THE WORLD OF LAPP

Automation & Network Guide



LAPP GROUP

Welcome

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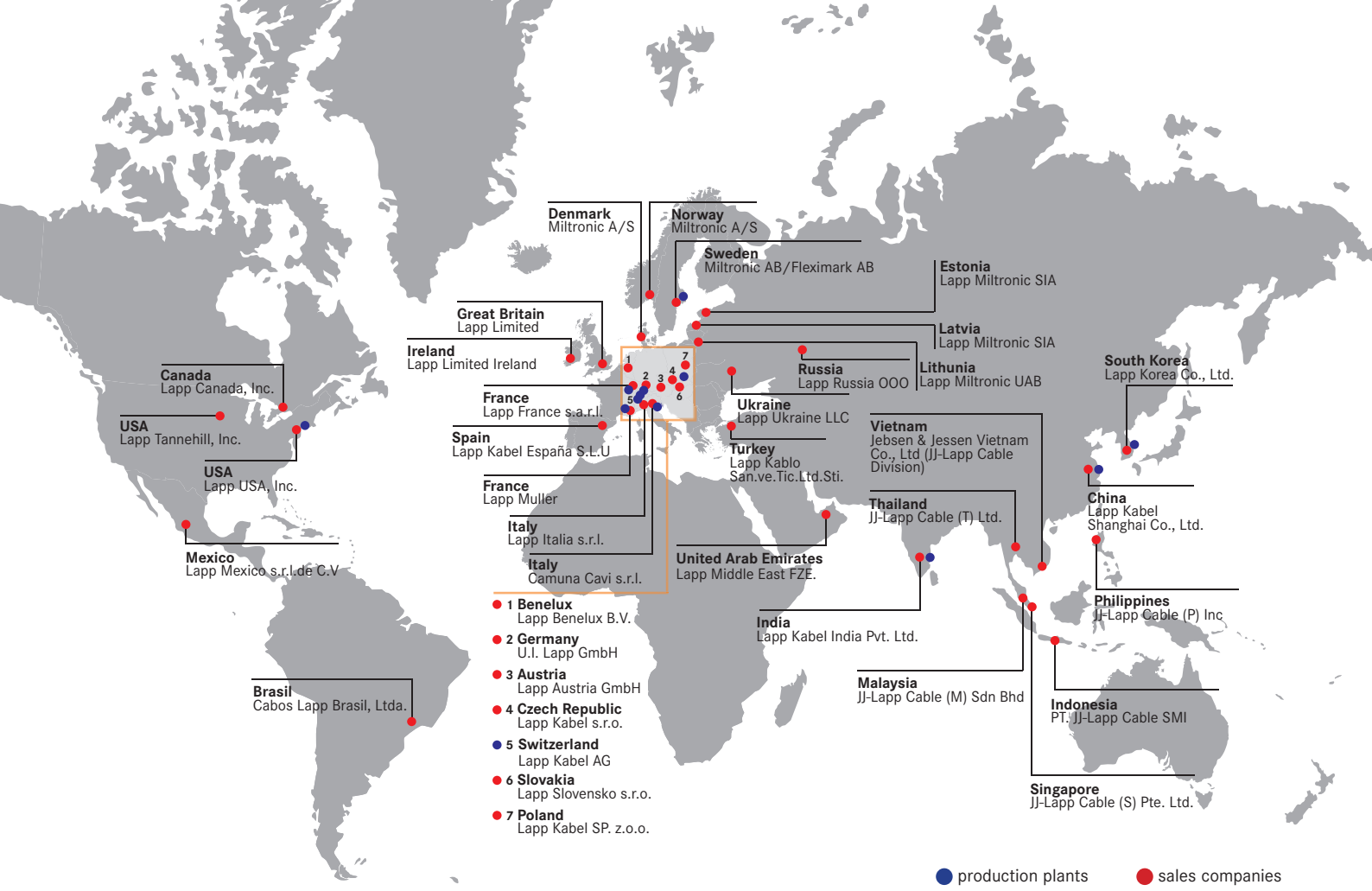
Content



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, more than 100 sales partners and 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

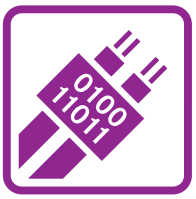
Brand quality from Stuttgart

ÖLFLEX®
Power- and control cables

The world's first brand cable is available in the most varied of versions to match maximum requirements.
Key features: Oil-resistant, flexible and available to match almost any requirement or environmental condition – also free of halogens.
Fields of application: Multipurpose. Special variants are more and more in demand in the area of renewable energies.

EPIC®
Industrial connectors

The brand for strong and reliable connections.
Key features: Robust square and circular connectors. Flexible system consisting of housings, inserts, contacts and accessories – for every requirement, the tailor-made solution. Similarly, EPIC® SOLAR plugs for photovoltaics are also part of the extensive product range.
Fields of application: Mechanical and systems engineering, drive technology, Automation.

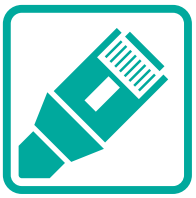


UNITRONIC®
Data communication systems

The ideal brand for fast, trend-setting and reliable data transfer.
Key features: UNITRONIC® are not only data lines, but also bus lines, which together with active sensor/actuator modules or gateways provide a perfect system for automation.
Fields of application: Measurement, control, regulation, bus or LAN networks.

SKINTOP®
Cable glands

The brand for multipurpose cable entries in line with the following: quickly fastened, centred and hermetically sealed.
Key features: Large clamping areas, optimum strain reliefs, the most diverse of versions such as SKINTOP® CLICK, COLD or CUBE.
Fields of application: Everywhere, where cables must be fastened reliably and quickly.



ETHERLINE®
Data communication systems for ETHERNET-Technology

The brands for network solutions, safety systems and firewalls in the industrial networking sector.
Key features: System solutions consisting hardware, software, consulting, network design and support.
Fields of application: Factory automation, Renewable Energy, Building technology, Structured cabling.

SILVYN®
Protective cable conduit- and cable carrier systems

The brand for all-round cable protection.
Key features: The product range includes SILVYN® cable protection hoses for perfect protection against mechanical and chemical loads, along with SILVYN® CHAIN energy supply chains for highly-dynamic applications.
Fields of application: Everywhere that cables have to be additionally protected or routed.

HITRONIC®
Optical transmission systems

The brand for split-second, fault-free, intercept-free data transport.
Key features: The HITRONIC® product range includes fibre optic cables in the most varied of versions, along with suitable accessories such as splice boxes, wall distributors or couplings.
Fields of application: Office and industrial sector, Renewable Energy.

FLEXIMARK®
Marking systems

The brand for permanent, clearly-arranged cable markings.
Key features: Comprehensive range – from manual labelling solutions onto digital identification. Withstands high chemical, thermal and mechanical loads.
Fields of application: All cable, single cores, control cabinets.

Content Productfinder

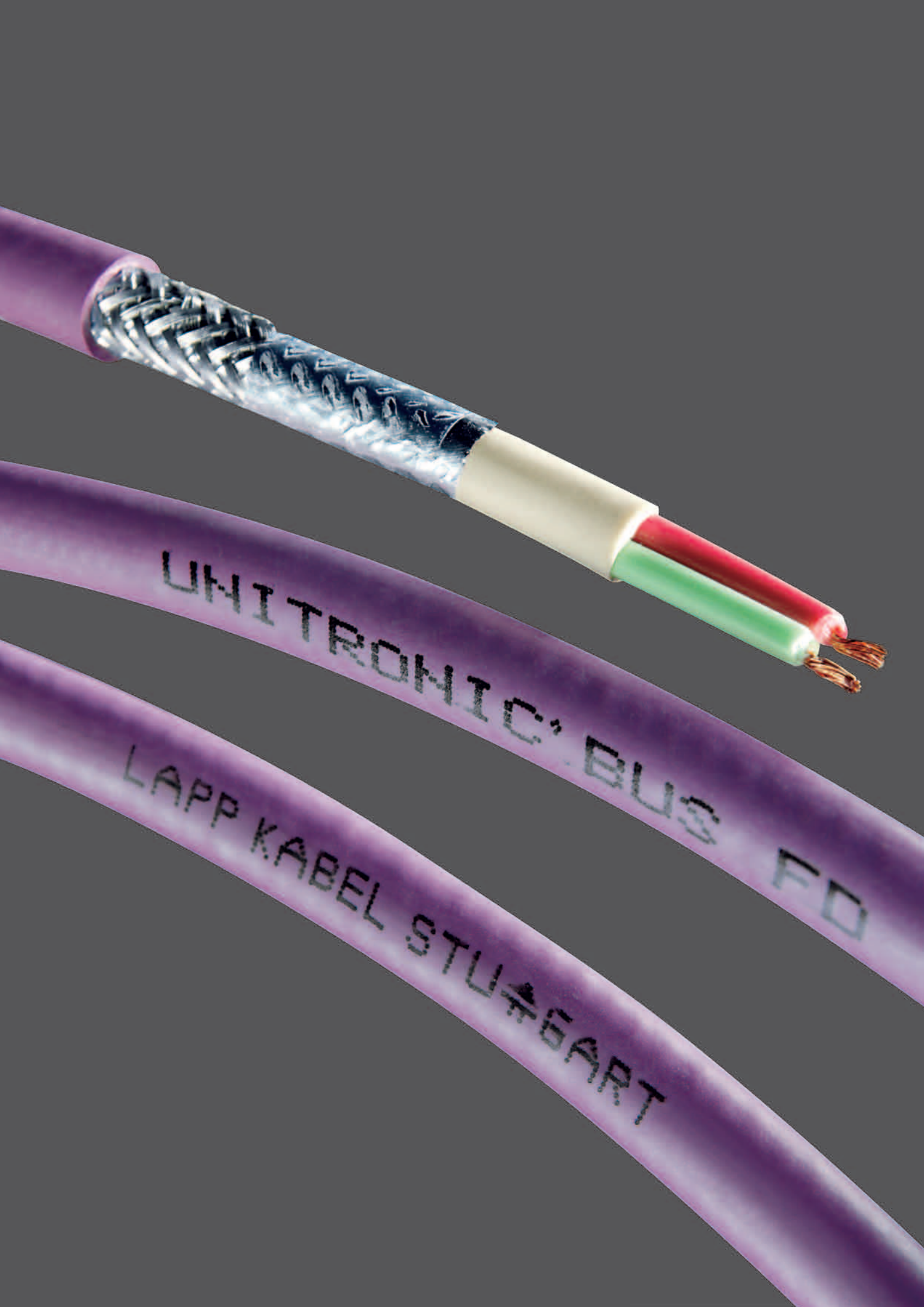
Bus cables

Fieldbussystem

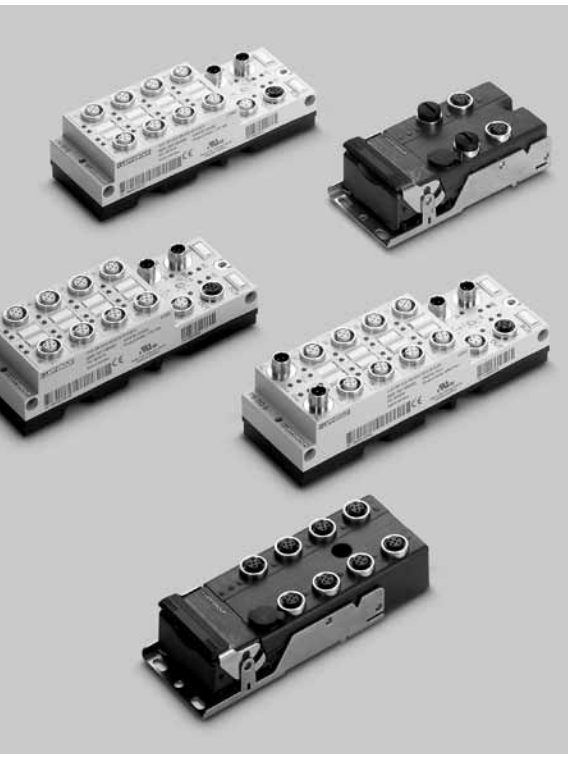
ETHERNET in Automation

Fibre optic cables

For current information see www.lappgroup.com/products


UNITRONIC® BUS FD
LAPP KABEL STUTTGART

The complete range



Sensor/Actuator boxes

Sensor/actuator boxes with the standardized connection technology provide connections to all commercially available sensors and -actuators and are the solution for decentralizing small numbers of I/O's. Sensor/actuator boxes can be connected to the Profibus, DeviceNet™ and CANopen fieldbus systems. Regardless of -whether you are installing them on profiles, on flat surfaces or under rough conditions – the assembly concept ensures flexibility and reduces the installation costs. The devices enable assembly in two directions and are thus suitable for every application. The arrangement of connectors minimizes the installation time even under rough conditions.

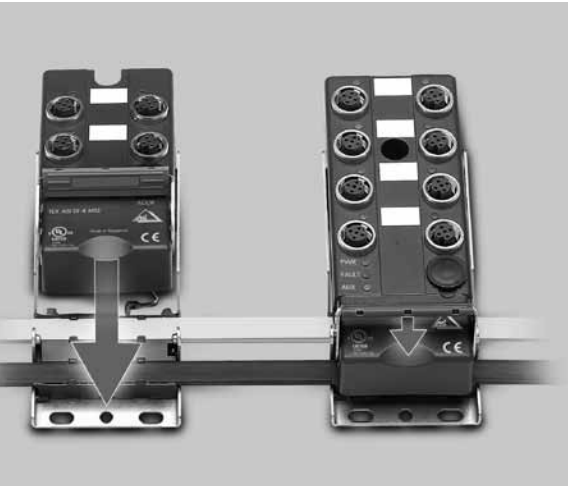
Sensor/Actuator cables

A comprehensive range of preassembled conductors with M8-, M12- and valve-connectors for rapid wiring of sensors and actuators in the field are available. Sensor/actuator cables with LEDs can be used for simplified control of signal status. Shielded wiring types are also available for those applications with higher EMV capability.

AS-i boxes – Easy cabling in the lower field level

The AS-i devices were designed for efficiently networking sensors and actuators in the AS-i network and allow for fast and safe installation with tool-free contacting.

AS-i devices can be installed quickly and easily. The locking mechanism allows a tool-free connection to the AS-i flat conductors. They are pressed into the corresponding guide aids and the module electronics are moved forward. The devices are connected to the AS-i flat conductors using the penetration technique by snapping the hinged section into place.



Sensor/Actuator flush type connectors and customer assembled plug connectors

M8 and M12 flush type connectors with integrated braid for device connection to the PCB is available. Freely customizable plug connectors can be used for rapid assembly of individual wiring lengths of M8 and M12 sensor/actuator cables. Here it is possible to choose between versions with screw or fast connectors.

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 Saftey 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)

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 **C**onnect, vibration resistant, UV-resistant, black
				UL/CSA (CMG)	**F**ast **C**onnect, UV-resistant
				UL/CSA (CMG)	**F**ast **C**onnect, vibration resistant, UV-resistant
					vibration resistant, COMBI 3 x 1 mm²
					105 °C
			H	UL/CSA (CM)	**F**ast **C**onnect, halogen-free
				UL/CSA (CMG)	**F**ast **C**onnect, halogen-free
					halogen-free
			PUR	UL/CSA (CMX)	**F**ast **C**onnect, oil resistant
			ROBUST		higher chemical resistance, UV-resistant
			PE		**F**ast **C**onnect, food & beverage industry, black, UV-resistant
					food & beverage industry, black, UV-resistant
			TPE		105°C; temporary up to 120°C
		high flexible	PUR		drag chain suitable, halogen-free, oil resistant
				UL/CSA (CMX)	drag chain suitable, halogen-free, oil resistant
				UL/CSA (CMX)	**F**ast **C**onnect, drag chain suitable, oil resistant
					drag chain suitable, oil resistant, COMBI 3 x 1 mm²
					drag chain suitable, oil resistant, COMBI 4 x 1.5 mm²
			PVC	UL/CSA (CMG)	drag chain suitable, oil resistant, UV-resistant, COMBI 4 x 1.5 mm²
			FRNC	UL/CSA (CMG)	**F**ast **C**onnect, 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		**F**ast **C**onnect, UV-resistant, burial, black
PROFIBUS PA (100 Ω)	indoor	static	PVC		Ex area, blue
	indoor/outdoor				UV-resistant, black
				UL/CSA (CMG)	**F**ast **C**onnect, Ex area, oil resistant, UV-resistant, blue
					Fast **C**onnect, 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.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.lappgroup.com/products).

7-W: 7-Wire: 7-stranded litz, dedicatet 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

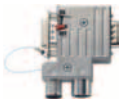
Article designation	Part number	Page	Connectors
UNITRONIC® BUS PB	2170220	31	1,2,7,8,9,10,15,16,21,22,23,24,27,28,29
UNITRONIC® BUS PB A	2170219	31	1,2,7,8,9,10,15,16,21,22,23,24,27,28,29
UNITRONIC® BUS PB 7-W A	2170824	31	1,2,7,8,15,16,21,22,23,24,30,31
UNITRONIC® BUS PB Y 7-W FC BK	2170310	36	5,6,12,14,19,20,26,30,31
UNITRONIC® BUS PB FC	2170820	31	3,4,11,13,17,18,25
UNITRONIC® BUS PB 7-W FC	2170826	31	5,6,12,14,19,20,26,30,31
UNITRONIC® BUS PB COMBI 7-W	2170225	31	
UNITRONIC® BUS PB 105	2170630	32	1,2,7,8,9,10,15,16,21,22,23,24,27,28,29
UNITRONIC® BUS PB H FC	2170326	31	3,4,11,13,17,18,25
UNITRONIC® BUS PB FRNC FC	2170853	33	3,4,11,13,17,18,25,28,29
UNITRONIC® BUS PB H 7-W	2170226	31	1,2,7,8,15,16,21,22,23,24,30,31
UNITRONIC® BUS PB P FC	2170330	31	3,4,11,13,17,18,25
UNITRONIC® BUS PB ROBUST	2170620	32	1,2,7,8,9,10,15,16,21,22,23,24
UNITRONIC® BUS PB PE FC	2170333	31	3,4,11,13,17,18,25
UNITRONIC® BUS PB PE	2170233	31	1,2,7,8,9,10,15,16,21,22,23,24,27,28,29
UNITRONIC® BUS PB 105 plus	2170635	33	1,2,7,8,9,10,15,16,21,22,23,24,27,28,29
UNITRONIC® BUS PB FD P	2170222	36	1,2,7,8,15,16,21,22,23,24,30,31
UNITRONIC® BUS PB FD P A	2170822	37	1,2,7,8,15,16,21,22,23,24,30,31
UNITRONIC® BUS PB FD P FC	2170322	38	5,6,12,14,19,20,26,30,31
UNITRONIC® BUS PB FD P COMBI	2170227	40	
UNITRONIC® BUS PB FD P HYBRID	2170495	40	
UNITRONIC® BUS PB FD Y HYBRID	2170875	41	
UNITRONIC® BUS PB FD FRNC FC	2170854	39	5,6,12,14,19,20,26,30,31
UNITRONIC® BUS PB TORSION	2170332	41	1,2,7,8,15,16,21,22,23,24,30,31
UNITRONIC® BUS PB FESTOON	2170331	42	1,2,7,8,15,16,21,22,23,24,30,31
UNITRONIC® BUS PB ARM	2170247	34	
UNITRONIC® BUS PB Yv	2170223	34	
UNITRONIC® BUS PB YY	2170236	35	1,2,7,8,9,10,15,16,21,22,23,24,27,28,29***
UNITRONIC® BUS PB BURIAL FC	2170323	35	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	47	35,36,32,33
UNITRONIC® BUS CAN 2X2X0,22	2170261	47	
UNITRONIC® BUS CAN 1X2X0,34	2170263	47	
UNITRONIC® BUS CAN 2X2X0,34	2170264	47	
UNITRONIC® BUS CAN 1X2X0,5	2170266	47	
UNITRONIC® BUS CAN 1X2X0,5	2170267	47	
UNITRONIC® BUS CAN 1X2X0,75	2170269	47	
UNITRONIC® BUS CAN 2X2X0,75	2170270	47	
UNITRONIC® BUS CAN FD P 1X2X0,25	2170272	47	
UNITRONIC® BUS CAN FD P 2X2X0,25	2170273	47	
UNITRONIC® BUS CAN FD P 1X2X0,34	2170275	47	
UNITRONIC® BUS CAN FD P 2X2X0,34	2170276	47	
UNITRONIC® BUS CAN FD P 1X2X0,5	2170278	47	
UNITRONIC® BUS CAN FD P 2X2X0,5	2170279	47	
UNITRONIC® BUS DN THICK FRNC	2170340	45	
UNITRONIC® BUS DN THIN FRNC	2170341	45	35,36,32,33
UNITRONIC® BUS DN THICK Y	2170342	45	
UNITRONIC® BUS DN THIN Y	2170343	45	35,36,32,33
UNITRONIC® BUS DN THICK Y ECO	2170362	*	
UNITRONIC® BUS DN THIN Y ECO	2170363	*	35,36,32,33
UNITRONIC® BUS DN THICK FD P	2170344	46	
UNITRONIC® BUS DN THIN FD P	2170345	46	35,36,32,33
UNITRONIC® BUS DN THICK FD Y	2170346	46	
UNITRONIC® BUS DN THIN FD Y	2170347	46	35,36,32,33

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 – Polyvinylchorid

Bus cables

Connectors

No.	Cable type	Core dimension	Article designation	Part number	Page	
PROFIBUS D-SUB						
1	solid + flexible	≤ 1 mm²	ED-PB-35	21700507	*	
2	solid + flexible	≤ 1 mm²	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	21700513	*	
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 mm²	ED-PB-90	21700504	*	
8	solid + flexible	≤ 1 mm²	ED-PB-90-PG	21700503	*	
9	solid	≤ 0.5 mm²	ED-PB-90-ST	21700509	*	
10	solid	≤ 0.5 mm²	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 mm²	ED-PB-90-LED	21700530	*	
16	solid + flexible	≤ 1 mm²	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 mm²	ED-PB-90-ATEX	21700543	*	
22	solid + flexible	≤ 1 mm²	ED-PB-90-PG-ATEX	21700542	*	
23	solid + flexible	≤ 1 mm²	ED-PB-90-RP-PG	21700541	*	
24	solid + flexible	≤ 1 mm²	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 mm²	ED-PB-35-PG-ST-PRO	21700564	43	
28	solid	<= 0.5 mm²	ED-PB-90-PG-ST-PRO	21700565	43	
29	solid	<= 0.5 mm²	ED-PB-AX-PG-ST-PRO	21700566	43	
PROFIBUS M12						
30	flexible	0.25 – 0.75 mm²	AB-C5-M12MSB-PG9-SH-AU	22260653	107	
31	flexible	0.25 – 0.75 mm²	AB-C5-M12FSB-PG9-SH-AU	22260646	107	

CAN BUS/DeviceNet M12						
32	flexible	0.25 – 0.75 mm²	AB-C5-M12MS-PG9-SH	22260135	107	
33	flexible	0.25 – 0.75 mm²	AB-C5-M12FS-PG9-SH	22260136	107	

CAN/CANopen/DeviceNet						
34	solid + flexible	≤ 1 mm²	ED-CAN-90	21700537	*	
35	solid + flexible	≤ 1 mm²	ED-CAN-90-PG	21700536	*	
36	solid + flexible	≤ 1 mm²	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	99	
42	flexible	2 x AS-i → 4-pin M12	AB-ASI-J-Y-B-M12FS	22260801	99	
43	flexible	1 x AS-i → 2 x AS-i	AB-ASI-J-Y-Y-N	22260802	99	
44	flexible	1 x AS-i → 2-pin M12 1m	AB-ASI-J-Y-N-PUR-1,0-M12FS	22260803	99	
45	flexible	1 x AS-i → 2-pin M12 2m	AB-ASI-J-Y-N-PUR-2,0-M12FS	22260804	99	
46	flexible	2 x AS-i → 4-pin M12 1m	AB-ASI-J-Y-B-PUR-1,0-M12FS	22260805	99	
47	flexible	2 x AS-i → 4-pin M12 2m	AB-ASI-J-Y-B-PUR-2,0-M12FS	22260806	99	

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.lappgroup.com/products).

Bus cables

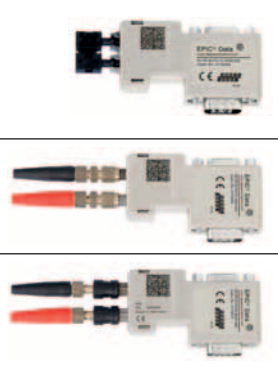
PROFIBUS quick and easy

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	43
4	EPIC® Data PRO, solid metall	ED-PB-90-PG-M12-PRO	21700562	43
5	EPIC® Data PRO, solid metall	ED-PB-AX-PG-M12-PRO	21700563	43

	M12 PROFIBUS Termination Resistors			
6	360° metall shielded, female straight	AB-C5-M12FS-PB-TR-SH	22261001	108
7	Plastic, male straight	AB-C4-M12MS-PB-TR	22260722	108

	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	104
9	UNITRONIC® PROFIBUS M12 cable, PUR high flexible, straight 1 m	AB-PB-M12MS-1,0-PUR-M12FS	22260774	104
10	UNITRONIC® PROFIBUS M12 cable, PUR high flexible, straight 2 m	AB-PB-M12MS-2,0-PUR-M12FS	22260775	104
11	UNITRONIC® PROFIBUS M12 cable, PUR high flexible, straight 5 m	AB-PB-M12MS-5,0-PUR-M12FS	22260776	104
12	UNITRONIC® PROFIBUS M12 cable, PUR high flexible, straight 10 m	AB-PB-M12MS-10,0-PUR-M12FS	22260776	104
13	UNITRONIC® PROFIBUS M12 cable, PUR high flexible, M12 angled 5 m	AB-PB-M12MA-5,0PUR-M12FA	22260079	104
14	UNITRONIC® PROFIBUS M12 cable, PUR high flexible, M12 angled 10 m	AB-PB-M12MA-10,0PUR-M12FA	22260904	104
15	UNITRONIC® PROFIBUS M12 cable, PUR hochflexibel, M12 angled 15 m	AB-PB-M12MA-15,0PUR-M12FA	22260905	104

	EPIC® Data PROFIBUS (Optical Link Module)			
16	PROFIBUS-connector with optical HFBR interface (λ = 650 nm) , 90°	ED-PB-90-PG-FO-HFBR-650	21700568	44
17	PROFIBUS-connector with optical SMA interface (λ = 650 nm) , 90°	ED-PB-90-PG-FO-SMA-650	21700569	44
18	PROFIBUS-connector with optical (BFOC)ST interface (λ = 650 nm) , 90°	ED-PB-90-PG-FO-BFOC-650	21700570	44



Legend

35°	35 degree	FC	Fast connect	MS	Male straight
90°	90 degree	FLEX	Flexible	PB	PROFIBUS
AB	Automation Bus	FO	Fiber Optic	PG	Programing/service port
ATEX	ATEX (Atmosphère explosible)	FS	Female straight	RP	Repeater
AX	Axial (180°)	HFBR	HFBR interface (compatible with HP Versatile Link connectors and components series)	SMA	SMA interface
BFOC	BFOC (ST) interface			ST	Spring type
ED	EPIC® Data				
FA	Female angled	MA	Male angled		

Please see detailed technical information on the data sheet (www.lappgroup.com/products).

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)
			PUR	
		high flexible	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, dedicatet 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, tenside
vibration resistant:	Vibration resistant because single core ist 7-wire stranded
Y:	PVC – Polyvinylchorid

*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.lappgroup.com/products).

Bus cables

Characteristics	Article designation	Part number	Page	Connectors
food & beverage industry, halogen-free	UNITRONIC® BUS ASI (G) YE	2170228	29	41-47
	UNITRONIC® BUS ASI (G) BK	2170229	29	
Long Distance, saving of power supplies	UNITRONIC® BUS ASI LD(G) YE 2x2,5	2170371	29	
	UNITRONIC® BUS ASI LD(G) BK 2x2,5	2170372	29	
oil resistant, cold flexible	UNITRONIC® BUS ASI (TPE) YE	2170230	29	
	UNITRONIC® BUS ASI (TPE) BK	2170231	29	
	UNITRONIC® BUS ASI (TPE) RD	2170232	29	
oil resistant	UNITRONIC® BUS ASI (PVC) A YE	2170842	29	
	UNITRONIC® BUS ASI (PVC) A BK	2170843	29	
oil resistant	UNITRONIC® BUS ASI (PVC) A RD	2170844	*	
drag chain, oil resistant, Long Distance, halogen-free	UNITRONIC® BUS ASI FD P FRNC YE	2170311	*	
	UNITRONIC® BUS ASI FD P FRNC BK	2170312	*	
drag chain, oil resistant, cold flexible, Long Distance, halogen-free	UNITRONIC® BUS ASI LD FD P YE 2x2,5	2170318	30	
	UNITRONIC® BUS ASI LD FD P BK 2x2,5	2170319	*	
drag chain suitable, oil resistant, 105 °C	UNITRONIC® BUS ASI FD (TPE) A YE	2170830	30	
	UNITRONIC® BUS ASI FD (TPE) A BK	2170831	30	
	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	99
42	flexible	2 x AS-i → 4-pos. M12	AB-ASI-J-Y-B-M12FS	22260801	99
43	flexible	1 x AS-i → 2 x AS-i	AB-ASI-J-Y-Y-N	22260802	99
44	flexible	1 x AS-i → 2-pos. M12 1m	AB-ASI-J-Y-N-PUR-1,0-M12FS	22260803	99
45	flexible	1 x AS-i → 2-pos. M12 2m	AB-ASI-J-Y-N-PUR-2,0-M12FS	22260804	99
46	flexible	2 x AS-i → 4-pos. M12 1m	AB-ASI-J-Y-B-PUR-1,0-M12FS	22260805	99
47	flexible	2 x AS-i → 4-pos. M12 2m	AB-ASI-J-Y-B-PUR-2,0-M12FS	22260806	99

Type designation UNITRONIC® Fieldbus

1. S/A cabling

S/A cable

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

AB-C	3	-	M8MS	-
Automation bus cordset	Number of pin		Connection left	
	3		**M8MS (M8 connector straight)**	
	4		M12MS (M12 connector straight)	
	5			
	8			

Automation bus Power cable	
AB-PC	4

Valve connector

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

AB-C	3	-	M12MS	-
Automation bus cordset	Number of pin		Connection left	
	3		**M12MS (M12 connector straight)**	
	4			
	5			
	8			

Connector
(field attachable)

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

AB-C	5	-		M12FS	-
Automation bus cordset	Number of pin			Connectors	
	3			M8MS (M8 connector straight)	
	4			M8FS (M8 socket straight)	
	5			M12MS (M12 connector straight)	
				M12MA (M12 connector angled)	
				M12FS (M12 socket straight)	
			DSI	M12FA (M12 socket angled)	
			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	-	M12	-
Automation bus-Box	Number of slots		S/A connection	
	4		M8	
	6		**M12**	
	8			
	10			

3. S/A box active

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

AB-	ASI	-	DI4	-
Automation bus	Interface		Digital inputs	
	ASI (AS-Interface)		2	
	PB (PROFIBUS)		**4**	
	CAN (CANopen)		8	
	DN (DeviceNet)		16	

4. Pre-assembled bus cables

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

AB-	PB	-	M12MS	-
Automation bus	Interface		Connection left	
	PB (PROFIBUS)		**M12MS (M12 connector straight)**	
	CAN (CANopen)		M12MA (M12 connector angled)	
	DN (DeviceNet)			

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)**			**SH**	
2,0				M12FS (M12 socket straight)			**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 (Type A)**		**1L**		**S (Z diode)**
0,6				AD(Type AD)		2L		SV (Varistor)
1,0				B (Type B)				
2,0				BI (Type BI)				
...				C (Type C)				
...				CI (Type CI)				

PG9	-	SH
Cable connection		**shielded Version**
PG7		**SH**
PG9		
F0,34 (fast connect, max. 0.34 mm² conductor cross-section)		
F0,75 (fast connect, max. 0.75 mm² 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)		

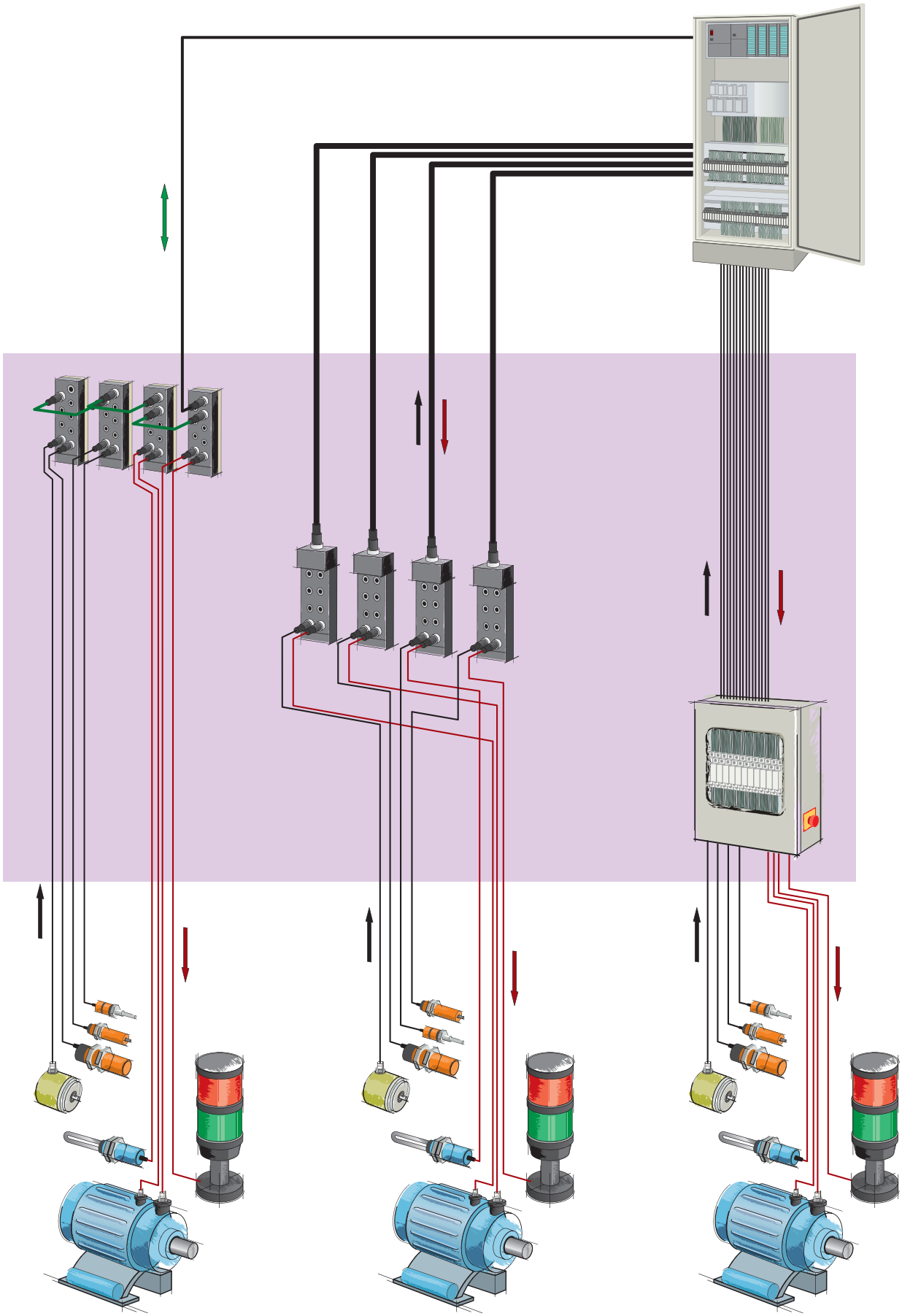
L	-	16	-	10,0	-	PUR
LED		**Number of inputs/outputs**		**Master cable connection**		**Material of cable**
L		4		5,0 (5.0 m length of master cable)		**PUR**
		6		**10,0 (10.0 m length of master cable)**		
		8		C (pluggable, for master cable bulk stock)		
		10		M12 (M12 master cable connection)		
		12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

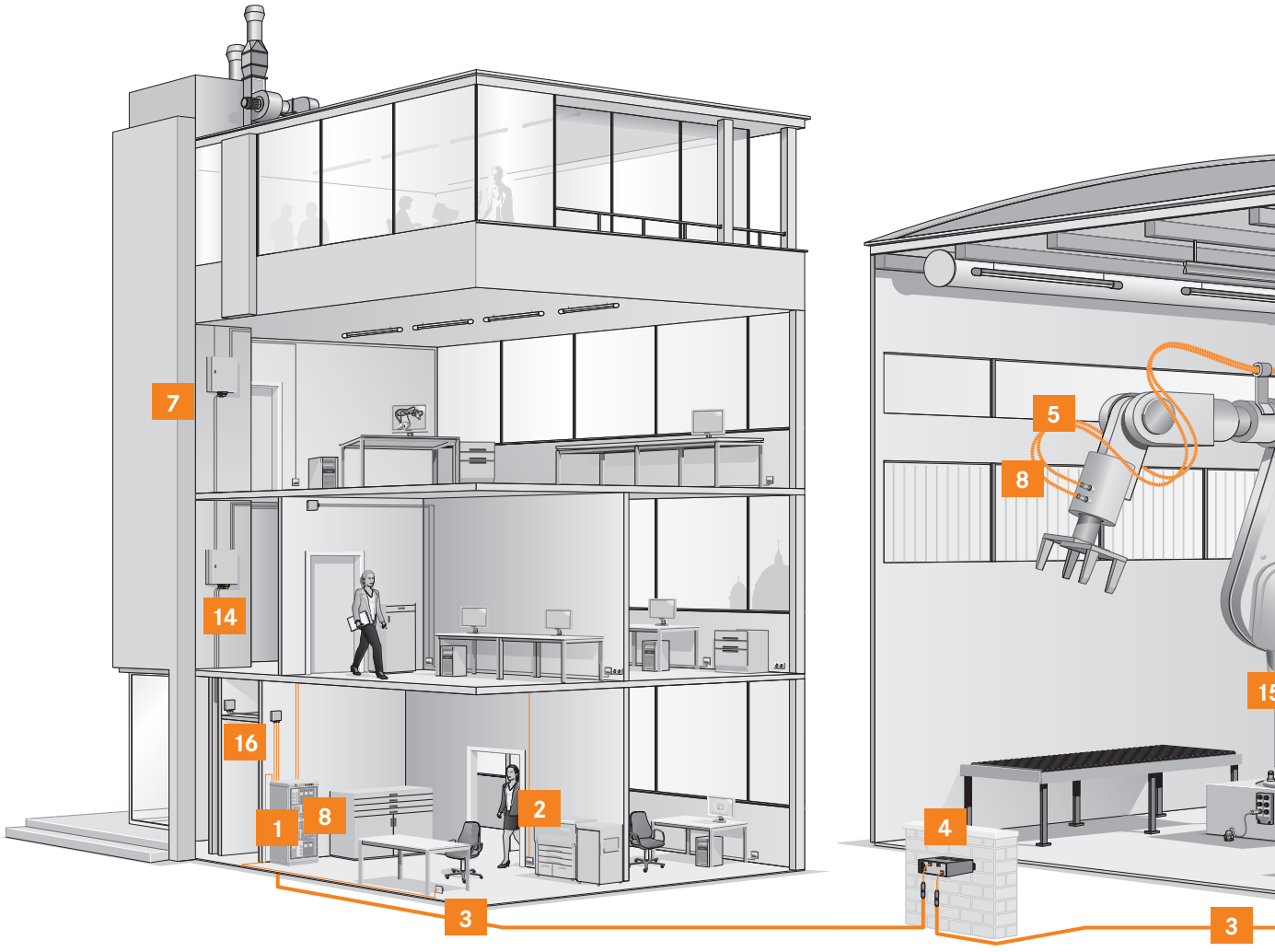
5 SILVYN®
Protective Cable Conduit Systems

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

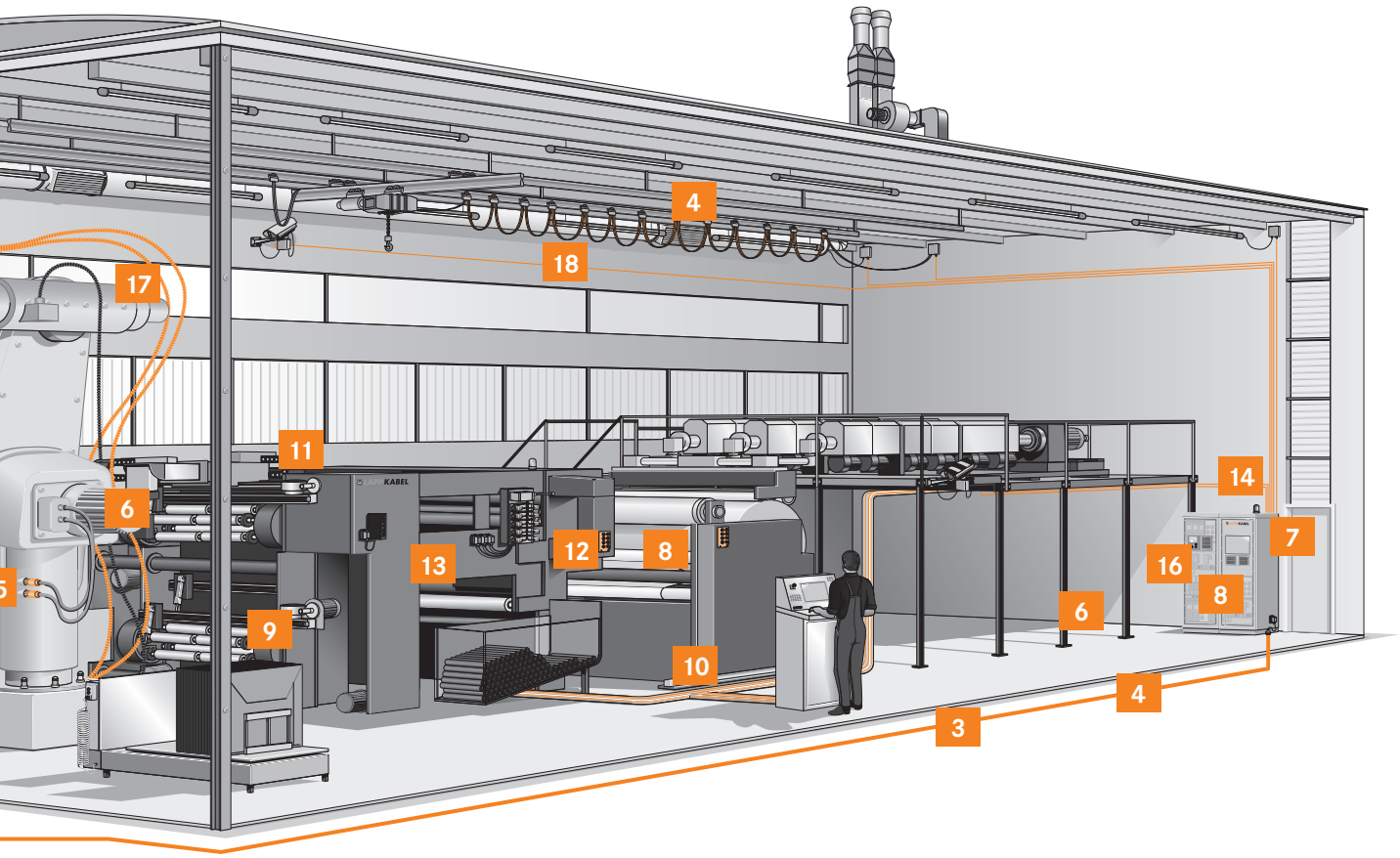
14 SKINTOP®
Cable Entry Systems

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	52	22260300	60	22260053	52	22260056	60	22260221	48	22260320	56	22260400	63		
		5.0 m	22260205	52	22260308	60	22260987	52	22260057	60	22260222	48	22260321	56	22260401	63		
		10.0 m	22260218	52	22260318	60	22260055	52	22260058	60	22260249	48	22260342	56	22260414	63		
M8 socket	straight socket (M8FS)	3-pin	0.3 m	22260206	52						22260225	48						
			0.6 m	22260207	52						22260226	48						
			1.0 m	22260208	52						22260227	48						
			2.0 m	22260209	52						22260228	48						
		4-pin	0.3 m			22260313	55						22260347	59				
			0.6 m			22260314	55						22260349	59				
			1.0 m			22260315	55						22260350	59				
			2.0 m			22260316	55						22260348	59				
	angled socket (M8FA)	3-pin	0.3 m	22260210	54						22260229	51						
			0.6 m	22260211	54						22260230	51						
			1.0 m	22260212	54						22260231	51						
			2.0 m	22260213	54						22260232	51						
		4-pin	0.3 m							22260059	62							
			0.6 m							22260060	62							
			1.0 m							22260061	62							
			2.0 m							22260062	62							
	angled socket with LEDs (M8FA-2L)	3-pin	0.3 m	22260214	54						22260267	51						
			0.6 m	22260215	54						22260268	51						
			1.0 m	22260216	54						22260269	51						
			2.0 m	22260217	54						22260270	51						
M12 socket	straight socket (M12FS)	3-pin	0.3 m	22260241	55						22260233	50						
			0.6 m	22260242	55						22260234	50						
			1.0 m	22260243	55						22260235	50						
			2.0 m	22260244	55						22260236	50						
		4-pin	0.3 m										22260328	58				
			0.6 m										22260329	58				
			1.0 m										22260330	58				
			2.0 m										22260331	58				
		5-pin	0.3 m												22260410	65		
			0.6 m												22260411	65		
			1.0 m												22260412	65		
			2.0 m												22260413	65		
		8-pin	0.3 m															
			0.6 m															
			1.0 m															
			2.0 m															
	straight socket with LEDs (M12FS-2L)	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															

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)

S/A

Please see detailed technical information on the data sheet (www.lappgroup.com/products).

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	66	22260223	48	22260301	56	22260402	63	22260094	66	22260453	68	22260459	68	22260465	68			
22260092	66	22260224	48	22260302	56	22260403	63	22260095	66	22260454	68	22260460	68	22260466	68			
22260093	66	22260256	48	22260303	56	22260417	63	22260096	66	22260455	68	22260461	68	22260467	68			
																2.0 m	22260202	53
																5.0 m	22260200	53
																10.0 m	22260219	53
																2.0 m	22260309	54
																5.0 m	22260310	54
																10.0 m	22260317	54
																2.0 m	22260203	61
																5.0 m	22260201	61
																10.0 m	22260220	61
																2.0 m	22260311	61
																5.0 m	22260312	61
																10.0 m	22260319	61
																2.0 m	22260275	53
																5.0 m	22260276	53
																10.0 m	22260277	53
																2.0 m	22260257	49
																5.0 m	22260250	49
																10.0 m	22260251	49
				22260304	58											2.0 m	22260322	57
				22260305	58											5.0 m	22260323	57
				22260306	58											10.0 m	22260343	57
				22260307	58													
																2.0 m	22260404	64
																5.0 m	22260405	64
																10.0 m	22260415	64
22260097	67															2.0 m	22260726	66
22260098	67															5.0 m	22260728	66
22260099	67															10.0 m	22260729	66
22260042	67																	
																2.0 m	22260252	49
																5.0 m	22260265	49
																10.0 m	22260266	49
																2.0 m	22260344	57
																5.0 m	22260345	57
																10.0 m	22260346	57

See continuation page 13

1a. Sensor/actuator cordsets (continuation)

S/A selector				M8 connector													
				straight (M8MS)				angle (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
M12 socket	angled socket (M12FA)	3-pin	0.3 m	22260245	55							22260237	50				
			0.6 m	22260246	55							22260238	50				
			1.0 m	22260247	55							22260239	50				
			2.0 m	22260248	55							22260240	50				
		4-pin	0.3 m											22260332	58		
			0.6 m											22260333	58		
			1.0 m											22260334	58		
			2.0 m											22260335	58		
		5-pin	0.3 m													22260063	65
			0.6 m													22260064	65
			1.0 m													22260065	65
			2.0 m													22260066	65
		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	55							22260261	50				
			0.6 m	22260272	55							22260262	50				
			1.0 m	22260273	55							22260263	50				
			2.0 m	22260274	55							22260264	50				
		4-pin	0.3 m											22260336	58		
			0.6 m											22260337	58		
			1.0 m											22260338	58		
			2.0 m											22260339	58		
		5-pin	0.3 m													22260067	65
			0.6 m													22260068	65
			1.0 m													22260069	65
			2.0 m													22260070	65
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.lappgroup.com/products).

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	49
																5.0 m	22260259	49
																10.0 m	22260260	49
																2.0 m	22260324	57
																5.0 m	22260325	57
																10.0 m	22260341	57
																2.0 m	22260406	64
																5.0 m	22260407	64
																10.0 m	22260418	64
22260137	67															2.0 m	22260141	66
22260138	67															5.0 m	22260615	66
22260139	67															10.0 m	22260616	66
22260140	67																	
																2.0 m	22260253	49
																5.0 m	22260254	49
																10.0 m	22260255	49
																2.0 m	22260326	57
																5.0 m	22260327	57
																10.0 m	22260340	57
																2.0 m	22260408	64
																5.0 m	22260409	64
																10.0 m	22260416	64
																25.0 m	22260760	64
																2.0 m	22260450	69
																5.0 m	22260451	69
																10.0 m	22260452	69
																2.0 m	22260456	69
																5.0 m	22260457	69
																10.0 m	22260458	69
																20.0 m	22260823	69
																2.0 m	22260462	69
																5.0 m	22260463	69
																10.0 m	22260464	69
																2.0 m	22260071	69
																5.0 m	22260072	69
																10.0 m	22260073	69
																2.0 m	22260074	69
																5.0 m	22260675	69
																10.0 m	22260680	69
																2.0 m	22260946	69
																5.0 m	22260714	69
																10.0 m	22260991	69

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

Connectors \ Sensor cable								S-LifYY (3x0,25)	S-LifYY (3x0,34)	S-LifYY (4x0,25)
							Outer diameter [mm]	4.2	4.8	4.5
							Part number	7038883	7038859	7038884
Connection	**Number of pin**	**Version**	**Connection type**	**Conductor cross-section [mm²]**	**Cable diameter [mm]**	**Part number**	**Page**	**89**	**89**	**89**
M8	3-pin	socket, straight	Screw	0.14 – 0.5	3.5 – 5.0	22260125	88	X	X	
		connector, straight	Screw	0.14 – 0.5	3.5 – 5.0	22260120	88	X	X	
		socket, straight	Piercing	0.14 – 0.38	3.0 – 5.0	22260124	88	X	X	
		connector, straight	Piercing	0.14 – 0.38	3.0 – 5.0	22260122	88	X	X	
		socket, straight	IDC	0.08 – 0.25	2.5 – 5.0	22260994	88	X		
		socket, straight	IDC	0.25 – 0.5	2.5 – 5.0	22260986	88	X	X	
		connector, straight	IDC	0.08 – 0.25	2.5 – 5.0	22260993	88	X		
		connector, straight	IDC	0.25 – 0.5	2.5 – 5.0	22260985	88	X	X	
	4-pin	socket, straight	Screw	0.14 – 0.5	3.5 – 5.0	22260126	88			X
		connector, straight	Screw	0.14 – 0.5	3.5 – 5.0	22260121	88			X
		socket, straight	IDC	0.08 – 0.25	2.5 – 5.0	22260045	88			X
		socket, straight	IDC	0.25 – 0.5	2.5 – 5.0	22260046	88			X
		connector, straight	IDC	0.08 – 0.25	2.5 – 5.0	22260043	88			X
		connector, straight	IDC	0.25 – 0.5	2.5 – 5.0	22260044	88			X
		socket, straight	Piercing	0.14 – 0.38	3.5 – 5.0	22260119	88			X
		connector, straight	Piercing	0.14 – 0.38	3.0 – 5.0	22260123	88			X
M12	4-pin	socket, straight	Screw	0.25 – 0.75	4.0 – 6.0	22260640	87			X
		socket, straight	Screw	0.25 – 0.75	6.0 – 8.0	22260641	87			
		socket, angled	Screw	0.25 – 0.75	4.0 – 6.0	22260636	87			X
		connector, straight	Screw	0.25 – 0.75	4.0 – 6.0	22260649	87			X
		connector, angled	Screw	0.25 – 0.75	6.0 – 8.0	22260995	87			
		socket, angled	Screw	0.25 – 0.75	4.0 – 6.0	22260647	87			X
		connector, straight	IDC	0.14 – 0.34	3.5 – 6.0	22260131	87			
		socket, straight	IDC	0.34 – 0.75	4.0 – 8.0	22260133	87			
		connector, straight	IDC	0.14 – 0.34	3.5 – 6.0	22260132	87			
		connector, straight	IDC	0.34 – 0.75	4.0 – 8.0	22260134	87			
	5-pin	socket, straight	Screw	0.25 – 0.75	4.0 – 6.0	22260127	87			
		socket, straight	Screw	0.25 – 0.75	6.0 – 8.0	22260644	87			
		socket, straight	SKINTOP®	0.25 – 0.75	6.0 – 8.0	22260997	87			
		socket, angled	Screw	0.25 – 0.75	4.0 – 6.0	22260128	87			
		socket, angled	Screw	0.25 – 0.75	6.0 – 8.0	22260638	87			
		connector, straight	Screw	0.25 – 0.75	4.0 – 6.0	22260129	87			
		connector, straight	Screw	0.25 – 0.75	6.0 – 8.0	22260651	87			
		connector, straight	SKINTOP®	0.25 – 0.75	6.0 – 8.0	22260996	87			
		connector, angled	Screw	0.25 – 0.75	4.0 – 6.0	22260130	87			
		connector, angled	Screw	0.25 – 0.75	6.0 – 8.0	22260648	87			
		connector, straight, shielded	Screw	0.25 – 0.75	6.0 – 8.0	22260135	87			
		socket, straight, shielded	Screw	0.25 – 0.75	6.0 – 8.0	22260136	87			
	8-pin	connector, straight, shielded	Screw	0.25 – 0.75	6.0 – 8.0	22260825	87			
		socket, straight, shielded	Screw	0.25 – 0.75	6.0 – 8.0	22260826	87			

Legend

*see www.lappgroup.com/products
Please see detailed technical information on the data sheet (www.lappgroup.com/products).

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UNITRONIC® SENSOR				UNITRONIC® SENSOR FD UL/AWM							UNITRONIC® SENSOR FD shielded			UNITRONIC®						
S-LifYY (4x0,34)	DESINA (4x0,34)	S-LifY11Y (4x0,34)	S-Lif11Y (5x0,25)	Li9Y11Y (3x0,25)	Li9Y11Y (3x0,34)	Li9Y11Y (4x0,25)	Li9Y11Y (4x0,34)	Li9Y11Y (5x0,34)	Li9Y11Y (5x0,25)	Li9Y11Y (8x0,25)	Li9YC11Y (3x0,34)	Li9YC11Y (4x0,34)	Li9YC11Y (5x0,34)	LiYY 4x0,75	LiYY 5x0,75	LiYCY 4x0,75	LiYCY 5x0,75	LiYCY 8x0,25	FD CP plus 5x0,25)	FD CP plus 5x0,34)
4.8	5.2	4.8	4.9	4,4	4.6	4,7	4.7	5.1	4.7	5.9	4,6	4,7	5,1	6.1	6.9	7.0	7.6	7.1	6.2	6.8
7038860	0040434	7038861	7038862	7038883	7038864	7038884	7038865	7038866	7038867	7038868	7038885	7038886	7038887	0028604	0028605	0034704	0034705	0034408	0028892	0028901
89	89	89	89	89	89	89	89	89	89	89	89	89	89	*	*	*	*	*	*	*
				X	X															
				X	X															
				X	X															
				X	X															
				X																
				X	X															
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X	X	X					X													
X	X	X					X													
X	X	X					X													
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															X		X			
															X		X			
			X					X	X											
			X					X	X											
			X					X	X											
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			X					X	X											
															X		X			
													X				X		X	X
													X				X		X	X
										X								X		
										X								X		

1c. Valve connectors

S/A

Connectortype		with M12 connector straight					
Article designation	Version	Length	3-pos.	Page	5-pos.	Page	Length
Type A (18 mm)	PE bridged with 1 LED and protective circuit (Z diode) PUR cable	0.3 m	22260550	75			2.0 m
		0.6 m	22260551	75			5.0 m
		1.0 m	22260552	75			10.0 m
		2.0 m	22260553	75			
Type B (10 mm)		0.3 m	22260558	75			2.0 m
		0.6 m	22260559	75			5.0 m
		1.0 m	22260560	75			10.0 m
		2.0 m	22260561	75			
Type BI (11 mm)		0.3 m	22260554	75			2.0 m
		0.6 m	22260555	75			5.0 m
		1.0 m	22260556	75			10.0 m
		2.0 m	22260557	75			
Type C (8 mm)		0.3 m	22260566	75			2.0 m
		0.6 m	22260567	75			5.0 m
		1.0 m	22260568	75			10.0 m
		2.0 m	22260569	75			
Type CI (9.4 mm)		0.3 m	22260562	75			2.0 m
		0.6 m	22260563	75			5.0 m
		1.0 m	22260564	75			10.0 m
		2.0 m	22260565	75			
Type AD (18 mm)	for pressure switch 2 LEDs PUR cable	0.3 m			22260573	77	2.0 m
		0.6 m			22260572	77	5.0 m
		1.0 m			22260571	77	10.0 m
		2.0 m			22260570	77	

Description						
Type	Version	Protection	Glands	Description code	3-pin	Page
Type A (18 mm)	PE bridged	without	M16	AB-C3-M16-A	22260048	78
	PE bridged, with 1 LED and protective circuit	Z-Diode	PG9	AB-C3-P69-A-1L-S	22260050	78
Type B (10 mm)		Z-Diode	PG9	AB-C3-P69-B-1L-S	22260051	78
Type BI (11 mm)		Z-Diode	PG9	AB-C3-P69-BI-1L-S	22260052	78
Type C (8 mm)		Varistor	PG9	AB-C3-P69-C-1L-SV	22260142	78
Type CI (9.4 mm)		Varistor	PG9	AB-C3-P69-CI-1L-SV	22260143	78
Type AD (18 mm)	for pressure switch, 2 LEDs	without	M16	AB-C5-M16-AD-2L		

Free conductor end to the direct connection at field attachable connectors			
3-pos.	Page	5-pos.	Page
22260584	74		
22260576	74		
22260577	74		
22260585	74		
22260578	74		
22260579	74		
22260586	74		
22260580	74		
22260581	74		
22260587	74		
22260582	74		
22260583	74		
22260588	74		
22260574	74		
22260575	74		
		22260589	76
		22260590	76
		22260591	76

Suitable field attachable connectors (screw connection)				
		Connector	Part number	Page
M8	3-pos.	Connector straight	22260120	88
M12	4-pos.	Connector straight	22260134	88
	5-pos.	Connector straight	22260129	88
		Connector angled	22260130	88

5-pin	Page	Suitable cable	Page
		0027546	*
		0027546	*
		0027546	*
		0027546	*
		0027546	*
		0027546	*
22260049	78	0027532	*

1d. Selector: Flush-type connectors

S/A

	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	92
		4		AB-C4-M8FS-0,5	22260103	92
	M8 connector	3		AB-C3-M8MS-0,5	22260100	92
		4		AB-C4-M8MS-0,5	22260101	92
	M12 socket	4	M16 x 1.5 (SW 17 mm)	AB-C4-M12FS-M16-0,5	22260107	90
		4	M16 x 1.5 (SW 17 mm)	AB-C4-M12FS-M16-PO-0,5	22260085	90
		4	PG9 (SW 17 mm)	AB-C4-M12FS-PG9-0,5	22260114	91
		4	PG9 (SW 17 mm)	AB-C4-M12FS-PG9-PO-0,5	22260089	91
		5	M16 x 1.5 (SW 17 mm)	AB-C5-M12FS-M16-0,5	22260105	90
		5	M16 x 1.5 (SW 17 mm)	AB-C5-M12FS-M16-PO-0,5	22260086	90
		5	PG9 (SW 17 mm)	AB-C5-M12FS-PG9-0,5	22260111	91
		5	PG9 (SW 17 mm)	AB-C5-M12FS-PG9-PO-0,5	22260090	91
	M12 connector	4	M16 x 1.5 (SW 17 mm)	AB-C4-M12MS-M16-0,5	22260108	90
		4	M16 x 1.5 (SW 17 mm)	AB-C4-M12MS-M16-PO-0,5	22260083	90
		4	PG9 (SW 17 mm)	AB-C4-M12MS-PG9-0,5	22260113	91
		4	PG9 (SW 17 mm)	AB-C4-M12MS-PG9-PO-0,5	22260087	91
		5	M16 x 1.5 (SW 17 mm)	AB-C5-M12MS-M16-0,5	22260106	90
		5	M16 x 1.5 (SW 17 mm)	AB-C5-M12MS-M16-PO-0,5	22260084	90
		5	PG9 (SW 17 mm)	AB-C5-M12MS-PG9-0,5	22260112	91
		5	PG9 (SW 17 mm)	AB-C5-M12MS-PG9-PO-0,5	22260088	91
Rear mounting	M12 socket	4	PG9 (SW 17 mm)	AB-C4-DSI-M12FS-PG9-0,5	22260118	91
		5	PG9 (SW 17 mm)	AB-C5-DSI-M12FS-PG9-0,5	22260116	91
	M12 connector	4	PG9 (SW 17 mm)	AB-C4-DSI-M12MS-PG9-0,5	22260117	91
		5	PG9 (SW 17 mm)	AB-C5-DSI-M12MS-PG9-0,5	22260115	91

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		
	8	2-/3-/4-wire, PNP/NPN	x	double		
M8	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				
	4	2-/3-wire, PNP				S/A distribution box M8 and **master cable connection M12**
	6	2-/3-wire, PNP				
M12	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.lappgroup.com/products).

Suitable fitting nut		
SW [mm]	Part number	Page
10	22260104	93
19	22260110	93
18	22260109	93
19	22260110	93
18	22260109	93
19	22260110	93
18	22260109	93
19	22260110	93
18	22260109	93
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	81	22260019	81		
AB-B4-M12L-8-x,yPUR			22260020	81	22260021	81		
AB-B4-M12-4-x,yPUR			22260010	81	22260011	81		
AB-B4-M12-8-x,yPUR			22260012	81	22260013	81		
AB-B6-M12L-6-5.0PUR			22260970	81				
AB-B8-M12L-8-x,yPUR			22260022	81	22260023	81		
AB-B8-M12L-16-x,yPUR			22260024	81	22260025	81		
AB-B8-M12-8-x,yPUR			22260014	81	22260015	81		
AB-B8-M12-16-x,yPUR			22260016	81	22260017	81		
AB-B4-M8L-4-x,yPUR			22260026	79	22260027	79		
AB-B6-M8L-6-x,yPUR			22260028	79	22260029	79		
AB-B8-M8L-8-x,yPUR			22260030	79	22260031	79		
AB-B10-M8L-10-x,yPUR			22260032	79	22260033	79		
	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	80	22260607	84	22260608	84		
AB-B6-M8L-6-M16	22260035	80	22260609	84	22260610	84		
AB-B8-M8L-8-M16	22260036	80	22260611	84	22260612	84		
AB-B10-M8L-10-M16	22260037	80	22260613	84	22260614	84		
AB-B4-M8L-4-M12	22260038	80	22260615	85	22260616	85		
AB-B6-M8L-6-M12	22260039	80	22260615	85	22260616	85		
AB-B4-M12-4-C	22260005	82					7038880	83
AB-B4-M12L-4-C	22260001	82						
AB-B4-M12-8-C	22260006	82					7038881	83
AB-B4-M12L-8-C	22260002	82						
AB-B8-M12-8-C	22260007	82						
AB-B8-M12L-8-C	22260003	82						
AB-B8-M12-16-C	22260008	82					7038882	83
AB-B8-M12L-16-C	22260004	82						

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	96
			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	96
	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	96
		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-M12-0,5A 22260762	96
					x	2 A		2-/3-wire		AB-PB-DO8-M12-2A 22260742	96
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	97
			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	97
	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	97
		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	97
					x	2 A		2-/3-wire		AB-DN-DO8-M12-2A 22260747	97
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	98
			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	98
	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	98
		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	98
					x	2 A		2-/3-wire		AB-CAN-DO8-M12-2A 22260752	98

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	112				
	1 m	22260785	112				
	2 m	22260786	112	22260778	111	22260781	111
	5 m	22260787	112	22260779	111	22260782	111
	10 m	22260788	112	22260780	111	22260783	111

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							
Length	Part number	Page	Part number	Page	Part number	Page		Part number	Page	Part number	Page	
0.3 m	22260773	104					see UNITRONIC® bus cables	M12 socket 22260646	107	21700507 (35°)	*	PROFIBUS
1 m	22260774	104								21700506 (35°, PG)	*	
2 m	22260775	104	22260767	103	22260770	103				21700504 (90°)	*	
5 m	22260776	104	22260768	103	22260771	103		M12 connector 22260653	107	21700503 (90°, PG)	*	
10 m	22260777	104	22260769	103	22260772	103				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		M12 connector 22260136	99	21700538 (AX)	*	
5 m	22260798	98	22260790	97	22260793	97						
10 m	22260799	98	22260791	97	22260794	97						
0.3 m	22260795	106					see UNITRONIC® bus cables	M12 socket 22260135	107	21700537 (90°)	*	CANopen
1 m	22260796	106								21700536 (90°, PG)	*	
2 m	22260797	106	22260789	105	22260792	105		M12 connector 22260136	107	21700538 (AX)	*	
5 m	22260798	106	22260790	105	22260793	105						
10 m	22260799	106	22260791	105	22260794	105						

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.lappgroup.com/products).

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
	2	4	8	2	3	4	8	I_{max}/channel	Sensor	Actuator					
AS-Interface		x				x**		3 A	2-/3-wire	2-/3-wire	AB-ASI-DI4DOR4-3A	22260807	95	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	95		
			x				x	2 A	2-/3-wire	2-/3-wire	AB-ASI-DI8DO8-2A	22260809	95		
		x				x		1 A	2-/3-wire	2-/3-wire	AB-ASI-M12-DI4DO4-M8-1A	22260759	94	AS-Interface module (IP67), LED, metal thread	3-pos. M8
		x							2-/3-wire	2-/3-wire	AB-ASI-M12-DI4-M8	22260758	94		
	x			x				2A	2-/3-/4-wire	2-/3-wire	AB-ASI-DI2DO2-M12-2A	22260755	94		4-pos. M12
		x			x			2 A	2-/3-/4-wire	2-/3-wire	AB-ASI-DI4DO3-M12-2A	22260756	94		
		x				x		2 A	2-/3-/4-wire	2-/3-wire	AB-ASI-DI4DO4-M12-2A	22260757	94		
		x							2-/3-/4-wire		AB-ASI-DI4-M12	22260753	94		
						x		2 A		2-/3-wire	AB-ASI-DO4-M12-2A	22260754	94		

Legend

*see www.lappgroup.com/products
**Relay contact
Please see detailed technical information on the data sheet (www.lappgroup.com/products).

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	101	Distributor M12 on AS-Interface bus cable	22260800	99
AS-Interface network extension with remote diagnostic	AB-ASI-NE200	22260814				
AS-Interface counter module	AB-ASI-C	22260810	100	Screw plug terminal (4x4 pos.)	22260817	102
				Tension plug terminal (4x4 pos.)	22260818	
AS-Interface power supply	AB-ASI-PS-1A	22260812	100			
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	99			
Screw plug terminal (4x4 pos.)	AB-ASI-XS4	22260817	102			
Screw plug terminal (2x16 pos.)	AB-ASI-XS16	22260815	102			
Tension plug terminal (4x4 pos.)	AB-ASI-XT4	22260818	102			
Tension plug terminal (8x4 pos.)	AB-ASI-XT16	22260816	102			
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	*

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	
	22260800 & Power cable (22260778) see page 111	22260800 & Power cable (22260779) see page 111	22260800 & Power cable (22260780) see page 111		22260801 & Power cable (22260778) see page 111	22260801 & Power cable (22260779) see page 111	22260801 & Power cable (22260780) see page 111	
22260803 see page 99	22260804 see page 99			22260805 see page 99	22260806 see page 99			see UNITRONIC® bus cable
integrated bus connection (UNITRONIC® BUS AS-i)								

ETHERNET in Automation

The Ethernet standard is a permanent fixture in corporate IT departments due to ist 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 bandwith 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
	1000 Base-LX 1300 nm	62.5 µm Multimode LWL	550 m
		50 µm Multimode LWL	550 m
		Singlemode LWL	5.000 m
10 Gigabit ETHERNET	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

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 eachother

ProfiNet (PNO – ProfibusNutzerOrganisation)

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

- 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, draig 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/IPTM 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.

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	
					SF/UTP	4x2xAWG24/1	6,7	
			flexible		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	
					S/FTP	4x2xAWG23/1	2x7,7	DUPLEX
			flexible		S/FTP	4x2xAWG26/7	6,5	
				x	S/FTP	4x2xAWG26/7	6,5	
		Cat.7_A	static	x	S/FTP	4x2xAWG22/1	8,1	
					S/FTP	4x2xAWG22/1	8,5	
	outdoor ground	Cat.7	static		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	x	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	x	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		static	x	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
		Cat.5e			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			
		Cat.7			PVC			
				x	PUR			
				x	H			
	outdoor and ground				PE(L)	4x2xAWG23/1	10	PE-AL-outer sheath, direct burial
					PE	4x2xAWG23/1	9,6	PE-outer sheath

ISO/IEC-11801 (2002)	LAPP-product-designations	Construction (outdoor/indoor)
U/UTP	UTP	**U**nshielded/**U**nshielded **T**wisted **P**air
F/UTP	F/UTP	**F**oiled/**U**nshielded **T**wisted **P**air
SF/UTP	S-FTP	**S**creened+**F**oiled/**U**nshielded **T**wisted **P**air
S/FTP	STP/S PiMF	**S**creened/**F**oiled **T**wisted **P**air

Approvals	Article designation	Part number	Page	Connectors	Socket (SnapIn)
	UNITRONIC® LAN 200 U/UTP Cat.5e LSZH	2170185	128	3,4,5,6	12,16,19,20
	UNITRONIC® LAN 200 SF/UTP Cat.5e LSZH	2170138	128	3,4,5,6	12,16,19,20
	UNITRONIC® LAN 200 U/UTP Cat.5e Y	2170125	128	3,4,5,6	12,16,19,20
	UNITRONIC® LAN 200 F/UTP Cat.5e Y	2170126	128	3,4,5,6	12,16,19,20
	UNITRONIC® LAN 200 SF/UTP Cat.5e Y	2170128	128	3,4,5,6	12,16,19,20
	UNITRONIC® LAN 200 F/UTP Cat.5e Y Flex	2170127	134	1,2,3,4,5,6	13,15,19,20
	UNITRONIC® LAN 200 SF/UTP Cat.5e Y Flex	2170129	134	1,2,3,4,5,6	13,15,19,20
	UNITRONIC® LAN 200 F/UTP Cat.5e H Flex	2170137	134	1,2,3,4,5,6	13,15,19,20
	UNITRONIC® LAN 200 SF/UTP Cat.5e H Flex	2170139	134	1,2,3,4,5,6	13,15,19,20
	UNITRONIC® LAN 250 U/UTP Cat.6 LSZH	2170193	129	5,6	14,16,17,18,19,20
	UNITRONIC® LAN 250 F/UTP Cat.6 LSZH	2170194	129	5,6	14,16,17,18,19,20
	UNITRONIC® LAN 250 U/UTP Cat.6 Y	2170186	129	5,6	14,16,17,18,19,20
	UNITRONIC® LAN 500 U/FTP Cat.6_A LSZH	2170195	130	5,6	16,17,18,19,20
	UNITRONIC® LAN 500 F/FTP Cat.6_A LSZH	2170196	130	5,6	16,17,18,19,20
	UNITRONIC® LAN 500 S/FTP Cat.6_A Y	2170143	130	5,6	16,17,18,19,20
	UNITRONIC® LAN 1000 S/FTP Cat.7 LSZH	2170614	131	5,6	16,17,18,19,20,21
	UNITRONIC® LAN 1000 S/FTP Cat.7 LSZH D	2170634	131	5,6	16,17,18,19,20,21
	UNITRONIC® LAN 600 S/FTP Cat.7 Y	2170144	134	3,4,5,6	15,17,18,19,20
	UNITRONIC® LAN 600 S/FTP Cat.7 LSZH	2170142	134	3,4,5,6	15,17,18,19,20
	UNITRONIC® LAN 1200 S/FTP Cat.7_A LSZH	2170615	132	5,6	16,17,18,19,20,21
	UNITRONIC® LAN 1500 S/FTP Cat.7_A LSZH	2170199	133	5,6	16,17,18,19,20,21
	UNITRONIC® LAN 1000 S/FTP Cat.7 (L)PE	2170198	134		
	UNITRONIC® LAN 1000 S/FTP Cat.7 PE	2170197	134		

Approvals	Article designation	Part number	Page	Connectors	Socket (SnapIn)
	ETHERLINE® H CAT.5e	2170280	113	4,5,6,7,9	8,12,14,17,18,20
PN, UL/CSA(CMX)	ETHERLINE® PN Cat.5e Y	2170891	116	4,5,6,7,9	8,12,14,17,18,20
	ETHERLINE® H Flex CAT.5e	2170283	113	1,2,4,5,6,7,9	8,13,15,17,18,20
	ETHERLINE® FD P CAT.5e	2170289	114	4,5,6,7,9	8,13,15,17,18,20
PN, UL/CSA(CMX)	ETHERLINE® FD P FC CAT.5	2170894	117	4,5,6,7,9	8,13,15,17,18,20
PN, UL/CSA (AWM)	ETHERLINE® TORSION CAT.5	2170888	118	4,5,6,7,9	8,13,15,17,18,20
PN, UL/CSA (CMG)	ETHERLINE® Y FC CAT.5	2170893	116	4,5,6,7,9	8,12,14,17,18,20
	ETHERLINE® P CAT.5e	2170281	113	4,5,6,7,9	8,12,14,17,18,20
PN, UL/CSA (CMG)	ETHERLINE® PN Cat.5 Y FLEX FC	2170886	116	4,5,6,7,9	8,13,15,17,18,20
PN	ETHERLINE® Y CAT.5e BK	2170901	117	4,5,6,7,9	8,13,15,17,18,20
	ETHERLINE® P Flex CAT.5e	2170284	113	1,4,5,6,7,9	8,13,15,17,18,20
PN	ETHERLINE® Cat.5 ARM	2170496	115	4,5,6,7,9	12,14,17,18,20
PN, UL/CSA (CMG)	ETHERLINE® PN Cat.5e YY	2170494	116	4,5,6,7,9	8,12,14,17,18,20
PN, UL (AWM)	ETHERLINE® Cat.5 FRNC HYBRID	2170887	115		
	ETHERLINE® H CAT.5e	2170296	113	4,5,6,7,9	8,12,14,17,18,20
	ETHERLINE® H-H CAT.5e	2170298	113	4,5,6,7,9	8,12,14,17,18,20
	ETHERLINE® H Flex CAT.5e	2170299	113	4,5,6,7,9	8,13,15,17,18,20
	ETHERLINE® P CAT.5e	2170297	113	4,5,6,7,9	8,12,14,17,18,20
	ETHERLINE® P Flex CAT.5e	2170300	113	4,5,6,7,9	8,13,15,17,18,20
	ETHERLINE® FD BK CAT.5	CE217489	114	4,5,6,7,9	8,13,15,17,18,20
	ETHERLINE® FD P CAT.5e	2170489	114	4,5,6,7,9	8,15,17,18,20
UL/CSA (CMX)	ETHERLINE® FD P CAT.6	2170488	119	4,5,6,7,9	8,15,17,18,20
	ETHERLINE® Cat.6_A Y	2170464	119	4,5,6,7,9	8,14,17,18,20
	ETHERLINE® Cat.6_A P	2170465	119	4,5,6,7,9	8,14,17,18,20
	ETHERLINE® Cat.6_A H	2170466	119	4,5,6,7,9	8,14,17,18,20
	ETHERLINE® Cat.7 Y	2170474	119	4,5,6,7,9	8,14,17,18,20
	ETHERLINE® Cat.7 P	2170475	119	4,5,6,7,9	8,14,17,18,20
	ETHERLINE® Cat.7 H	2170476	119	4,5,6,7,9	8,14,17,18,20
	UNITRONIC® LAN 1000 S/FTP Cat.7 (L)PE	2170198	134		
	UNITRONIC® LAN 1000 S/FTP Cat.7 PE	2170197	134		

Legend

PN = PROFINET, cables acc. to PROFINET standard
QP = Quad Pair, star quad cable
**data sheet on www.lappgroup.com/products
Please see detailed technical information on the data sheet (www.lappgroup.com/products).

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	135
2	flexible	5.72 mm	Cat.5	AWG26	RJ45 connector Stewart, grey	CE6323	135
3	solid + flexible	6.6 mm	Cat.6	AWG27 – 24	RJ45 connector TM21 Hirose, beige	CE6324	136
4	solid + flexible	8 mm	Cat.5e	AWG26 – 22	RJ45 connector FM45	21700540	135
5	solid + flexible	9 mm	Cat.6_A	solid: AWG24 – 22 flexible: AWG27 – 22	RJ45 connector Cat.6_A field attachable TIA568A	21700600	137
6	solid + flexible	9 mm	Cat.6_A	solid: AWG24 – 22 flexible: AWG27 – 22	RJ45 connector Cat.6_A field attachable TIA568B	21700601	137
7	solid + flexible	9 mm	Cat.6_A	solid: AWG24 – 22 flexible: AWG27 – 22	circular connector IP68 (incl. 21700601) ED-IE-AX-RJ45-6A-B-68-FC	21700630	137
8	solid + flexible	9 mm	Cat.6_A	solid: AWG24 – 22 flexible: AWG27 – 22	circular bulkhead housing IP68 (incl. 21700612) ED-IE-RJ45F-6A-B-68-FC	21700632	137
9	solid + flexible	9 mm	Cat.5	solid: AWG24 – 22 flexible: AWG27 – 22	RJ45 connector Cat.5 field attachable connector PROFINET ED-IE-AX-5-PN-20-FC	21700605	136
M12 connector							
10	flexible	8 mm	Cat.5e	flexible: AWG27 – 22	AB-C4-M12MSD-SH (PROFINET)	22260820	107
11	solid + flexible	9 mm	Cat.6_A	solid: AWG24 – 22 flexible: AWG27 – 24	ED-IE-AX-M12X-6A-67-FC 10G/X-coded	21700602	138
LANmark SnapIn RJ45 socket							
12	solid	–	Cat.5e	AWG24/1 – 22/1	LANmark-5 EVO Snap-In connector	61103	*
13	flexible	–	Cat.5e	AWG26/7	Lanmark-5 EVO Snap-In connector AWG26	61102	*
14	solid	–	Cat.6	AWG24/1 – 22/1	LANmark-6 EVO 250 MHz Snap-In connector	62104	*
15	flexible	–	Cat.6	AWG26/7	LANmark-6 EVO 250MHz Snap-In for AWG26	62105	*
16	solid	–	Cat.6_A	AWG24/1 – 22/1	LANmark-6 EVO 10 G Snap-In connector	62106	*
17	solid + flexible	5 – 9 mm	Cat.6_A	AWG27 – 22	ED-IE-AX-RJ45F-6A-A-FC	21700611	138
18	solid + flexible	5 – 9 mm	Cat.6_A	AWG27 – 22	ED-IE-AX-RJ45F-6A-B-FC	21700612	138
19	solid + flexible	–	Cat.6	AWG24 – 22	SnapIn Rail mount adapter 1-single incl. Cat.6	60795	*
20	solid + flexible	5 – 9 mm	Cat.6_A	AWG27 – 22	easy connect rail mount adapter 1-single incl. Cat.6_A	21700613 21700614	139
LANmark SnapIn GG45 socket							
21	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.lappgroup.com/products).

Industrial Ethernet patchcords

Industrial Ethernet protocol			2-pair cable												4-pair cable			
			Profinet						Industrial Ethernet				EtherCat		Industrial Ethernet			
			Type A		Type B		Type C		halogenfree		PUR		PVC		halogenfree		PUR	
		lenght in m	Part number	Page	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	120	2171025	121	2171049	122	2171073	125	2171097	123						
			2	2171002	120	2171026	121	2171050	122	2171074	125	2171098	123						
			3	2171003	120	2171027	121	2171051	122	2171075	125	2171099	123						
			5	2171004	120	2171028	121	2171052	122	2171076	125	2171100	123						
			10	2171005	120	2171029	121	2171053	122	2171077	125	2171101	123						
			20	2171006	120	2171030	121	2171054	122	2171078	125	2171102	123						
		M12 (angled) - M12 (straight)	1	2171013	120	2171037	121	2171061	122										
			2	2171014	120	2171038	121	2171062	122										
			3	2171015	120	2171039	121	2171063	122										
			5	2171016	120	2171040	121	2171064	122										
			10	2171017	120	2171041	121	2171065	122										
			20	2171018	120	2171042	121	2171066	122										
		M12-RJ45 (straight)	1							2171085	126	2171109	124						
			2							2171086	126	2171110	124						
			3							2171087	126	2171111	124						
			5							2171088	126	2171112	124						
			10							2171089	126	2171113	124						
			20							2171090	126	2171114	124						
		RJ45-RJ45 (straight)	1							2171091	126	2171115	124			2171513	126	2171501	124
			2							2171092	126	2171116	124			2171514	126	2171502	124
			3							2171093	126	2171117	124			2171515	126	2171503	124
			5							2171094	126	2171118	124			2171516	126	2171504	124
			10							2171095	126	2171119	124			2171517	126	2171505	124
			20							2171096	126	2171120	124			2171518	126	2171506	124
		M8-M8 (straight)	0,5											2171300	127				
			1											2171301	127				
			2											2171302	127				
			3											2171303	127				
			5											2171304	127				
			7											2171305	127				
			10											2171306	127				
			15											2171307	127				
			20											2171308	127				
		M8 (angled) - M8 (straight)	0,5											2171350	127				
			1											2171351	127				
			2											2171352	127				
			3											2171353	127				
			5											2171354	127				
			7											2171355	127				
			10											2171356	127				
			15											2171357	127				
			20											2171358	127				
	Connector on free conductor end (OE)	M12 (straight) - OE	1	2171007	120	2171031	121	2171055	122	2171079	125	2171103	123						
			2	2171008	120	2171032	121	2171056	122	2171080	125	2171104	123						
			3	2171009	120	2171033	121	2171057	122	2171081	125	2171105	123						
			5	2171010	120	2171034	121	2171058	122	2171082	125	2171106	123						
			10	2171011	120	2171035	121	2171059	122	2171083	125	2171107	123						
			20	2171012	120	2171036	121	2171060	122	2171084	125	2171108	123						
		M12 (angled) - OE	1	2171019	120	2171043	121	2171067	122										
			2	2171020	120	2171044	121	2171068	122										
			3	2171021	120	2171045	121	2171069	122										
			5	2171022	120	2171046	121	2171070	122										
			10	2171023	120	2171047	121	2171071	122										
			20	2171024	120	2171048	121	2171072	122										
		RJ45 (straight) - OE	1													2171519	127	2171507	125
			2													2171520	127	2171508	125
			3													2171521	127	2171509	125
			5													2171522	127	2171510	125
			10													2171523	127	2171511	125
			20													2171524	127	2171512	125
		M8 (straight) - OE	0,5											2171320	127				
			1											2171321	127				
			2											2171322	127				
			3											2171323	127				
			5											2171324	127				
			7											2171325	127				
			10											2171326	127				
			15											2171327	127				
			20											2171328	127				
		M8 (angled) - OE	0,5											2171370	127				
			1											2171371	127				
			2											2171372	127				
			3											2171373	127				
			5											2171374	127				
			7											2171375	127				
			10											2171376	127				
			15											2171377	127				
			20											2171378	127				

used cable	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page	Part number	Page
	2170893	116	2170886	116	2170894	117	2170283	113	2170284	113	-	-	2170299	113	2170300	113		

Type designation ETHERLINE®

Industrial Ethernet patchcords

IE	-	PNB	-	5	-	M12D	-	A	-	3	-
Industrial Ethernet		**Ethernet-System**		**Categorie**		**Connection left**		**Cable outlet left**		**Cable length in m**	
		Profinet = PN		Cat.5 = **5**		M8 = M8		straight (180°) = S		1 m = 1	
		Profinet Type A = PNA		Cat.5e = 5e		M12 D-coded = **M12D**		angled (90°) = **A**		2 m = 2	
		Profinet Type B = **PNB**		Cat.6 = 6		M12 X-coded = M12X				3 m = **3**	
		Profinet Type C = PNC		Cat.6_A = 6A		RJ45 = RJ45				...	
		EtherCat = EC		Cat.7 = 7						20 m = 20	
				Cat.7_A = 7A							

Connector and connection components

ED	-	IE	-	AX	-	RJ45F	-		-	6A	-
EPIC® Data		**Industrial Ethernet**		**Cable outlet**		**Interface**		**Coding**		**Categorie**	
		Industrial Ethernet		90° = 90		RJ45 male = N/A. or RJ45		D-coded = N/A.		Cat.5 = 5	
				45° = 45		RJ45 female = **RJ45F**		X- coded = X		Cat.5e = 5e	
				35° = 35		SUB-D (BUS) = SD				Cat.6 = 6	
				straight (0°) = **AX**		M12 = M12				Cat.6_A = **6A**	
						M8 = M8				Cat.7 = 7	
						Hybrid = HY				Cat.7_A = 7A	

ETHERNET in Automation

Y	-	2	-	22	-	7	-	M12D	-	S
Material of cable		**Number of pairs**		**Conductor cross section (AWG)**		**Type of application**		**Connection right**		**Cable outlet right**
halogenfree compound = H		2x2 = 2		AWG22 = **22**		fixed installation (solid wire) = 1		M8 = M8		straight (180°) = **S**
PUR = P		4x2 = 4		AWG23 = 23		flexible use = **7**		M12 D-coded = **M12D**		angled (90°) = A
PVC = **Y**				AWG24 = 24		high flexible = FD		M12 X-coded = M12X		
flame redardant & halogenfree = FRNC				AWG26 = 26				RJ45 = RJ45		
Polyethylen = PE				AWG27 = 27				open conductor end = OE		

A	-		-		-		-	FC	-	
Wiring connection standard		**Interface characteristics**		**Special function**		**Protection class**		**Type of connection**		**Others**
T568A = **A**		no special characteristics = N/A.		no special function = N/A.		IP20 as standard = N/A.		screw = N/A.		Accessories = AC
T568B = B		Reversed = R		Diagnose = DIAG		IP54 = 54		Fast Connect = **FC**		Accessorie Dust Cap = AC-DC
ProfiNet = PN		Programming interface = PG		Repeater = REP		IP65 = 65				
						IP67 = 67				
						IP68 = 68				
						IP69 = 69				

Fibre optic cables

Introduction

The optical transmission of messages in FOC operates according to the principle of „total internal reflection.“ The reflection is created by the fact that an optically thinner cladding is placed around the light conducting core on whose interface the light totally reflects and is thereby conducted through the FOC.

Although the principle of optical message transmission has been known for a long time, not until recent years was one able to develop, produce and commercially use low loss FOCs. In a time when the need for rapid and secure communications networks is continually growing we can neither imagine a world without the transmission medium FOC nor can it be replaced.

Advantages of fibre optics over copper-based transmission

- Protection against electromagnetic interferences, i.e. cable routing can carried out without consideration of possibly occurring sources of ectromagnetic interference
- rapid made-to measure preparation of plastic FOC; simple on-site plug-in connector installation
- Potential separation, that is potential delays are not possible
- No crosstalk and high security against listening in
- Small dimensions and minimal weight (up to 2.2 mm outside diameter and/or 4g/m for plastic FOC in SIMPLEX model)

Among fibre optic cables there is a difference based on the material used between plastic fibres (POF), fibres made of silica glass with optical plastic cladding (PCF) and fibres made of pure silica glass (glass fibre or GOF).

Mainly for use in the industrial area, Lapp Kabel offers FOCs made of glass or plastic and/or hybrid cables.

A portion of these cables is constructively laid for heavy deployment in the energy supply chain. The overall concept of your data transmission line determines whether glass or plastic fibre optic cables are used. We offer you suitable plug-in connectors, tools and pre-fabricated FOC patch cables that match the cables being used.

Typical deployment areas for POF and PCF FOCs:

- Bus systems in automatisation
- Machine construction and plant engineering
- Building technology

Because of their special characteristics POF-FOC are used

- high demands at data security
- for conditions where space is limited

Typical application areas for GOF FOCs:

Everywhere where large amounts of data must be transmitted at high speed over distances of approx. 60 m to several kilometres. For example in

- Local Area Networks (LAN)
- Metropolitan Area Networks (MAN)
- Wide Area Networks (WAN)

Colour-codes of fibres

Standard		TIA-598	
1	red	1	blue
2	green	2	orange
3	blue	3	green
4	yellow	4	brown
5	grey	5	grey
6	violet	6	white
7	brown	7	red
8	orange	8	black
9	white	9	yellow
10	pink	10	violet
11	black	11	pink
12	turquoise	12	turquoise

Fibre Optic – Transmission Overview

Advantages of Fibre Optical Cables

- high resistance to tapping
- no EMC interference
- no EMC testing required
- long transmission range
- no potential transfer
- no cross-talk
- little space required
- low cable weight
- can be installed in a potentially explosive environment

10 Gbit/s Data Systems – OM3 (and OM4)

- Conventional multi-mode fibres: 84 m transmission length
- OM3 multi-mode fibres: 300 m
- OM4 multi-mode: 550 m

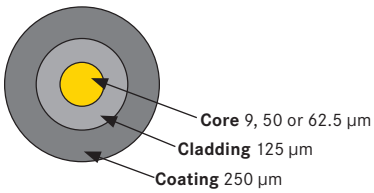
Note:

- Special processes in manufacturing the cores
- OM3 cables are backward compatible with OM2 equipment (and vice versa)
- Advantage is only applicable at 850 nm

GOF – Glass Optical Fibre

A distinction is drawn between GOF:

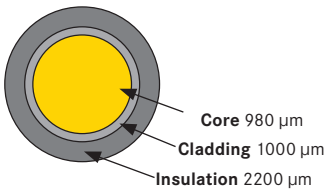
- Singlemode Fibre SM 9 µm
- Multimode Fibre MM 50 µm or 62.5 µm



POF – Polymer Optical Fibre

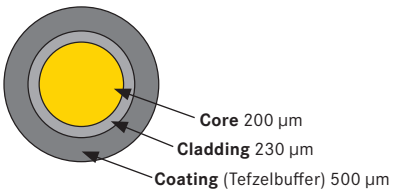
A distinction is drawn between POF:

- SIMPLEX (one fibre)
- DUPLEX (two fibres)



PCF – Plastic Cladded Fibre

Note:
PCF is also known as HCS (Hard Cladded Silica Optical Fibre)



Cabled fibre type	**max. attenuation [dB/km]**				**max. transmission length [m]**				**colour**
	660 nm	850 nm	1300 nm	1550 nm	660 nm	850 nm	1300 nm	1550 nm	
POF 980 µm	160				100 Mbit/s: 60				
PCF 200 µm	10.0	8.0			100 Mbit/s: 550				
GOF MM 62.5 µm OM1		3.5 (3.0)	1.5 (0.7)			100 Mbit/s: 550 1 Gbit/s: 275 10 Gbit/s: 33	100 Mbit/s: 2000 1 Gbit/s: 550 10 Gbit/s: 300		Orange
GOF MM 50 µm OM2		3.5 (2.5)	1.5 (0.7)			100 Mbit/s: 550 1 Gbit/s: 550 10 Gbit/s: 82	100 Mbit/s: 2.000 1 Gbit/s: 550 10 Gbit/s: 300		Orange
GOF MM 50 µm OM3		3.5 (2.5)	1.5 (0.7)			1 Gbit/s: 1.100 10 Gbit/s: 300	1 Gbit/s: 550 10 Gbit/s: 300		Aqua
GOF MM 50 µm OM4		3.5 (2.5)	1.5 (0.7)			1 Gbit/s: 1.100 10 Gbit/s: 550	1Gbit/s: 550 10 Gbit/s: 300		Violet
GOF SM 9 µm OS2 (G652.D)			0.40 (0.35)	0.40 (0.21)			1 Gbit/s: 5.000 10 Gbit/s: 10.000	1 Gbit/s: 80.000 10 Gbit/s: 40.000	Yellow

Fibre optic cables

Basic information needed to select cable

1. Where is it used?
- Indoor
- Outdoor
- Indoor/Outdoor (Universal)

2. Type of applications
- Mining
- Railway
- Wind Turbines
- Inside Machines
- Production or Processing Plants
- Telecommunications
- Power chains
- Vertical installation
- Oil & gas platforms
- On ships

3. Type of Fibres
- GOF
  - Single-mode 9/125 µm OS2
  - Multimode 62.5/125 µm OM1
  - Multimode 50/125 µm OM2
  - Multimode 50/125 µm OM3
  - Multimode 50/125 µm OM4
- PCF (200/230)
- POF (980/1000)

5. No. of Fibres

Fibre-optic cables

□ – □□□□□□ □□ □ □

1 2 3 4 5 6 7 8 9 10

1. Basic type

A	Outdoor cable
AT	Outdoor cable, divisible
J	Indoor cable
J/A or U	Indoor/outdoor cable, universal cable

2. Fibres

B	Loose tube, unfilled
D	Loose tube, filled
V	Tight-buffered fibres

3. Design elements

F	Petroleum jelly filling
Q	Swelling tape

4. Further design elements

S	Metal element in cable core

5. Sheath

2Y	PE sheath
11Y	PUR sheath
H	Halogen-free sheath
(ZM)	With metallic strain relief elements
(ZN)	With non-metallic strain relief elements
(ZN)2Y	PE sheath with non-metallic strain relief elements

6. Armouring

B	Armouring
B2Y	Armouring with PE casing
(BN)	Glass yarn armouring
(SG)	Steel sheath
(SR)	Corrugated steel sheath
(SR)2Y	Corrugated steel sheath with PE casing

7. Number of fibres

Number of fibres

8. Fibre type

E	Monomode fibre glass/glass (SM GOF)
G	Gradient fibre glass/glass (MM GOF)
K	Stepped fibre glass/plastic (PCF)
P	Polymer optical fibre/plastic (POF)

9. Core diameter/fibre sheath diameter

50/125	Multimode glass fibre
62,5/125	Multimode glass fibre
9/125	Monomode glass fibre
200/230	Plastic-coated glass fibre
980/1000	Polymer optical fibre

10. Category: fibre quality

OM3	For 50/125 OM3 multimode fibres
OM2	For 50/125 OM2 multimode fibres
OM1	For 62.5/125 OM1 multimode fibres
OS2	For 9/125 OS2 monomode fibres (G 652D)

Example 1: A-DQ(ZN)(SR)2Y 12G 50/125 OM3
Outdoor cable with corrugated steel sheath, central loose tube, non-metallic strain relief made of glass yarn, 12 fibres, 50/125 µm OM3 multimode fibres

Example 2: J-V2Y(ZN)11Y 2P 980/1000
Plastic fibre-optic cable, two-fibre (duplex), indoor cable with PE inner sheath, non-metallic strain relief, PUR outer sheath

Article coding for cables (not applicable to accessories)

□□□□□□□□

A B C D1 D2

A. Group of fibres

6	GOF cables
7	GOF cables
8	POF/PCF cables

B. Installation area

0	Indoor
3	Universal, flexible
4	Universal
5	Universal, armoured
6	Outdoor
9	Outdoor, armoured

C. Type of fibres

0	POF 980/1000
1	GOF 62.5/125 OM1
2	GOF 50/125 OM2
3	GOF 50/125 OM3
4	GOF 50/125 OM4
7	PCF 200/230
9	GOF 9/125 OS2 (ITU-G652.D)

D. No. of fibres

01	SIMPLEX, 1 fibre
02	DUPLEX, 2 fibres
04	4 fibres
08	8 fibres
12	12 fibres
24	24 fibres
96	96 fibres
44	**144 fibres**

Example 1:
GOF outdoor cable,
HQN1500 24G 50/125 OM3 27600324

Example 2:
GOF armoured universal cable,
HUW1500 8E 9/125 OS2 27500908

Example 3:
POF cable,
POF SIMPLEX PE 28000001

Example 4:
POF cable,
POF DUPLEX PE-PUR 28020002

Example 5:
PCF outdoor cable,
PCF SIMPLEX Outdoor 28600801

Example 6:
PCF indoor cable,
HQN1500 24G 50/125 OM3 28020802

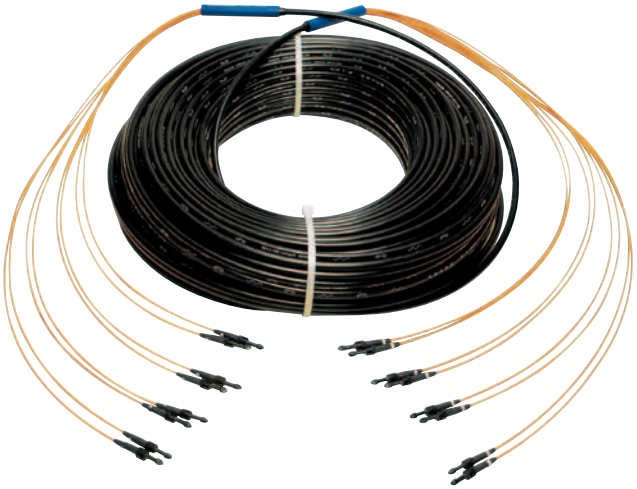
HITRONIC® cable sets/trunk system

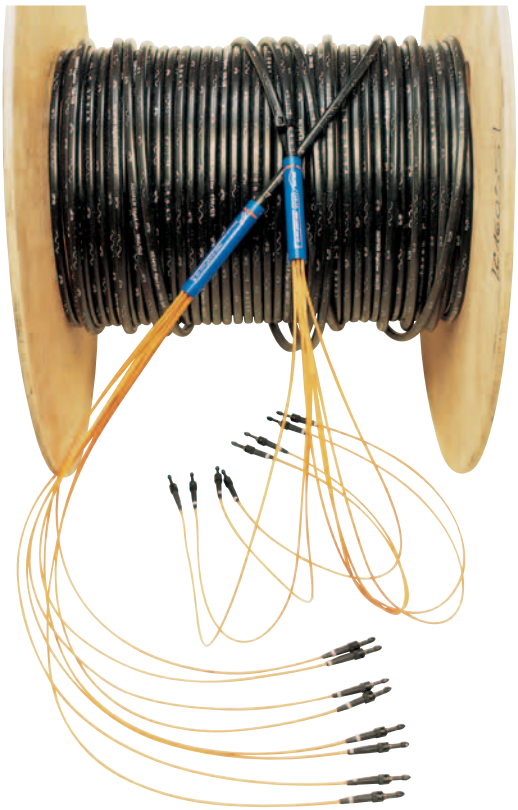
Two different connection types can be used with fibre optic cables

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.





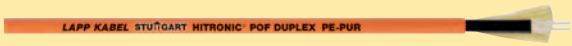
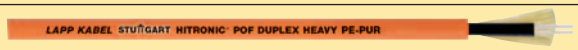
Advantages

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

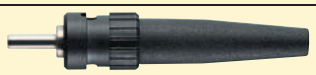
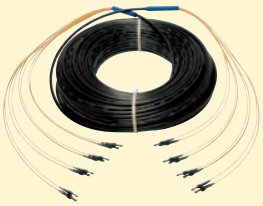
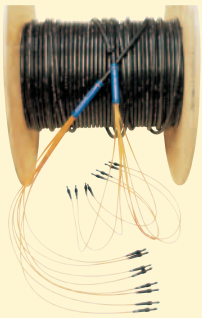
Requirements

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

HITRONIC® Product Overview

Type of fibre	Cables		Trunks/Patchcords
POF	POF SIMPLEX PE		
	POF DUPLEX PE		
	POF SIMPLEX PE-PUR		
	POF DUPLEX PE-PUR		
	POF DUPLEX Heavy		
	POF SIMPLEX FD PE-PUR		
	POF DUPLEX FD PE-PUR		
PCF	PCF SIMPLEX Outdoor		Trunk Systems
	PCF DUPLEX Outdoor		
	PCF DUPLEX Indoor		
	PCF DUPLEX FD Universal		
GOF	HITRONIC® FIRE		
	HITRONIC® TORSION		
	HRM-FD Flexible		Trunk Systems
	HDM Reel		
	HQN Outdoor		
	HVN Stranded Outdoor		Patchcords
	HVN-Micro Outdoor		Pigtails
	HQW Armoured Outdoor		
	HVW Armoured Stranded Outdoor		
	HQW-Plus Armoured Outdoor		
	HQA Aerial ADSS		
	HQA-Plus Aerial ADSS		
	HUN Universal		
	HUW Armoured Universal		
	HRH Breakout		
	HDH Mini Breakout		

Fibre optic cables

	Connectors		Assembly & tools	
	F-SMA		POF Assembly Toolbox	
	B-FOC (ST)			
	HFBR			
	F05 (TOCP)		Tools	
	F-SMA		POF Assembly Toolbox	
	B-FOC (ST)			
	HFBR			
			Tools	
	SC		Splice Box	
	ST (B-FOC)			
	LC			
			Splice Cassette	
			Adapters	
				
				
			GOF Assembly Toolbox	
			Tools	

Quickfinder

FO-fibre type	Cable type/standardisation (DIN VDE 0888)	Area of Installation	Cabling	Fibre Specification	No. of fibres	Max. tensile force (long-term) in [N]	Outer sheath material	
GOF – Glass Opical 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	

Please see detailed technical information on the data sheet (www.lappgroup.com/products).
Multimode OM4 fibres are also available upon request for all GOF cables.

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	151
	HITRONIC® HQN1500 8 G 50/125 OM3	27600308	151
	HITRONIC® HQN1500 12 G 50/125 OM3	27600312	151
	HITRONIC® HQN1500 24 G 50/125 OM3	27600324	151
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	151
	HITRONIC® HQN1500 8 G 50/125 OM2	27600208	151
	HITRONIC® HQN1500 12 G 50/125 OM2	27600212	151
	HITRONIC® HQN1500 24 G 50/125 OM2	27600224	151
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	151
	HITRONIC® HQN1500 8 G 62.5/125 OM1	27600108	151
	HITRONIC® HQN1500 12 G 62.5/125 OM1	27600112	151
	HITRONIC® HQN1500 24 G 62.5/125 OM1	27600124	151
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	151
	HITRONIC® HQN1500 8 E 9/125 OS2	27600908	151
	HITRONIC® HQN1500 12 E 9/125 OS2	27600912	151
	HITRONIC® HQN1500 24 E 9/125 OS2	27600924	151
compact, stranded loose tubes, UV resistance, halogen-free, rodent and moisture protection, low friction	HITRONIC® HVN5000 2x12 G 50/125 OM3	26600324	152
	HITRONIC® HVN5000 4x12 G 50/125 OM3	26600348	152
	HITRONIC® HVN5000 2x12 G 50/125 OM2	26600224	152
	HITRONIC® HVN5000 4x12 G 50/125 OM2	26600248	152
	HITRONIC® HVN5000 2x12 G 62.5/125 OM1	26600124	152
	HITRONIC® HVN5000 4x12 G 62.5/125 OM1	26600148	152
	HITRONIC® HVN5000 2x12 E 9/125 OS2	26600924	152
	HITRONIC® HVN5000 4x12 E 9/125 OS2	26600948	152
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	154
	HITRONIC® HQW3000 8 G 50/125 OM3	27900308	154
	HITRONIC® HQW3000 12 G 50/125 OM3	27900312	154
	HITRONIC® HQW3000 24 G 50/125 OM3	27900324	154
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	154
	HITRONIC® HQW3000 8 G 50/125 OM2	27900208	154
	HITRONIC® HQW3000 12 G 50/125 OM2	27900212	154
	HITRONIC® HQW3000 24 G 50/125 OM2	27900224	154
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	154
	HITRONIC® HQW3000 8 G 62.5/125 OM1	27900108	154
	HITRONIC® HQW3000 12 G 62.5/125 OM1	27900112	154
	HITRONIC® HQW3000 24 G 62.5/125 OM1	27900124	154
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	154
	HITRONIC® HQW3000 8 E 9/125 OS2	27900908	154
	HITRONIC® HQW3000 12 E 9/125 OS2	27900912	154
	HITRONIC® HQW3000 24 E 9/125 OS2	27900924	154

See continuation
page 27

Quickfinder (continuation)

FO-fibre type	Cable type/standardisation (DIN VDE 0888)	Area of Installation	Cabling	Fibre Specification	No. of fibres	Max. tensile force (long-term) in [N]	Outer sheath material	
GOF – Glass Opical Fibre	Universal Cable J/A-DQ(ZN)BH (4 – 24 fibres)	Indoor/Outdoor	Static	Multimode 50/125 µm OM3	4	1500	LSZH	
					8	1500	LSZH	
					12	1500	LSZH	
					24	1500	LSZH	
				Multimode 50/125 µm OM2	4	1500	LSZH	
					8	1500	LSZH	
					12	1500	LSZH	
					24	1500	LSZH	
				Multimode 62.5/125 µm OM1	4	1500	LSZH	
					8	1500	LSZH	
					12	1500	LSZH	
					24	1500	LSZH	
				Singlemode 9/125 µm OS2	4	1500	LSZH	
					8	1500	LSZH	
					12	1500	LSZH	
					24	1500	LSZH	
	Armoured Universal Cable A/J-DQ(ZN)(SR)BH (4 – 24 fibres)	Indoor/Outdoor	Static	Multimode 50/125 µm OM3	4	1500	LSZH	
					8	1500	LSZH	
					12	1500	LSZH	
					24	1500	LSZH	
				Multimode 50/125 µm OM2	4	1500	LSZH	
					8	1500	LSZH	
					12	1500	LSZH	
					24	1500	LSZH	
				Multimode 62.5/125 µm	4	1500	LSZH	
					8	1500	LSZH	
					12	1500	LSZH	
					24	1500	LSZH	
				Singlemode 9/125 µm OS2	4	1500	LSZH	
					8	1500	LSZH	
					12	1500	LSZH	
					24	1500	LSZH	

Please see detailed technical information on the data sheet (www.lappgroup.com/products).
Multimode OM4 fibres are also available upon request for all GOF cables.

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 OM3	27400304	159
	HITRONIC® HUN1500 8 G 50/125 OM3	27400308	159
	HITRONIC® HUN1500 12 G 50/125 OM3	27400312	159
	HITRONIC® HUN1500 24 G 50/125 OM3	27400324	159
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	159
	HITRONIC® HUN1500 8 G 50/125 OM2	27400208	159
	HITRONIC® HUN1500 12 G 50/125 OM2	27400212	159
	HITRONIC® HUN1500 24 G 50/125 OM2	27400224	159
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	159
	HITRONIC® HUN1500 8 G 62.5/125 OM1	27400108	159
	HITRONIC® HUN1500 12 G 62.5/125 OM1	27400112	159
	HITRONIC® HUN1500 24 G 62.5/125 OM1	27400124	159
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	159
	HITRONIC® HUN1500 8 E 9/125 OS2	27400908	159
	HITRONIC® HUN1500 12 E 9/125 OS2	27400912	159
	HITRONIC® HUN1500 24 E 9/125 OS2	27400924	159
metallic armoured (corrugated steel tape), excellent rodent protection, flame retardant, low smoke emission, halogen-free, moisture protection, watertight	HITRONIC® HUW1500 4 G 50/125 OM3	27500304	160
	HITRONIC® HUW1500 8 G 50/125 OM3	27500308	160
	HITRONIC® HUW1500 12 G 50/125 OM3	27500312	160
	HITRONIC® HUW1500 24 G 50/125 OM3	27500324	160
metallic armoured (corrugated steel tape), excellent rodent protection, flame retardant, low smoke emission, halogen-free, moisture protection, watertight	HITRONIC® HUW1500 4 G 50/125 OM2	27500204	160
	HITRONIC® HUW1500 8 G 50/125 OM2	27500208	160
	HITRONIC® HUW1500 12 G 50/125 OM2	27500212	160
	HITRONIC® HUW1500 24 G 50/125 OM2	27500224	160
metallic armoured (corrugated steel tape), excellent rodent protection, flame retardant, low smoke emission, halogen-free, moisture protection, watertight	HITRONIC® HUW1500 4 G 62.5/125 OM1	27500104	160
	HITRONIC® HUW1500 8 G 62.5/125 OM1	27500108	160
	HITRONIC® HUW1500 12 G 62.5/125 OM1	27500112	160
	HITRONIC® HUW1500 24 G 62.5/125 OM1	27500124	160
metallic armoured (corrugated steel tape), excellent rodent protection, flame retardant, low smoke emission, halogen-free, moisture protection, watertight	HITRONIC® HUW1500 4 E 9/125 OS2	27500904	160
	HITRONIC® HUW1500 8 E 9/125 OS2	27500908	160
	HITRONIC® HUW1500 12 E 9/125 OS2	27500912	160
	HITRONIC® HUW1500 24 E 9/125 OS2	27500924	160

See continuation page 28

Quickfinder (continuation)

FO-fibre type	Cable type/standardisation (DIN VDE 0888)	Area of Installation	Cabling	Fibre Specification	No. of fibres	Max. tensile force (long-term) in [N]	Outer sheath material	
GOF – Glass Opical Fibre	Breakout Cable J-V(ZN)HH (2 – 12 fibres)	Indoor	Static	Multimode 50/125 µm OM3	2	400	LSZH	
					4	600	LSZH	
					8	1200	LSZH	
					12	1700	LSZH	
				Multimode 50/125 µm OM2	2	400	LSZH	
					4	600	LSZH	
					8	1200	LSZH	
					12	1700	LSZH	
				Multimode 62.5/125 µm OM1	2	400	LSZH	
					4	600	LSZH	
					8	1200	LSZH	
					12	1700	LSZH	
	Mini Breakout Cable J-V(ZN)H (2 – 12 fibres)	Indoor	Static	Multimode 50/125 µm OM3	2	650	LSZH	
					4	650	LSZH	
					8	850	LSZH	
					12	850	LSZH	
				Multimode 50/125 µm OM2	2	650	LSZH	
					4	650	LSZH	
					8	850	LSZH	
					12	850	LSZH	
				Multimode 62.5/125 µm OM1	2	650	LSZH	
					4	650	LSZH	
					8	850	LSZH	
					12	850	LSZH	

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	A-V(ZN)11Y 1K200/230	Outdoor	Static	PCF 200/230 µm	1 (SIMPLEX)	PUR	
	A-VQ(ZN)HB2Y 2K200/230				2 (DUPLEX)	PE	
	J-V(ZN)H11Y 2K200/230	Indoor	Static	PCF 200/230 µm	2 (DUPLEX)	PUR	
	A/J-V(ZN)H11Y 2K200/230	Universal	Highly Flexible	PCF 200/230 µm	2 (DUPLEX)	PUR	

Please see detailed technical information on the data sheet (www.lappgroup.com/products).
Multimode OM4 fibres are also available upon request for all GOF cables.

Fibre optic cables

Product Benefits	Article designation	Part number	Page
halogen-free, flame-retardant, low smoke emission, easy to handle, highly flexible, suitable for direct connector assembly, simplex sheath diameter: 2.1 mm	HITRONIC® HRH400 2 G 50/125 OM3	26000302	161
	HITRONIC® HRH600 4 G 50/125 OM3	26000304	161
	HITRONIC® HRH1200 8 G 50/125 OM3	26000308	161
	HITRONIC® HRH1700 12 G 50/125 OM3	26000312	161
halogen-free, flame-retardant, low smoke emission, easy to handle, highly flexible, suitable for direct connector assembly, simplex sheath diameter: 2.1 mm	HITRONIC® HRH400 2 G 50/125 OM2	26000202	161
	HITRONIC® HRH600 4 G 50/125 OM2	26000204	161
	HITRONIC® HRH1200 8 G 50/125 OM2	26000208	161
	HITRONIC® HRH1700 12 G 50/125 OM2	26000212	161
halogen-free, flame-retardant, low smoke emission, easy to handle, highly flexible, suitable for direct connector assembly, simplex sheath diameter: 2.1 mm	HITRONIC® HRH400 2 G 62.5/125 OM1	26000102	161
	HITRONIC® HRH600 4 G 62.5/125 OM1	26000104	161
	HITRONIC® HRH1200 8 G 62.5/125 OM1	26000108	161
	HITRONIC® HRH1700 12 G 62.5/125 OM1	26000112	161
halogen-free, flame-retardant, low smoke emission, easy to handle, suitable for direct connector assembly	HITRONIC® HDH 2 G 50/125 OM3	26010302	162
	HITRONIC® HDH 4 G 50/125 OM3	26010304	162
	HITRONIC® HDH 8 G 50/125 OM3	26010308	162
	HITRONIC® HDH 12 G 50/125 OM3	26010312	162
halogen-free, flame-retardant, low smoke emission, easy to handle, suitable for direct connector assembly	HITRONIC® HDH 2 G 50/125 OM2	26010202	162
	HITRONIC® HDH 4 G 50/125 OM2	26010204	162
	HITRONIC® HDH 8 G 50/125 OM2	26010208	162
	HITRONIC® HDH 12 G 50/125 OM2	26010212	162
halogen-free, flame-retardant, low smoke emission, easy to handle, suitable for direct connector assembly	HITRONIC® HDH 2 G 62.5/125 OM1	26010102	162
	HITRONIC® HDH 4 G 62.5/125 OM1	26010104	162
	HITRONIC® HDH 8 G 62.5/125 OM1	26010108	162
	HITRONIC® HDH 12 G 62.5/125 OM1	26010112	162

Product Benefits	Article designation	Part number	Page
fibre sheath halogen-free, non-ageing, direct connector assembly	HITRONIC® POF SIMPLEX PE	28000001	144
PUR outer sheath halogen-free, flame-retardant, direct connector assembly	HITRONIC® POF SIMPLEX PE-PUR	28020001	144
fibre sheath halogen-free, non-ageing, direct connector assembly	HITRONIC® POF DUPLEX PE	28000002	145
PUR outer sheath halogen-free, flame-retardant, direct connector assembly	HITRONIC® POF DUPLEX PE-PUR	28020002	145
thicker outer sheath for increased mechanical resistance, halogen-free	HITRONIC® POF DUPLEX HEAVY PE-PUR	28030002	145
power chain, for highly flexible industrial applications, halogen-free outer sheath	HITRONIC® POF SIMPLEX FD PE-PUR	28320001	146
power chain, for highly flexible industrial applications, halogen-free outer sheath	HITRONIC® POF DUPLEX FD PE-PUR	28320002	146

PUR outer sheath, flame-retardant and halogen-free outer sheath, for direct connector assembly	HITRONIC® PCF SIMPLEX PUR Outdoor	28600701	146
compatible with all typical BUS systems, FRNC simplex sheath (diameter: 2.9 mm); PE outer sheath, low-smoke and halogen-free outer sheath, for direct connector assembly	HITRONIC® PCF DUPLEX FRNC-PE Outdoor	28620702	149
compatible with all typical BUS systems, FRNC simplex sheath (diameter: 2.9 mm); PUR outer sheath, low-smoke and halogen-free outer sheath, for direct connector assembly	HITRONIC® PCF DUPLEX FRNC-PUR Indoor	28020702	149
power chain, compatible with all typical BUS systems, for highly flexible industrial applications, FRNC simplex sheath (diameter: 2.2mm), halogen-free outer sheath, for direct connector assembly	HITRONIC® PCF DUPLEX FRNC-PUR FD	28320702	149

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 unscreened, geometrically coded two-core flat cable (protection against polarity reversal).
- The conductor is contacted by "piercing technology" within the ASI modules.
- The sensors are connected to the ASI modules (coupling modules) using round cables (connection cables).

Approvals (Norm references)

RoHS

- 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 (Norm references)
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 Appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Lapp Kabel is a member of the AS-International Association
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® DIX-M AUTOMATION refer to page 173
- Universal strip stripping and cutting tool refer to main catalogue 2012
- AS-I clip clamp / AS-I end sealing refer to main catalogue 2012
- AS-I STRIP special stripping tool refer to main catalogue 2012
- AS-I STRIP special refer to main catalogue 2012
- SKINTOP® DIX ASI refer to main catalogue 2012

New

UNITRONIC® BUS ASI FD

Highly flexible application

Info

- **"FD" = suitable for power chains**
- **"LD" = Long Distance**

Benefits

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

Application range

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

Product features

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

Approvals (Norm references)

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

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 mm² per conductor	Copper index (kg/km)	Weight (kg/km)
For highly flexible applications (power chains, moving machine parts)							
2170357	UNITRONIC® BUS ASI FD P FRNC	PUR UL/CSA (AWM)	yellow	Data and power transmission	2 x 1,5	29.0	64
2170358	UNITRONIC® BUS ASI FD P FRNC	PUR UL/CSA (AWM)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29.0	64
2170317	UNITRONIC® BUS ASI LD FD P	PUR UL/CSA (AWM)	yellow	Data and power transmission	2 x 2,5	48.0	74
2170318	UNITRONIC® BUS ASI LD FD P	PUR UL/CSA (AWM)	black	Transmission of 30 V DC auxiliary power	2 x 2,5	48.0	74
2170830	UNITRONIC® BUS ASI FD (TPE) A	TPE UL/CSA (AWM)	yellow	Data and power transmission	2 x 1,5	29.0	64
2170831	UNITRONIC® BUS ASI FD (TPE) A	TPE UL/CSA (AWM)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29.0	64

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

Accessories

- SKINTOP® DIX-M AUTOMATION refer to page 173
- Universal strip stripping and cutting tool refer to main catalogue 2012
- AS-I clip clamp / AS-I end sealing refer to main catalogue 2012
- AS-I STRIP special stripping tool refer to main catalogue 2012
- AS-I STRIP special refer to main catalogue 2012
- SKINTOP® DIX ASI refer to main catalogue 2012

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 (Norm references)

- 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, black Outer sheath, 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 (Norm references)
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 rms

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 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.

Similar products

- UNITRONIC® BUS PB ROBUST refer to page 32
- UNITRONIC® BUS PB 105 refer to page 32

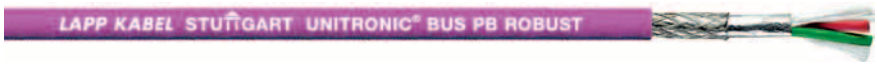
Accessories

- FC Strip stripping tool refer to main catalogue 2012

Characteristic impedance: 135 - 165 ohm

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 (Norm references)

RoHS

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

Technical data

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 rms
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 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® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
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 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 (Norm references)

RoHS

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 page 43

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 rms
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 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 PROFIBUS user organisation (PNO)
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- Multipurpose shears A and B refer to main catalogue 2012

Info

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

New

UNITRONIC® BUS PB 105 plus

Benefits

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

Application range

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

Product features

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

Approvals (Norm references)

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

Design

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

Technical data

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

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Fixed installation: 45 mm once
Flexing: 65 mm

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

Temperature range
Fixed installation: -40°C to +105°C
Short-term: up to +120 °C

Characteristic impedance
(3 - 20 MHz): 150 ± 15 Ohm

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

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

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**

UNITRONIC® BUS PB FRNC FC

Fixed installation

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 (Norm references)

c UL us RoHS PROFIBUS

Design

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

Suitable connectors

- EPIC® Data connectors page 43

Technical data

Approvals (Norm references)
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 rms
Core/screen: 1500 V

Temperature range
-30°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)
Fixed installation					
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 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.

Accessories

- FC Strip stripping tool refer to main catalogue 2012

Characteristic impedance: 135 - 165 ohm

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 (Norm references)
RoHS

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 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 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 outer sheath made of PVC

Approvals (Norm references)
RoHS

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 rms
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)
Suitable for outdoor use and direct burial					
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 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 (Norm references)

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 rms
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)
Suitable for outdoor use and direct burial					
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 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 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 (Norm references)

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)
Suitable for outdoor use and direct burial					
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 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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Accessories
- FC Strip stripping tool refer to main catalogue 2012

Characteristic impedance: 135 - 165 ohm

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 (Norm references)

RoHS ✓ PROFIBUS

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

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 rms
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 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).
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

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 (Norm references)

RoHS ✓ PROFIBUS

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

Suitable connectors

- EPIC® Data connectors page 43

Technical data

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

Peak operating voltage
(not for power applications) 250 V

Torsion movement in WTG
TW-0 & TW-2
refer to catalogue, Appendix T0

Minimum bending radius
65mm

Test voltage
Core/core: 1500 V rms

Temperature range
Flexing: -30°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)
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 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).
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

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 (Norm references)

- 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 page 43

Technical data

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

Peak operating voltage
(not for power applications) 250 V

Torsion movement in WTG
TW-0 & TW-2
refer to catalogue, Appendix T0

Minimum bending radius
65mm

Test voltage
Core/core: 1500 V rms

Temperature range
Flexing: -30°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)
Highly flexible application					
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 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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Characteristic impedance: 135 - 165 ohm

UNITRONIC® BUS PB FD P FC

Highly flexible application

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)

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

- 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 (Norm references)

- 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 page 43

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

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

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 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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Accessories

- FC Strip stripping tool refer to main catalogue 2012

UNITRONIC® BUS PB FD FRNC FC

Highly flexible application

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

Application range

- For highly flexible use in energy supply chains or permanently moving machines and linear robots
- 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 (Norm references)

cULus RoHS PROFIBUS

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 page 43

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 rms

Temperature range
Flexing: -30°C to +70°C
Fixed installation: -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)
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 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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Accessories

- FC Strip stripping tool refer to main catalogue 2012

Characteristic impedance: 135 - 165 ohm

UNITRONIC® BUS PB FD P COMBI

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

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

Approvals (Norm references)

RoHS

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)
Highly flexible application					
2170227	UNITRONIC® BUS PB FD P COMBI	1 x 2 x 0.64 Ø + 3 x 1.0 mm²	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 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 HYBRID

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

- HYBRID: cable for data transmission + power supply
- Flame-retardant according to IEC 60332-1-2
- Oil-resistant

Approvals (Norm references)

RoHS

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)
Highly flexible application					
2170495	UNITRONIC® BUS PB FD P HYBRID	1 x 2 x 0.64 Ø + 4 x 1.5 mm²	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 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 (Norm references)

- 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)
Highly flexible application					
2170875	UNITRONIC® BUS PB FD Y HYBRID	1 x 2 x 0.64 Ø + 4 x 1.5 mm²	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 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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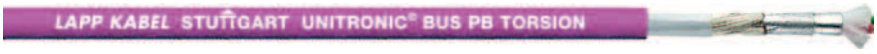
UNITRONIC® BUS PB TORSION

Highly flexible application



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; ± 180° 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 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 (Norm references)

- Approval: UL type CMX in accordance with UL 444

Design

- PE core insulation

Suitable connectors

- EPIC® Data connectors page 43

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 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Highly flexible application					
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 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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Characteristic impedance: 135 - 165 ohm

UNITRONIC® BUS PB FESTOON

Highly flexible application

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 (Norm references)
- 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 Page 43

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 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Highly flexible application					
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 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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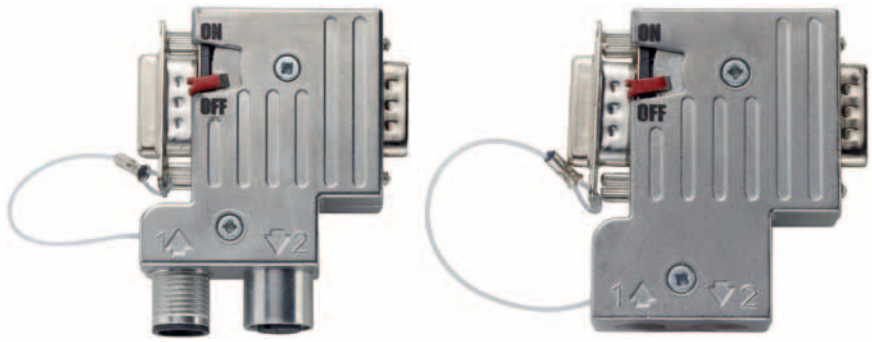
New

EPIC® Data PROFIBUS Connector (full-metal)

Info

- **Robust fully metal housing**
- **M12 versions or as spring type connection**



Benefits

- Robust and failsafe desig in harsh environments.
- Very flexible in use
- Optimum EMC protection
- Secure PROFIBUS network connection
- Cost-saving due to quick installation (Plug & Play)

Application range

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

Product features

- Extended temperature range
- High mechnical durability (200 contact durability)
- Less transmission loss
- Adjustable bus termination is integrated
- No loose parts

Approvals (Norm references)

RoHS

- D-Sub pin assignment in accordance with PROFIBUS

Design

- D-Sub plug, 9-pin
- Fully metal hausing (ZnAl)
- With additional programming/diagnostic interface (90° and 35° version): D-Sub socket, 9-pin
- With undetachable EMC connector protection (PG port)
- 360° shielding of housing

Suitable cables

- PROFIBUS cable: M12 connector on free conductor end Page 103
- PROFIBUS Cable: M12 connector on M12 socket Page 104

Technical data

Dimensions
see technical data sheet

Connection type
linternal cable clamp: cage clamp terminal

Degree of soiling
2

Weight
Approx. 100 g

Protection rating
IP 30

Cable outlet
90°, 35° and axial

Terminating resistor
Integrated resistor combination that is connected by a sliding switch

Transmission rate
max. 12 MBit/s

Interfaces
PROFIBUS station:
D-Sub socket, 9-pin
PROFIBUS cable:
Version: M12 PROFIBUS system cabling
Version: Spring type for sytem cabeling
Wire size: 0,08 - 0,5 mm²
(AWG 28 - AWG 14)
Cable diameter: 8 - 9 mm

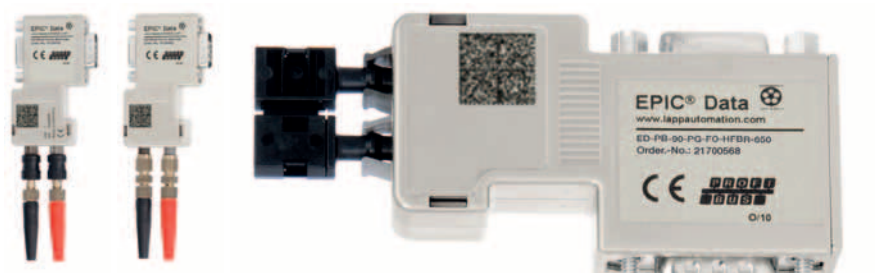
Permissble ambient conditions
Operating temperature:
-20°C to +70°C
Relative humidity:
max. 75 % at +25°C

Article number	Article designation	Cable outlet	PG
EPIC® Data PROFIBUS Connectors (full-metal) with M12 connection			
21700563	ED-PB-AX-M12-PRO	180° axial	no
21700561	ED-PB-35-PG-M12-PRO	35°	yes
21700562	ED-PB-90-PG-M12-PRO	90°	yes
EPIC® Data PROFIBUS Connectors (full-metal) with spring type connection			
21700566	ED-PB-AX-M12-PRO	180° axial	no
21700564	ED-PB-35-PG-ST-PRO	35°	yes
21700565	ED-PB-90-PG-ST-PRO	90°	yes

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)

New

EPIC® Data PROFIBUS Connector (Optical Link Modul)



Info

- **Fully functioning PROFIBUS repeater with integrated optical interface**

Benefits

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

Application range

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

Product features

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

Approvals (Norm references)

CE RoHS PROFIBUS

Design

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

Suitable cables

- HITRONIC® PCF DUPLEX Cable Page 149
- HITRONIC® POF DUPLEX PE Page 145
- HITRONIC® POF DUPLEX PE-PUR Page 145

Technical data

Dimensions
64 mm x 40 mm x 17 mm (LxWxH)

Degree of soiling
2

Weight
Approx. 40 g

Protection rating
IP 20

Cable outlet
90°

Terminating resistor
Integrated resistor combination that is connected by a sliding switch

Transmission rate
max. 12 MBit/s

Interfaces
Connection: Sub-D socket, 9-pinPROFIBUS-cable: 4 terminal blocks for wires up to 1.0 mm²Protocol: PROFIBUS DP in accordance with EN 50170
applicable types of connectors:
SMA, BFOC(ST) and HFBR

Current consumption
typ. 100 mA

Permissble ambient conditions
Operating temperature:
0°C to +60°C
Transport and storage temperature:
-25°C to +75°C

Supply voltage
5,0 V DC
(supplied from terminal)

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

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

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

- Resistant to oils
- 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 (Norm references)

c UL us RoHS DeviceNet

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

Characteristic impedance: 120 ohm

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 (Norm references)

c UL us RoHS DeviceNet™

- PUR: UL/CSA-approved (CMX)
- 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 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
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® CHAIN refer to main catalogue 2012
- SMARTSTRIP stripping tool refer to main catalogue 2012

UNITRONIC® BUS CAN

Info

- CAN = Controller Area Network

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 (Norm references)

c UL us RoHS

- 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 rms

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 (mm²)	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 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.

Accessories

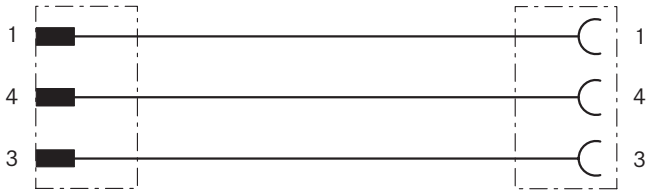
UNITRONIC® BUS CAN

- Multipurpose shears A and B refer to main catalogue 2012
- SMARTSTRIP stripping tool refer to main catalogue 2012

UNITRONIC® BUS CAN FD P

- Multipurpose shears A and B refer to main catalogue 2012
- SMARTSTRIP stripping tool refer to main catalogue 2012
- SMARTSTRIP stripping tool refer to main catalogue 2012

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 (Norm references)

c UL us RoHS

Design

- Fixed flexible control cable
- Design: 3 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown(1), blue(3), black(4)
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

Technical data

IP **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

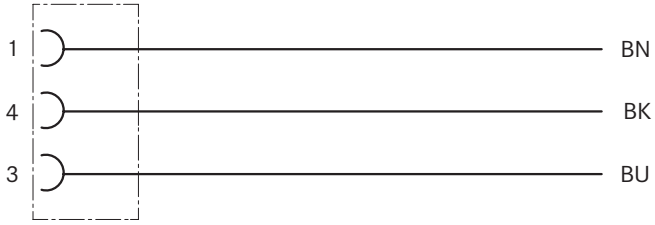
Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U_N (V)	Nominal current I_N in (A)	PU
Straight connector					
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 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 table T6

New

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 (Norm references)

c UL us RoHS

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

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

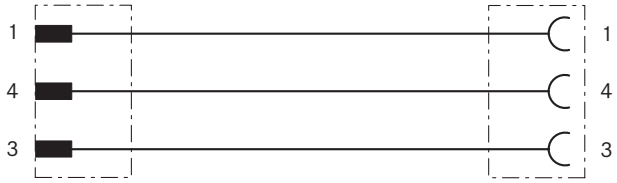
Knurl material
Zinc die-cast, nickel-plated

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
For fixed installation						
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
Suitable for drag chains						
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 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 table T6

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

- 3-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 (Norm references)

c UL us RoHS

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

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

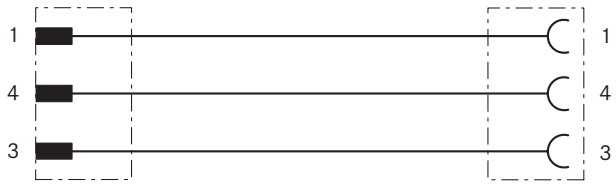
Knurl material
Zinc die-cast, nickel-plated

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 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 table T6

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 (Norm references)

cULus RoHS

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

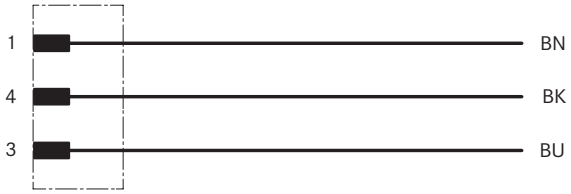
Gripping body material
TPU, flame-retardant, self-extinguishing

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 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 table T6

New

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 (Norm references)

c UL us RoHS

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

IP **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)	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

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 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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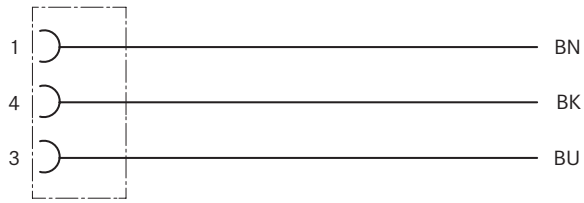
For detailed technical information please refer to the data sheet (www.lappautomation.com)
UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

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 (Norm references)

c UL us RoHS

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
For fixed installation						
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
Suitable for drag chains						
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

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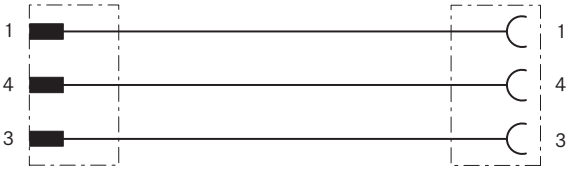
Copper price basis: inclusive of copper. Refer to Appendix T 17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
Photographs are not to scale and do not represent detailed 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 table T6

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 (Norm references)

c UL us RoHS

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

IP **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

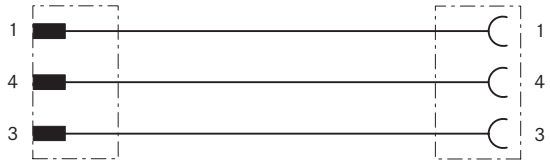
Knurl material
Zinc die-cast, nickel-plated

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

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 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 table T6

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 (Norm references)

c UL us RoHS

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

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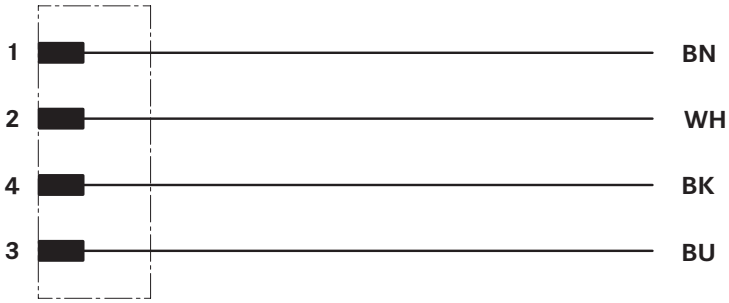
Copper price basis: inclusive of copper. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
Photographs are not to scale and do not represent detailed images 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 table T6

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 (Norm references)

cULus RoHS

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

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

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Copper price basis: inclusive of copper. Refer to 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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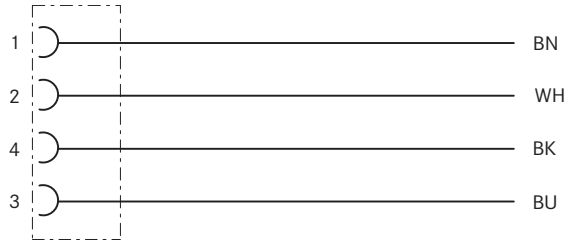
For detailed technical information please refer to the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

New

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 (Norm references)

c UL us RoHS

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
For fixed installation						
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
Suitable for drag chains						
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 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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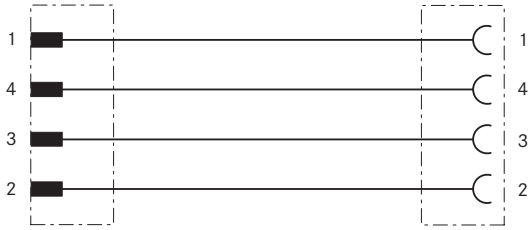
UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

New

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 (Norm references)

c UL us RoHS

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

IP **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

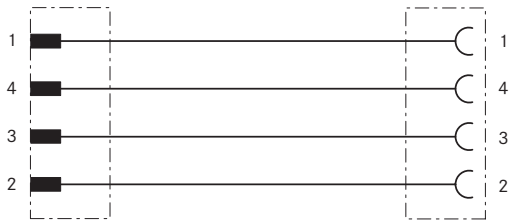
Knurl material
Zinc die-cast, nickel-plated

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 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 table T6

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

- 4-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 (Norm references)

c UL us RoHS

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

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 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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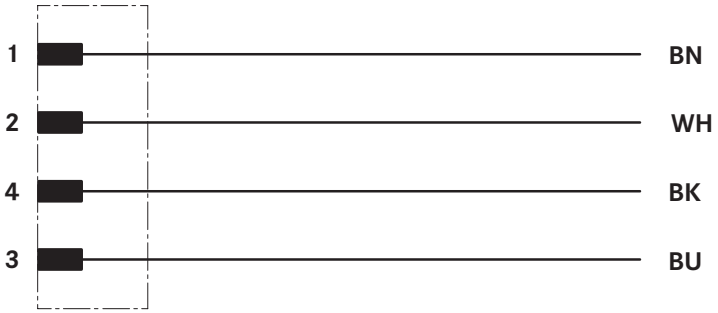
UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

New

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 (Norm references)
cULus RoHS

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

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 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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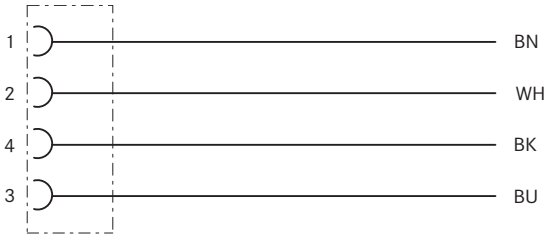
UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

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 (Norm references)

c UL us RoHS

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
For fixed installation						
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
Suitable for drag chains						
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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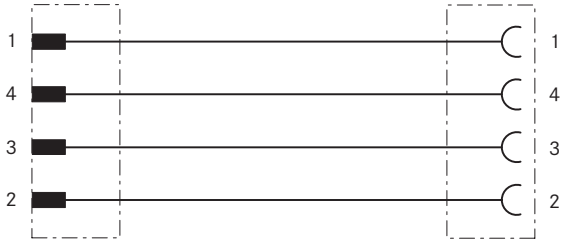
Copper price basis: inclusive of copper. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
Photographs are not to scale and do not represent detailed images 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 table T6

New

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 (Norm references)

c UL us RoHS

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

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 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 table T6

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

- 5-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 (Norm references)

c UL us RoHS

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 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 table T6

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

- 5-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 (Norm references)

c UL us RoHS

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
For fixed installation						
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
Suitable for drag chains						
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 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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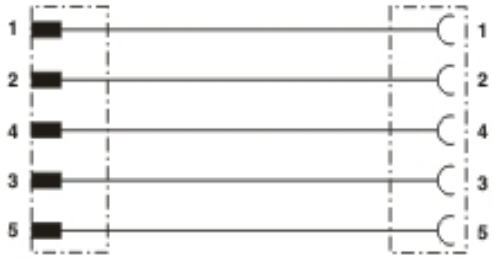
For detailed technical information please refer to the data sheet (www.lappautomation.com)
UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

New

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 (Norm references)

c UL us RoHS

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

IP **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 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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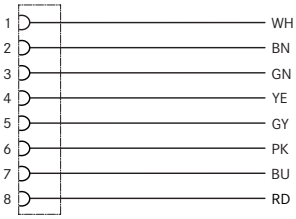
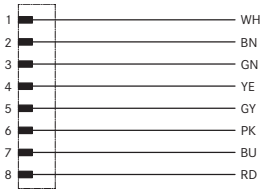
For detailed technical information please refer to the data sheet (www.lappautomation.com)
UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

New

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 (Norm references)
RoHS

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
IP

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
For fixed installation					
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 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 table T6
UL approvals can be found in the data sheet (www.lappautomation.com)

New

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 (Norm references)

RoHS

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

IP

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 in (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-M12MS1,0PUR-M12FA	1	30	2	1
22260140	AB-C8-M12MS-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 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 table T6
UL approvals can be found in the data sheet (www.lappautomation.com)

S/A cable: shielded, M12 connector 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
- 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 (Norm references)

cULus RoHS

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
-40°C to +80°C
Cable, flexible installation
-25°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
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

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 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 table T6

New

S/A cable: shielded, M12 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 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 (Norm references)

cULus RoHS

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
-40°C to +80°C
Cable, flexible installation
-25°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

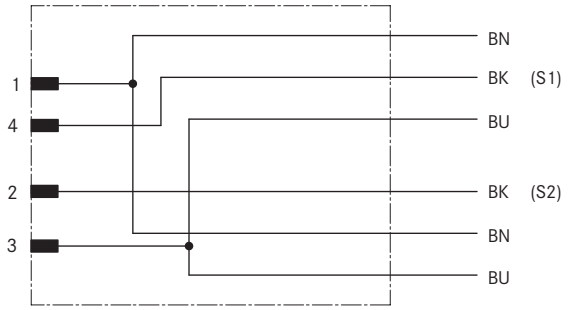
Knurl material
Zinc die-cast, nickel-plated

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

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 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 table T6

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 (Norm references)

cULus RoHS

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

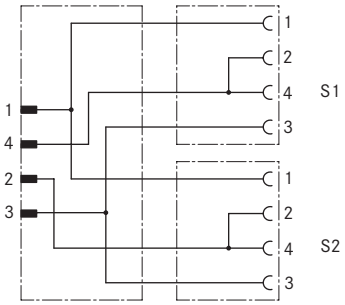
Article number	Article designation	Length (m)	Nominal current I_N in (A)	PU
Y plug to 2 x free conductor end				
22260500	AB-C3-M12Y-2,0PUR	2	4	1
22260513	AB-C3-M12Y-5,0PUR	5	4	1
22260526	AB-C3-M12Y-10,0PUR	10	4	1

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 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 table T6

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

Info

- PIN 2+4 are bridged on M12 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 M12 Y connector on 2 x M12 socket (4-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 (Norm references)

cULus RoHS

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

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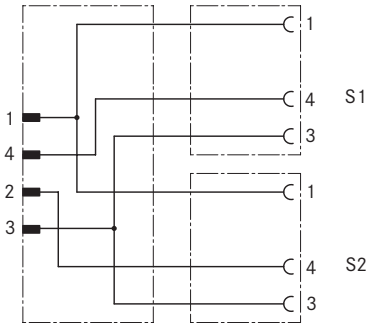
Copper price basis: inclusive of copper. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

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 (Norm references)

cULus RoHS

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

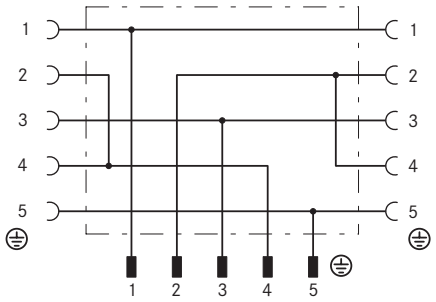
Knurl material
Zinc die-cast, nickel-plated

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

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 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 table T6

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 (Norm references)

RoHS

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

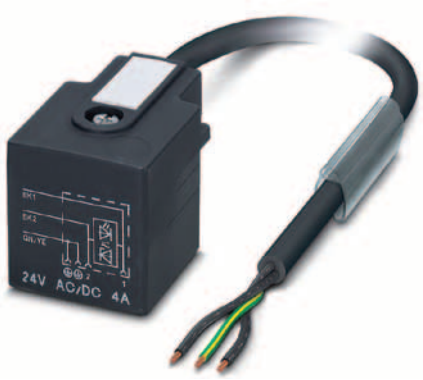
Knurl material
Zinc die-cast, nickel-plated

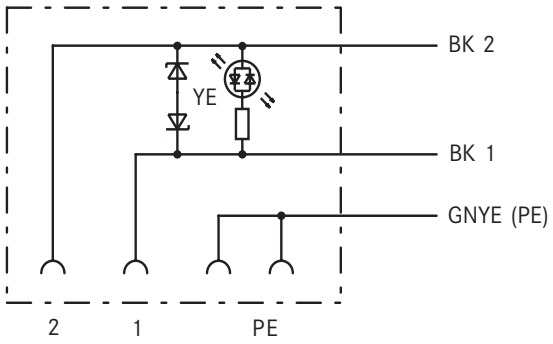
Gripping body material
TPU, flame-retardant, self-extinguishing

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

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.
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 table T6

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 (Norm references)

RoHS

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						

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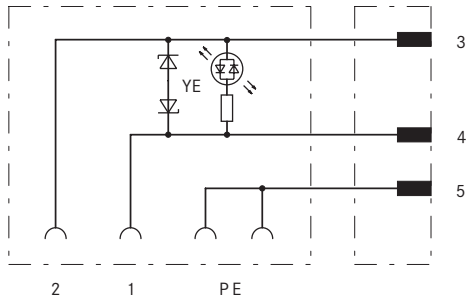
Copper price basis: inclusive of copper. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

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 (Norm references)

RoHS

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

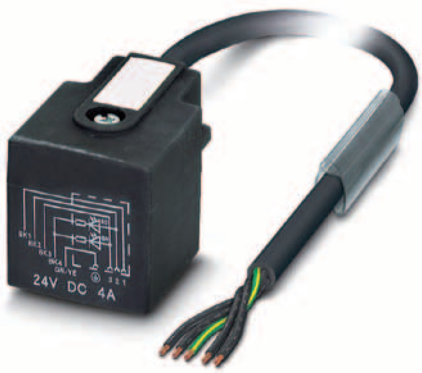
Knurl material
Zinc die-cast, nickel-plated

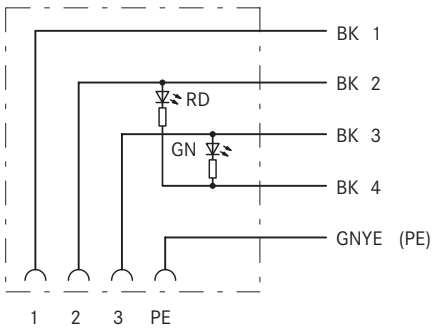
Gripping body material
TPU, flame-retardant, self-extinguishing

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 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 table T6

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 (Norm references)

RoHS

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 Appendix T17 for the definition and calculation of copper-related surcharges.
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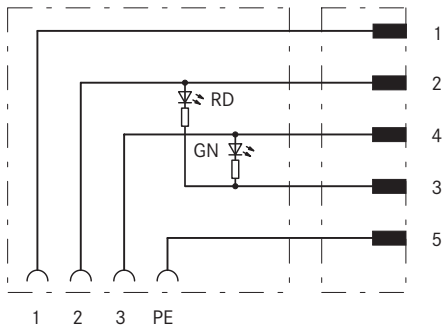
For detailed technical information please refer to the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

S/A cable: 5-pos., valve connector on straight M12 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 (Norm references)

RoHS

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

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 Appendix T17 for the definition and calculation of copper-related surcharges.
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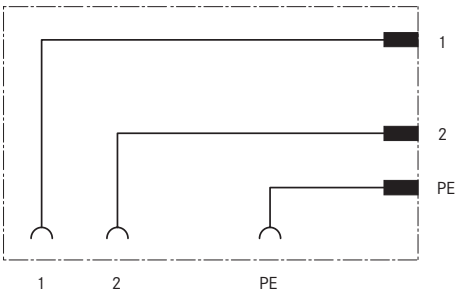
For detailed technical information please refer to the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

New

Field mountable valve connectors



Benefits

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

Application range

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

Product features

- 3 and 5-pin valve connector
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Connection type: screw connection

Approvals (Norm references)

RoHS

Suitable cables

- ÖLFLEX® FD 855 P refer to main catalogue 2012

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

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
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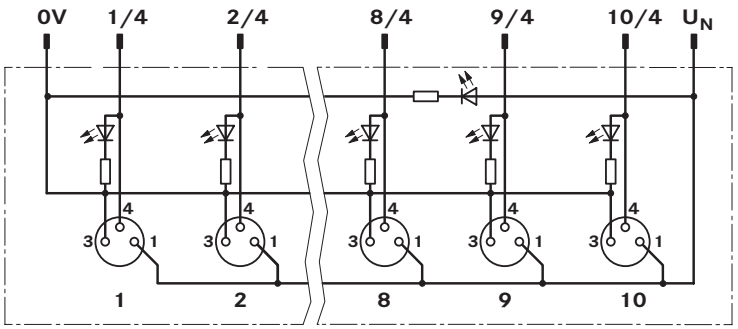
For detailed technical information please refer to the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

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 (Norm references)

c UL us RoHS

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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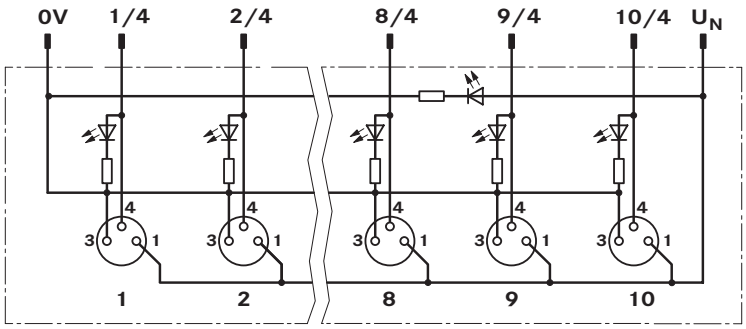
Copper price basis: inclusive of copper. Refer to Appendix T 17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.
For the UNITRONIC® field bus type code, please see table T6
Unused female connectors must be covered with protective caps (see accessories)
For detailed technical information please refer to the data sheet (www.lappautomation.com)

Accessories

- Screw plug for unoccupied sockets refer to page 86

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 (Norm references)

cULus RoHS

Suitable cables

- M16 socket with connected master cable Page 84
- M12 socket with connected master cable Page 85

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

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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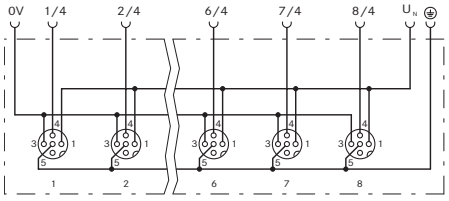
For the UNITRONIC® field bus type code, please see table T6
Unused female connectors must be covered with protective caps (see accessories)
For detailed technical information please refer to the data sheet (www.lappautomation.com)

Accessories

- Screw plug for unoccupied sockets refer to page 86

New

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 (Norm references)

c UL us RoHS

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

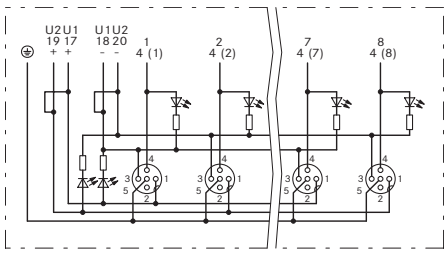
Article number	Article designation	Length (m)	Number of slots	Nominal voltage U_N (V)	SACB total current (A)	Status display	PU
Single-occupied boxes, without LEDs							
22260010	AB-B4-M12-4-5,0PUR	5.0	4	120	12	no	1
22260011	AB-B4-M12-4-10,0PUR	10.0	4	120	12	no	1
22260014	AB-B8-M12-8-5,0PUR	5.0	8	120	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 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)

Accessories

- Screw plug for unoccupied sockets refer to page 86

S/A box with M12 slots and master cable connection



Info

- For individual master cable assembly

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 (Norm references)

cULus RoHS

Suitable cables

- UNITRONIC® SENSOR master cable bulk stock Page 83

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to main catalogue 2012
- Suitable tools are available upon request (e.g. M12 torque screwdriver)

Technical data

Protection rating
IP65/IP67/IP69K

Ambient temperature (operation)
-30°C to +80°C

Max. current rating per path
2 A

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-M12-16-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

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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

Accessories

- Screw plug for unoccupied sockets refer to page 86
- Complete connection hood with 4, 6 or 8 slots refer to page 86

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

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

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

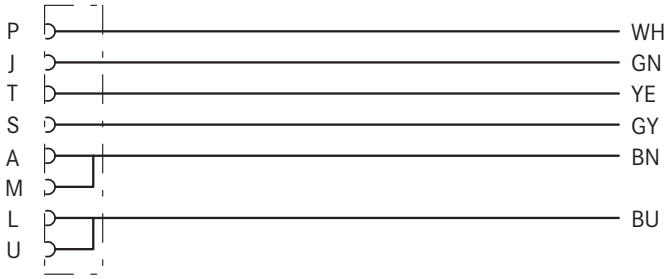
Article number	Article designation	Dimensions (mm²)	Outer diameter (mm)	Core/outer sheath material	Colour	Copper index (kg/km)
UNITRONIC® SENSOR COMBI						
7038880	Li9Y11Y	3 x 0.75 + 4 x 0.34	6.6	PP/PUR	black	34.5
7038881	Li9Y11Y	3 x 1.0 + 8 x 0.5	8.4	PP/PUR	black	67.2
7038882	Li9Y11Y	3 x 1.0 + 16 x 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 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)

Accessories

- S/A box with M12 slots and master cable connection refer to page 82

M16 socket with connected master cable



Benefits

- Connecting cable for M8 boxes with 4 to 10 slots
- M16 connection

Application range

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

Product features

- Angled socket with M16 thread
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals (Norm references)

RoHS

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

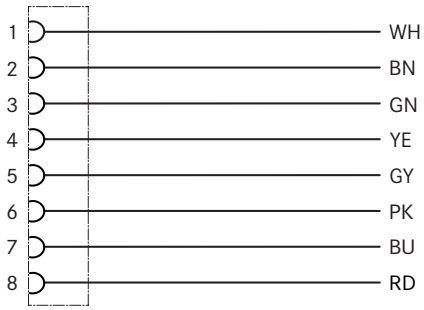
Knurl material
Nickel-plated brass

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-M16FA	5	125	4	1
22260608	AB-C8-10,0PUR-M16FA	10	125	4	1
10-pin angled-socket, 6 signalling cables, 2 power supply cables					
22260609	AB-C10- 5,0PUR-M16FA	5	125	4	1
22260610	AB-C10-10,0PUR-M16FA	10	125	4	1
12-pin angled socket, 8 signalling cables, 2 power supply cables					
22260611	AB-C12- 5,0PUR-M16FA	5	125	4	1
22260612	AB-C12-10,0PUR-M16FA	10	125	4	1
14-pin angled socket, 10 signalling cables, 2 power supply cables					
22260613	AB-C14- 5,0PUR-M16FA	5	125	4	1
22260614	AB-C14-10,0PUR-M16FA	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 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 table T6

M12 socket with connected master cable



Benefits

- Connecting cable for M8 boxes with 4 to 6 slots
- M12 connection

Application range

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

Product features

- Angled socket with M12 thread
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals (Norm references)

RoHS

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 in (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 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 table T6

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 (Norm references)
RoHS

Suitable tools
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to main catalogue 2012

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

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 (Norm references)
c UL us RoHS

Suitable tools
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to main catalogue 2012

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 M12

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 (Norm references)

RoHS

Suitable cables

- Cable for sensor / actuator components refer to main catalogue 2012

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 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)									
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 table T6

New

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 (Norm references)

RoHS

Suitable cables

- Cable for sensor / actuator components refer to main catalogue 2012

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

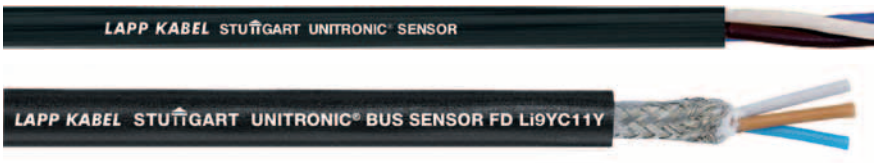
Contact surface material
Au

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 table T6

UNITRONIC® SENSOR



Application range

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

Product features

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

Approvals (Norm references)

Design

- UNITRONIC® SENSOR LifYY
  Conductor: extra-fine bare copper strand in accordance with DIN VDE 0295 Class 6; core insulation: PVC, outer sheath: PVC
- UNITRONIC® SENSOR DESINA® LifY11Y
  Stranded bare copper conductor, super-fine. In accordance with VDE 0295 Class 6, special PVC insulation, cores twisted in layers, core identification in accordance with DESINA® (brown, white, blue, black). Outer sheath is made of special polyurethane-based compound; yellow colour in acc. to RAL 1021; flame retardant acc. to IEC 60332-1-2. Operating voltage= 48 V, Peak working voltage= 300 V.
- UNITRONIC® SENSOR FD Li9Y11Y and SENSOR FD Li9YC11Y AWM UL Style 20549, 80 °C/300 V. Conductor: Cu strand, bare, extra-fine wire according to DIN VDE 0295 Class 6, core insulation: modified polypropylene (PP), outer sheath: halogen-free polyurethane (PUR), matt, adhesion-free
- UNITRONIC® SENSOR FD series cables are specially designed for use in power chains

Article number	Article designation	Dimensions (mm²)	Outer diameter (mm)	Core/outer sheath material	Colour	Copper index (kg/km)
UNITRONIC® SENSOR						
7038859	S-LifYY	3 x 0.34	4.8	PVC/PVC	black	9.8
7038860	S-LifYY	4 x 0.34	4.8	PVC/PVC	black	13.1
0040434	DESINA	4 x 0.34	5.2	PVC/PUR	yellow (RAL 1021)	13.5
7038861	S-LifY11Y	4 x 0.34	4.8	PVC/PUR	black	13.1
7038862	S-LifY11Y	5 x 0.25	4.9	PVC/PUR	black	12.0
UNITRONIC SENSOR FD						
7038883	Li9Y11Y	3x0.25	4.4	PP/PUR	black	7.5
7038864	Li9Y11Y	3 x 0.34	4.6	PP/PUR	black	9.8
7038884	Li9Y11Y	4x0.25	4.7	PP/PUR	black	10.2
7038865	Li9Y11Y	4 x 0.34	4.7	PP/PUR	black	13.0
7038867	Li9Y11Y	5 x 0.25	4.7	PP/PUR	black	12.0
7038866	Li9Y11Y	5 x 0.34	5.1	PP/PUR	black	16.0
7038868	Li9Y11Y	8 x 0.25	5.9	PP/PUR	black	19.0
UNITRONIC® SENSOR FD screened						
7038885	Li9YC11Y	3 x 0.34	4.6	PP/PUR	black	19.1
7038886	Li9YC11Y	4 x 0.34	4.7	PP/PUR	black	23.5
7038887	Li9YC11Y	5 x 0.34	5.1	PP/PUR	black	27.5

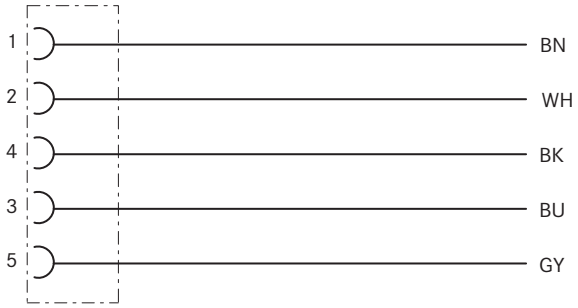
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100kg. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths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

Accessories

- Field mountable S/A connectors M12 refer to page 87
- Field mountable S/A connectors M8 refer to page 88
- STAR STRIP stripping tool refer to main catalogue 2012
- SMARTSTRIP stripping tool refer to main catalogue 2012

New

S/A M12 flush-type connectors with M16 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 M16 fastening thread
- Front wall-mounting
- M12 A-coded with quick-locking system
- Free of substances that could hinder paint or varnish
- Can be positioned

Approvals (Norm references)

RoHS

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 (mm²)	Nominal voltage U_N (V)	Nominal current I_N in (A)	PU
M12 flush-type connector pin for front-mounting [1.]						
22260108	AB-C4-M12MS-M16-0,5	4	0.34	250	4	1
22260106	AB-C5-M12MS-M16-0,5	5	0.34	60	4	1
M12 flush-type connector pin for front-mounting, can be positioned [1.]						
22260083	AB-C4-M12MS-M16-PO-0,5	4	0.34	250	4	1
22260084	AB-C5-M12MS-M16-PO-0,5	5	0.34	60	4	1
M12 flush-type connector socket for front-mounting [1.]						
22260107	AB-C4-M12FS-M16-0,5	4	0.34	250	4	1
22260105	AB-C5-M12FS-M16-0,5	5	0.34	60	4	1
M12 flush-type connector socket for front-mounting, can be positioned [1.]						
22260085	AB-C4-M12FS-M16-PO-0,5	4	0.34	250	4	1
22260086	AB-C5-M12FS-M16-PO-0,5	5	0.34	60	4	1

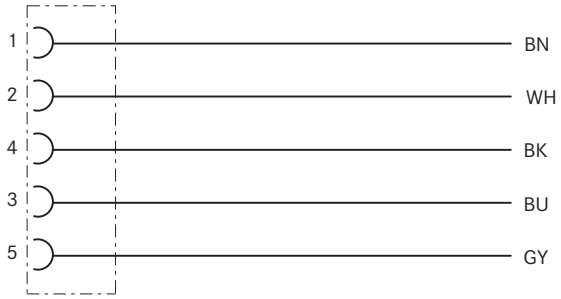
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not 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 table T6
1.) with quick-locking system

Accessories

- Fitting nut for flush-type connectors refer to page 93

New

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 (Norm references)

RoHS

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 (mm²)	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

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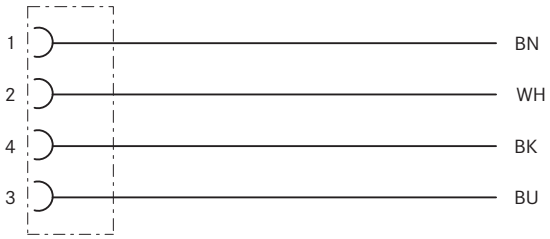
Copper price basis: inclusive of copper. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6
1.) with quick-locking system

Accessories

- Fitting nut for flush-type connectors refer to page 93

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 (Norm references)

RoHS

Design

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

Technical data

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 (mm²)	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

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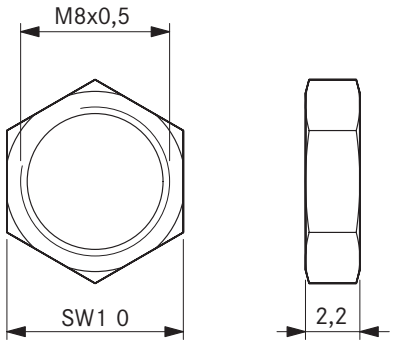
For detailed technical information please refer to the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

Accessories

- Fitting nut for flush-type connectors refer to page 93

Fitting nut for flush-type connectors



Benefits

- Flat nut as accessory for flush-type connectors

Product features

- Material: nickel-plated brass

Approvals (Norm references)

RoHS

Article number	Article designation	PU
M8 thread (M8 x 0.5 - SW10), h = 2.2 mm		
22260104	AB-C-M8-CN	100
PG9 thread (PG9 - SW18), h = 2.8 mm		
22260109	AB-C-PG9-CN	100
M16 thread (M16 x 1.5 - SW19), h = 2.8 mm		
22260110	AB-C-M16-CN	100
M12 thread, EMC version (M12x1-SW15), 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)

Similar products

- SKINDICHT® SM refer to main catalogue 2012

AS-Interface Modules (IP67)

Info

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

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 (Norm references)

Suitable cables

- UNITRONIC® BUS ASI Page 29
- UNITRONIC® BUS ASI FD Page 30

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 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)

Accessories

- Power cable M12 refer to page 111
- AS-Interface Distributor refer to page 99
- AS-Interface power supply refer to page 100
- Screw plug for unoccupied sockets refer to page 86

AS-Interface Modules (IP30)

Info

- **Fully industrialised**

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 (Norm references)

RoHS

Suitable cables

- UNITRONIC® BUS ASI Page 29
- UNITRONIC® BUS ASI FD Page 30

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 table T6

Accessories

- Power cable M12 refer to page 111
- AS-Interface Distributor refer to page 99
- AS-Interface counter module refer to page 100
- AS-Interface power supply refer to page 100
- AS-Interface network extension refer to page 101
- AS-Interface plug terminals refer to page 102

PROFIBUS Modules

Info

- **With M12 quick-locking system, metal thread**

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 (Norm references)

Suitable cables

- PROFIBUS cable: M12 connector on free conductor end Page 103
- PROFIBUS Cable: M12 connector on M12 socket Page 104

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

Tranmission 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
> 20 GOhm x cm

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
9.64 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 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)

Accessories

- Power cable M12 refer to page 111
- ETHERLINE® PROFIBUS DP Ethernet-Gateways refer to main catalogue 2012
- Screw plug for unoccupied sockets refer to page 86
- BUS M12 connectors that can be assembled refer to main catalogue 2012
- Terminating resistor M12 for DeviceNet/CANopen/PROFIBUS refer to page 108
- M12 T-distributor for PROFIBUS refer to page 109

DeviceNet Modules

Info

- **With M12 quick-locking system, metal thread**

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 (Norm references)

c UL us RoHS
DeviceNet™

Suitable cables

- DeviceNet/CANopen Cable, M12 connector on free conductor end Page 105
- S/A DeviceNet/CANopen cable, M12 connector on M12 socket Page 106

Suitable tools

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

Technical data

Fieldbus system
DeviceNet

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

Tranmission 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
> 20 GOhm x cm

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.
DeviceNet is a registered trademark of ODVA
Photographs are not to scale and do not represent detailed images of the respective products.
For the UNITRONIC® field bus type code, please see 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)

Accessories

- Screw plug for unoccupied sockets refer to page 86
- Terminating resistor M12 for DeviceNet/CANopen/PROFIBUS refer to page 108
- S/A T-connector M12 as parallel distributor refer to page 110

CANopen Modules

Info

- **With M12 quick-locking system, metal thread**

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 (Norm references)

c UL us RoHS CANopen

Suitable cables

- DeviceNet/CANopen Cable, M12 connector on free conductor end Page 105
- S/A DeviceNet/CANopen cable, M12 connector on M12 socket Page 106

Suitable tools

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

Suitable connectors

- EPIC® Data Connectors

Technical data

Fieldbus system
CANopen

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

Tranmission 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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For the UNITRONIC® field bus type code, please see 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)

Accessories

- Screw plug for unoccupied sockets refer to page 86
- Terminating resistor M12 for DeviceNet/CANopen/PROFIBUS refer to page 108
- S/A T-connector M12 as parallel distributor refer to page 110

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 ≤ 8 A)

Approvals (Norm references)

RoHS

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

Suitable cables

- UNITRONIC® BUS ASI Page 29
- UNITRONIC® BUS ASI FD Page 30

Technical data

Fieldbus system
AS-Interface

Connection type
Flat cable penetration technique

Installation
Panel mounting

IP **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 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 table T6

AS-Interface counter module

Info
- Universal AS-Interface counter module

Benefits
- Standardised interfaces
- Easy to install
- For fixed installation.
- 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 (Norm references)

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)

Accessories
- AS-Interface power supply refer to page 100
- AS-Interface plug terminals refer to page 102

AS-Interface power supply

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 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

Info
- Fully industrialised

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

Approvals (Norm references)

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 (Norm references)

CE RoHS

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

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 or installation instructions (www.lappautomation.com)

Accessories

- AS-Interface Distributor refer to page 99

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
- Fast-connect connection type
- 1 packing unit for 12, 16 or 32 contacts
- Black

Approvals (Norm references)

RoHS

Suitable tools

- Drehmomentschraubendreher Kraftform®/ Kraftform Kompakt® Set refer to main catalogue 2012

Info

- **Fully industrialised**

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

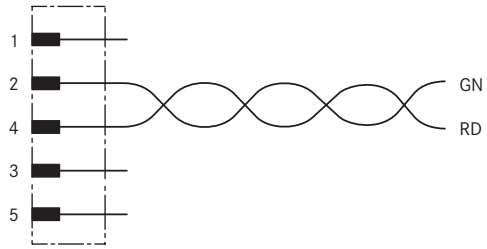
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to www.lappautomation.com

New

PROFIBUS cable: M12 connector on free conductor end

Info

- **Pre-assembled PROFIBUS data network cable**



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 (Norm references)

RoHS

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 43
- BUS M12 connectors that can be assembled

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

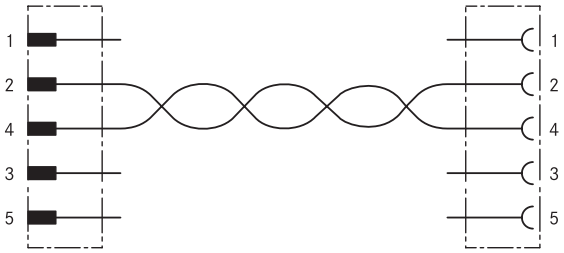
Shielding
Tinned-copper braiding

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
For fixed installation						
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
Suitable for drag chains						
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 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 table T6

New

PROFIBUS Cable: M12 connector on M12 socket



Info

- **PROFIBUS data network cable, ready for connection**

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 (Norm references)

RoHS

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 refer to main catalogue 2012

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

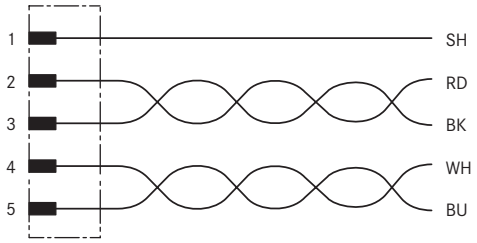
Article number	Article designation	Length (m)	Nominal current I_N in (A)	Nominal voltage U_N (V)	Number of pins	PU
Straight connector to straight socket						
22260955	AB-PB-M12MS-0,2PUR-M12FS	0.2	4	250	2	1
22260773	AB-PB-M12MS-0,3PUR-M12FS	0.3	4	250	2	1
22260774	AB-PB-M12MS-1,0PUR-M12FS	1	4	250	2	1
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 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 table T6

DeviceNet/CANopen Cable, M12 connector on free conductor end

Info

- **Pre-assembled DeviceNet/CANopen data network cable**



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 (Norm references)

RoHS ✓ DeviceNet™
CANopen

Design

- Halogen-free PUR, screened cable
- Fixed flexible control cable
- Design (signal line): 19 x 0.13 mm
- Design (voltage line): 19 x 0.15 mm
- Core colours: red-black, blue-white

Suitable connectors

- EPIC® Data Connectors
- Field mountable S/A connectors M12 87

Technical data

Protection rating
IP65/IP67/IP69K

Ambient temperature (operation)
Plug/socket
-25°C to +90°C (PUR/PVC)
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
Signal (2 x 0,2 mm²)
Power (2 x 0,34 mm²)
Drain wire (1 x 0,34 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

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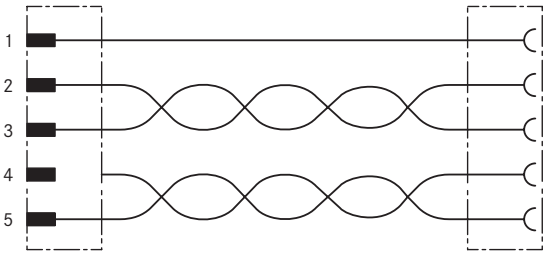
Copper price basis: inclusive of copper. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

S/A DeviceNet/CANopen cable, M12 connector on M12 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 (Norm references)

RoHS ✓ DeviceNet™

Design

- Halogen-free PUR, screened cable
- Fixed flexible control cable
- Design (signal line): 19 x 0.13 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 (PUR/PVC)
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
Signal (2 x 0,2 mm²)
Power (2 x 0,34 mm²)
Drain wire (1 x 0,34 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

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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 table T6
UNITRONIC® Feldbus Typenkurzzeichen siehe Tabelle T6

BUS M12 connectors that can be assembled

Info

- For
  - PROFIBUS
  - CANopen
  - DeviceNet
  - PROFINET
  - ETHERNET

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 (Norm references)

RoHS ✓ PROFIBUS DeviceNet™ PROFINET CANopen

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 mm²	Max. conductor cross-section, flexible, in mm²	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**

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

- For DeviceNet und CANopen applications (A-Standard coded)
- For PROFIBUS applications (B-inverse coded)

Approvals (Norm references)

RoHS, PROFIBUS, DeviceNet, CANopen

Design

- Straight connector M12 with integrated termination resistor
- Straight connector M12 shielded, with integrated termination resistor

Technical data

Protection rating
IP65/IP67/IP69K
IP 67 (shielded version)

Ambient temperature (operation)
-25°C to +90°C (unshielded version)
-40°C to +85°C (shielded version)

Contact material
CuSn

Coding
B - inverse (PROFIBUS)
A - Standard (DeviceNet/CANopen)

Nominal voltage U_N
60 V
32 V (shielded version)

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 PROFIBUS applications (B-inverse coded, socket, shielded version)						
22261001	AB-C5-M12FS-PB-TR-SH	4	32	B - inverse	4	1
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 table T6

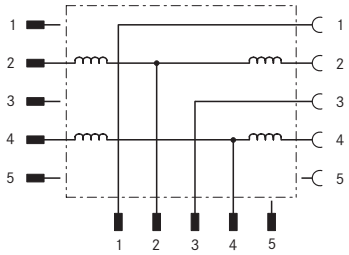
Accessories

- M12 T-distributor for PROFIBUS refer to page 109
- S/A T-connector M12 as parallel distributor refer to page 110

M12 T-distributor for PROFIBUS

Info

- **Fully industrialised**



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
- For PROFIBUS stubs

Approvals (Norm references)

RoHS

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

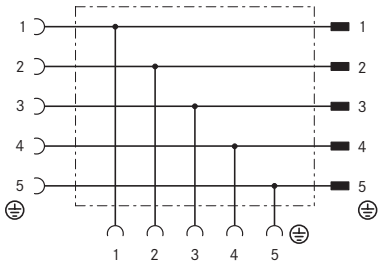
Article number	Article designation	Nominal current I_N in (A)	Nominal voltage U_N (V)	Number of pins	PU
22260761	AB-C2-M12T-2XM12FS PB	4	30	4	1

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 table T6

Accessories

- Terminating resistor M12 for DeviceNet/CANopen/PROFIBUS refer to page 108

S/A T-connector M12 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
- M12 A-coded
- Parallel distributor with M12 socket to M12 plug and M12 socket
- Free of substances that could hinder paint or varnish

Approvals (Norm references)

RoHS ✓ DeviceNet™
CANopen

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 table T6

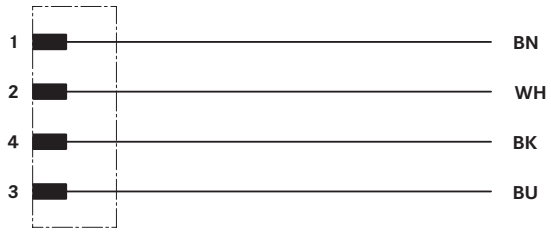
Accessories

- Terminating resistor M12 for DeviceNet/CANopen/PROFIBUS refer to page 108

Power cable: M12 connector on free conductor

Info

- All-purpose



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 (Norm references)

c UL us RoHS

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
Page 87

Technical data

Protection rating
IP65/IP67/IP69K

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

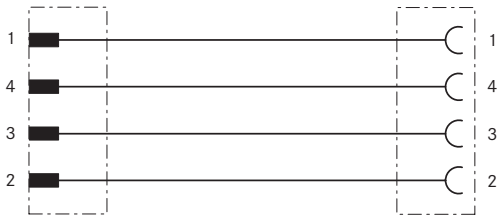
Outer sheath, colour
Black (RAL 9005)

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 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 table T6

Power cable: straight M12 connector on straight M12 socket



Info

- All-purpose

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 (Norm references)

c UL us RoHS

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 (PUR/PVC)
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

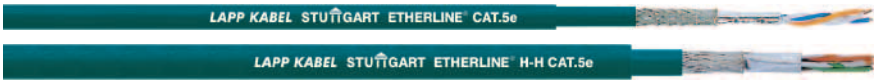
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath 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 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

- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 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 (Norm references)

RoHS

Design

- Solid conductor
- Core insulation made of foam skin
- SF/UTP: copper braid and foil screening as overall screening
- 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
PUR outer sheath, halogen-free					
2170297	ETHERLINE® P CAT.5e	4 x 2 x AWG24/1	6.3	32.0	62

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
- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet
- For flexible applications (7-wire stranded conductor)
- Industrial use

Product features

- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Halogen-free and flame-retardant FRNC 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
- SF/UTP: copper braid and foil screening as overall screening
- 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
PUR outer sheath, 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.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise 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.

ETHERLINE® Cat.5e FD

Highly flexible application

Info

- Industrial Ethernet cable
- For highly flexible applications
- Only for patch cable applications (max. 60 m)

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

- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 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 electromagnetic interference
- PUR outer sheath is highly resistant to mineral oils and abrasion

Design

- Braided conductor, 19-wire
- Inner sheath: thermoplastic elastomer, halogen-free
- SF/UTP: copper braid and foil screening as overall screening
- PUR outer sheath
- Colour: water blue (RAL 5021)
- 2 or 4-pair version

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.
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.

ETHERLINE® Cat.5 FD BK

The Ethernet cable for installation in events

Info

- Suitable for outdoor use and direct burial
- Usable on the roads
- CAT.5-Performance

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
- Only for patch cable applications (max. 60 m)

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 (Norm references)

RoHS

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

Technical data

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 10 x outer diameter

Temperature range
Flexing: -5°C to +50°C
Fixed installation: -40°C to +70°C

Characteristic impedance
100 Ohm +- 15%

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 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.

Similar products

- ETHERLINE® FD P CAT.5 refer to main catalogue 2012

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
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Product features

- CAT.5-Performance

Approvals (Norm references)

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 galvanzid steel tape
- Outer sheath made of black polyethylene (PE)

Technical data

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
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)
Fixed installation					
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.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise 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.

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
- 2pair: 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

Approvals (Norm references)

Design

- Colour: green (based on RAL 6018)
- Cores for Power Supply 4 x 1.5 mm2 (AWG16)
- 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
Occasional flexing: 10 x outer diameter
Fixed installation: 5 x cable diameter, once

Test voltage
See data sheet

Temperature range
Operation: -50°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)
Flexible use					
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.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise 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.

ETHERLINE® PN Cat.5

Fixed installation

Info
- Conductor: AWG22 = PROFINET-compliant
- CAT.5/5e

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

Approvals (Norm references)

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

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.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise 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.

ETHERLINE® PN FLEX

Info
- For Profinet applications
- CAT.5-Performance
- Flexible use

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

Approvals (Norm references)

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

Technical data
Minimum bending radius
Fixed installation: 10 x outer diameter
For flexible use:
15 x outer diameter

Test voltage
Core/core: 2000 V
Core/screen: 2000 V

Temperature range
Flexible use: -5°C to +50°C

Characteristic impedance
100 Ohm +- 15%

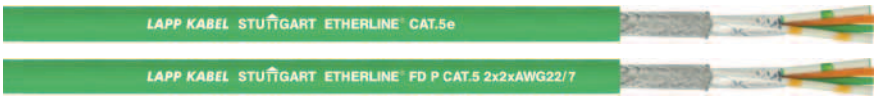
Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170886	ETHERLINE® PN Cat.5 Y FLEX FC	2 x 2 x AWG22/7	6.5	31.3	67

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise 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.

ETHERLINE® PN Cat.5 FD

Info

- Highly flexible application
- For Profinet applications



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

Approvals (Norm references)

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)

Technical data

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
Fixed installation: from -20°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)
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.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise 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

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 (Norm references)

Design

- Stranded conductor, 7-wire, bare
- Core insulation: Based on Polyolefin
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- 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 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 (Norm references)
- 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)
ETHERLINE® TORSION CAT.5					
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 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.

Accessories
- Multipurpose shears A and B refer to main catalogue 2012
- SMARTSTRIP stripping tool refer to main catalogue 2012

New

ETHERLINE Cat.5e 105 plus 2x2xAWG22/7

Info
- **For PROFINET applications (D-coded)**
- **Extended temperature range**

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

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

Product features
- Optimum EMC protection
- Permanent load up to +105°C, temporary load +120°C

Approvals (Norm references)
- Electrical requirements acc. to IEC 61156-5

Design
- Stranded conductor, 7-wire, bare
- Core insulation: PE
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: TPE-based
- AWG22: colour: yellow-green (RAL 6018)

Technical data
Minimum bending radius
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

Temperature range
Fixed installation: -40°C to +105°C
occasionally flexing: -30°C to +105°C

Characteristic impedance
100 Ohm +- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)
2170636	ETHERLINE Cat.5e 105 plus	2x2xAWG22/7	6.2	30.4

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

ETHERLINE® Cat.6$_A$ + Cat.7

Fixed installation

Info

- **Industrial Ethernet cable**

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 (Norm references)

RoHS

Technical data

Characteristic impedance
100 ohm at 1 - 100 MHz

Design

- Solid bare copper wire AWG22
- Core insulation made of polyethylene (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound 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
2170465	ETHERLINE®CAT.6$_A$ 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
2170475	ETHERLINE® Cat.7 P	4 x 2 x AWG22/1	8.7	53.0	91
2170474	ETHERLINE® Cat.7 Y	4 x 2 x AWG22/1	8.7	53.0	98
2170476	ETHERLINE® CAT.7 H	4 x 2 x AWG22/1	8.7	53.0	99

Copper price basis: EUR 150/100kg. Refer to 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.

Accessories

- DATA STRIP stripping tool refer to main catalogue 2012

ETHERLINE® CAT.6 FD

Info

- **CAT.6 for drag chain!**
- **Only for patch cable applications (max. 60 m)**

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 (Norm references)

c UL us RoHS

- 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 Page 135
- Connector RJ45 Cat.6A fieldmountable Page 137

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

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 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

Industrial Ethernet PN A patchcord M12

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)

Info

- **For PROFINET applications (D-coded)**

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 M12 D-coded connector on both sides
- Connector with vibration protection

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
Straight connector on straight connector			
2171001	IE-PNA-5-M12D-S-1-Y-2-22-1-M12D-S	2x2xAWG22	1.0
2171002	IE-PNA-5-M12D-S-2-Y-2-22-1-M12D-S	2x2xAWG22	2.0
2171003	IE-PNA-5-M12D-S-3-Y-2-22-1-M12D-S	2x2xAWG22	3.0
2171004	IE-PNA-5-M12D-S-5-Y-2-22-1-M12D-S	2x2xAWG22	5.0
2171005	IE-PNA-5-M12D-S-10-Y-2-22-1-M12D-S	2x2xAWG22	10.0
2171006	IE-PNA-5-M12D-S-20-Y-2-22-1-M12D-S	2x2xAWG22	20.0
Angled connector on straight connector			
2171013	IE-PNA-5-M12D-A-1-Y-2-22-1-M12D-S	2x2xAWG22	1.0
2171014	IE-PNA-5-M12D-A-2-Y-2-22-1-M12D-S	2x2xAWG22	2.0
2171015	IE-PNA-5-M12D-A-3-Y-2-22-1-M12D-S	2x2xAWG22	3.0
2171016	IE-PNA-5-M12D-A-5-Y-2-22-1-M12D-S	2x2xAWG22	5.0
2171017	IE-PNA-5-M12D-A-10-Y-2-22-1-M12D-S	2x2xAWG22	10.0
2171018	IE-PNA-5-M12D-A-20-Y-2-22-1-M12D-S	2x2xAWG22	20.0

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

New

Industrial Ethernet PN A Patchcord M12 on free conductor end

Info

- **For PROFINET applications (D-coded)**

Benefits

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

Application range

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

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	Length (m)
Straight connector on free conductor end			
2171007	IE-PNA-5-M12D-S-1-Y-2-22-1-OE	2x2xAWG22	1.0
2171008	IE-PNA-5-M12D-S-2-Y-2-22-1-OE	2x2xAWG22	2.0
2171009	IE-PNA-5-M12D-S-3-Y-2-22-1-OE	2x2xAWG22	3.0
2171010	IE-PNA-5-M12D-S-5-Y-2-22-1-OE	2x2xAWG22	5.0
2171011	IE-PNA-5-M12D-S-10-Y-2-22-1-OE	2x2xAWG22	10.0
2171012	IE-PNA-5-M12D-S-20-Y-2-22-1-OE	2x2xAWG22	20.0
Angled connector on free conductor end			
2171019	IE-PNA-5-M12D-A-1-Y-2-22-1-OE	2x2xAWG22	1.0
2171020	IE-PNA-5-M12D-A-2-Y-2-22-1-OE	2x2xAWG22	2.0
2171021	IE-PNA-5-M12D-A-3-Y-2-22-1-OE	2x2xAWG22	3.0
2171022	IE-PNA-5-M12D-A-5-Y-2-22-1-OE	2x2xAWG22	5.0
2171023	IE-PNA-5-M12D-A-10-Y-2-22-1-OE	2x2xAWG22	10.0
2171024	IE-PNA-5-M12D-A-20-Y-2-22-1-OE	2x2xAWG22	20.0

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New

Industrial Ethernet PN B patchcord M12

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 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 M12 D-coded connector on both sides
- Connector with vibration protection

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

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New

Industrial Ethernet PN B Patchcord M12 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

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

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New

Industrial Ethernet PN C patchcord M12

Info
- For PROFINET applications (D-coded)

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 M12 D-coded connector on both sides
- Connector with vibration protection

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

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

New

Industrial Ethernet PN C Patchcord M12 on free conductor end

Info
- For PROFINET applications (D-coded)

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

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

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

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

Industrial Ethernet patchcord P M12-M12

Info
- Industrial Ethernet cable

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

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

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

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

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

Industrial Ethernet Patchcord P M12 on free conductor end

Info
- Industrial Ethernet cable

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
- Overall screening with copper braid and plastic-laminated aluminium foil
- PUR-based outer sheath
- Connector with vibration protection

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
2171103	IE-5-M12D-S-1-P-2-26-7-OE	2x2xAWG26	1.0
2171104	IE-5-M12D-S-2-P-2-26-7-OE	2x2xAWG26	2.0
2171105	IE-5-M12D-S-3-P-2-26-7-OE	2x2xAWG26	3.0
2171106	IE-5-M12D-S-5-P-2-26-7-OE	2x2xAWG26	5.0
2171107	IE-5-M12D-S-10-P-2-26-7-OE	2x2xAWG26	10.0
2171108	IE-5-M12D-S-20-P-2-26-7-OE	2x2xAWG26	20.0

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

Industrial Ethernet Patchcord M12-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
- Flexible fine-wire copper conductor
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PUR, halogen-free
- Pre-assembled connection cable with M12 connector, “D” coded and RJ45-connector

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
2171109	IE-5-M12D-S-1-P-2-26-7-RJ45	2x2XAWG26	1.0
2171110	IE-5-M12D-S-2-P-2-26-7-RJ45	2x2XAWG26	2.0
2171111	IE-5-M12D-S-3-P-2-26-7-RJ45	2x2XAWG26	3.0
2171112	IE-5-M12D-S-5-P-2-26-7-RJ45	2x2XAWG26	5.0
2171113	IE-5-M12D-S-10-P-2-26-7-RJ45	2x2XAWG26	10.0
2171114	IE-5-M12D-S-20-P-2-26-7-RJ45	2x2XAWG26	20.0

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

New

Industrial Ethernet Patchcord RJ45-RJ45 P

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

Application range
- Suitable for use in industrial applications
- For indoor use

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

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

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

Industrial Ethernet Patchcord 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	Number of pairs and AWG per conductor	Length (m)
2171507	IE-5-RJ45-1-P-4-26-7-OE	4x2xAWG26	1.0
2171508	IE-5-RJ45-2-P-4-26-7-OE	4x2xAWG26	2.0
2171509	IE-5-RJ45-3-P-4-26-7-OE	4x2xAWG26	3.0
2171510	IE-5-RJ45-5-P-4-26-7-OE	4x2xAWG26	5.0
2171511	IE-5-RJ45-10-P-4-26-7-OE	4x2xAWG26	10.0
2171512	IE-5-RJ45-20-P-4-26-7-OE	4x2xAWG26	20.0

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

Industrial Ethernet Patchcord H M12-M12

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)
- 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	Number of pairs and AWG per conductor	Length (m)
2171073	IE-5-M12D-S-1-H-2-26-7-M12D-S	2x2xAWG26	1.0
2171074	IE-5-M12D-S-2-H-2-26-7-M12D-S	2x2xAWG26	2.0
2171075	IE-5-M12D-S-3-H-2-26-7-M12D-S	2x2xAWG26	3.0
2171076	IE-5-M12D-S-5-H-2-26-7-M12D-S	2x2xAWG26	5.0
2171077	IE-5-M12D-S-10-H-2-26-7-M12D-S	2x2xAWG26	10.0
2171078	IE-5-M12D-S-20-H-2-26-7-M12D-S	2x2xAWG26	20.0

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

Industrial Ethernet Patchcord H M12 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)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flame-retardant compound

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
2171079	IE-5-M12D-S-1-H-2-26-7-OE	2x2xAWG26	1.0
2171080	IE-5-M12D-S-2-H-2-26-7-OE	2x2xAWG26	2.0
2171081	IE-5-M12D-S-3-H-2-26-7-OE	2x2xAWG26	3.0
2171082	IE-5-M12D-S-5-H-2-26-7-OE	2x2xAWG26	5.0
2171083	IE-5-M12D-S-10-H-2-26-7-OE	2x2xAWG26	10.0
2171084	IE-5-M12D-S-20-H-2-26-7-OE	2x2xAWG26	20.0

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

Industrial Ethernet patchcord H M12-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)
- 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	Number of pairs and AWG per conductor	Length (m)
2171085	IE-5-M12D-S-1-H-2-26-7-RJ45	2x2xAWG26	1.0
2171086	IE-5-M12D-S-2-H-2-26-7-RJ45	2x2xAWG26	2.0
2171087	IE-5-M12D-S-3-H-2-26-7-RJ45	2x2xAWG26	3.0
2171088	IE-5-M12D-S-5-H-2-26-7-RJ45	2x2xAWG26	5.0
2171089	IE-5-M12D-S-10-H-2-26-7-RJ45	2x2xAWG26	10.0
2171090	IE-5-M12D-S-20-H-2-26-7-RJ45	2x2xAWG26	20.0

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

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)
- 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	Number of pairs and AWG per conductor	Length (m)
4-pair version			
2171513	IE-5-RJ45-1-H-4-26-7-RJ45	4x2	1.0
2171094	IE-5-RJ45-5-H-2-26-7-RJ45	2x2	5.0
2171514	IE-5-RJ45-2-H-4-26-7-RJ45	4x2	2.0
2171515	IE-5-RJ45-3-H-4-26-7-RJ45	4x2	3.0
2171516	IE-5-RJ45-5-H-4-26-7-RJ45	4x2	5.0
2171517	IE-5-RJ45-10-H-4-26-7-RJ45	4x2	10.0
2171518	IE-5-RJ45-20-H-4-26-7-RJ45	4x2	20.0
2-pair version			
2171091	IE-5-RJ45-1-H-2-26-7-RJ45	2x2	1.0
2171092	IE-5-RJ45-2-H-2-26-7-RJ45	2x2	2.0
2171093	IE-5-RJ45-3-H-2-26-7-RJ45	2x2	3.0
2171095	IE-5-RJ45-10-H-2-26-7-RJ45	2x2	10.0
2171096	IE-5-RJ45-20-H-2-26-7-RJ45	2x2	20.0

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

Industrial Ethernet Patchcord 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, 4x2xAWG26/7
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flame-retardant compound

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)
2171519	IE-5-RJ45-1-H-4-26-7-OE	4x2xAWG26	1.0
2171520	IE-5-RJ45-2-H-4-26-7-OE	4x2xAWG26	2.0
2171521	IE-5-RJ45-3-H-4-26-7-OE	4x2xAWG26	3.0
2171522	IE-5-RJ45-5-H-4-26-7-OE	4x2xAWG26	5.0
2171523	IE-5-RJ45-10-H-4-26-7-OE	4x2xAWG26	10.0
2171524	IE-5-RJ45-20-H-4-26-7-OE	4x2xAWG26	20.0

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

Industrial Ethernet EC Patchcord M8

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

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

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

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

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

Industrial Ethernet EC Patchcord M8 on open conductor end

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

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

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

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

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

New

UNITRONIC® LAN 200 - Cat.5e

Info

- EIA = Association des Industries Electronique
- 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 (Norm references)

RoHS ✓

- 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	33
2170126	200 F/UTP Cat.5e	4 x 2 x AWG24/1	6.4	18.0	39
2170128	200 SF/UTP Cat.5e	4 x 2 x AWG24/1	6.7	32.0	49
Halogen-free versions					
2170185	200 U/UTP Cat.5e LSZH	4 x 2 x AWG24/1	5.6	17.0	33
2170138	200 SF/UTP Cat.5e LSZH	4 x 2 x AWG24/1	6.7	32.0	49

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 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.

Accessories

- Connector RJ45 CAT.5 Hirose TM11 refer to page 135
- Connector RJ45 CAT.5 Stewart SS37 refer to page 135
- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 135
- DATA STRIP stripping tool refer to main catalogue 2012

New

UNITRONIC® LAN 250 - Cat.6

Info

- EIA = Association des Industries Electronique
- 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 ±15 %
- IEEE 802.3: 10/100/1000Base-T
  IEEE 802.5: ISDN; FDDI; ATM

Approvals (Norm references)

RoHS

- 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

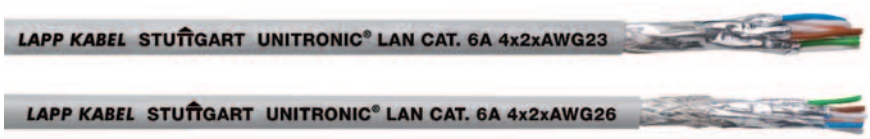
Characteristic impedance
100 Ohm +- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PVC version					
2170186	250 U/UTP Cat.6	4 x 2 x AWG24/1	6.5	18.0	46
Halogen-free versions					
2170193	250 U/UTP Cat.6 LSZH	4 x 2 x AWG24/1	6.5	18.0	46
2170194	250 F/UTP Cat.6 LSZH	4 x 2 x AWG24/1	7.5	19.0	54

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 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 500 - Cat.6$_A$



Info

- EIA = Association des Industries Electronique
- 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
- Outer sheath: PVC - colour light ivory similar to RAL 1015
- Outer sheath: LSZH - colour light orange similar to RAL 2003

Approvals (Norm references)

RoHS

- 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	58
Halogen-free versions					
2170195	500 U/FTP Cat.6_A LSZH	4 x 2 x AWG23/1	7.4	21.0	52
2170196	500 F/FTP Cat.6_A LSZH	4 x 2 x AWG23/1	7.6	22.0	56

Copper price basis: EUR 150/100kg. Refer to 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.

Accessories

- Connector RJ45 CAT.6 Hirose TM21 refer to page 136
- DATA STRIP stripping tool refer to main catalogue 2012

New

UNITRONIC® LAN 1000 S/FTP Cat.7

Info

- EIA = Association des Industries Electronique
- 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 (Norm references)

RoHS

- 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	60
2170634	1000 S/FTP Cat.7 duplex	2 x (4 x 2 x AWG23/1)	7.7 x 15.4	54.0	120

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100kg. Refer to 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$_A$

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 (Norm references)

RoHS

- 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	36.0	66

Copper price basis: EUR 150/100kg. Refer to 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.

Accessories

- Multipurpose shears A and B refer to main catalogue 2012
- DATA STRIP stripping tool refer to main catalogue 2012

New

UNITRONIC® LAN 1500 S/FTP Cat.7$_A$

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 (Norm references)

- 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.7A 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.
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 OUTDOOR

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 (Norm references)
- 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	90
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

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 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 FLEX

Flexible use

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

Info
- **Only for patch cable applications (max. 60 m)**

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	28
2170129	200 SF/UTP Cat.5e	4 x 2 x AWG26/7	6.0	22.0	36
2170144	600 S/FTP CAT7 Y	4 x 2 x AWG26/7	6.5	22.0	39
Halogen-free versions					
2170137	200 F/UTP Cat.5e LSZH	4 x 2 x AWG26/7	5.6	13.0	28
2170139	200 SF/UTP Cat.5e LSZH	4 x 2 x AWG26/7	6.0	22.0	36
2170142	600 S/FTP CAT7 LSZH	4 x 2 x AWG26/7	6.2	22.0	40

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 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.

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 (Norm references)

RoHS

Article number	Article designation
CE6321	Connector RJ45 CAT.5 Hirose TM11

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.

Accessories

- Crimping tool RJ45 Hirose refer to main catalogue 2012

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 (Norm references)

RoHS

Article number	Article designation
CE6323	Connector RJ45 CAT.5 Stewart SS37

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.

Accessories

- Crimping tool RJ45 Stewart refer to main catalogue 2012

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 (Norm references)

RoHS

Article number	Article designation
21700540	Field-Terminable Connector RJ45 CAT.5e FM45

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

New

Connector RJ45 Cat.5e for Profinet

Product features

- For PROFINET applications
- Housing: zinc die-casting, grey
- By a multi-level relief setting the connector can accomodate 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
- Colour-coded in accordance with PROFINET for Cat.5 apllications

Approvals (Norm references)

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51

Article number	Article designation
21700605	ED-IE-AX-5-PN-20-FC

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 (Norm references)

RoHS

Article number	Article designation
CE6324	Connector RJ45 CAT.6 Hirose TM21

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.

Accessories

- Crimping tool RJ45 Hirose refer to main catalogue 2012

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 accomodate 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
21700600	EPIC® DATA ED-IE-AX-6A-A-20-FC
21700601	EPIC® DATA ED-IE-AX-6A-B-20-FC

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

New

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 (Norm references)

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51

Article number	Article designation
Inclusive RJ45 connector	
21700630	ED-IE-AX-RJ45-6A-B-68-FC
21700631	ED-IE-AX-RJ45-AC-DC
Inclusive RJ45 Modul acc. to T568B	
21700632	ED-IE-RJ45F-6A-B-68-FC
21700633	ED-IE-RJ45F-AC-DC

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

New

Connector M12 X-coded Cat.6$_A$ 10G fieldmountable

Product features

- Field assembly Industrial Ethernet connector, M12 “X”-coded according to IEC 61076-2-109
- Qualified for 10 Gigabit Ethernet
- Suitable for use in industrial applications
- Robust and vibrations- resistant
- Housing: zinc die-casting, grey
- Piercingcontacts for conductor diameter of AWG27/7 - AWG22/7 and AWG24/1 - AWG22/1
- Toolfree installation, small and compact design

Approvals (Norm references)

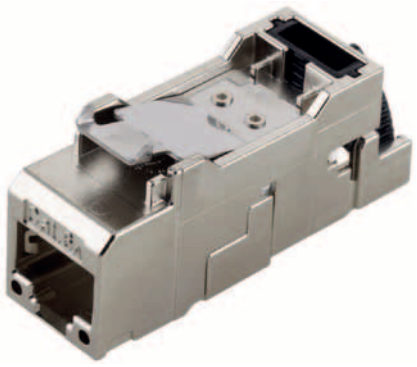
- Acc. to standard IEC 61076-2-109
- Data transmission is conform to category Cat.6$_A$ acc. to ISO/IEC 11801:2010

Article number	Article designation
21700602	ED-IE-AX-M12X-6A-67-FC

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

New

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 accomodate 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.

New

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 (Norm references)

- 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

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

New

Data Binder 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 (Norm references)

- Complies with the EN 50173 and ISO/IEC 11801 standards

Article number	Article designation
21700629	EPIC DATA DV LSA+ Cat.7A

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

New

HITRONIC® FIRE

Info

- A/J-DQ(ZN)BH(SR)H or U-DQ(ZN)BH(SR)H
- Fire-resistant cable designed according to IEC 60331-25

Benefits

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

Application range

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

Product features

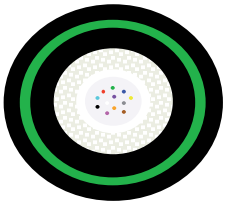
- Fire-resistant design
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Flame-retardant and halogen-free outer sheath

Approvals (Norm references)

RoHS

Design

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



Technical data

Optical fibre type
Core material: glass
Cladding material: glass

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

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

Permissible tensile force
Fixed installation: 1500 N
Short-term: 2200 N

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

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

New

HITRONIC® TORSION

Info

- **A/J-V(ZN)H 11Y**
- **Breakout cable designed to withstand high torsional stresses**

Benefits

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

Application range

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

Product features

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

Approvals (Norm references)

RoHS

Design

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

Technical data

Optical fibre type
Core material: glass
Cladding material: glass

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

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

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

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

New

HITRONIC® HRM-FD Cable

Info

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

Benefits

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

Application range

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

Product features

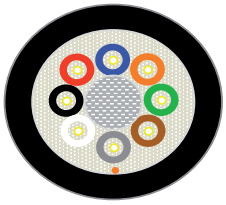
- Based on military norm MIL-C-85045
- For use in power chains and moving machinery parts in dry or damp rooms
- Flame-retardant and halogen-free
- Mechanically robust

Approvals (Norm references)

RoHS

Design

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



Technical data

Optical fibre type
Core material: glass
Cladding material: glass

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

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

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

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® HDM Cable

Info

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

Benefits

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

Application range

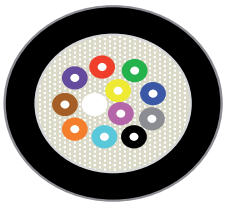
- For highly flexible applications
- In temporary installations
- Industrial environments
- For indoor and outdoor use

Product features

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

Design

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



Technical data

Optical fibre type
Core material: glass
Cladding material: glass

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

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

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

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

HITRONIC® POF SIMPLEX PE

Info
- **J-V2Y 1P 980/1000**
- **Simplex plastic fibre-optic cable for direct connector assembly**

Benefits
- Transmission lengths up to 70 m
- Suitable for direct connector assembly
- Easy to handle
- No crosstalk
- EMC protection

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
- Lightweight
- High flexibility
- Halogen-free

Approvals (Norm references)
RoHS

Design
- Plastic fibre-optic cables
- PE buffer tube
- Without outer sheath
- Colour: black

Technical data
Optical fibre type
Core material: PMMA
Cladding material: fluoropolymers

Temperature range
Operation: -55°C to +85°C
Installation: -10°C to +50°C

Permissible bending radius
≥ 10 x outer diameter

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	980/1000 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.

Similar products
- HITRONIC® POF DUPLEX PE refer to page 145

Accessories
- Mille-Tie™ cable ties refer to main catalogue 2012
- Damage-free cable bundles through: Mille-Tie™
- Connectors, tools and other accessories are available upon request

HITRONIC® POF SIMPLEX PE-PUR

Info
- **J-V2Y(ZN)11Y 1P 980/1000**
- **Simplex POF cable with strain relief and PUR outer sheath**

Benefits
- EMC protection
- Transmission lengths up to 70 m
- Suitable for direct connector assembly
- Easy to handle
- No crosstalk

Application range
- For optical signal transmission in industrial applications with high mechanical stress

Product features
- Resistant to abrasion, oil, microbes and hydrolysis
- Adhesion-free
- Flame-retardant and halogen-free

Approvals (Norm references)
RoHS

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

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

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	980/1000 POF	1	5.5	25

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
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.

Similar products
- HITRONIC® POF DUPLEX PE-PUR refer to page 145

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

HITRONIC® POF DUPLEX PE

Info
- **J-V2Y 2x1P 980/1000**
- **Duplex plastic fibre-optic cable for direct connector assembly**

Benefits
- Transmission lengths up to 70 m
- Suitable for 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
- High flexibility

Approvals (Norm references)
RoHS

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: -55°C to +85°C
Installation: -10°C to +50°C

Permissible bending radius
≥ 10 x outer diameter

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	980/1000 POF	2	7.6

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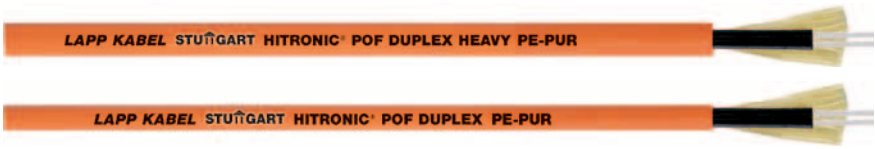
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Mille-Tie™ is a registered trademark of Millepede™ International Ltd.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- Mille-Tie™ cable ties refer to main catalogue 2012
- Damage-free cable bundles through: Mille-Tie™
- Connectors, tools and other accessories are available upon request

HITRONIC® POF DUPLEX PE-PUR



Info
- **J-V2Y(ZN)11Y 2P 980/1000**
- **Duplex plastic fibre optic cable with strain relief and PUR outer sheath**

Benefits
- EMC protection
- Transmission lengths up to 70 m
- Suitable for direct connector assembly
- Easy to handle
- No crosstalk

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 (Norm references)
RoHS

Design
- Fibre colour coding: black, orange
- Plastic fibre-optic cables
- PE buffer tube
- Aramid yarns as strain relief
- PUR outer sheath, orange (RAL 2003)

Technical data
Optical fibre type
Core material: PMMA
Cladding material: fluoropolymers

Temperature range
Operation: -40 °C to +70 °C
Installation: -10°C to +50°C

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	980/1000 POF	2	5.5	28
28030002	HITRONIC® POF DUPLEX HEAVY PE-PUR	980/1000 POF	2	8	28

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

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

HITRONIC® POF Simplex Cables

HITRONIC® POF FD PE-PUR

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

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

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

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

Approvals (Norm references)
RoHS

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

Technical data
Minimum bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Optical fibre type
Core material: PMMA
Cladding material: fluoropolymers

Temperature range
Operation: -20 °C to +70 °C
Installation: -10°C to +50°C

Permissible tensile force
Fixed installation: 100 N
Short-term: 400 N

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

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Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs are not to scale and do not represent detailed images of the respective products.

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

HITRONIC® PCF SIMPLEX Cable

HITRONIC® PCF SIMPLEX Cable

Info
- A-V(ZN)11Y
- Simplex plastic-cladded fibre (PCF) cable for direct connector assembly

Benefits
- Transmission lengths up to 500 m
- Suitable for direct connector assembly
- High mechanical strength
- EMC protection

Application range
- For data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.
- Industrial environments

Product features
- Possible transmission wavelengths: 650 nm and 850 nm
- Flame-retardant and halogen-free

Design
- Tight-buffered fibres
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: black (RAL 9005)

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

Core material: glass
Cladding material: fluoropolymers

Operation: -10°C to +60°C
Installation: -10°C to +50°C

Fixed installation: 200 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
28600701	HITRONIC® PCF SIMPLEX Outdoo	200/230 PCF	1	2.9	7.5

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.

POF Connector and Adapter HFBR

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

Application range
- Factory Automation
- Medical equipment
- Telecommunications Switching Systems
- Automotive Networks
- Printed Circuit Board

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

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

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

POF Connector F05 Simplex

Info
- **Compatible with TOCP155K**

Benefits
- Easy to assemble

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

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

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

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

POF Connector F-SMA and ST(BFOC)

Benefits

- As crimp or clamp version for easy assembling

Product features

- FSMA and ST(BFOC) connector with knurled nut or hexagonal nut for crimping, gluing or easy clamping
- Suitable for 2.2 mm POF
- Available for different cable diameters (2.2 mm and 6.0 mm)
- Connector including bend protection boot and dust cap
- Bend protection boot colour: black and red

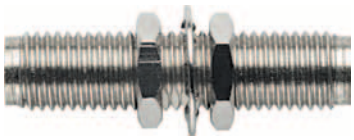
Info

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

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

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

POF Adapter F-SMA



Product features

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

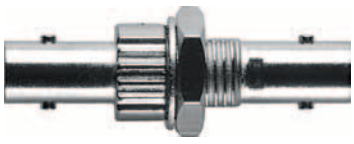
Info

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

Article number	Article designation	PU
29430099	POF Adapter FSMA	4 piece

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

POF Adapter ST (BFOC)



Product features

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

Info

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

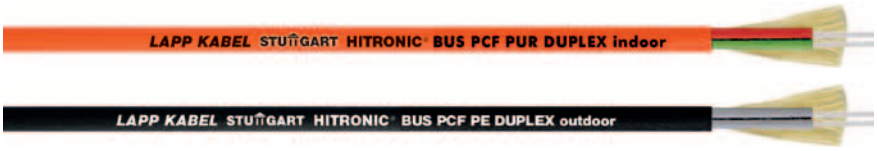
Article number	Article designation	PU
29420099	POF Adapter ST (BFOC)	4 piece

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

HITRONIC® PCF DUPLEX Cable

Info

- **PCF DUPLEX Indoor: J-V(ZN)H11Y 2K200/230**
- **PCF DUPLEX Outdoor: A-VQ(ZN)HB2Y 2K200/230**
- **Plastic-cladded fibre (PCF) cable compatible with all BUS systems**



Benefits

- Transmission lengths up to 500 m
- Suitable for direct connector assembly
- Good resistance to oil, petrol, acids and alkalis
- High mechanical strength
- EMC protection

Application range

- For data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.
- Industrial environments

Product features

- Possible transmission wavelengths: 650 nm and 850 nm
- Complies with requirements for all BUS systems
- Halogen-free outer sheath

Approvals (Norm references)

RoHS

Design

- Colour-coded, tight-buffered PCF sub-cable with FRNC sheath
- Aramid yarns as strain relief
- PUR outer sheath (indoor); PE outer sheath (outdoor)
- Colour: orange (indoor); black (outdoor)

Technical data

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

Optical fibre type
Core material: glass
Cladding material: fluoropolymers

Temperature range
Operation: -20 °C to +70 °C
Installation: -10°C to +50°C

Permissible tensile force
Fixed installation: 400 N (indoor); 500 N (outdoor)
Short-term: 1200 N (indoor); 1500 N (outdoor)

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
28020702	HITRONIC® PCF DUPLEX FRNC-PUR Indoor	200/230 PCF	2	8	55
28620702	HITRONIC® PCF DUPLEX FRNC-PE Outdoor	200/230 PCF	2	10.5	90

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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.

Accessories

- SMARTSTRIP stripping tool refer to main catalogue 2012
- DATA STRIP stripping tool refer to main catalogue 2012
- Mille-Tie™ cable ties refer to main catalogue 2012
- Damage-free cable bundles through: Mille-Tie™

New

HITRONIC® PCF DUPLEX FD Cable

Info

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

Benefits

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

Application range

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

Product features

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

Design

- Colour-coded, tight-buffered PCF sub-cable with FRNC sheath
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: black (RAL 9005)

Technical data

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

Optical fibre type
Core material: glass
Cladding material: fluoropolymers

Temperature range
Operation: -20 °C to +70 °C
Installation: -10°C to +50°C

Permissible tensile force
Fixed installation: 800 N
Short-term: 2000 N

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

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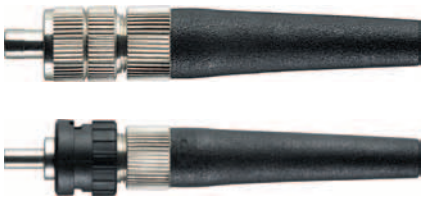
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs are not to scale and do not represent detailed images of the respective products.

PCF Clamp Connectors



Benefits

- Designed for field assembly
- Reusable as it can be removed
- Easy to assemble

Product features

- Connectors for clamp and cleave assembly
- Available for different cable diameters
- Adapters available on request
- Bend protection boot colour: black and red

Article number	Article designation	PU
Connector FSMA Clamp for 3.0 mm cables		
29136799	PCF Connector FSMA Clamp 3.0	4 piece
29136798	PCF Connector FSMA Clamp 3.0	50 piece
Connector FSMA Clamp for 2.2 mm cables		
29135799	PCF Connector FSMA Clamp 2.2	4 piece
29135798	PCF Connector FSMA Clamp 2.2	50 piece
Connector ST(BFOC) Clamp for 3.0 mm cables		
29126799	PCF Connector ST (BFOC) Clamp 3.0	4 piece
29126798	PCF Connector ST (BFOC) Clamp 3.0	50 piece
Connector ST(BFOC) Clamp for 2.2 mm cables		
29125799	PCF Connector ST (BFOC) Clamp 2.2	4 piece
29125798	PCF Connector ST (BFOC) Clamp 2.2	50 piece

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

PCF Connector HFBR4521

Benefits

- Compatible with HP Versatile Link Connectors and Components series

Application range

- Factory Automation
- Medical equipment
- Telecommunications Switching Systems

Product features

- HFBR connector series for 2.2 mm PCF cable diameter

Article number	Article designation	Colour	PU
29140799	PCF Connector HFBR4521 BK Simplex 2.2	black	4 piece
29140798	PCF Connector HFBR4521 BK Simplex 2.2	black	50 piece

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 environments
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

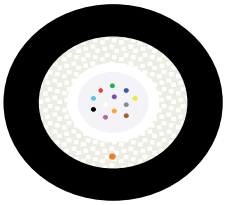
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Rodent-protection
- Robust, halogen-free outer sheath

Approvals (Norm references)

RoHS

Design

- Glass fibres with primary coating
- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)



Technical data

Optical fibre type
Core material: glass
Cladding material: glass

Temperature range
Fixed installation: -50°C to +100°C

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

Permissible tensile force
Fixed installation: 1500 N
Short-term: 3000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM3					
27600304	HITRONIC® HQN 1500 4G 50/125 OM3	50/125 OM3	4	7.3	40
27600308	HITRONIC® HQN 1500 8G 50/125 OM3	50/125 OM3	8	7.3	40
27600312	HITRONIC® HQN 1500 12G 50/125 OM3	50/125 OM3	12	7.3	40
27600324	HITRONIC® HQN 1500 24G 50/125 OM3	50/125 OM3	24	8.3	65
Multimode G 50 OM2					
27600204	HITRONIC® HQN 1500 4G 50/125 OM2	50/125 OM2	4	7.3	40
27600208	HITRONIC® HQN 1500 8G 50/125 OM2	50/125 OM2	8	7.3	40
27600212	HITRONIC® HQN 1500 12G 50/125 OM2	50/125 OM2	12	7.3	40
27600224	HITRONIC® HQN 1500 24G 50/125 OM2	50/125 OM2	24	8.3	65
Multimode G 62,5 OM1					
27600104	HITRONIC® HQN 1500 4G 62.5/125 OM1	62.5/125 OM1	4	7.3	40
27600108	HITRONIC® HQN 1500 8G 62.5/125 OM1	62.5/125 OM1	8	7.3	40
27600112	HITRONIC® HQN 1500 12G 62.5/125 OM1	62.5/125 OM1	12	7.3	40
27600124	HITRONIC® HQN 1500 24G 62.5/125 OM1	62.5/125 OM1	24	8.3	65
Singlemode E 9 OS2					
27600904	HITRONIC® HQN 1500 4E 9/125 OS2	9/125 OS2	4	7.3	40
27600908	HITRONIC® HQN 1500 8E 9/125 OS2	9/125 OS2	8	7.3	40
27600912	HITRONIC® HQN 1500 12E 9/125 OS2	9/125 OS2	12	7.3	40
27600924	HITRONIC® HQN 1500 24E 9/125 OS2	9/125 OS2	24	8.3	65

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.

Accessories

- Simplex Pigtail refer to page 164
- DATA STRIP stripping tool refer to main catalogue 2012

HITRONIC® HVN Outdoor Cable

Info

- **A-DQ(ZN)B2Y**
- **Outdoor cable with stranded loose tubes 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 environments
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

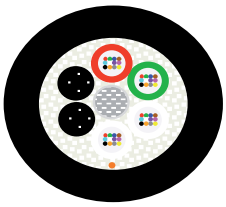
- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Rodent-protection
- Robust, halogen-free outer sheath

Approvals (Norm references)

RoHS

Design

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



Technical data

Optical fibre type
Core material: glass
Cladding material: glass

Temperature range
Fixed installation: -50°C to +100°C

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

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM3					
26600324	HITRONIC® HVN5000 2x12G 50/125 OM3	50/125 OM3	24	11.0	64
26600348	HITRONIC® HVN5000 4x12G 50/125 OM3	50/125 OM3	48	11.0	84
Single-mode E 9 OS2					
26600924	HITRONIC® HVN5000 2x12E 9/125 OS2	9/125 OS2	24	11.0	64
26600948	HITRONIC® HVN5000 4x12E 9/125 OS2	9/125 OS2	48	11.0	84
HVN Telecom Single-mode E 9 OS2					
26601924	HITRONIC® HVN1500 2x12E 9/125 OS2	9/125 OS2	24	11.0	64
26601948	HITRONIC® HVN1500 4x12E 9/125 OS2	9/125 OS2	48	11.0	84
26601972	HITRONIC® HVN2000 6x12E 9/125 OS2	9/125 OS2	72	12.6	119
26601996	HITRONIC® HVN2000 8x12E 9/125 OS2	9/125 OS2	96	14.3	157
26601944	HITRONIC® HVN2000 12x12E 9/125 OS2	9/125 OS2	144	17.0	181

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® HVN-Micro Outdoor Cable

Info

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

Benefits

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

Application range

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

Product features

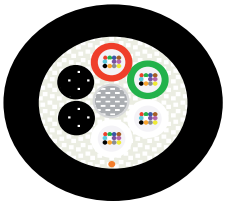
- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Rodent-protection
- Robust, halogen-free outer sheath

Approvals (Norm references)

RoHS

Design

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



Technical data

Optical fibre type
Core material: glass
Cladding material: glass

Temperature range
Fixed installation: -50°C to +100°C

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

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Single-mode E 9 OS2					
26609972	HITRONIC® HVN-Micro500 6x12E 9/125 OS2	9/125 OS2	72	5.7	29
26609996	HITRONIC® HVN-Micro1200 8x12E 9/125 OS2	9/125 OS2	96	6.6	42
26609944	HITRONIC® HVN-Micro1500 12x12E 9/125 OS2	9/125 OS2	144	8.6	72

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

HITRONIC® HQW Armoured Outdoor Cable

Info

- **A-DQ(ZN)(SR)2Y**
- **Outdoor cable with corrugated steel tape armour, central loose tube and non-metallic strain relief**

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

Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

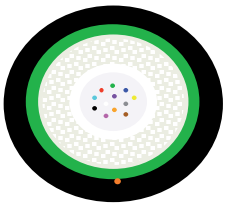
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

Approvals (Norm references)

RoHS

Design

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



Technical data

Optical fibre type
Core material: glass
Cladding material: glass

Temperature range
Fixed installation: -50°C to +100°C

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

Permissible tensile force
Fixed installation: 3000 N
Short-term: 5000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM3					
27900304	HITRONIC® HQW3000 4G 50/125 OM3	50/125 OM3	4	9.6	88
27900308	HITRONIC® HQW3000 8G 50/125 OM3	50/125 OM3	8	9.6	88
27900312	HITRONIC® HQW3000 12G 50/125 OM3	50/125 OM3	12	9.6	88
27900324	HITRONIC® HQW3000 24G 50/125 OM3	50/125 OM3	24	9.6	88
Multimode G 50 OM2					
27900204	HITRONIC® HQW3000 4G 50/125 OM2	50/125 OM2	4	9.6	88
27900208	HITRONIC® HQW3000 8G 50/125 OM2	50/125 OM2	8	9.6	88
27900212	HITRONIC® HQW3000 12G 50/125 OM2	50/125 OM2	12	9.6	88
27900224	HITRONIC® HQW3000 24G 50/125 OM2	50/125 OM2	24	9.6	88
Multimode G 62.5 OM1					
27900104	HITRONIC® HQW3000 4G 62.5/125 OM1	62.5/125 OM1	4	9.6	88
27900108	HITRONIC® HQW3000 8G 62.5/125 OM1	62.5/125 OM1	8	9.6	88
27900112	HITRONIC® HQW3000 12G 62.5/125 OM1	62.5/125 OM1	12	9.6	88
27900124	HITRONIC® HQW3000 24G 62.5/125 OM1	62.5/125 OM1	24	9.6	88
Single-mode E 9 OS2					
27900904	HITRONIC® HQW3000 4E 9/125 OS2	9/125 OS2	4	9.6	88
27900908	HITRONIC® HQW3000 8E 9/125 OS2	9/125 OS2	8	9.6	88
27900912	HITRONIC® HQW3000 12E 9/125 OS2	9/125 OS2	12	9.6	88
27900924	HITRONIC® HQW3000 24E 9/125 OS2	9/125 OS2	24	9.6	88

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® HVW Armoured Outdoor Cable

Info

- **A-DQ(ZN)B2Y(SR)2Y**
- **Outdoor cable with corrugated steel tape armour, stranded loose tubes and non-metallic strain relief**

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

Application range

- Methods of Deployment: empty plastic pipes, ducts and trays
- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments

Product features

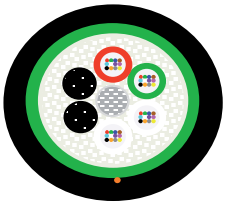
- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

Approvals (Norm references)

RoHS

Design

- Up to 12 stranded gel-filled loose tubes
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- PE outer sheath
- Colour: black (RAL 9005)



Technical data

Optical fibre type
Core material: glass
Cladding material: glass

Temperature range
Fixed installation: -50°C to +100°C

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

Permissible tensile force
Fixed installation: 3000 N
Short-term: 5000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Single-mode E 9 OS2					
26900924	HITRONIC® HVW3000 2x12E 9/125 OS2	9/125 OS2	24	10.0	98
26900948	HITRONIC® HVW3000 4x12E 9/125 OS2	9/125 OS2	48	12.5	148
26900972	HITRONIC® HVW3000 6x12E 9/125 OS2	9/125 OS2	72	16.0	215
26900996	HITRONIC® HVW3000 8x12E 9/125 OS2	9/125 OS2	96	16.0	222
26900944	HITRONIC® HVW3000 12x12E 9/125 OS2	9/125 OS2	144	18.5	261

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® HQW-Plus Armoured Outdoor Cable

Info

- **A-DQ(ZN)B2Y(SR)2Y**
- **Double-sheathed outdoor cable with corrugated steel tape armour, and non-metallic strength elements**

Benefits

- Additional sheath protects the fibres for use in harsh environments
- Armouring provides excellent protection against high mechanical stress and rodents
- Suitable for direct burial
- UV and water-resistant

Application range

- For outdoor use
- Harsh industrial environment
- Campus backbone
- WAN applications
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

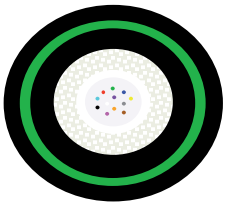
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

Approvals (Norm references)

RoHS

Design

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



Technical data

Optical fibre type
Core material: glass
Cladding material: glass

Temperature range
Fixed installation: -50°C to +100°C

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

Permissible tensile force
Fixed installation: 3000 N
Short-term: 5000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM3					
27920304	HITRONIC® HQW-Plus3000 4G 50/125 OM3	50/125 OM3	4	9.6	95
27920308	HITRONIC® HQW-Plus3000 8G 50/125 OM3	50/125 OM3	8	9.6	95
27920312	HITRONIC® HQW-Plus3000 12G 50/125 OM3	50/125 OM3	12	9.6	95
27920324	HITRONIC® HQW-Plus3000 24G 50/125 OM3	50/125 OM3	24	12.6	135
Multimode G 50 OM2					
27920204	HITRONIC® HQW-Plus3000 4G 50/125 OM2	50/125 OM2	4	9.6	95
27920208	HITRONIC® HQW-Plus3000 8G 50/125 OM2	50/125 OM2	8	9.6	95
27920212	HITRONIC® HQW-Plus3000 12G 50/125 OM2	50/125 OM2	12	9.6	95
27920224	HITRONIC® HQW-Plus3000 24G 50/125 OM2	50/125 OM2	24	9.6	95
Multimode G 62.5 OM1					
27920104	HITRONIC® HQW-Plus3000 4G 62.5/125 OM1	62.5/125 OM1	4	9.6	95
27920108	HITRONIC® HQW-Plus3000 8G 62.5/125 OM1	62.5/125 OM1	8	9.6	95
27920112	HITRONIC® HQW-Plus3000 12G 62.5/125 OM1	62.5/125 OM1	12	9.6	95
27920124	HITRONIC® HQW-Plus3000 24G 62.5/125 OM1	62.5/125 OM1	24	12.6	135
Single-mode E 9 OS2					
27920904	HITRONIC® HQW-Plus3000 4E 9/125 OS2	9/125 OS2	4	9.6	95
27920908	HITRONIC® HQW-Plus3000 8E 9/125 OS2	9/125 OS2	8	9.6	95
27920912	HITRONIC® HQW-Plus3000 12E 9/125 OS2	9/125 OS2	12	9.6	95
27920924	HITRONIC® HQW-Plus3000 24E 9/125 OS2	9/125 OS2	24	12.6	135

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

New

HITRONIC® HQA Aerial Cable

Info

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

Benefits

- Suitable for mild weather conditions
- Able to hang in the air
- 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
- Hanging on poles

Product features

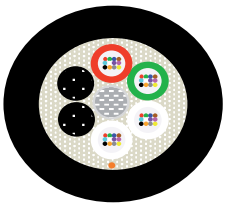
- Stranded loose tubes with up to 96 fibres
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Robust, halogen-free outer sheath

Approvals (Norm references)

RoHS

Design

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



Technical data

Optical fibre type
Core material: glass
Cladding material: glass

Temperature range
Fixed installation: -50°C to +100°C
Occasional flexing: -30°C to +70°C

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

Permissible tensile force
MAT: 800 N
EDS: 2000 N

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

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

New

HITRONIC® HQA-Plus Aerial Cable

Info

- **A-DQ2Y(ZN)2Y ADSS**
- **Double-sheathed, self-supporting aerial cable with stranded loose tubes and non-metallic strain relief**

Benefits

- Designed to withstand harsh weather conditions
- Able to hang in the air
- 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 long span lengths
- Hanging on poles
- For outdoor use

Product features

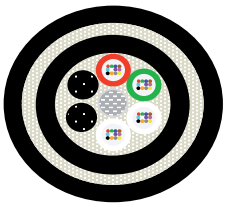
- Stranded loose tubes with up to 96 fibres
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Robust, halogen-free outer sheath

Approvals (Norm references)

RoHS

Design

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



Technical data

Optical fibre type
Core material: glass
Cladding material: glass

Temperature range
Fixed installation: -50°C to +100°C
Occasional flexing: -30°C to +70°C

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

Permissible tensile force
MAT: 3200 N
EDS: 8000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Single-mode E 9 OS2					
26644912	HITRONIC® HQA-Plus3200 6x2E 9/125 OS2	9/125 OS2	12	12.8	132
26644924	HITRONIC® HQA-Plus3200 6x4E 9/125 OS2	9/125 OS2	24	12.8	132
26644948	HITRONIC® HQA-Plus3200 6x8E 9/125 OS2	9/125 OS2	48	13.7	151
26644972	HITRONIC® HQA-Plus3200 6x12E 9/125 OS2	9/125 OS2	72	13.7	153
26644996	HITRONIC® HQA-Plus3200 8x12E 9/125 OS2	9/125 OS2	96	15.3	188

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

HITRONIC® HUN Universal Cable

Info

- **A/J-DQ(ZN)BH or U-DQ(ZN)BH**
- **Universal cable with central loose tube and non-metallic strain relief**

Benefits

- Flame retardance makes it suitable for indoor and outdoor installations
- 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 indoor and outdoor use
- Campus backbone
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

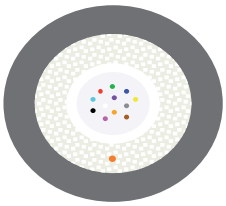
- Flame-retardant and halogen-free outer sheath
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Rodent-protection

Approvals (Norm references)

RoHS

Design

- Glass fibres with primary coating
- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- LSZH outer sheath
- Colour: dark grey



Technical data

Optical fibre type
Core material: glass
Cladding material: glass

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

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

Permissible tensile force
Fixed installation: 1500 N
Short-term: 2000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM3					
27400304	HITRONIC® HUN1500 4G 50/125 OM3	50/125 OM3	4	7.3	53
27400308	HITRONIC® HUN1500 8G 50/125 OM3	50/125 OM3	8	7.3	53
27400312	HITRONIC® HUN1500 12G 50/125 OM3	50/125 OM3	12	7.3	53
27400324	HITRONIC® HUN1500 24G 50/125 OM3	50/125 OM3	24	8.3	60
26400324	HITRONIC® HUN1500 2x12G 50/125 OM3	50/125 OM3	24	9.3	84
26400348	HITRONIC® HUN1500 4x12G 50/125 OM3		48	11.0	109
Multimode G 50 OM2					
27400204	HITRONIC® HUN1500 4G 50/125 OM2	50/125 OM2	4	7.3	53
27400208	HITRONIC® HUN1500 8G 50/125 OM2	50/125 OM2	8	7.3	53
27400212	HITRONIC® HUN1500 12G 50/125 OM2	50/125 OM2	12	7.3	53
27400224	HITRONIC® HUN1500 24G 50/125 OM2	50/125 OM2	24	8.3	60
Multimode G 62.5 OM1					
27400104	HITRONIC® HUN1500 4G 62.5/125 OM1	62.5/125 OM1	4	7.3	53
27400108	HITRONIC® HUN1500 8G 62.5/125 OM1	62.5/125 OM1	8	7.3	53
27400112	HITRONIC® HUN1500 12G 62.5/125 OM1	62.5/125 OM1	12	7.3	53
27400124	HITRONIC® HUN1500 24G 62.5/125 OM1	62.5/125 OM1	24	8.3	60
Single-mode E 9 OS2					
27400904	HITRONIC® HUN1500 4E 9/125 OS2	9/125 OS2	4	7.3	53
27400908	HITRONIC® HUN1500 8E 9/125 OS2	9/125 OS2	8	7.3	53
27400912	HITRONIC® HUN1500 12E 9/125 OS2	9/125 OS2	12	7.3	53
27400924	HITRONIC® HUN1500 24E 9/125 OS2	9/125 OS2	24	8.3	60
26400924	HITRONIC® HUN1500 2x12E 9/125 OS2	9/125 OS2	24	9.3	84
26400948	HITRONIC® HUN1500 4x12E 9/125 OS2	9/125 OS2	48	11.0	109
26400972	HITRONIC® HUN2000 6x12E 9/125 OS2	9/125 OS2	72	12.6	148
26400996	HITRONIC® HUN2000 8x12E 9/125 OS2	9/125 OS2	96	14.3	190
26400944	HITRONIC® HUN2000 12x12E 9/125 OS2	9/125 OS2	144	17.0	221

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.

Accessories

- Simplex Pigtail refer to page 164
- DATA STRIP stripping tool refer to main catalogue 2012

HITRONIC® HUW Armoured Universal Cable

Info

- **A/J-DQ(ZN)(SR)H or U-DQ(ZN)(SR)H**
- **Universal cable with corrugated steel tape armour, central loose tube and non-metallic strain relief**

Benefits

- Armouring provides excellent protection against high mechanical stress and rodents
- Flame retardance makes it suitable for indoor and outdoor installations
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- Water-resistant

Application range

- For indoor and outdoor use
- Campus backbone
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

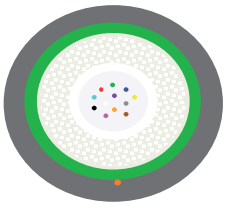
- Flame-retardant and halogen-free outer sheath
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection

Approvals (Norm references)

RoHS

Design

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- LSZH outer sheath
- Colour: green (based on RAL 6018)



Technical data

Optical fibre type
Core material: glass
Cladding material: glass

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

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

Permissible tensile force
Fixed installation: 1500 N
Short-term: 2000 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM3					
27500304	HITRONIC® HUW1500 4G 50/125 OM3	50/125 OM3	4	9.6	88
27500308	HITRONIC® HUW1500 8G 50/125 OM3	50/125 OM3	8	9.6	88
27500312	HITRONIC® HUW1500 12G 50/125 OM3	50/125 OM3	12	9.6	88
27500324	HITRONIC® HUW1500 24G 50/125 OM3	50/125 OM3	24	9.6	88
Multimode G 50 OM2					
27500204	HITRONIC® HUW1500 4G 50/125 OM2	50/125 OM2	4	9.6	88
27500208	HITRONIC® HUW1500 8G 50/125 OM2	50/125 OM2	8	9.6	88
27500212	HITRONIC® HUW1500 12G 50/125 OM2	50/125 OM2	12	9.6	88
27500224	HITRONIC® HUW1500 24G 50/125 OM2	50/125 OM2	24	9.6	88
Multimode G 62.5 OM1					
27500104	HITRONIC® HUW1500 4G 62.5/125 OM1	62.5/125 OM1	4	9.6	88
27500108	HITRONIC® HUW1500 8G 62.5/125 OM1	62.5/125 OM1	8	9.6	88
27500112	HITRONIC® HUW1500 12G 62.5/125 OM1	62.5/125 OM1	12	9.6	88
27500124	HITRONIC® HUW1500 24G 62.5/125 OM1	62.5/125 OM1	24	9.6	88
Single-mode E 9 OS2					
27500904	HITRONIC® HUW1500 4E 9/125 OS2	9/125 OS2	4	9.6	88
27500908	HITRONIC® HUW1500 8E 9/125 OS2	9/125 OS2	8	9.6	88
27500912	HITRONIC® HUW1500 12E 9/125 OS2	9/125 OS2	12	9.6	88
27500924	HITRONIC® HUW1500 24E 9/125 OS2	9/125 OS2	24	9.6	88

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, and small bending radii
- Zero electromagnetic interference as the cable contains no metal

Application range

- For indoor use
- Tertiary cabling
- Structured cabling - backbone
- Methods of Deployment: laying in trunking, ducts, trays, empty plastic pipes, building riser, raised floors and plenums

Product features

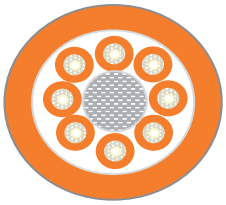
- Installation cable with up to 12 Simplex cables
- Flame-retardant and halogen-free
- Mechanically robust

Approvals (Norm references)

RoHS

Design

- 2.1 mm tight-buffered sub-cable with LSZH sheath (identified by numbers)
- Central GRP strength element
- Aramid yarns as strain relief
- LSZH 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
Fixed installation: -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)	Weight (kg/km)
Multimode G 50 OM3					
26000302	HITRONIC® HRH400 2G 50/125 OM3	50/125 OM3	2	7.0	35
26000304	HITRONIC® HRH600 4G 50/125 OM3	50/125 OM3	4	7.0	44
26000308	HITRONIC® HRH1200 8G 50/125 OM3	50/125 OM3	8	9.7	77
26000312	HITRONIC® HRH1700 12G 50/125 OM3	50/125 OM3	12	10.3	100
Multimode G 50 OM2					
26000202	HITRONIC® HRH400 2G 50/125 OM2	50/125 OM2	2	7.0	35
26000204	HITRONIC® HRH600 4G 50/125 OM2	50/125 OM2	4	7.0	44
26000208	HITRONIC® HRH1200 8G 50/125 OM2	50/125 OM2	8	9.7	77
26000212	HITRONIC® HRH1700 12G 50/125 OM2	50/125 OM2	12	10.3	100
Multimode G 62.5 OM1					
26000102	HITRONIC® HRH400 2G 62.5/125 OM1	62.5/125 OM1	2	7.0	35
26000104	HITRONIC® HRH600 4G 62.5/125 OM1	62.5/125 OM1	4	7.0	44
26000108	HITRONIC® HRH1200 8G 62.5/125 OM1	62.5/125 OM1	8	9.7	77
26000112	HITRONIC® HRH1700 12G 62.5/125 OM1	62.5/125 OM1	12	10.3	100

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.

Accessories

- DATA STRIP stripping tool refer to main catalogue 2012

New

HITRONIC® HDH Mini-Breakout Cable

Info
- J-V(ZN)H
- Mini breakout/distribution cable for direct connector assembly

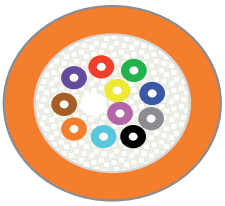
Benefits
- Very easy to install due to small dimensions, high flexibility, and small bending radius
- Suitable for field assembly
- Universal cable for cabling of buildings
- Zero electromagnetic interference as the cable contains no metal

Application range
- For indoor use
- Tertiary cabling
- Structured cabling - backbone
- Methods of Deployment: laying in trunking, ducts, trays, empty plastic pipes, building riser, raised floors and plenums

Product features
- Up to 12 tight-buffered fibres
- Colour-coded fibres
- Flame-retardant and halogen-free
- Mechanically robust

Approvals (Norm references)
RoHS

Design
- Tight-buffered fibres
- Water-blocking reinforced glass yarn strain relief
- LSZH outer sheath
- 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
Fixed installation: -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)	Weight (kg/km)
Multimode G 50 OM3					
26010302	HITRONIC® HDH 2G 50/125 OM3	50/125 OM3	2	6.0	34
26010304	HITRONIC® HDH 4G 50/125 OM3	50/125 OM3	4	6.3	37
26010308	HITRONIC® HDH 8G 50/125 OM3	50/125 OM3	8	7.5	57
26010312	HITRONIC® HDH 12G 50/125 OM3	50/125 OM3	12	8.3	69
Multimode G 50 OM2					
26010202	HITRONIC® HDH 2G 50/125 OM2	50/125 OM2	2	6.0	34
26010204	HITRONIC® HDH 4G 50/125 OM2	50/125 OM2	4	6.3	37
26010208	HITRONIC® HDH 8G 50/125 OM2	50/125 OM2	8	7.5	57
26010212	HITRONIC® HDH 12G 50/125 OM2	50/125 OM2	12	8.3	69
Multimode G 62.5 OM1					
26010102	HITRONIC® HDH 2G 62.5/125 OM1	62.5/125 OM1	2	6.0	34
26010104	HITRONIC® HDH 4G 62.5/125 OM1	62.5/125 OM1	4	6.3	37
26010108	HITRONIC® HDH 8G 62.5/125 OM1	62.5/125 OM1	8	7.5	57
26010112	HITRONIC® HDH 12G 62.5/125 OM1	62.5/125 OM1	12	8.3	69

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.

Accessories
- DATA STRIP stripping tool refer to main catalogue 2012

GOF DUPLEX Patchcord

Info

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

Benefits

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

Application range

- For indoor use
- LAN connections

Product features

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

Approvals (Norm references)

RoHS

Design

- Tight-buffered duplex cable with LSZH 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
Fixed installation: -20°C to +60°C
Occasional flexing: -5°C to +50°C

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

Permissible tensile force
Fixed installation: 150 N

Article number	Article designation	PU
Duplex Jumper Multimode 9 µm		
94841	GOF DUPLEX Patchcord ST/ST 9 µm, 2 m	1 piece
94891	GOF DUPLEX Patchcord SC/SC 9 µm, 2 m	1 piece
94931	GOF DUPLEX Patchcord ST/SC 9 µm, 2m	1 piece
9498	GOF DUPLEX Patchcord 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	GOF DUPLEX Patchcord ST/ST 50 µm, 2 m	1 piece
93561	GOF DUPLEX Patchcord SC/SC 50 µm, 2 m	1 piece
94641	GOF DUPLEX Patchcord 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	GOF DUPLEX Patchcord LC/LC 50 µm, 2 m	1 piece
9508	GOF DUPLEX Patchcord LC/SC 50 µm, 2 m	1 piece
9501	GOF DUPLEX Patchcord 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	GOF DUPLEX Patchcord ST/ST 62.5 µm, 2 m	1 piece
93581	GOF DUPLEX Patchcord SC/SC 62.5 µm, 2m	1 piece
94651	GOF DUPLEX Patchcord ST/SC 62.5 µm, 2 m	1 piece
9519	GOF DUPLEX Patchcord LC/LC 62.5 µm, 2 m	1 piece
9531	GOF DUPLEX Patchcord LC/ST 62.5 µm, 2 m	1 piece
9521	Duplex Jumper MTRJ/SC 62.5 µm, 2 m	1 piece
9528	GOF DUPLEX Patchcord 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 1G/E**
- **Pre-terminated tight-buffered simplex cable with one durable ceramic ferrule**

Benefits

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

Application range

- For indoor use
- Connection to an end optical device

Product features

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

Approvals (Norm references)

RoHS

Design

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

Technical data

Optical fibre type
Core material: glass
Cladding material: glass

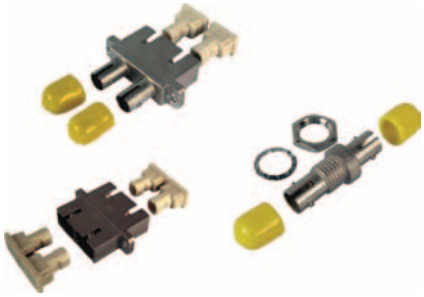
Temperature range
Fixed installation: -20°C to +60°C
Occasional flexing: -5°C to +50°C

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

GOF Adapters



Product features

- The couplings connect the glass fibre connectors with the same or different connector types.

Approvals (Norm references)

RoHS

Article number	Article designation	PU
Multimode		
CE93191	SC / SC Duplex-Adapter for 50 µm or 62.5 µm	4 piece
CE94611	SC / SC Duplex-Adapter for 50 µm or 62.5 µm	4 piece
CE9462	LC / LC Duplex-Adapter for 50 µm or 62.5 µm	4 piece
CE9441	SC / ST Duplex-Adapter for 50 µm or 62.5 µm	4 piece
CE9449	MTRJ / MTRJ Simplex-Adapter for 50 µm or 62.5 µm	4 piece
Singlemode		
CE94591	SC / SC Duplex-Coupler for 9 µm	4 piece
CE9460	SC / ST Duplex-Adapter for 9 µm	4 piece
CE9009	E2000 / E2000 Simplex-Adapter for 9 µm	4 piece
CE9011	E2000 / E2000 Simplex-Adapter 8° for 9 µm	4 piece
CE9458	LC / LC Duplex-Adapter for 9 µm	4 piece

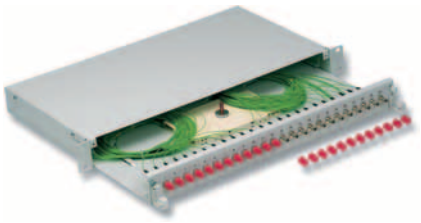
Other types of connectors (e.g. LC, MTRJ, E2000) are available upon request.Judy Lim: This will not apply to Hitronic anymore, as LC will become a standard product and MTRJ/E2000 will be removed.
Photographs are not to scale and do not represent detailed images of the respective products.

19” Splice Box for ST

Product features
- For up to 12 or 24 fibres
- Can be pulled out
- Unpopulated
- For a maximum of 4 splicing catridges
- Height: 1 RU
- Dimensions (WxHxD): 483 x 44.5 x 244 mm
- Material: steel plate, 1.5 mm
- Colour: light grey (RAL 7035)

Approvals (Norm references)

RoHS



Article number	Article designation	PU
Splice Box Compact		
CE9138	19” Splice Box for 12 ST	1 piece
CE9139	19” Splice Box for 24 ST	1 piece

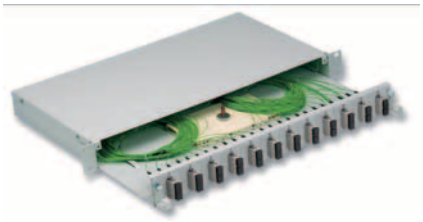
Splice boxes for more fibres with other types of connectors are available upon request. Also available in pre-assembled versions with coupings and pigtails.
Photographs are not to scale and do not represent detailed images of the respective products.

19” Splice Box for SC

Product features
- For up to 24 fibres
- Included: front panel with 12 SC-duplex holes
- Can be pulled out
- Unpopulated
- Height: 1 RU
- Dimensions (WxHxD): 483 x 44.5 x 170 mm
- Material: steel plate, 1.5 mm
- Colour: light grey (RAL 7035)

Approvals (Norm references)

RoHS



Article number	Article designation	PU
Splice Box Compact		
CE9135	19” Splice Box for SC	1 piece

Splice boxes for more fibres with other types of connectors are available upon request. Also available in pre-assembled versions with coupings and pigtails.
Photographs are not to scale and do not represent detailed images of the respective products.

Splice Box Compact

Product features
- Panel mounting
- Lockable
- Max. capacity of 8 splicing cartridges or 4 splicing cartridges and one distribution plate
- Includes distributor plate for 8 ST couplings
- Includes distributor plate for 4 SC duplex couplings
- Dimensions (WxHxD): 265 x 150 x 55 mm
- Colour: light grey (RAL 7035)

Approvals (Norm references)

RoHS

Article number	Article designation	PU
Splice Box Compact		
CE9147	Splice Box Compact	1 piece

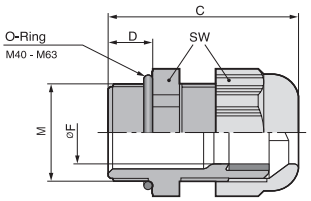
Photographs are not to scale and do not represent detailed images of the respective products.

SKINTOP® metric plastic cable glands

Easy to install

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!**

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 (Norm references)

- 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
- SKINMATIC® RZ refer to main catalogue 2012
- SKINMATIC® MH Set refer to main catalogue 2012

Technical data

Caution
Refer to 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 inner 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

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length inner mm	Pieces / PU
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® 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.

■ Accessories

SKINTOP® ST-M

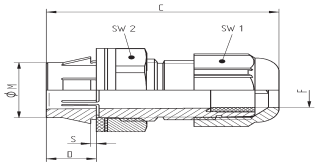
- SKINTOP® DIX-M refer to page 172
- SKINTOP® GMP-GL-M refer to main catalogue 2012
- SKINTOP® DIX-M AUTOMATION refer to page 173
- SKINTOP® SDV-M ATEX refer to main catalogue 2012
- SKINTOP® SD-M refer to main catalogue 2012
- SKINTOP® DV-M refer to main catalogue 2012

SKINTOP® STR-M

- SKINTOP® DIX-M refer to page 172
- SKINTOP® GMP-GL-M refer to main catalogue 2012
- SKINTOP® DIX-M AUTOMATION refer to page 173

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 (Norm references)

- UL File Nr. E79903

Included

- Included: disassembly tool

Technical data

Colour delivered
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

Material
Body: special polyamide
Seal: special elastomer

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

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

Article number	Article designation / size	Clamping range ØF (mm)	M (hole in mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length inner 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

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

Accessories

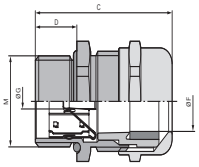
SKINTOP® CLICK

- SKINTOP® DIX-M refer to page 172
- SKINTOP® DIX-M AUTOMATION refer to page 173
- SKINTOP® SDV-M ATEX refer to main catalogue 2012
- SKINTOP® SD-M refer to main catalogue 2012
- SKINTOP® DV-M refer to main catalogue 2012

SKINTOP® CLICK-R

- SKINTOP® DIX-M refer to page 172

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 (Norm references)

- 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 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

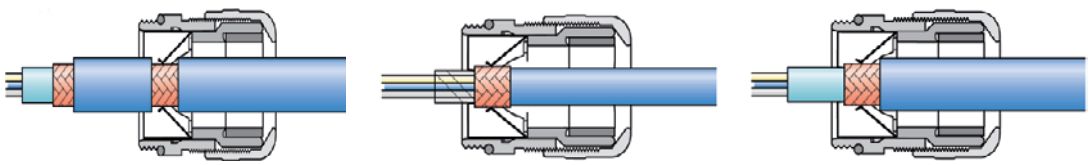
Temperature range
-30°C to +100°C

Article number	Article designation / size	Minimum Ø above braiding (mm)	SW (mm)	Thread length inner mm	Pieces / PU
SKINTOP® MS-SC-M					
53112610	12 x 1,5	2.0	16	6.5	50
53112620	16 x 1,5	4.0	20	7.0	50
53112630	20 x 1,5	5.0	24	8.0	25
53112640	25 x 1,5	7.5	29	8.0	25
53112650	32 x 1,5	9.0	36	9.0	25
53112660	40 x 1,5	15.0	45	9.0	10
53112670	50 x 1,5	21.0	54	10.0	5
SKINTOP® MS-SC-M-XL					
53112625	16 x 1,5	4.0	20	12.0	50
53112635	20 x 1,5	5.0	24	12.0	25
53112645	25 x 1,5	7.5	29	12.0	25
53112655	32 x 1,5	9.0	36	15.0	25
53112665	40 x 1,5	15.0	45	15.0	10
53112675	50 x 1,5	21.0	54	15.0	5

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

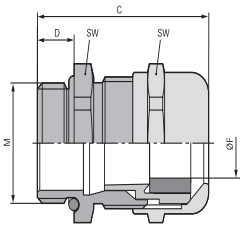
Accessories

- SKINDICHT® SM-PE-M refer to page 176



New

SKINTOP® MS-M BRUSH



Benefits

- Faster, easier screen contact
- Optimum, 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 (Norm references)

- 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.**

Technical data

Caution
Refer to 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)

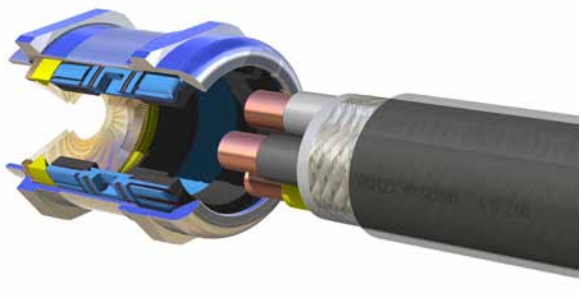
Temperature range
Dynamic: -30 °C to +100 °C
Fixed: -40°C to +100°C

Article number	Article designation / size	Minimum Ø above braiding (mm)	SW (mm)	Thread length inner mm	Pieces / PU
SKINTOP® MSR-M BRUSH					
53112671	25 x 1,5	5,0	29	8,0	10
SKINTOP® MS-M BRUSH					
53112676	25 x 1,5	6.0	29	8.0	10
53112677	32 x 1,5	8.0	36	9.0	1
53112678	40 x 1,5	10.0	45	9.0	1
53112679	50 x 1,5	14.0	54	10.0	1
53112680	63 x 1,5	20.0	67	15.0	1
53112681	63 x 1,5 plus	25.0	75	15.0	1
53112501	75 x 1,5	35.0	95	15.0	1
53112500	75 x 1,5 plus	35.0	95	15.0	1
53112503	90 x 2	45.0	115	20.0	1
53112505	110 x 2	55.0	135	25.0	1
53112504	110 x 2 plus	55.0	135	25.0	1

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

Accessories

- SKINDICHT® SM-PE-M refer to page 176



New

SKINTOP® BRUSH ADD-ON

Benefits

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

Application range

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

Approvals (Norm references)

CE RoHS

Design

- Metric connection thread acc. to EN 50262

Info

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

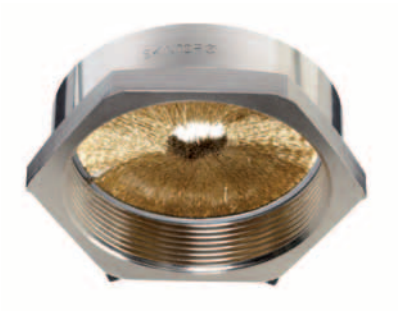
Technical data

Caution
Refer to Appendix T21 for the installation dimensions and torques

Approvals
UL pending

Material
Body: nickel-plated brass
EMC brush: brass

Temperature range
-70°C to +200°C



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

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

Accessories

- SKINTOP® BS-M refer to main catalogue 2012
- SKINTOP® ST-M refer to page 166
- SKINTOP® STR-M refer to page 166
- SKINTOP® BT-M refer to main catalogue 2012
- SKINTOP® ST-HF-M refer to main catalogue 2012
- SKINTOP® COLD refer to main catalogue 2012
- SKINTOP® COLD-R refer to main catalogue 2012

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 (Norm references)

CE RoHS

Technical data

On request
Special shapes

Colour delivered
Black (RAL 9005)

Material
NBR
VITON®

Protection rating
IP 54

Temperature range
-40°C to +100°C

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.

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
53316420	16,420	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

Viton® is a registered trademark of DuPont de Nemours
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® CLICK refer to page 168
- SKINTOP® ST-M refer to page 166
- SKINTOP® DIX-DV refer to main catalogue 2012

New

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 (Norm references)

CE RoHS

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

Colour delivered
Black (RAL 9005)

Material
NBR

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

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

Accessories

- SKINTOP® CLICK refer to page 168
- SKINTOP® MS-M refer to main catalogue 2012
- SKINTOP® ST-M refer to page 166

New

SKINTOP® CUBE

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 (Norm references)

CE RoHS

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	1.0 - 3.0		5
52220002	SKINTOP® CUBE MODULE 20x20 SMALL	4.0 - 6.0		5
52220003	SKINTOP® CUBE MODULE 20x20 LARGE	6.0 - 9.0		5
52220040	SKINTOP® CUBE MODULE 20x20 AS-I BUS	AS-I BUS Kabel		5
52220005	SKINTOP® CUBE MODULE 40x40 SMALL	9.0 - 12.0		5
52220006	SKINTOP® CUBE MODULE 40x40 LARGE	12.0 - 16.0		5
52220007	SKINTOP® CUBE MODULE 40x40 BLIND			5

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

Similar products

- SKINDICHT® CABLEFIX cable bushing system

Accessories

- FLEXIMARK® LB-10 W

New

SKINDICHT® SM-M

Application range

- Used when a gland has to be countered, or in through-holes on thin-walled housings

Approvals (Norm references)

CE RoHS

Design

- Metric connection thread acc. to EN 50262

Technical data

Material
Nickel-plated brass

Article number	Article designation / size	Thickness (mm)	SW (mm)	Outer Ø (mm)	Pieces / PU
SKINDICHT® SM-M					
52103000	12 x 1,5	3.0	15	16.5	100
52103010	16 x 1,5	3.0	19	20.9	100
52103020	20 x 1,5	3.5	24	26.4	100
52103030	25 x 1,5	4.0	30	33.0	100
52103040	32 x 1,5	4.0	36	39.6	100
52103050	40 x 1,5	5.0	46	50.6	50
52103060	50 x 1,5	5.0	60	66.0	50
52103070	63 x 1,5	5.0	70	77.0	25
52103071	75 x 1,5	8.0	85	95.0	5
52103072	90 x 2	10.0	102	114.0	1
52103073	110 x 2	12.0	124	135.0	1

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

New

SKINDICHT® SM-PE-M

Benefits

- Cutting edges cut through the insulating layer, thus guaranteeing an optimum EMC contact
- Suitable for all metric glands used in earthing and EMC applications

Application range

- For lacquered, anodised or powder-coated housings.

Approvals (Norm references)

CE RoHS

Design

- Metric connection thread acc. to EN 50262

Technical data

Material
Nickel-plated brass

Article number	Article designation / size	Thickness (mm)	SW (mm)	Outer Ø (mm)	Pieces / PU
SKINDICHT® SM-PE-M					
52103300	12 x 1,5	3.5	15	16.5	100
52103310	16 x 1,5	3.5	19	20.9	100
52103320	20 x 1,5	3.7	24	26.4	100
52103330	25 x 1,5	4.2	30	33.0	50
52103340	32 x 1,5	4.7	36	39.6	50
52103350	40 x 1,5	5.5	46	50.6	25
52103360	50 x 1,5	5.5	60	66.0	10
52103370	63 x 1,5	7.0	70	77.0	10
52103371	75 x 1,5	8.0	85	95.0	5
52103372	90 x 2	10.0	102	114.0	1
52103373	110 x 2	12.0	124	135.0	1

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For the use of our products is valid

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

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

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

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

Safety

Without exception our products are tested for application safety in accordance with laid down standards and our own regulations, which complement the standards. Relevant legal requirements and safety regulations are also observed. Provided due care and attention is paid, the possibility of product-specific danger to the user may thus reasonably be excluded. Where products are used carelessly or incorrectly, however, considerable danger to persons and the environment may arise. For this reason, our cables must only be processed and/or used responsibly by trained electricians or specialists. This catalogue contains general information for the application of each product. Independent of such information, the application standards DIN VDE 0298 and DIN VDE 001 for cables will apply. Excerpts from these standards, as well as complementary selection and application tables, design and installation guidelines, are contained in the tables in the appendix to our current Main Catalogue. Our machines and installation tools are – where necessary – designed in accordance with the machine guidelines and display the CE identification mark. It must be noted, however, that our machines and installation tools must only be used by trained specialized personnel and for the purpose for which they were designed.

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