for up to 1.2 GHz
- The characteristic impedance of this cable is 100 Ohm ± 15 %
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T
- IEEE 802.5: ISDN; FDDI; ATM; cable sharing
- IEEE 802.3at: suitable for PoE

Approvals



- LAN Cat.7_A cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36 as well as ISO/IEC 11801 or EN 50173 (Class F_A - permanent link).
- Exceeds the requirements of EN 50173 and ISO/IEC 11801 standards

Design

- Solid bare copper wire AWG22
- Cellular polyolefin core insulation, max. core diameter 1.6 mm
- Pair screen made of aluminium-lined plastic foil, overall screening made of tinned-copper braiding
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 7032)

Technical data



Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter



Temperature range
Operating temperature: -20°C to +60°C
During installation: 0 °C to +50 °C



Characteristic impedance
100 Ohm ± 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170615	1200 S/FTP Cat. 7 _A LSZH	4 x 2 x AWG22/1	8.1	34.0	80

Copper price basis: EUR 150/100kg. Refer to Main Catalogue 2012/13 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: Drum

Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.

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

New

UNITRONIC® LAN 1500 S/FTP Cat.7_A

LAPP KABEL STUTTGART UNITRONIC® LAN S/FTP 1500 MHz Cat.7A



Info

- Complies with the EN 50173 and ISO/IEC 11801 standards

Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range

- Mainly used where the terminal density is very high, e.g. for wiring office, administration and development buildings in the tertiary area (floor wiring).

Product features

- Transfer of digital and analogue data signals
- Cable is specified for up to 1.5 GHz
- The characteristic impedance of this cable is 100 Ohm ± 15 %
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T
- IEEE 802.5: ISDN; FDDI; ATM; cable sharing
- IEEE 802.3at: suitable for PoE, VoIP

Approvals

- LAN Cat.7_A cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36 as well as ISO/IEC 11801 or EN 50173 (Class F_A - permanent link).
- Exceeds the requirements of EN 50173 and ISO/IEC 11801 standards

Design

- Solid bare copper wire AWG22
- Cellular polyolefin core insulation, max. core diameter 1.6 mm
- Pair screen made of aluminium-lined plastic foil, overall screening made of tinned-copper braiding
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 7032)

Technical data



Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter



Temperature range
Operating temperature: -20°C to +60°C
During installation: 0 °C to +50 °C



Characteristic impedance
100 Ohm ± 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)
2170199	1500 S/FTP Cat. 7 _A LSZH	4 x 2 x AWG22/1	8.5	42.0

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

UNITRONIC® LAN OUTDOOR

LAPP KABEL STUTTGART UNITRONIC® LAN 1000 MHz S/FTP CAT.7 PE 4x2x23AWG/1

■ Benefits

- Suitable for outdoor use and direct burial
- UV and water-resistant
- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

■ Application range

- For outdoor use
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

■ Product features

- Transfer of digital and analogue data signals
- The characteristic impedance of this cable is 100 Ohm ± 15 %
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T
IEEE 802.5: ISDN; FDDI; ATM; cable sharing
IEEE 802.3at: suitable for PoE

■ Approvals

- LAN Cat.7 cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class F - permanent link).

■ Design

- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Solid conductor
- Core insulation: foamed polyolefin
- PE outer sheath
- Colour: black (RAL 9005)



Info

- Data cable for primary, secondary and tertiary cabling with PE outer sheath for outdoor applications

■ Technical data



Minimum bending radius

During installation: 10 x outer diameter
Fixed installation: 4 x outer diameter



Temperature range

Operation: up to +60 °C
During installation: -15 °C to +60 °C



Characteristic impedance

100 Ohm ± 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Suitable for direct burial					
2170198	1000 S/FTP Cat.7 (L)PE	4 x 2 x AWG23/1	10.0	34.0	72
Suitable for direct routing underground, not transversely waterproof					
2170197	1000 S/FTP Cat.7 PE	4 x 2 x AWG23/1	9.6	34.0	75

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New

UNITRONIC® LAN FLEX

Flexible use

LAPP KABEL STUTTGART UNITRONIC® LAN 200 MHz F/UTP CAT.5e Y 4x2x26AWG/7



Info

- Only for patch cable applications (max. 60 m)

■ Benefits

- For directly connecting two electric components
- Easy to assemble

■ Application range

- Indoor applications
- LAN connections
- Control cabinet wiring

■ Product features

- Good flexibility - easy installation with tight space requirements

■ Design

- F/UTP: foil screening as overall screening
- SF/UTP: copper braid and foil screening as overall screening
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath either as PVC or LSZH

■ Technical data



Minimum bending radius

during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter



Characteristic impedance

100 Ohm ± 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PVC versions					
2170127	200 F/UTP Cat.5e	4 x 2 x AWG26/7	5.6	13.0	30
2170129	200 SF/UTP Cat.5e	4 x 2 x AWG26/7	6.0	22.0	41
2170144	600 S/FTP CAT7 Y	4 x 2 x AWG26/7	6.5	22.0	40
Halogen-free versions					
2170137	200 F/UTP Cat.5e LSZH	4 x 2 x AWG26/7	5.6	13.0	31
2170139	200 SF/UTP Cat.5e LSZH	4 x 2 x AWG26/7	6.0	22.0	42

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.

Connector RJ45 CAT.5 Hirose TM11

Product features

- Screened version
- Suitable for stranded conductors (AWG26)
- Included: bend protection and guide plate
- Anti-kink protection: beige
- Max. outer sheath diameter: 5.8 mm

Approvals



Article number	Article designation	PU
CE6321	Connector RJ45 CAT.5 Hirose TM11	50 pieces

Hirose is a registered trademark of the HIROSE ELECTRIC Group

Other colours are available upon request.

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

Connector RJ45 CAT.5 Stewart SS37

Product features

- Screened version
- Suitable for stranded conductors (AWG26)
- Included: bend protection and guide plate
- Anti-kink protection: light grey
- Max. outer sheath diameter: 5.72 mm

Approvals



Article number	Article designation	PU
CE6323	Connector RJ45 CAT.5 Stewart SS37	50 pieces

Stewart is a registered trademark of Bel Fuse Inc.

Other colours are available upon request.

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

Field-Terminable Connector RJ45 CAT.5e FM45

Product features

- Screened version
- FM45 is a tool-free switchable, field-terminable RJ45 Connector with IDC contacting and CAT.5e performance. The 8-pin connection is tension and vibration-resistant, and can be re-switched. The connecting block can accommodate both screened and unscreened cable of up to 8 mm diameter.
- Suitable for AWG 23 - 26, AWG 22 possible with restrictions
- IDC/piercing terminal according to 60352-4
- Suitable for solid and stranded conductors
- Suitable for use in industrial applications
- Protection rating: IP20

Approvals



Article number	Article designation	PU
21700540	Field-Terminable Connector RJ45 CAT.5e FM45	1 piece

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

Connector RJ45 CAT.6 Hirose TM21



Product features

- Channel Class E up to 250 MHz (CAT.6)
- Fully screened
- Conductor: Ø 0.5 mm solid wire:
AWG 24 & 26;
guide plate for 1.1 mm diameter wire;
cable outer diameter: 6.6 mm
- Easy to handle
- Included: bend protection and guide plate
- Anti-kink protection: beige
- Suitable for solid and stranded conductors

Approvals



Article number	Article designation	PU
CE6324	Connector RJ45 CAT.6 Hirose TM21	50 pieces

Hirose is a registered trademark of the HIROSE ELECTRIC Group

Other colours are available upon request.

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

New

Connector RJ45 Cat.6_A fieldmountable



Product features

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- Qualified for 10 Gigabit Ethernet
- Housing: zinc die-casting, grey

- By a multi-level relief setting the connector can accommodate a cable diameter from 5,0 mm up to 9,0 mm
- Suitable for stranded cores with AWG27/7-22/7 and for solid conductors with AWG24/1-22/1
- Suitable for use in industrial applications
- Available with colour code T568A or T568B

Article number	Article designation	PU
21700600	EPIC® DATA ED-IE-AX-6 _A -A-20-FC	10 pieces
21700601	EPIC® DATA ED-IE-AX-6 _A -B-20-FC	10 pieces

Easy Connect RJ45 Modul Cat.6_A 10G



Easy Connect RJ45 Modul Cat.6_A 10G

Product features

- Field assembly Industrial Ethernet module RJ45 according to IEC 60603-7-51
- Qualified for 10 Gigabit Ethernet
- Housing: zinc die-casting, grey
- By a multi-level relief setting the connector can accommodate a cable diameter from 5,0 mm up to 9,0 mm

- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG26/1- 22/1
- Suitable for use in industrial applications
- Available with colour code T568A or T568B

Article number	Article designation
RJ45 Modul acc. to T568A	
21700611	ED-IE-AX-RJ45F-6A-A-FC
RJ45 Modul acc. to T568B	
21700612	ED-IE-AX-RJ45F-6A-B-FC

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

Connector industry RJ45 Cat.6_A 10 IP68

Product features

- Housing: brass nickel plated
- Qualified for 10 Gigabit Ethernet
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG26/1- 22/1
- IP68

Approvals

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51

Artikelnummer	Artikelbezeichnung
Inclusive RJ45 connector acc. to T568AB	
21700630	ED-IE-AX-RJ45-6A-B-68-FC
dust cap for RJ45 connector	
21700631	ED-IE-AX-RJ45-AC-DC
IP68 connector for RJ45 Modul	
21700632	ED-IE-RJ45F-6A-B-68-FC
dust cap for RJ45 Modul	
21700633	ED-IE-RJ45F-AC-DC

Easy connect rail mount adapter Cat.6_A

Product features

- Plastic housing including Easy Connect RJ45 Modul Cat.6A 10G
- Suitable for use in industrial applications
- Integrated strain relief for cable O.D. to 9 mm
- Colour: light grey (RAL 7035)

Approvals

- Field assembly Industrial Ethernet module RJ45 according to IEC 60603-7-51

Article number	Article designation
Inclusive RJ45 Modul acc. to T568A	
21700613	EPIC® DATA HS RJ45 F 10G A
Inclusive RJ45 Modul acc. to T568B	
21700614	EPIC® DATA HS RJ45 F 10G B

Junction Box LSA+ Cat.7_A

Product features

- A data connector allows installation cables to be easily extended and damaged cables to be replaced, without having to reinstall the entire cable network.
- For 4pair shielded or unshielded installation cable with diameter of AWG26/1-AWG22/1
- Cable strain relief using cable ties
- ABS (halogen free) housing, black

Approvals

- Complies with the EN 50173 and ISO/IEC 11801 standards

Article number	Article designation
21700629	EPIC® DATA JB LSA+ Cat.7 _A

HITRONIC® POF SIMPLEX PE

■ Benefits

- Transmission lengths up to 70 m
- Direct connector assembly
- EMC protection
- No crosstalk
- Easy to handle

■ Application range

- For optical signal transmission in industrial applications
- Very suitable for fixed installation in control cabinets, cable ducts, or pipes with low mechanical stress

■ Product features

- Halogen-free
- Lightweight design
- High flexibility

■ Approvals



■ Design

- Plastic fibre-optic cables
- PE buffer tube
- Without outer sheath
- Colour: black



Info

- J-V2Y 1P 980/1000
- Simplex plastic fibre-optic cable for direct connector assembly

■ Technical data



Optical fibre type

Core material: PMMA
Cladding material: fluoropolymers



Temperature range

Operation: -50°C to +80°C
Installation: -10°C to +50°C



Permissible bending radius

Static: ≥ 25 mm



Permissible tensile force

Fixed installation: 5 N
Short-term: 15 N

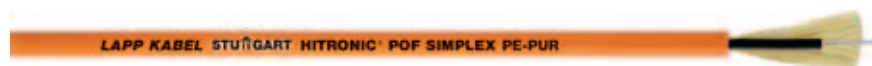
Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
28000001	HITRONIC® POF SIMPLEX PE	POF	1	2.2	4

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

Mille-Tie™ is a registered trademark of Millepede™ International Ltd.

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

HITRONIC® POF SIMPLEX PE-PUR



■ Benefits

- Transmission lengths up to 70 m
- EMC protection
- No crosstalk
- Easy to handle

■ Application range

- For optical signal transmission in industrial applications with high mechanical stress

■ Product features

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

■ Approvals



■ Design

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



Info

- J-V2Y(ZN)11Y 1P 980/1000
- Simplex POF cable with strain relief and PUR outer sheath

■ Technical data



Optical fibre type

Core material: PMMA
Cladding material: fluoropolymers



Temperature range

Operation: -20°C to +70°C
Installation: -10°C to +50°C
Storage: -50°C to +80°C



Permissible bending radius

Short-term: 30 mm
Fixed installation: 50 mm



Permissible tensile force

Fixed installation: 100 N
Short-term: 350 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
28020001	HITRONIC® POF SIMPLEX PE-PUR	POF	1	5.5	25

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HITRONIC® POF DUPLEX PE



Info

- J-V2Y 2x1 P 980/1000
- Duplex plastic fibre-optic cable for direct connector assembly

Benefits

- Transmission lengths up to 70 m
- Direct connector assembly
- EMC protection
- No crosstalk
- Easy to handle

Application range

- For optical signal transmission in industrial applications
- Very suitable for fixed installation in control cabinets, cable ducts, or pipes with low mechanical stress
- Light mechanical stress
- Identification by white dots

Product features

- Halogen-free
- Lightweight design
- High flexibility

Approvals



Design

- Plastic fibre-optic cables
- Twin cable
- PE buffer tube
- Without outer sheath
- Colour: black

Technical data



Optical fibre type

Core material: PMMA
Cladding material: fluoropolymers



Temperature range

Operation: -50°C to +80°C
Installation: -10°C to +50°C



Permissible tensile force

Fixed installation: 10 N
Short-term: 30 N

Article number	Article designation	Fibre type	Number of fibres	Weight (kg/km)
28000002	HITRONIC® POF DUPLEX PE	POF	2	7.6

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

HITRONIC® POF DUPLEX PE-PUR



Benefits

- Transmission lengths up to 70 m
- EMC protection
- No crosstalk
- Easy to handle

Application range

- For optical signal transmission in industrial applications with high mechanical stress

Product features

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

Approvals



Design

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



Info

- J-V2Y(ZN) 11Y 2P 980/1000
- Duplex plastic fibre-optic cable with strain relief and PUR outer sheath

Technical data



Optical fibre type

Core material: PMMA
Cladding material: fluoropolymers



Temperature range

Operation:
-20 °C to +70 °C (PE-PUR)
-20 °C to +85 °C (Heavy PE-PUR)
Installation: 0 °C to +50 °C
Storage:
-50 °C to +80 °C (PE-PUR)
-30 °C to +95 °C (Heavy PE-PUR)



Permissible bending radius

Static: ≥ 30 mm (PE-PUR), ≥ 50 mm (Heavy PE-PUR)
Dynamic: ≥ 50 mm (PE-PUR), ≥ 80 mm (Heavy PE-PUR)



Permissible tensile force

Fixed installation: 100 N (PE-PUR), 130 N (Heavy PE-PUR)
Short-term: 400 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
28020002	HITRONIC® POF DUPLEX PE-PUR	POF	2	5.5	28
28030002	HITRONIC® POF DUPLEX HEAVY PE-PUR	POF	2	8.0	28

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HITRONIC® BUS PCF DUPLEX indoor + outdoor



Info

- Polymer-cladded fibre (PCF)
- Standard designation (indoor): J-V(ZN)H 11Y 2K200/230
- Standard designation (outdoor): AT-VQ(ZN)HB2Y 2K200/230

Benefits

- Data transmission up to approx. 500 m
- To be used for direct connector assembly
- Easy to assemble
- EMC protection
- High mechanical stability

Application range

- Can be used in industrial environments, for data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.

Product features

- Data transmission up to approx. 500 m
- Usable wavelengths: 650 nm and 850 nm
- In Duplex version
- Good resistance to oil, petrol, acids and alkalis
- PE/PUR outer sheath is halogen-free

Approvals



Design

- 2 step-index fibres PCF 200/230 (Polymer Cladded Fibre)
- DUPLEX cable with fibre core made of quartz glass and a fluorinated polymer (plastic, ETFE) sheath
- Outer sheath: PUR for indoors; PE for outdoors

Technical data



Dimensions
PCF 200/230 µm

Fibre type
Step index fibre



Minimum bending radius
(indoor) 120 mm
(outdoor) 200 mm

Optical values
Attenuation at 850 nm wavelength:
8 dB/km
Bandwidth-length product:
20 MHz x km at 850 nm
Numerical aperture: 0.37



Temperature range
During installation: -5°C to +50°C
Operation: -20°C to +70°C



Permissible tensile force
Fixed installation (indoor): 400 N
Fixed installation (outdoor): 500 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
2185311	HITRONIC® BUS PCF PUR DUPLEX indoor	PCF	2	8.0	55
2185302	HITRONIC® BUS PCF PE DUPLEX outdoor	PCF	2	10.5	90

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

Mille-Tie™ is a registered trademark of Millepede™ International Ltd.

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

HITRONIC® HQN Outdoor Cable



Info

- A-DQ(ZN)B2Y
- Outdoor cable with central loose tube and non-metallic strain relief

■ Benefits

- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV and water-resistant
- Zero electromagnetic interference as the cable contains no metal

■ Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environment
- Methods of Deployment: empty plastic pipes, ducts and trays

■ Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Rodent-protection
- Robust, halogen-free outer sheath

■ Approvals



■ Design

- Glass fibres with primary coating
- Gel-filled loose tube
- Water-blocking reinforced glass yarn strength members
- PE outer sheath
- Colour: black (RAL 9005)

■ Technical data



Optical fibre type

Core material: Glass
Cladding material: Glass



Temperature range

Operation: -20 °C to +60 °C
Installation: 0 °C to +50 °C
Storage: -40 °C to +70 °C



Permissible bending radius

Static: $\geq 15 \times$ outer diameter
Dynamic: $\geq 20 \times$ outer diameter



Permissible tensile force

Fixed installation: 1500 N
Short-term: 3000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)
Multimode G 50 OM3				
27600304	HITRONIC® HQN1500 4G 50/125 OM3	50/125 OM3	4	7.3
27600308	HITRONIC® HQN1500 8G 50/125 OM3	50/125 OM3	8	7.3
27600312	HITRONIC® HQN1500 12G 50/125 OM3	50/125 OM3	12	7.3
27600324	HITRONIC® HQN1500 24G 50/125 OM3	50/125 OM3	24	8.3
Multimode G 50 OM2				
27600204	HITRONIC® HQN1500 4G 50/125 OM2	50/125 OM2	4	7.3
27600208	HITRONIC® HQN1500 8G 50/125 OM2	50/125 OM2	8	7.3
27600212	HITRONIC® HQN1500 12G 50/125 OM2	50/125 OM2	12	7.3
27600224	HITRONIC® HQN1500 24G 50/125 OM2	50/125 OM2	24	8.3
Multimode G 62.5 OM1				
27600104	HITRONIC® HQN1500 4G 62.5/125 OM1	62.5/125 OM1	4	7.3
27600108	HITRONIC® HQN1500 8G 62.5/125 OM1	62.5/125 OM1	8	7.3
27600112	HITRONIC® HQN1500 12G 62.5/125 OM1	62.5/125 OM1	12	7.3
27600124	HITRONIC® HQN1500 24G 62.5/125 OM1	62.5/125 OM1	24	8.3
Singlemode E 9 OS2				
27600904	HITRONIC® HQN1500 4E 9/125 OS2	9/125 OS2	4	7.3
27600908	HITRONIC® HQN1500 8E 9/125 OS2	9/125 OS2	8	7.3
27600912	HITRONIC® HQN1500 12E 9/125 OS2	9/125 OS2	12	7.3
27600924	HITRONIC® HQN1500 24E 9/125 OS2	9/125 OS2	24	8.3

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® HVN Outdoor Cable



Info

- A-DQ(ZN)B2Y
- Outdoor cable with stranded loose tube and non-metallic strain relief



Benefits

- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV and water-resistant
- Zero electromagnetic interference as the cable contains no metal

Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environment
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

- Stranded loose tube 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



Design

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

Technical data



Optical fibre type

Core material: Glass
Cladding material: Glass



Temperature range

Operation: -20 °C to +60 °C
Installation: 0 °C to +50 °C
Storage: -40 °C to +70 °C



Permissible bending radius

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



Permissible tensile force

Fixed installation: 5000 N
Short-term: 6000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)
Multimode G 50 OM3				
26600324	HITRONIC® HVN5000 2x12G 50/125 OM3	50/125 OM3	24	11
26600348	HITRONIC® HVN5000 4x12G 50/125 OM3	50/125 OM3	48	11
Singlemode E 9 OS2				
26600924	HITRONIC® HVN5000 2x12 E 9/125 OS2	9/125 OS2	24	11
26600948	HITRONIC® HVN5000 4x12 E 9/125 OS2	9/125 OS2	48	11

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.
Other models are available upon request.

New

HITRONIC® HQW Armoured Outdoor Cable



Info

- A-DQ(ZN)(SR)2Y
- Outdoor cable with corrugated steel tape armour, central loose tube and non-metallic strength elements

Benefits

- Armouring provides excellent protection against high mechanical stress and rodents
- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV and water-resistant
- Zero electromagnetic interference as the cable contains no metal

Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environment
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

Approvals



Design

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strength members
- Corrugated steel tape armour
- PE outer sheath
- Colour: black (RAL 9005)

Technical data



Optical fibre type

Core material: Glass
Cladding material: Glass



Temperature range

Operation: -20 °C to +60 °C
Installation: 0 °C to +50 °C
Storage: -40 °C to +70 °C



Permissible bending radius

Static: $\geq 15 \times$ outer diameter
Dynamic: $\geq 20 \times$ outer diameter



Permissible tensile force

Long-term: 3000 N
Short-term: 5700 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)
Multimode G 50 OM3				
27900304	HITRONIC® HQW3000 4G 50/125 OM3	50/125 OM3	4	9.6
27900308	HITRONIC® HQW3000 8G 50/125 OM3	50/125 OM3	8	9.6
27900312	HITRONIC® HQW3000 12G 50/125 OM3	50/125 OM3	12	9.6
27900324	HITRONIC® HQW3000 24G 50/125 OM3	50/125 OM3	24	9.6
Multimode G 50 OM2				
27900204	HITRONIC® HQW3000 4G 50/125 OM2	50/125 OM2	4	9.6
27900208	HITRONIC® HQW3000 8G 50/125 OM2	50/125 OM2	8	9.6
27900212	HITRONIC® HQW3000 12G 50/125 OM2	50/125 OM2	12	9.6
27900224	HITRONIC® HQW3000 24G 50/125 OM2	50/125 OM2	24	9.6
Multimode G 62.5 OM1				
27900104	HITRONIC® HQW3000 4G 62.5/125 OM1	62.5/125 OM1	4	9.6
27900108	HITRONIC® HQW3000 8G 62.5/125 OM1	62.5/125 OM1	8	9.6
27900112	HITRONIC® HQW3000 12G 62.5/125 OM1	62.5/125 OM1	12	9.6
27900124	HITRONIC® HQW3000 24G 62.5/125 OM1	62.5/125 OM1	24	9.6
Singlemode E 9 OS2				
27900904	HITRONIC® HQW3000 4E 9/125 OS2	9/125 OS2	4	9.6
27900908	HITRONIC® HQW3000 8E 9/125 OS2	9/125 OS2	8	9.6
27900912	HITRONIC® HQW3000 12E 9/125 OS2	9/125 OS2	12	9.6
27900924	HITRONIC® HQW3000 24E 9/125 OS2	9/125 OS2	24	9.6

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.

HITRONIC® HRH Breakout Cable



Info

- J-V(ZN)HH
- Breakout cable for direct connector assembly



Benefits

- Suitable for field assembly
- Universal cable for cabling of buildings
- Very easy to install due to compact design, high flexibility, small bending radii and suitable for field assembly
- Zero electromagnetic interference as the cable contains no metal

Application range

- For indoor use
- Tertiary cabling
- Structured cabling - backbone
- Universal cable for cabling of buildings

Product features

- Installation cable with up to 12 Simplex cables
- Flame-retardant and halogen-free
- Highly flexible
- Mechanically robust

Approvals



Design

- 2.1 mm tight-buffered subcable with FRNC sheath
- Subcable identification: numbers
- Aramid yarns as strain relief
- FRNC inner and outer sheaths
- Colour: aqua (RAL 6027) for OM3, orange (RAL 2003) for OM2 and OM1

Technical data



Optical fibre type

Core material: Glass
Cladding material: Glass



Temperature range

Operation: -10°C to +60°C
Installation: 0°C to +50°C
Storage: -20°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)
Multimode G 50 OM3				
26000302	HITRONIC® HRH400 2G 50/125 OM3	50/125 OM3	2	7
26000304	HITRONIC® HRH600 4G 50/125 OM3	50/125 OM3	4	7
26000308	HITRONIC® HRH1200 8G 50/125 OM3	50/125 OM3	8	9.7
26000312	HITRONIC® HRH1700 12G 50/125 OM3	50/125 OM3	12	10.3
Multimode G 50 OM2				
26000202	HITRONIC® HRH400 2G 50/125 OM2	50/125 OM2	2	7
26000204	HITRONIC® HRH600 4G 50/125 OM2	50/125 OM2	4	7
26000208	HITRONIC® HRH1200 8G 50/125 OM2	50/125 OM2	8	9.7
26000212	HITRONIC® HRH1700 12G 50/125 OM2	50/125 OM2	12	10.3
Multimode G 62.5 OM1				
26000102	HITRONIC® HRH400 2G 62.5/125 OM1	62.5/125 OM1	2	7
26000104	HITRONIC® HRH600 4G 62.5/125 OM1	62.5/125 OM1	4	7
26000108	HITRONIC® HRH1200 8G 62.5/125 OM1	62.5/125 OM1	8	9.7
26000112	HITRONIC® HRH1700 12G 62.5/125 OM1	62.5/125 OM1	12	10.3

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

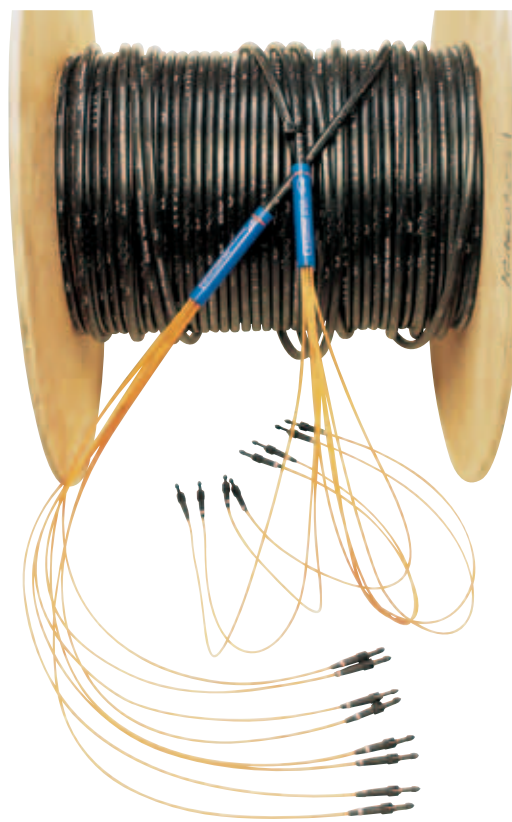
The cables can also be supplied as pre-terminated fibre optic trunks.

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

Two different connection types are used with fibre optic cables:

1. Detachable connections realised with plug connectors. In this case it is necessary to attach a plug to a glass fibre. This calls for trained personnel and expensive special tools.
2. Non-detachable connections created by directly splicing two glass fibres together. To do this requires highly trained personnel and very expensive equipment. If the necessary resources are used only occasionally, the investment is very unlikely to pay for itself.

The answer: The Lapp fibre trunk system.



■ Advantages

Using a trunk system offers you the following advantages:

- No costs of special equipment
- No need for highly trained personnel
- Uniform quality thanks to manufacture under laboratory conditions
- Installation is quick, thereby saving costs
- No need to carry out measurements on the cable run, comes with OTDR test certificate
- Fan-out elements also available in IP67

■ Requirements

The following data are needed to produce your tailor-made trunk system:

- Length of cable run (effective run +3 to 5 metres reserve on either side)
- Fibre type (SM 9 µm, MM 50 µm or 62.5 µm)
- Number of fibres (2, 4, 6, 8 ... to 48 fibres)
- Plug type (ST, SC, DIN, E-2000 including mixed)
- Cable type (indoor, outdoor, rodent protection etc.)
- Special type on request

Duplex Jumper/Patchcord



Info

- J-VH 2x1 G/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



Design

- Tight-buffered duplex cable with FRNC outer sheath
- Connector: LC, SC or ST
- Cable colour:
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
Operation: -20°C to +60°C
Installation: 0°C to +50°C
Storage: -25°C to +70°C



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



Permissible tensile force
Fixed installation: 150 N

Article number	Article designation	PU
Duplex Jumper Singlemode 9 µm		
94841	Duplex Jumper ST/ST 9 µm, 2 m	1 piece
94891	Duplex Jumper SC/SC 9 µm, 2 m	1 piece
94931	Duplex Jumper ST/SC 9 µm, 2m	1 piece
9498	Duplex Jumper LSH APC/LC 9 µm, 2 m	1 piece
9477	Duplex Jumper LSH APC/LSH APC 9 µm, 2m	1 piece
9495	Duplex Jumper LSH APC/SC 9 µm, 2 m	1 piece
Duplex Jumper Multimode 50 µm		
93681	Duplex Jumper ST/ST 50 µm, 2 m	1 piece
93561	Duplex Jumper SC/SC 50 µm, 2 m	1 piece
94641	Duplex Jumper ST/SC 50 µm, 2 m	1 piece
9510	Duplex Jumper MTRJ/MTRJ 50 µm, 2m	1 piece
9513	Duplex Jumper MTRJ/ST 50 µm, 2 m	1 piece
9509	Duplex Jumper LC/LC 50 µm, 2 m	1 piece
9508	Duplex Jumper LC/SC 50 µm, 2 m	1 piece
9501	Duplex Jumper LC/ST 50 µm, 2 m	1 piece
9457	Duplex Jumper LSH/LSH 50 µm, 2 m	1 piece
9511	Duplex Jumper MTRJ/SC 50 µm, 2 m	1 piece
Duplex Jumper Multimode 62,5 µm		
93781	Duplex Jumper ST/ST 62.5 µm, 2 m	1 piece
93581	Duplex Jumper SC/SC 62.5 µm, 2m	1 piece
94651	Duplex Jumper ST/SC 62.5 µm, 2 m	1 piece
9519	Duplex Jumper LC/LC 62.5 µm, 2 m	1 piece
9531	Jumper Duplex LC/ST 62.5 µm, 2 m	1 piece
9521	Duplex Jumper MTRJ/SC 62.5 µm, 2 m	1 piece
9528	Duplex Jumper LC/SC 62.5 µm, 2 m	1 piece
9523	Duplex Jumper MTRJ/ST 62.5 µm, 2 m	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.

Simplex Pigtail



Info

- J-VH 1 G/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



Design

- Tight-buffered simplex fibre with FRNC secondary coating (900 µm)
- 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

Operation: -20°C to +60°C
Installation: 0°C to +50°C
Storage: -25°C to +70°C



Permissible tensile force

Fixed installation: 150 N

Article number	Article designation	PU
Pigtail Multimode 50 µm		
93911	ST Pigtail Simplex 50 µm, 2m	12 piece
93411	SC Pigtail 50 µm, 2 m	12 piece
Pigtail Multimode 62.5 µm		
93931	ST Pigtail Simplex 62.5 µm, 2 m	12 piece
93441	SC Pigtail Simplex 62.5 µm, 2 m	12 piece
Pigtail Singlemode 9 µm		
93471	ST Pigtail Simplex 9 µm, 2 m	12 piece
93401	SC Pigtail Simplex 9 µm, 2 m	12 piece
9396	LSH APC Pigtail Simplex 9 µm, 2 m	12 piece

Other lengths and types of connectors are available upon request.

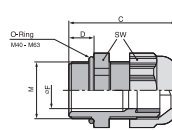
Photographs are not to scale and do not represent detailed images of the respective products.

New

SKINTOP® ST-M / SKINTOP® STR-M


Info

- Now with IP 69 K approval! Proven to withstand the most demanding cleaning procedures for industrial machinery with high-pressure cleaners and hot water!


SKINTOP® ST-M
SKINTOP® STR-M
Benefits
SKINTOP® ST-M

- High oil-resistance for maximum reliability
- Permanent vibration protection
- Wide, variable clamping ranges
- Optimum strain relief
- Various accessories (e.g. multiple sealing inserts)

SKINTOP® STR-M

- For the benefits, refer to SKINTOP® ST-M

Application range
SKINTOP® ST-M

- Used in areas where cables and wires need to be safely inserted into housings
- Machine and equipment manufacturing
- Photovoltaic
- Automation technology
- Offshore platforms, equipment and shipyards

SKINTOP® STR-M

- With reducing seal insert, to seal cables with smaller outer diameters.

Approvals


- UL File Nr. E79903

Design

- Metric connection thread acc. to EN 50262

Note
SKINTOP® ST-M

- Refer to SKINTOP® metric accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL-M
- SKINTOP® ST M ISO types have an extra-long connection thread
- SKINTOP® ST M ISO versions with extra-long connection thread, see table, no DNV approval

SKINTOP® STR-M

- Refer to SKINTOP® metric accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL-M
- SKINTOP® STR M ISO types have an extra-long connection thread
- SKINTOP® STR M ISO versions with extra-long connection thread, see table, no DNV approval

Suitable cables

- The following cables are recommended for IP 69 K applications:
ÖLFLEX® ROBUST 200
H07RN8-F
H07RN-F

Suitable tools
SKINTOP® ST-M

- SKINMATIC® QUICK Set 1 refer to Main Catalogue 2012/13 page 710
- SKINMATIC® RZ refer to Main Catalogue 2012/13 page 711
- SKINMATIC® TORQUE WRENCH refer to Main Catalogue 2012/13 page 710

Technical data

Caution

Refer to Main Catalogue 2012/13 Appendix T21 for the installation dimensions and torques


Colour delivered

Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant


Material

Body: Polyamide
Seal: CR

Tests

GGVS: TÜ.EGG.020-95


Protection rating

IP 68 - 5 bar
IP 69 K


Temperature range

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

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® ST-M silver grey						
53111000	ST-M 12 x 1,5	3,5-7	15	30,0	8,0	100
53111010	ST-M 16 x 1,5	4,5-10	19	34,0	8,0	100
53111020	ST-M 20 x 1,5	7-13	25	37,0	9,0	100
53111030	ST-M 25 x 1,5	9-17	30	40,0	10,0	50
53111040	ST-M 32 x 1,5	11-21	36	47,0	10,0	25
53111050	ST-M 40 x 1,5	19-28	46	52,0	10,0	10
53111060	ST-M 50 x 1,5	27-35	55	62,0	12,0	5
53111070	ST-M 63 x 1,5	34-45	66	71,0	12,0	5
SKINTOP® ST-M black						
53111200	ST-M 12 x 1,5	3,5-7	15	30,0	8,0	100
53111210	ST-M 16 x 1,5	4,5-10	19	34,0	8,0	100
53111220	ST-M 20 x 1,5	7-13	25	37,0	9,0	100
53111230	ST-M 25 x 1,5	9-17	30	40,0	10,0	50
53111240	ST-M 32 x 1,5	11-21	36	47,0	10,0	25
53111250	ST-M 40 x 1,5	19-28	46	52,0	10,0	10
53111260	ST-M 50 x 1,5	27-35	55	62,0	12,0	5
53111270	ST-M 63 x 1,5	34-45	66	71,0	12,0	5
SKINTOP® ST-M light grey						
53111400	ST-M 12 x 1,5	3,5-7	15	30,0	8,0	100
53111410	ST-M 16 x 1,5	4,5-10	19	34,0	8,0	100
53111420	ST-M 20 x 1,5	7-13	25	37,0	9,0	100
53111430	ST-M 25 x 1,5	9-17	30	40,0	10,0	50
53111440	ST-M 32 x 1,5	11-21	36	47,0	10,0	25
53111450	ST-M 40 x 1,5	19-28	46	52,0	10,0	10
53111460	ST-M 50 x 1,5	27-35	55	62,0	12,0	5
53111470	ST-M 63 x 1,5	34-45	66	71,0	12,0	5
SKINTOP® ST M ISO silver-grey (with long metric connecting thread)						
53017010	ST M 16 x 1,5	3,5-8	19	40,0	12,0	100
53017030	ST M 20 x 1,5	5-12	24	45,0	13,0	100
53017040	ST M 25 x 1,5	9-14	27	47,0	13,0	50

SKINTOP® metric plastic cable glands

SKINTOP® Standard

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® ST M ISO black (with long metric connecting thread)						
53017210	ST M 16 x 1,5	3-5-8	19	40.0	12.0	100
53017230	ST M 20 x 1,5	5-12	24	45.0	13.0	100
53017240	ST M 25 x 1,5	9-14	27	47.0	13.0	50
SKINTOP® STR-M silver grey						
53111100	STR-M 12 x 1,5	1-5	15	30.0	8.0	100
53111110	STR-M 16 x 1,5	2-7	19	34.0	8.0	100
53111120	STR-M 20 x 1,5	5-10	25	37.0	9.0	100
53111130	STR-M 25 x 1,5	6-13	30	40.0	10.0	50
53111140	STR-M 32 x 1,5	7-15	36	47.0	10.0	25
53111150	STR-M 40 x 1,5	15-23	46	52.0	10.0	10
53111160	STR-M 50 x 1,5	22-29	55	62.0	12.0	5
53111170	STR-M 63 x 1,5	28-39	66	71.0	12.0	5
SKINTOP® STR-M black						
53111300	STR-M 12 x 1,5	1-5	15	30.0	8.0	100
53111310	STR-M 16 x 1,5	2-7	19	34.0	8.0	100
53111320	STR-M 20 x 1,5	5-10	25	37.0	9.0	100
53111330	STR-M 25 x 1,5	6-13	30	40.0	10.0	50
53111340	STR-M 32 x 1,5	7-15	36	47.0	10.0	25
53111350	STR-M 40 x 1,5	15-23	46	52.0	10.0	10
53111360	STR-M 50 x 1,5	22-29	55	62.0	12.0	5
53111370	STR-M 63 x 1,5	28-39	66	71.0	12.0	5
SKINTOP® STR-M light grey						
53111500	STR-M 12 x 1,5	1-5	15	30.0	8.0	100
53111510	STR-M 16 x 1,5	2-7	19	34.0	8.0	100
53111520	STR-M 20 x 1,5	5-10	25	37.0	9.0	100
53111530	STR-M 25 x 1,5	6-13	30	40.0	10.0	50
53111540	STR-M 32 x 1,5	7-15	36	47.0	10.0	25
53111550	STR-M 40 x 1,5	15-23	46	52.0	10.0	10
53111560	STR-M 50 x 1,5	22-29	55	62.0	12.0	5
53111570	STR-M 63 x 1,5	28-39	66	71.0	12.0	5
SKINTOP® STR M ISO silver-grey (with long metric connecting thread)						
53017110	STR M 16 x 1,5	2-6	19	40.0	12.0	100
53017130	STR M 20 x 1,5	4-9	24	45.0	13.0	100
53017140	STR M 25 x 1,5	6-12	27	47.0	13.0	50
SKINTOP® STR M ISO black (with long metric connecting thread)						
53017310	STR M 16 x 1,5	2-6	19	40.0	12.0	100
53017330	STR M 20 x 1,5	4-9	24	45.0	13.0	100
53017340	STR M 25 x 1,5	6-12	27	47.0	13.0	50

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

New

SKINTOP® CLICK / SKINTOP® CLICK-R



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.

Benefits

SKINTOP® CLICK

- 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

SKINTOP® CLICK-R

- For the benefits, refer to SKINTOP® CLICK

Application range

SKINTOP® CLICK

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

SKINTOP® CLICK-R

- With reducing seal insert, to seal cables with smaller outer diameters.

Approvals



- UL File Nr. E79903

Included

- Included: disassembly tool

Technical data

RAL Colour delivered
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

Material
Body: special polyamide
Seal: special elastomer

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

Temperature range
-20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	M (hole in mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Wall thickness, S (mm)	Pieces / PU
SKINTOP® CLICK light grey								
53112692	CLICK 12	3.5 - 7	12.3 (-0.2)	15 / 18	40.0	8.0	1.0 - 4.0	50
53112686	CLICK 16	5 - 9	16.3 (-0.2)	19 / 22	42.0	8.0	1.0 - 4.0	50
53112687	CLICK 20	7 - 13	20.3 (-0.2)	25 / 27	45.5	8.0	1.0 - 4.0	25
53112688	CLICK 25	9 - 17	25.3 (-0.2)	30 / 34	48.5	8.0	1.0 - 4.0	25
53112694	CLICK 32	11 - 21	32.3 (-0.2)	36 / 40	55.0	8.0	1.0 - 4.0	25
SKINTOP® CLICK silver grey								
53112921	CLICK 12	3.5 - 7	12.3 (-0.2)	15 / 18	40.0	8.0	1.0 - 4.0	50
53112876	CLICK 16	5 - 9	16.3 (-0.2)	19 / 22	42.0	8.0	1.0 - 4.0	50
53112877	CLICK 20	7 - 13	20.3 (-0.2)	25 / 27	45.5	8.0	1.0 - 4.0	25
53112878	CLICK 25	9 - 17	25.3 (-0.2)	30 / 34	48.5	8.0	1.0 - 4.0	25
53112922	CLICK 32	11 - 21	32.3 (-0.2)	36 / 40	55.0	8.0	1.0 - 4.0	25
SKINTOP® CLICK black								
53112923	CLICK 12	3.5 - 7	12.3 (-0.2)	15 / 18	40.0	8.0	1.0 - 4.0	50
53112882	CLICK 16	5 - 9	16.3 (-0.2)	19 / 22	42.0	8.0	1.0 - 4.0	50
53112883	CLICK 20	7 - 13	20.3 (-0.2)	25 / 27	45.5	8.0	1.0 - 4.0	25
53112884	CLICK 25	9 - 17	25.3 (-0.2)	30 / 34	48.5	8.0	1.0 - 4.0	25
53112924	CLICK 32	11 - 21	32.3 (-0.2)	36 / 40	55.0	8.0	1.0 - 4.0	25
SKINTOP® CLICK-R light grey								
53112925	CLICK-R 12	1 - 5	12.3 (-0.2)	15 / 18	40.0	8.0	1.0 - 4.0	50
53112689	CLICK-R 16	4 - 7	16.3 (-0.2)	19 / 22	42.0	8.0	1.0 - 4.0	50
53112690	CLICK-R 20	5 - 10	20.3 (-0.2)	25 / 27	45.5	8.0	1.0 - 4.0	25
53112691	CLICK-R 25	6 - 13	25.3 (-0.2)	30 / 34	48.5	8.0	1.0 - 4.0	25
53112926	CLICK-R 32	7 - 15	32.3 (-0.2)	36 / 40	55.0	8.0	1.0 - 4.0	25
SKINTOP® CLICK-R silver grey								
53112927	CLICK-R 12	1 - 5	12.3 (-0.2)	15 / 18	40.0	8.0	1.0 - 4.0	50
53112879	CLICK-R 16	4 - 7	16.3 (-0.2)	19 / 22	42.0	8.0	1.0 - 4.0	50
53112880	CLICK-R 20	5 - 10	20.3 (-0.2)	25 / 27	45.5	8.0	1.0 - 4.0	25
53112881	CLICK-R 25	6 - 13	25.3 (-0.2)	30 / 34	48.5	8.0	1.0 - 4.0	25
53112928	CLICK-R 32	7 - 15	32.3 (-0.2)	36 / 40	55.0	8.0	1.0 - 4.0	25
SKINTOP® CLICK-R black								
53112929	CLICK-R 12	1 - 5	12.3 (-0.2)	15 / 18	40.0	8.0	1.0 - 4.0	50
53112885	CLICK-R 16	4 - 7	16.3 (-0.2)	19 / 22	42.0	8.0	1.0 - 4.0	50
53112886	CLICK-R 20	5 - 10	20.3 (-0.2)	25 / 27	45.5	8.0	1.0 - 4.0	25
53112887	CLICK-R 25	6 - 13	25.3 (-0.2)	30 / 34	48.5	8.0	1.0 - 4.0	25
53112931	CLICK-R 32	7 - 15	32.3 (-0.2)	36 / 40	55.0	8.0	1.0 - 4.0	25

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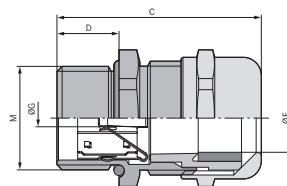
SKINTOP® MS-SC-M



SKINTOP® MS-SC-M-XL



SKINTOP® MS-SC-M



■ Benefits

- Suitable for cables with and without inner sheath
- Also suitable for continuing the cable screen to another connection
- Low-resistance screen contact, optimum EMC protection
- Highly conductive, flexible EMC contact for clamping various screen diameters
- Few operation steps, easy to assemble

■ Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Telecommunication
- Industrial machinery and plant engineering
- Measurement and control technology
- Automation technology

■ Approvals



- UL File Nr. E79903

■ Design

- Metric connection thread acc. to EN 50262

■ Note

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
- Refer to SKINTOP® metric accessories for suitable accessories
- As an alternative for thick-walled housings, we recommend SKINTOP® MS-SC-M-XL with long connection thread in the sizes M16 to M50

■ Technical data

**Caution**

Refer to Main Catalogue 2012/13 Appendix T21 for the installation dimensions and torques

**Material**

Body: nickel-plated brass
Insert: polyamide
Sealing ring: CR
O-ring: NBR

**Protection rating**

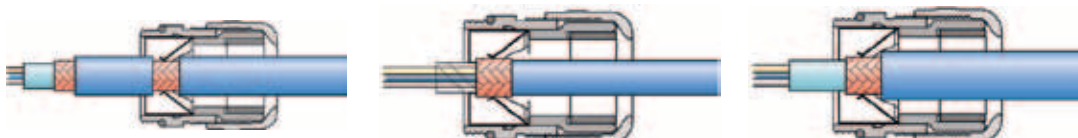
IP 68 - 10 bar

**Temperature range**

-30°C to +100°C

Article number	Article designation / size	Outer Ø (mm), from - to	Minimum Ø above braiding (mm)	SW (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-SC-M						
53112610	12 x 1,5	3,5-7,0	2,0	16	6,5	50
53112620	16 x 1,5	4,5-9,0	4,0	20	7,0	50
53112630	20 x 1,5	7,0-12,5	5,0	24	8,0	25
53112640	25 x 1,5	9,0-16,5	7,5	29	8,0	25
53112650	32 x 1,5	11,0-21,0	9,0	36	9,0	25
53112660	40 x 1,5	19,0-28,0	15,0	45	9,0	10
53112670	50 x 1,5	27,0-35,0	21,0	54	10,0	5
SKINTOP® MS-SC-M-XL						
53112625	16 x 1,5	4,5-9,0	4,0	20	12,0	50
53112635	20 x 1,5	7,0-12,5	5,0	24	12,0	25
53112645	25 x 1,5	9,0-16,5	7,5	29	12,0	25
53112655	32 x 1,5	11,0-21,0	9,0	36	15,0	25
53112665	40 x 1,5	19,0-28,0	15,0	45	15,0	10
53112675	50 x 1,5	27,0-35,0	21,0	54	15,0	5

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



New

SKINTOP® MS-M BRUSH

Benefits

- Faster, easier screen contact
- Optimum, F8480 low-resistance 360° screen contact
- Faster than any other comparable system
- Uncomplicated and reliable
- Maximum assembly freedom during adjustment

Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Automation systems
- High-power drives
- Frequency converters
- Conveyor and transport systems

Approvals



- UL File Nr. E79903

Design

- Metric connection thread acc. to EN 50262

Note

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings



Info

- SKINTOP® MS-M BRUSH sizes 75 x 1.5 to 110 x 2 with innovative double lamella gasket for easier assembling of cables with large diameters.
- Former product name: SKINTOP® MS-SC-M BRUSH

Technical data



Caution

Refer to Main Catalogue 2012/13 Appendix T21 for the installation dimensions and torques



Approvals

VDE, UL, CSA, DNV approval for size M90 x 2 and 110 x 2 pending
SKINTOP® MSR-M BRUSH 25 x 1.5 approvals pending



Material

Body: nickel-plated brass
EMC brush: brass
Sealing ring: special elastomer
O-ring: special elastomer



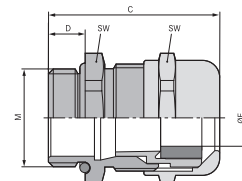
Protection rating

IP 68
IP 69 K (M25x1,5 - M63x1,5)



Temperature range

Dynamic: -30 °C to +100 °C
Fixed: -40 °C to +100 °C



Article number	Article designation / size	Outer Ø (mm), from - to	Minimum Ø above braiding (mm)	SW (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MSR-M BRUSH						
53112671	25 x 1,5	6,0-13,0	5,0	29	8,0	10
SKINTOP® MS-M BRUSH						
53112676	25 x 1,5	9,0-17,0	6,0	29	8,0	10
53112677	32 x 1,5	11,0-21,0	8,0	36	9,0	1
53112678	40 x 1,5	19,0-28,0	10,0	45	9,0	1
53112679	50 x 1,5	27,0-35,0	14,0	54	10,0	1
53112680	63 x 1,5	34,0-45,0	20,0	67	15,0	1
53112681	63 x 1,5 plus	44,0-55,0	25,0	75	15,0	1
53112501	75 x 1,5	53,0-63,0	35,0	95	15,0	1
53112500	75 x 1,5 plus	58,0-68,0	35,0	95	15,0	1
53112503	90 x 2	66,0-78,0	45,0	115	20,0	1
53112505	110 x 2	76,0-88,0	55,0	135	25,0	1
53112504	110 x 2 plus	86,0-98,0	55,0	135	25,0	1

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



SKINTOP® DIX-M



■ Benefits

- Easy insertion of several cables into one gland
- Higher packing density allows smaller part construction

■ Application range

- For use in SKINTOP® cable glands.
- A sealing ring with several holes is used in place of the inner sealing insert.

■ Approvals



■ Note

- IP 68 can be achieved when all openings are closed and all bores are optimally occupied, i.e. when using cables with nominal diameter and/or SKINTOP® DIX-DV sealing plugs

■ Design

- SKINTOP® DIX-M VITON® is resistant to oil, water, alkaline solutions, acids, solvents etc.

■ Technical data

	Upon request Special shapes
	Colour delivered Black (RAL 9005)
	Material NBR VITON®
	Protection rating IP 54
	Temperature range -40°C to +100°C

Article number	Article designation / size	Size M	Number of cables x cable Ø	Pieces / PU
SKINTOP® DIX-M				
53316220	16,220	M 16	2 x 2.0	100
53316230	16,230	M 16	2 x 3.0	100
53316240	16,240	M 16	2 x 4.0	100
53320250	20,250	M 20	2 x 5.0	100
53320260	20,260	M 20	2 x 6.0	100
53320340	20,340	M 20	3 x 4.0	100
53320353	20,353	M 20	3 x 5.3	100
53320440	20,440	M 20	4 x 4.0	100
53320920	20,920	M 20	9 x 2.0	100
53320430	20,430	M 20	4 x 3.0	100
53325260	25,260	M 25	2 x 6.0	50
53325350	25,350	M 25	3 x 5.0	50
53325360	25,360	M 25	3 x 6.0	50
53325370	25,370	M 25	3 x 7.0	50
53325450	25,450	M 25	4 x 5.0	50
53325540	25,540	M 25	5 x 4.0	50
53325640	25,640	M 25	6 x 4.0	50
53332270	32,270	M 32	2 x 7.0	50
53332280	32,280	M 32	2 x 8.0	50
53332290	32,290	M 32	2 x 9.0	50
53332370	32,370	M 32	3 x 7.0	50
53332380	32,380	M 32	3 x 8.0	50
53332460	32,460	M 32	4 x 6.0	50
53332470	32,470	M 32	4 x 7.0	50
53332560	32,560	M 32	5 x 6.0	50
53332650	32,650	M 32	6 x 5.0	50
53332840	32,840	M 32	8 x 4.0	50
53332850	32,850	M 32	8 x 5.0	50
53332940	32,940	M 32	9 x 4.0	50
53340290	40,290	M 40	2 x 9.0	25
53340310	40,310	M 40	3 x 10.0	25
53340480	40,480	M 40	4 x 8.0	25
53340490	40,490	M 40	4 x 9.0	25
53340580	40,580	M 40	5 x 8.0	25
53340590	40,590	M 40	5 x 9.0	25
53340670	40,670	M 40	6 x 7.0	25
53340860	40,860	M 40	8 x 6.0	25
53340969	40,969	M 40	9 x 6.9	25
53350118	50,118	M 50	11 x 8.0	10
53350680	50,680	M 50	6 x 8.0	10
53350780	50,780	M 50	7 x 8.0	10
53350870	50,870	M 50	8 x 7.0	10
53350147	50,147	M 50	14 x 7.0	10
53350164	50,164	M 50	16 x 4.0	10
53350166	50,166	M 50	16 x 6.0	10
SKINTOP® DIX-M VITON®				
53420250	20,250	M 20	2 x 5.0	100
53420260	20,260	M 20	2 x 6.0	100
53440969	40,969	M 40	9 x 6.9	25

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Viton® is a registered trademark of DuPont de Nemours

New

SKINTOP® DIX-M AUTOMATION



SKINTOP® DIX-M AUTOMATION

■ Benefits

- Optimal seal when using AS-I bus cables
- Easy insertion of pre-assembled cables (with fieldbus or RJ-45 connector)
- Strain relief

■ Application range

- These seals can be used instead of our standard seals in the SKINTOP® cable glands.
- Control cabinets
- Control panels
- Office applications
- Automation technology

■ Approvals



■ Note

- IP 68 can be achieved if the hole is optimally occupied, i.e. when using standard AS-I bus cables

■ Design

- Precise cut for AS-I bus cables
- Seal with hole and cut for easy insertion of pre-assembled RJ45 network cables
- Seal with hole and cut for easy insertion of pre-assembled field bus cables
- Multiple seal inserts with holes and slits for easy insertion of pre-assembled cables

■ Technical data

RAL	Colour delivered Black (RAL 9005)
	Material NBR
IP	Protection rating IP 54
	Temperature range -40°C to +100°C

Article number	Article designation / size	Number of cables x cable Ø	Pieces / PU
SKINTOP® DIX-M ASI			
53611001	M 20	1 x AS-I	50
SKINTOP® DIX-M ASI DUO			
53611004	M 25	2 x AS-I	50
SKINTOP® DIX-M RJ-45			
53440980	M 25	1 x 5.4	50
SKINTOP® DIX-M FIELDBUS			
53440970	M 32	1 x 6.5	50
SKINTOP® DIX-M CUT			
53310444	M 40	3 x 10.0	25

New

SKINTOP® CUBE



SKINTOP® CUBE



SKINTOP® CUBE FRAME



SKINTOP® CUBE MODULE



Info

- Innovative multi-cable bushing system with variable clamping ranges for high flexibility in assembling.
- When disassembling, the frame can remain on the housing and the plug-in module remains securely on the cable.

■ Benefits

- Variable range of clamping force
- Vibration-safe module fixation
- Strain relief
- Oil resistance
- Simplified servicing due to easy assembling and disassembling

■ Application range

- For installation of harnessed cables
- Used in areas where cables and wires need to be safely inserted into housings
- Apparatus and switch cabinet construction
- Electronic installations
- Automation technology

■ Approvals



■ Design

- The SKINTOP® CUBE system consists of the SKINTOP® CUBE FRAME and the clip modules SKINTOP® CUBE MODULE.
- For cut-outs for industrial connectors with standard defined boreholes.
- For cut-outs for 16-pin industrial connectors (36 x 86 mm)
- For cut-outs for 24-pin industrial connectors (36 x 112 mm)

■ Note

- SKINTOP® CUBE MODULE 20x20 BLIND can be used as a blind module and for clamping ranges 1 - 3 mm

■ Included

- SKINTOP® CUBE FRAME including mounting material

■ Suitable tools

- Kraftform Kompakt® 10

■ Technical data



Approvals

UL pending



Material

Frame: glass fibre-reinforced polyamide
 Frame seal: CR
 Clip module: special polypropylene
 Clip module seal: LSE 2



Protection rating

IP 64
 NEMA 12



Temperature range

-20°C to +80°C

Article number	Article designation / size	Clamping range ØF (mm)	Max. number of executions	Pieces / PU
SKINTOP® CUBE Frame				
52220000	SKINTOP® CUBE FRAME 16		8	1
52220001	SKINTOP® CUBE FRAME 24		10	1
SKINTOP® CUBE clip modules				
52220004	SKINTOP® CUBE MODULE 20x20 BLIND	1 - 3		5
52220002	SKINTOP® CUBE MODULE 20x20 SMALL	4 - 6		5
52220003	SKINTOP® CUBE MODULE 20x20 LARGE	6 - 9		5
52220040	SKINTOP® CUBE MODULE 20x20 AS-I BUS	AS-I BUS Cable		5
52220005	SKINTOP® CUBE MODULE 40x40 SMALL	9 - 12		5
52220006	SKINTOP® CUBE MODULE 40x40 LARGE	12 - 16		5
52220007	SKINTOP® CUBE MODULE 40x40 BLIND			5

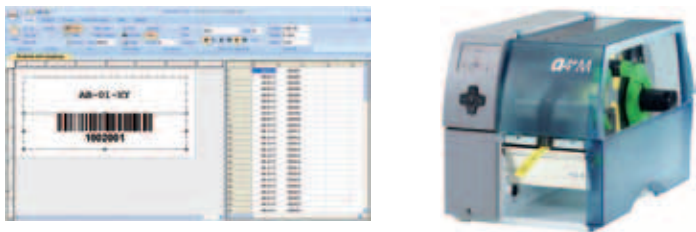
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Cross Selling

EPIC® Industrial connectors		
Product	Page Main Catalogue 2012/13	
EPIC® MC Modules	477	
EPIC® CIRCON M23 Housings	597	

SILVYN® Protective cable conduit- and cable carrier systems		
Product	Page Main Catalogue 2012/13	
SILVYN® RILL PA 6	811	
SILVYN® KCLICK-GM	784	
SILVYN® CHAIN power chain application	-	

FLEXIMARK® Cable marking products		
Product	Page Main Catalogue 2012/13	
FLEXIMARK® Software	877	
FLEXIMARK® Transfer Printer A4+M/300	885	
Accessories for Transfer Printer A4+M/300	886	

Cable Accessories		
Product	Page Main Catalogue 2012/13	
TWIST TAIL™ cable tie	954	
Kraftform® adjustable torque screwdriver/		
Kraftform Kompakt® Set	976	
FC Strip stripping tool	908	
AS-I STRIP special stripping tool	908	
DATA STRIP stripping tool	907	
PTS 4 stripping and cutting tool	905	
Universal strip stripping and cutting tool	906	

Please order our new Main Catalogue 2012/13: www.lappkabel.com/service

Notices

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 Main Catalogue 2012/13. 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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