



شرکت فرااتصال رایان عصر

پیشرو در زمینه فناوری اطلاعات و ارتباطات

کابل های صنعتی

کابل‌های Fieldbus، Modbus و Profibus از اجزای کلیدی شبکه‌های اتوماسیون صنعتی محسوب می‌شوند و برای انتقال مطمئن داده بین تجهیزات کنترلی، سنسورها و عملگرها به کار می‌روند. این کابل‌ها با ساختار استاندارد، شیلدینگ مناسب و مقاومت مطلوب در برابر تداخلات الکترومغناطیسی (EMI)، موجب افزایش پایداری شبکه و کاهش خطا در تبادل اطلاعات می‌شوند. انتخاب درست کابل باس، علاوه بر بهبود کیفیت سیگنال، باعث کاهش توقف‌های ناخواسته، افزایش بهره‌وری خط تولید و اطمینان از عملکرد مداوم تجهیزات خواهد شد.

شرکت فرااتصال با تأمین کابل‌های باس از برندهای معتبر لئونی (Leoni)، هلوکیبل (Helukabel) و بلدن (Belden)، امکان انتخاب محصول متناسب با نیاز هر پروژه را فراهم کرده و راهکاری قابل اتکا برای کاربردهای صنعتی ارائه می‌دهد. چه در پروژه‌های کارخانه‌ای و خطوط تولید، چه در سیستم‌های کنترلی و مانیتورینگ، فرااتصال با تمرکز بر کیفیت، اصالت برند و مشاوره انتخاب درست به شما کمک می‌کند شبکه‌ای پایدار، دقیق و قابل اعتماد داشته باشید.



HELUKABEL

LAPPKABEL

BELDEN

SIEMENS

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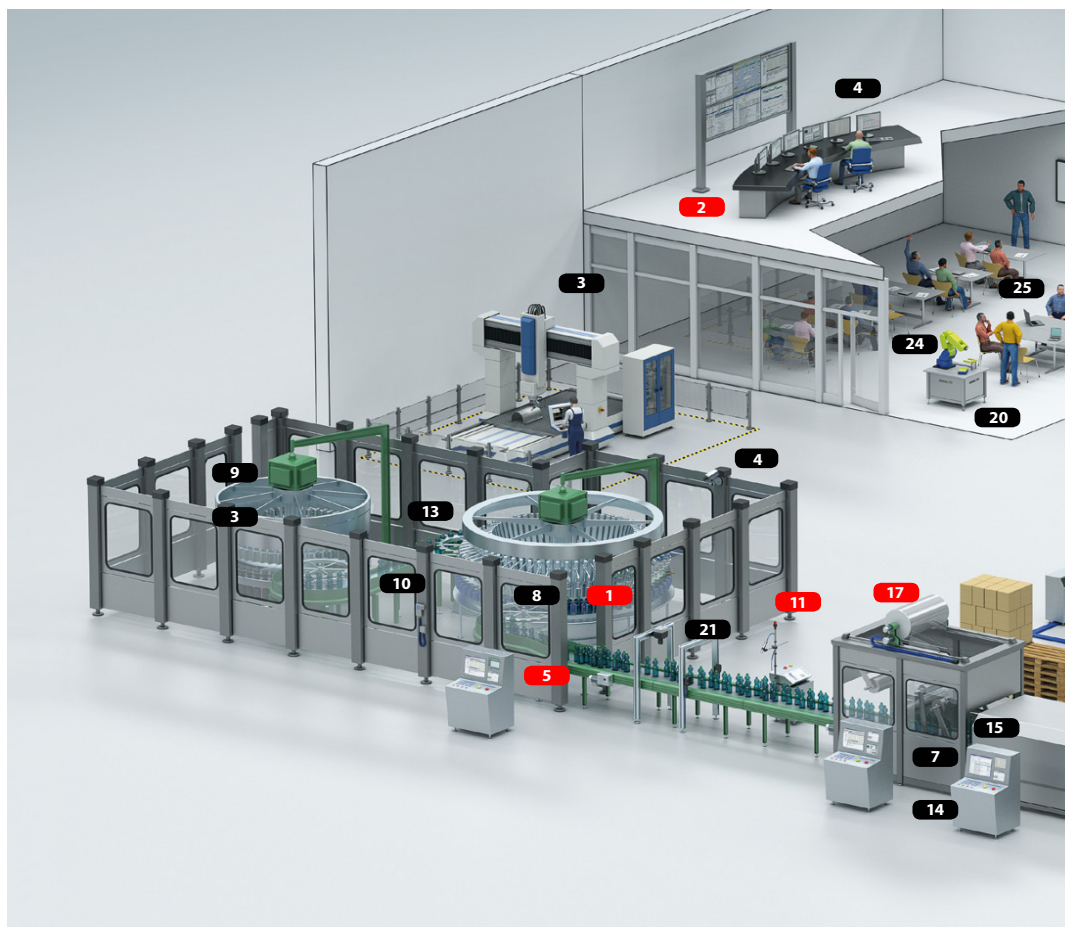
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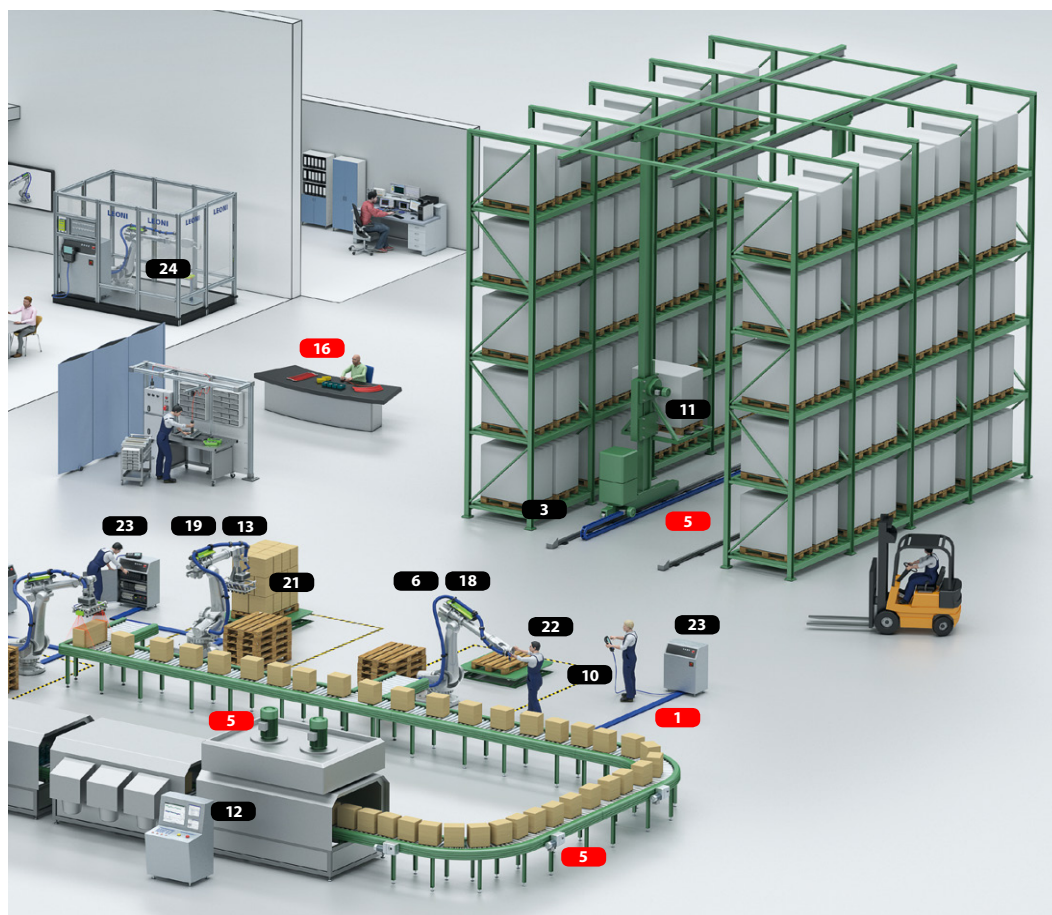
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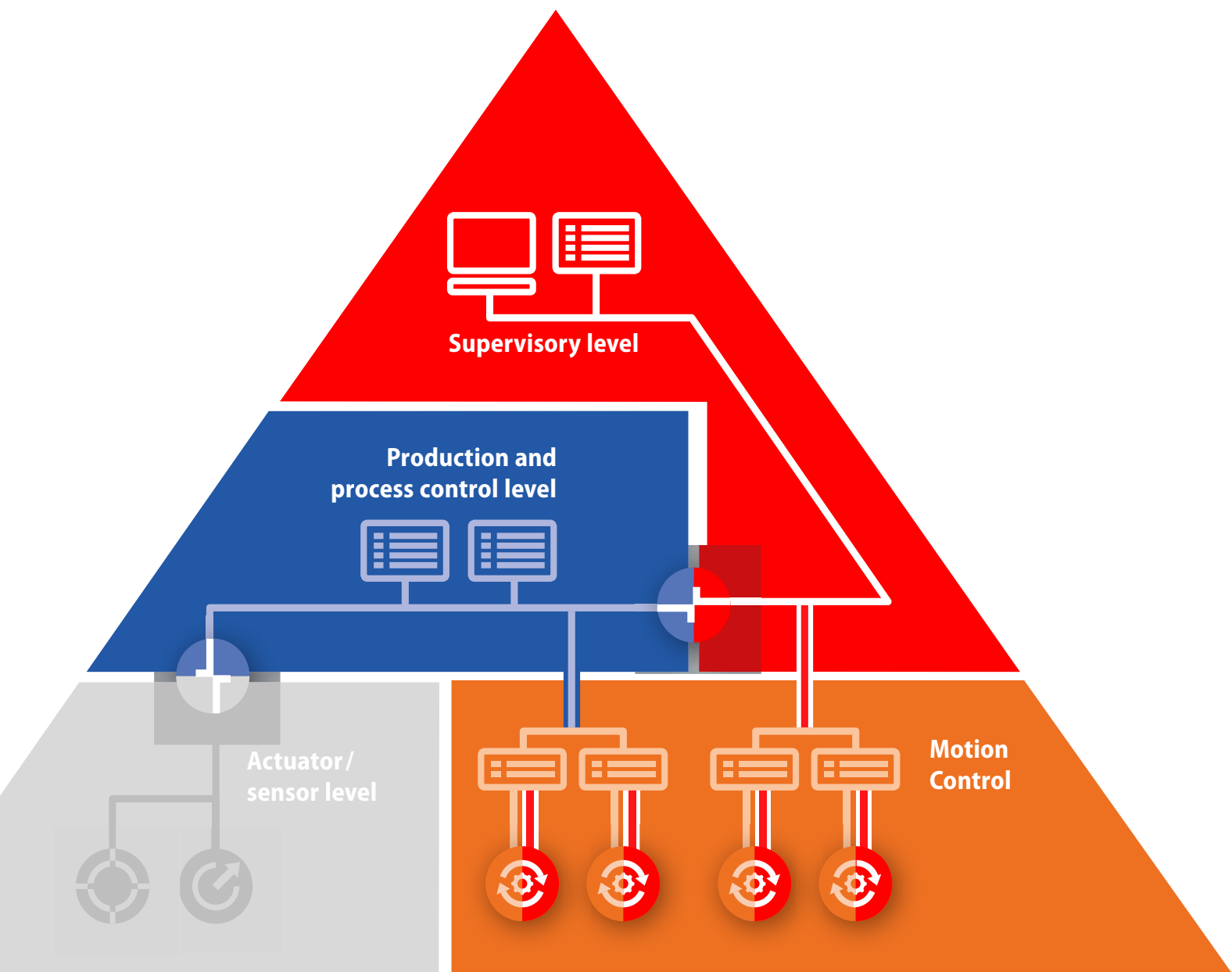
SENTECH



- 1** FieldLink® bus cables
- 2** FieldLink® Industrial Ethernet cables
- 3** Fiber optic cables
- 4** Audio and video cables
- 5** FieldLink®MC cables and cable systems for Motion Control
- 6** Robotic cables
- 7** Ribbon cables (high-performance-flex)
- 8** Miniature cables
- 9** Cleanroom cables
- 10** Coiled cables
- 11** Hybrid cables
- 12** High-temperature resistant cables

- 13** Polyurethane tubes & hoses, corrugated hoses
- 14** Electromechanical component assemblies
- 15** Casted and extrusion-coated products
- 16** Assembly of standardised and special cables
- 17** Cable drag chain systems
- 18** Dresspack systems
- 19** Robot function packages
- 20** advintec measurement and calibration systems
- 21** Machine vision systems
- 22** Installation & maintenance
- 23** Robot & PLC programming
- 24** Automation systems training
- 25** Project management





- IT communication – WAN
- Task: visualisation, archival, e.g. control post, interference indicating station



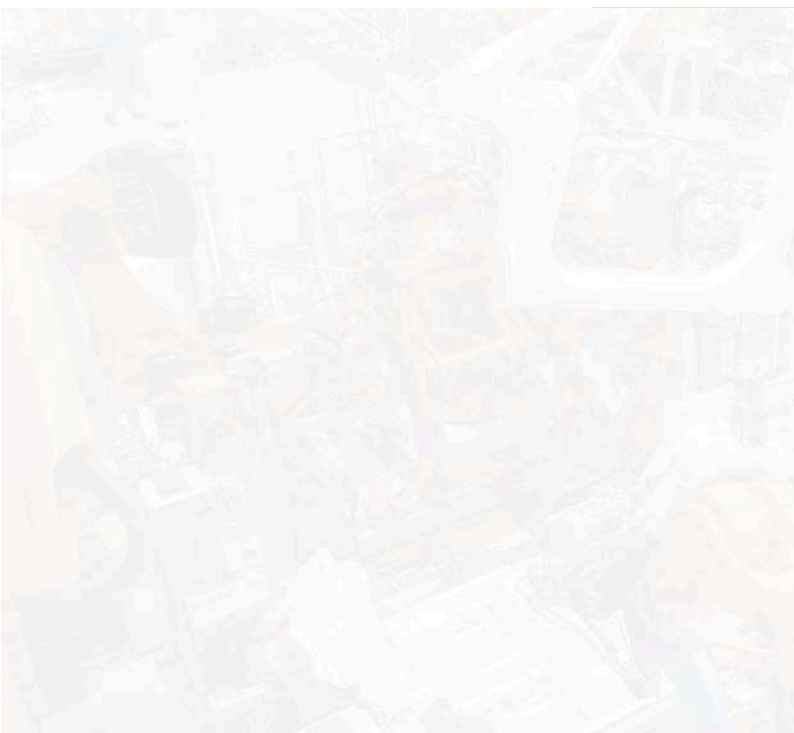
- Data communication – LAN
- Task: system control, e.g. reception, administration



- Field communication (process signals)
- Task (operation level):
processing, e.g. regulation/control of realtime functions
- Task (drive control):
input and output, e.g. measure, regulate, move, switch



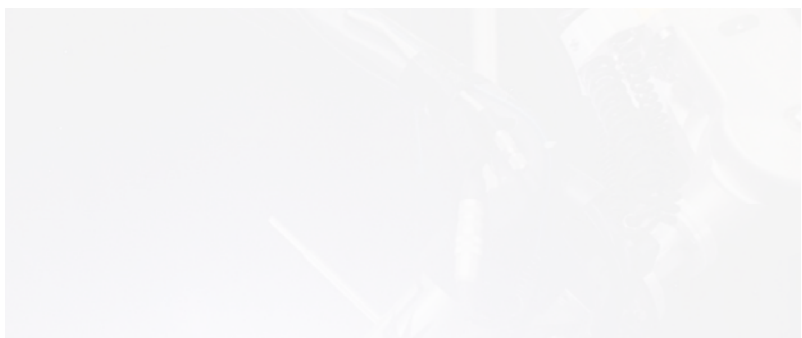
- Field communication and power supply
- Task:
drive control with input and output and additional power supply



Serial communication protocol

Cable programme

MODBUS





9841 Multi-Conductor - Low Capacitance Computer Cable for EIA RS-485 Applications

General Description:

24 AWG stranded (7x32) TC conductors, polyethylene insulation, twisted pairs, overall Beldfoil® (100% coverage) + TC braid shield (90% coverage), 24 AWG stranded TC drain wire, PVC jacket.

Usage (Overall)

Suitable Applications: RS-485, DMX-512

Physical Characteristics (Overall)

Conductor

AWG:

# Pairs	AWG	Stranding	Conductor Material
1	24	7x32	TC - Tinned Copper

Total Number of Conductors: 2

Insulation

Insulation Material:

Insulation Material	Wall Thickness (mm)
PE - Polyethylene	0.584

Outer Shield

Outer Shield Material:

Layer #	Outer Shield Trade Name	Type	Outer Shield Material	Coverage (%)
1	Beldfoil® (w/ shorting fold)	Tape	Aluminum Foil-Polyester Tape	100.000
2		Braid	TC - Tinned Copper	90.000

Outer Shield Drain Wire AWG:

AWG	Stranding	Drain Wire Conductor Material
24	7x#32	TC - Tinned Copper

Outer Jacket

Outer Jacket Material:

Outer Jacket Material	Nom. Wall Thickness (mm)
PVC - Polyvinyl Chloride	0.889

Overall Cable

Overall Cabling Fillers: Fibrous Polypropylene

Overall Cabling Lay Length & Direction:

Length (mm)	Direction	Twists (twist/m)
63.500	Left Hand	15.749

Overall Nominal Diameter: 5.893 mm

Pair

Pair Color Code Chart:

Color
White/Blue and Blue/White

Mechanical Characteristics (Overall)

Operating Temperature Range: -30°C To +80°C

Bulk Cable Weight: 53.575 Kg/Km

Max. Recommended Pulling Tension:	321.605 N
Min. Bend Radius/Minor Axis:	63.500 mm

Applicable Specifications and Agency Compliance (Overall)

Applicable Standards & Environmental Programs

NEC/(UL) Specification:	CM
NEC Articles:	800
CEC/C(UL) Specification:	CM
AWM Specification:	UL Style 2919 (30 V 80°C)
EU Directive 2011/65/EU (ROHS II):	Yes
EU CE Mark:	Yes
EU Directive 2000/53/EC (ELV):	Yes
EU Directive 2002/95/EC (RoHS):	Yes
EU RoHS Compliance Date (mm/dd/yyyy):	01/01/2004
EU Directive 2002/96/EC (WEEE):	Yes
EU Directive 2003/11/EC (BFR):	Yes
CA Prop 65 (CJ for Wire & Cable):	Yes
MII Order #39 (China RoHS):	Yes

Flame Test

UL Flame Test:	UL1685 UL Loading
CSA Flame Test:	FT1

Suitability

Suitability - Indoor:	Yes
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Plenum/Non-Plenum

Plenum (Y/N):	No
Plenum Number:	82841, 89841

Electrical Characteristics (Overall)

Nom. Characteristic Impedance:

Impedance (Ohm)
120

Nom. Capacitance Conductor to Conductor:

Capacitance (pF/m)
41.9968

Nom. Capacitance Cond. to Other Conductor & Shield:

Capacitance (pF/m)
75.463

Nominal Velocity of Propagation:

VP (%)
66

Nominal Delay:

Delay (ns/m)
5.2496

Nom. Conductor DC Resistance:

DCR @ 20°C (Ohm/km)
78.744

Nominal Outer Shield DC Resistance:

DCR @ 20°C (Ohm/km)

11.1554

Nom. Attenuation:

Freq. (MHz)	Attenuation (dB/100m)
1.000	1.969

Max. Operating Voltage - UL:

Voltage	Description
300 V RMS	Type CM
30 V RMS	AWM2919

Max. Recommended Current:

Description	Current
10C temperature rise	2.1 Amps per conductor @ 25°C ambient

Put Ups and Colors:

Item #	Putup	Ship Weight	Color	Notes	Item Desc
9841 060100	100 FT	4.300 LB	CHROME		1 PR #24 PE SH PVC
9841 0601000	1,000 FT	40.000 LB	CHROME	C	1 PR #24 PE SH PVC
9841 06010000	10,000 FT	380.000 LB	CHROME	C	1 PR #24 PE SH PVC
9841 060500	500 FT	20.000 LB	CHROME	C	1 PR #24 PE SH PVC
9841 0605000	5,000 FT	200.000 LB	CHROME		1 PR #24 PE SH PVC

Notes:

C = CRATE REEL PUT-UP.

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Product: 9841

RS485, 1 Pr #24 Str TC, PE Ins, OS+TC Brd, PVC Jkt, CM

کابل مدباس (RS 485) یک زوج AWG 24 ساخت شرکت بلدن

Part Number: 9841

کابل مدباس با کد: 9841



3105A Multi-Conductor - EIA Industrial RS-485 PLTC/CM

General Description:

22 AWG stranded (7x30) tinned copper conductors, Datalene® insulation, twisted pairs, overall Beldfoil® shield (100% coverage) plus a tinned copper braid (65% coverage), drain wire, UV resistant PVC jacket.

Physical Characteristics (Overall)

Conductor

AWG:

# Pairs	AWG	Stranding	Conductor Material	Dia. (mm)
1	22	7x30	TC - Tinned Copper	0.762

Total Number of Conductors: 2

Insulation

Insulation Material:

Insulation Trade Name	Insulation Material
Datalene®	FHDPE - Foam High Density Polyethylene

Outer Shield

Outer Shield Material:

Layer #	Outer Shield Trade Name	Type	Outer Shield Material	Coverage (%)
1	Beldfoil®	Tape	Aluminum Foil-Polyester Tape	100.000
2		Braid	TC - Tinned Copper	65.000

Outer Shield Drain Wire AWG:

AWG	Stranding	Drain Wire Conductor Material
22	7x30	TC - Tinned Copper

Outer Jacket

Outer Jacket Material:

Outer Jacket Material
PVC - Polyvinyl Chloride

Overall Cable

Overall Nominal Diameter: 7.137 mm

Pair

Pair Color Code Chart:

Number	Color
1	White/Blue Stripe and Blue/White Stripe

Pair Lay Length & Direction:

Lay Length (mm)
95.250

Mechanical Characteristics (Overall)

Operating Temperature Range: -20°C To +60°C

Non-UL Temperature Rating: 80C

Bulk Cable Weight: 65.481 Kg/Km

Max. Recommended Pulling Tension: 266.892 N

Min. Bend Radius/Minor Axis: 71.120 mm

Applicable Specifications and Agency Compliance (Overall)

Applicable Standards & Environmental Programs

NEC/(UL) Specification:	CM, PLTC
CEC/C(UL) Specification:	CM
EU Directive 2011/65/EU (ROHS II):	Yes
EU CE Mark:	Yes
EU Directive 2000/53/EC (ELV):	Yes
EU Directive 2002/95/EC (RoHS):	Yes
EU RoHS Compliance Date (mm/dd/yyyy):	10/01/2005
EU Directive 2002/96/EC (WEEE):	Yes
EU Directive 2003/11/EC (BFR):	Yes
CA Prop 65 (CJ for Wire & Cable):	Yes
MII Order #39 (China RoHS):	Yes

Flame Test

UL Flame Test:	UL1685 UL Loading
CSA Flame Test:	FT1

Suitability

Sunlight Resistance:	Yes
Oil Resistance:	Yes - Oil Res II

Plenum/Non-Plenum

Plenum (Y/N):	No
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Electrical Characteristics (Overall)

Nom. Characteristic Impedance:

Impedance (Ohm)
120

Nom. Capacitance Conductor to Conductor:

Capacitance (pF/m)
36.091

Nom. Capacitance Cond. to Other Conductor & Shield:

Capacitance (pF/m)
68.5729

Nominal Velocity of Propagation:

VP (%)
78

Nom. Conductor DC Resistance:

DCR @ 20°C (Ohm/km)
48.2307

Nominal Outer Shield DC Resistance:

DCR @ 20°C (Ohm/km)
12.337

Nom. Attenuation:

Description	Freq. (MHz)	Start Freq. (MHz)	Stop Freq. (MHz)	Attenuation (dB/100m)
	1			1.6405

Max. Operating Voltage - UL:

Voltage
300 V RMS (NEC Type PLTC)
300 V RMS (NEC Type CM)

Max. Recommended Current:

Current
2.7 Amps per conductor @ 25°C

Other Electrical Characteristic 1: Input Impedance/Unfitted Impedance .5 - 10 MHZ, 120 +/-12 Ohms

Notes (Overall)

Notes: Oil Resistance: Passes Oil Res II Per UL1277, Table 10.17. For CPE jacketed version order Part No. YR44345.

Put Ups and Colors:

Item #	Putup	Ship Weight	Color	Notes	Item Desc
3105A 0101000	1,000 FT	46.000 LB	BLACK	C	1 PR #22 FHDPE SH PVC
3105A 01010000	10,000 FT	490.000 LB	BLACK		1 PR #22 FHDPE SH PVC
3105A 010500	500 FT	23.000 LB	BLACK	C	1 PR #22 FHDPE SH PVC
3105A 0105000	5,000 FT	230.000 LB	BLACK	C N	1 PR #22 FHDPE SH PVC

Notes:

C = CRATE REEL PUT-UP.

N = FINAL PUT-UP LENGTH MAY VARY -0% TO +10% FROM LENGTH SHOWN.

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Belden declares this product to be in compliance with EU LVD (Low Voltage Directive 2014/35/EU).

Product: 3105A

RS-485, 1 Pr, 22AWG, Str TC, PE Ins, OS+TC Brd, PVC Jkt, CM,PLTC,

Sun Res, Oil Resistant

کابل مدباس (RS 485) یک زوج AWG 22 ساخت شرکت بلدن

Part Number: 3501A

کابل مدباس با کد: 3105A



9842 Multi-Conductor - Low Capacitance Computer Cable for EIA RS-485 Applications

General Description:

24 AWG stranded (7x32) TC conductors, polyethylene insulation, twisted pairs, overall Beldfoil® (100% coverage) + TC braid shield (90% coverage), 24 AWG stranded TC drain wire, PVC jacket

Usage (Overall)

Suitable Applications: RS-485, DMX-512

Physical Characteristics (Overall)

Conductor

AWG:

# Pairs	AWG	Stranding	Conductor Material
2	24	7x32	TC - Tinned Copper

Total Number of Conductors: 4

Insulation

Insulation Material:

Insulation Material	Wall Thickness (mm)
PE - Polyethylene	0.559

Outer Shield

Outer Shield Material:

Layer #	Outer Shield Trade Name	Type	Outer Shield Material	Coverage (%)
1	Beldfoil®	Tape	Aluminum Foil-Polyester Tape	100
2		Braid	TC - Tinned Copper	90

Outer Shield Drain Wire AWG:

AWG	Stranding	Drain Wire Conductor Material
24	7x32	TC - Tinned Copper

Outer Jacket

Outer Jacket Material:

Outer Jacket Material	Nom. Wall Thickness (mm)
PVC - Polyvinyl Chloride	0.889

Overall Cable

Overall Nominal Diameter: 8.636 mm

Pair

Pair Color Code Chart:

Number	Color
1	White/Blue & Blue/White
2	White/Orange & Orange/White

Mechanical Characteristics (Overall)

Operating Temperature Range: -30°C To +80°C

UL Temperature Rating: 80°C

Bulk Cable Weight: 72.922 Kg/Km

Max. Recommended Pulling Tension: 386.993 N

Min. Bend Radius/Minor Axis: 88.900 mm

Applicable Specifications and Agency Compliance (Overall)

Applicable Standards & Environmental Programs

NEC/(UL) Specification:	CM
CEC/C(UL) Specification:	CM
AWM Specification:	UL Style 2919 (30 V 80°C)
EU Directive 2011/65/EU (ROHS II):	Yes
EU CE Mark:	Yes
EU Directive 2000/53/EC (ELV):	Yes
EU Directive 2002/95/EC (RoHS):	Yes
EU RoHS Compliance Date (mm/dd/yyyy):	01/01/2004
EU Directive 2002/96/EC (WEEE):	Yes
EU Directive 2003/11/EC (BFR):	Yes
CA Prop 65 (CJ for Wire & Cable):	Yes
MII Order #39 (China RoHS):	Yes

Plenum/Non-Plenum

Plenum (Y/N):	No
Plenum Number:	82842

Electrical Characteristics (Overall)

Nom. Characteristic Impedance:

Impedance (Ohm)
120

Nom. Capacitance Conductor to Conductor:

Capacitance (pF/m)
41.9968

Nom. Capacitance Cond. to Other Conductor & Shield:

Capacitance (pF/m)
75.463

Nominal Velocity of Propagation:

VP (%)
66

Nominal Delay:

Delay (ns/m)
5.053

Nom. Conductor DC Resistance:

DCR @ 20°C (Ohm/km)
78.744

Nominal Outer Shield DC Resistance:

DCR @ 20°C (Ohm/km)
6.792

Nom. Attenuation:

Attenuation (dB/100m)	Attenuation (MHz)
1.969	1

Max. Operating Voltage - UL:

Voltage
300 V RMS

Max. Recommended Current:

Current

2.1 Amps per conductor @ 25°C

Put Ups and Colors:

Item #	Putup	Ship Weight	Color	Notes	Item Desc
9842 060100	100 FT	5.800 LB	CHROME		2 PR #24 PE SH PVC
9842 0601000	1,000 FT	57.000 LB	CHROME	C	2 PR #24 PE SH PVC
9842 06010000	10,000 FT	560.000 LB	CHROME		2 PR #24 PE SH PVC
9842 060500	500 FT	29.500 LB	CHROME	C	2 PR #24 PE SH PVC
9842 0605000	5,000 FT	270.000 LB	CHROME		2 PR #24 PE SH PVC

Notes:

C = CRATE REEL PUT-UP.

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Product: 9842

RS-485, 2 Pr, 24AWG, Str TC, PE Ins, OS+TC Brd, PVC Jkt, CM,PLTC

, Sun Res, Oil Resistant

کابل مدباس (RS 485) دو زوج AWG 24 ساخت شرکت بلدن

Part Number: 9842

کابل مدباس با کد: 9842



3107A Multi-Conductor - EIA Industrial RS-485 PLTC/CM

General Description:

22 AWG stranded (7x30) tinned copper conductors, Datalene® insulation, twisted pairs, overall Beldfoil® shield (100% coverage) plus a tinned copper braid (65% coverage), drain wire, UV resistant PVC jacket.

Physical Characteristics (Overall)

Conductor

AWG:

# Pairs	AWG	Stranding	Conductor Material	Dia. (mm)
2	22	7x30	TC - Tinned Copper	0.762

Total Number of Conductors: 4

Insulation

Insulation Material:

Insulation Trade Name	Insulation Material
Datalene®	FHDPE - Foam High Density Polyethylene

Outer Shield

Outer Shield Material:

Layer #	Outer Shield Trade Name	Type	Outer Shield Material	Coverage (%)
1	Beldfoil®	Tape	Aluminum Foil-Polyester Tape	100.000
2		Braid	TC - Tinned Copper	65.000

Outer Shield Drain Wire AWG:

AWG	Stranding	Drain Wire Conductor Material
22	7x30	TC - Tinned Copper

Outer Jacket

Outer Jacket Material:

Outer Jacket Material
PVC - Polyvinyl Chloride

Overall Cable

Overall Cabling Color Code Chart:

Number	Color
1	White/Blue Stripe & Blue/White Stripe
2	White/Orange Stripe & Orange/White Stripe

Overall Nominal Diameter: 8.890 mm

Pair

Pair Lay Length & Direction:

Lay Length (mm)
95.250

Mechanical Characteristics (Overall)

Operating Temperature Range:	-20°C To +60°C
Non-UL Temperature Rating:	60°C
Bulk Cable Weight:	108.639 Kg/Km
Max. Recommended Pulling Tension:	355.856 N

Min. Bend Radius/Minor Axis: 88.900 mm

Applicable Specifications and Agency Compliance (Overall)

Applicable Standards & Environmental Programs

NEC/(UL) Specification:	CM, PLTC
CEC/C(UL) Specification:	CM
EU Directive 2011/65/EU (ROHS II):	Yes
EU CE Mark:	Yes
EU Directive 2000/53/EC (ELV):	Yes
EU Directive 2002/95/EC (RoHS):	Yes
EU RoHS Compliance Date (mm/dd/yyyy):	10/01/2005
EU Directive 2002/96/EC (WEEE):	Yes
EU Directive 2003/11/EC (BFR):	Yes
CA Prop 65 (CJ for Wire & Cable):	Yes
MII Order #39 (China RoHS):	Yes

Flame Test

UL Flame Test:	UL1685 UL Loading
CSA Flame Test:	FT1

Suitability

Sunlight Resistance:	Yes
Oil Resistance:	Yes - Oil Res II

Plenum/Non-Plenum

Plenum (Y/N):	No
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Surface Printing (Overall)

Surface Printing:	BELDEN 3107A E34972 2PR22 SHIELDED (UL) CM OR PLTC SUN RES OR C(UL) CM --- FT1
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Electrical Characteristics (Overall)

Nom. Characteristic Impedance:

Impedance (Ohm)
120

Nom. Capacitance Conductor to Conductor:

Capacitance (pF/m)
36.091

Nom. Capacitance Cond. to Other Conductor & Shield:

Capacitance (pF/m)
68.5729

Nominal Velocity of Propagation:

VP (%)
78

Nom. Conductor DC Resistance:

DCR @ 20°C (Ohm/km)
48.2307

Nominal Outer Shield DC Resistance:

DCR @ 20°C (Ohm/km)
9.679

Nom. Attenuation:

Description	Freq. (MHz)	Start Freq. (MHz)	Stop Freq. (MHz)	Attenuation (dB/100m)
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1	1.6405
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Max. Operating Voltage - UL:

Voltage
300 V RMS (NEC Type PLTC)
300 V RMS (NEC Type CM)

Max. Recommended Current:

Current
2.7 Amps per conductor @ 25°C

Other Electrical Characteristic 1: Input Impedance/Unfitted Impedance .5 - 10 MHZ, 120 +-12 Ohms

Notes (Overall)

Notes: Oil Resistance: Passes Oil Res II Per UL1277, Table 10.17. For CPE jacketed version order YR46792.

Put Ups and Colors:

Item #	Putup	Ship Weight	Color	Notes	Item Desc
3107A 0101000	1,000 FT	62.000 LB	BLACK	C	2 PR #22 FHDPE SH PVC
3107A 0104000	4,000 FT	256.000 LB	BLACK	C	2 PR #22 FHDPE SH PVC
3107A 0105000	5,000 FT	330.000 LB	BLACK	C N	2 PR #22 FHDPE SH PVC

Notes:
 C = CRATE REEL PUT-UP.
 N = FINAL PUT-UP LENGTH MAY VARY -0% TO +10% FROM LENGTH SHOWN.

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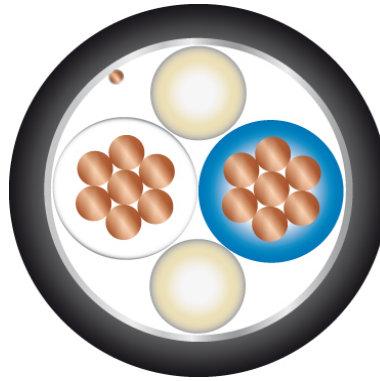
Product: 3107A

RS-485, 2 Pr, 22AWG, Str TC, PE Ins, OS+TC Brd, PVC Jkt, CM, PLTC, Sun Res, Oil Resistant

کابل مدباس (RS 485) دو زوج AWG 22 ساخت شرکت بلدن

Part Number: 3107A

کابل مدباس با کد: 3107A



Low Smoke, Zero Halogen, Flame Retardant, Sunlight Resistant

EN 50288-7

ICON BUS 50100 M3 OS

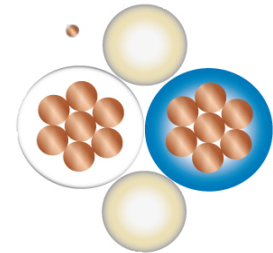
90 °C / 300 V

Application

For transmission of digital signals in instrument and control systems; where people are potentially endangered in case of fire
Recommended for indoor and outdoor installation, on racks, trays, in conduits, in dry and wet locations; not for direct burial. Indoor installations are allowed in areas, where the construction products regulation (CPR) acc. to EN 50575 of fire class is not required.
(Please note the relevant legal / local installation requirements)

Construction

Conductor	plain annealed copper wire, stranded, size: 1,5 mm ²
Insulation	cross-linked polyethylene XLPE
Colour	white/blue
Wrapping	at least 1 layer of plastic tape
Collective	aluminium polyester foil in contact with tinned copper drain wire
Outer	low smoke, zero halogen, flame retardant compound LSZH, black
Cable	LEONI KERPEN ICON BUS Code Size MODBUS RS485 300V LSZH Production Lot Code Year Length Marking



Technical data

Flame propagation	
- Test on single cable	IEC 60332-1-2
- Test on bunched cables	IEC 60332-3-24 (Cat. C)
Smoke density	IEC 61034-1 and 2 (L.T. > 60 %)
Limiting Oxygen Index (LOI)	ASTM D 2863 (min. 30 %)
Amount of halogen acid gas	IEC 60754-1 (0%)
Degree of acidity of gases	IEC 60754-2 (pH ≥ 4.3, C ≤ 10µS/mm)
Oil resistance	ICEA S-73-532*
Sunlight resistance	UL 1581 section 1200

Abbreviations

OS	ICON BUS overall screen
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Electrical Properties at 20 °C

Conductor cross-section	nom.	mm ²	1,5
Conductor resistance (loop)	max.	Ω/km	24,6
Insulation resistance	min.	MΩ x km	5000
Mutual capacitance	nom.	nF/km	54
Impedance at f = 1 MHz			105 Ω
Test voltage U _{rms} (core : core)		V	1000
Test voltage U _{rms} (core : screen)		V	1000
Operating voltage		V	300

*(Test temperature + 60 °C; duration 4 h. Retention: min. 60 % of tensile strength/min. 60 % of elongation)

ICON BUS 50100 M3 OS

Geometrical data

No. of elements	Dia. of core approx. mm	RT of outer sheath nom. mm	Outer dia. approx. mm	Weight approx. kg/km	Part number (combined) Colour black
1,5 mm ² /7					
1	4,3	1,1	11,1	120	LKX803400060000

RT = Radial Thickness

کابل مدباس (RS 485) یک زوج سایز 1/5 ساخت شرکت لئونی

Part Number: _

کابل مدباس با کد: -



Flame Retardant, Sunlight Resistant

EN 50288-7

ICON BUS 50100 M1 IS/OS

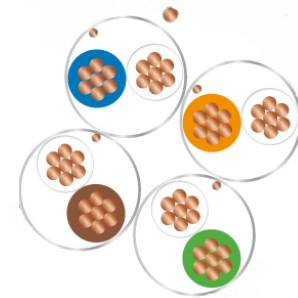
90 °C / 300 V

Application

For transmission of digital signals in instrument and control systems.
Recommended for indoor and outdoor installation, on racks, trays, in conduits, in dry and wet locations; not for direct burial. Indoor installations are allowed in areas, where the construction products regulation (CPR) acc. to EN 50575 of fire class is not required.
(Please note the relevant legal / local installation requirements)

Construction

Conductor	plain annealed copper wire, stranded, size: 0,75 mm ²
Insulation	cross-linked polyethylene XLPE
Colour	white/blue, white/orange, white/green, white/brown, white/grey, red/blue, red/orange, ... (further acc. to IEC 60189-2 – colour code)
Individual	aluminium polyester foil in contact with tinned copper drain wire
Wrapping	at least 1 layer of plastic tape
Collective	aluminium polyester foil in contact with tinned copper drain wire
Outer	polyvinyl chloride PVC, black
Cable	LEONI KERPEN ICON BUS Code Size MODBUS RS485 300V Production Lot Code Year Length Marking



Technical data

Flame propagation		Temperature range
- Test on single cable	IEC 60332-1-2	-40°C up to +90°C (during operation)
- Test on bunched cables	IEC 60332-3-24 (Cat. C)	-5°C up to +50°C (during installation)
Limiting Oxygen Index (LOI)	ASTM D 2863 (min. 30 %)	Minimum bending radius
Oil resistance	ICEA S-73-532	7,5 x cable diameter
Sunlight resistance	UL 1581 section 1200	

Abbreviations

ICON BUS
IS/OS individual screen / overall screen

Electrical Properties at 20 °C

Conductor cross-section	nom.	mm ²	0,75
Conductor resistance (loop)	max.	Ω/km	50
Insulation resistance	min.	MΩ x km	5000
Mutual capacitance	nom.	nF/km	54
Impedance at f = 1 MHz			105 Ω
Test voltage U _{rms} (core : core)		V	1000
Test voltage U _{rms} (core : screen)		V	1000
Operating voltage		V	300

ICON BUS 50100 M1 IS/OS

Geometrical data

No. of elements	Dia. of core approx. mm	RT of outer sheath nom. mm	Outer dia. approx. mm	Weight approx. kg/km	Part number (combined) Colour black
0,75 mm ² /7					
2	3,1	1,2	14,1	170	LKX808300180000
4	3,1	1,3	16,7	253	LKX808300190000

RT = Radial Thickness

کابل مدباس (RS 485) چهار زوج AWG 24 ساخت شرکت لئونی

Part Number: _

کابل مدباس با کد: -



HELUKABEL® PAAR-TRONIC-Li-2YCYv 4x2x0,34 QMM / 21137 CE

PAAR-TRONIC-Li-2YCYv
kapazitätsarm, verstärkter Außenmantel, EMV-Vorzugstype


PVC + armoured

TECHNISCHE DATEN
PVC-Datenleitung

Temperaturbereich	bewegt -5°C bis +70°C nicht bewegt -30°C bis +80°C
Betriebsspitzenspannung	250 V (nicht für Starkstrom- installationszwecke)
Prüfspannung Ader/Ader	2000 V
Prüfspannung Ader/Schirm	1000 V
Leiterwiderstand bei 20°C	0,22 mm ² : max. 93,0 Ohm/km 0,34 mm ² : max. 57,5 Ohm/km 0,5 mm ² : max. 39,3 Ohm/km 1 mm ² : max. 19,6 Ohm/km
Betriebskapazität Ader/Ader	bei 800 Hz 2 - 4 Paare: ca. 72 pF/m 8 - 10 Paare: ca. 60 pF/m
Nebensprechdämpfung	bei 1 MHz, 50,00 dB bei 10 MHz, 40,00 dB (Richtwert)
Induktivität	ca. 0,66 mH/km
Kopplungswiderstand	bei 30 MHz, ca. 250 Ohm/km
Mindestbiegeradius	bewegt 12x Außen-Ø nicht bewegt 7,5x Außen-Ø

- Abschirmung: Geflecht aus verzinnnten Cu-Drähten, Bedeckung ca. 85%
- Außenmantel: PVC nach DIN VDE 0207-363-4-1 / DIN EN 50363-4-1 (Mischungstyp TM2), verstärkt (v)
- Mantelfarbe: schwarz (RAL 9005)
- Längenmarkierung: in Meter

EIGENSCHAFTEN

- beständig gegen: UV-Strahlung, Witterungseinflüsse
- zur Verwendung im Freien
- erdverlegbar
- die bei der Fertigung verwendeten Materialien sind silikon- und cadmiumfrei und frei von lackbenetzungsstörenden Substanzen

PRÜFUNGEN

- flammwidrig nach DIN VDE 0482-332-1-2 / DIN EN 60332-1-2 / IEC 60332-1-2
- UV-beständig nach DIN EN ISO 4892-2
- witterungsbeständig nach DIN EN ISO 4892-2
- Zertifizierungen und Zulassungen: EAC

VERWENDUNG

PE-isolierte, paarverseilte Datenleitung zur störungsfreien Signal- und Datenübertragung über größere Entfernungen; durch die paarige Verseilung werden elektrische Kopplungen innerhalb der Leitung vermindert und damit Nebensprecheffekte wirksam unterdrückt. Dank hoher Übertragungsraten bestens geeignet für RS 422- und RS 485-Schnittstellen. Geeignet für die feste Verlegung in trockenen, feuchten und nassen Räumen sowie im Freien und für Erdverlegung. EMV = Elektromagnetische Verträglichkeit; um die EMV-Eigenschaften zu optimieren, empfehlen wir eine beidseitige und großflächige Rundumkontaktierung des Kupfergeflechtes.

HINWEISE

- der Leiter ist metrisch (mm²) aufgebaut, AWG-Angaben sind angenähert und dienen nur der Orientierung

AUFBAU

- Cu-Litze blank, mehrdrähtig
- Litzenaufbau:
0,22 mm²: 7 x 0,2 mm
0,34 mm²: 7 x 0,25 mm
0,5 mm²: 7 x 0,3 mm
1 mm²: 7 x 0,42 mm
- Aderisolation: PE nach DIN VDE 0819-103 / DIN EN 50290-2-23 (Mischungstyp LD/MD)
- Aderkennzeichnung nach DIN 47100 (paarige Verseilung), farbig
- x = ohne Schutzleiter
- Adern mit optimalen Schlaglängen zu Paaren verseilt, Paare mit optimalen Schlaglängen in Lagen verseilt
- Folienbewicklung
- Beilauflitze, Cu-verzinkt

Art.-Nr.	Aderzahl x Nennquerschnitt mm ²	ca. AWG	Außen-Ø ca. mm	Cu-Zahl per km	Gewicht ca. kg/km
21129	2 x 2 x 0,22	24	8,3	26,0	60,0
21130	3 x 2 x 0,22	24	8,6	31,0	79,0
21131	4 x 2 x 0,22	24	9,2	38,0	96,0
21132	8 x 2 x 0,22	24	11,6	62,0	140,0
21133	10 x 2 x 0,22	24	12,4	79,0	184,0
21135	2 x 2 x 0,34	22	9,5	35,0	83,0
21136	3 x 2 x 0,34	22	9,9	44,0	92,0
21137	4 x 2 x 0,34	22	10,6	53,0	112,0
21138	8 x 2 x 0,34	22	13,7	86,0	179,0
21139	10 x 2 x 0,34	22	15,0	104,0	219,0

Art.-Nr.	Aderzahl x Nennquerschnitt mm ²	ca. AWG	Außen-Ø ca. mm	Cu-Zahl per km	Gewicht ca. kg/km
21141	2 x 2 x 0,5	20	10,0	49,0	90,0
21142	3 x 2 x 0,5	20	10,5	60,0	126,0
21143	4 x 2 x 0,5	20	11,2	73,0	146,0
21144	8 x 2 x 0,5	20	14,9	124,0	246,0
21145	10 x 2 x 0,5	20	16,0	155,0	292,0
21146	2 x 2 x 1	18	11,9	81,0	141,0
21147	3 x 2 x 1	18	12,5	102,0	170,0
21148	4 x 2 x 1	18	13,5	130,0	203,0
21149	8 x 2 x 1	18	18,3	240,0	361,0
21150	10 x 2 x 1	18	20,0	282,0	387,0



PVC + armoured

Type	Fixed installation, indoor	Fixed installation, indoor
Cable structure	1x2x0,75-105 LI	1x2x0,75-105 LI armoured
Inner conductor diameter:	Copper, bare (AWG 19)	Copper, bare (AWG 19)
Core insulation:	PE	PE
Core colours:	wh, bu	wh, bu
Stranding element:	2 cores + 2 fillers stranded together	2 cores + 2 fillers stranded together
Separator:	Polyester foil over stranded bundle	Polyester foil over stranded bundle
Inner sheath material:	-	PVC
Shielding 1:	Al-Foil	Al-Foil
Total shielding:	-	-
Drain wire:	yes	yes
Armouring:	-	Steel band
Outer sheath material:	PVC	PVC
Cable external diameter:	app. 7,5 mm ± 0,3 mm	app. 10,0 mm ± 0,5 mm
Outer sheath colour:	Black similar to RAL 9005	Black similar to RAL 9005
Electrical data		
Characteristic impedance:	105 Ohm ± 20 Ohm	105 Ohm ± 20 Ohm
Conductor resistance, max.:	25 Ohm/km	25 Ohm/km
Insulation resistance, min.:	1 GOhm x km	1 GOhm x km
Loop resistance:	50 Ohm/km max.	50 Ohm/km max.
Nominal voltage:	300 V	300 V
Technical data		
Weight:	app. 70 kg/km	app. 130 kg/km
bending radius, repeated:	80 mm	200 mm
Operating temperature range min.:	-30°C	-30°C
Operating temperature range max.:	+70°C	+70°C
Copper weight:	28,00 kg/km	28,00 kg/km
Applicable standards:	Flame-retardant acc. to IEC 60332-3	Flame-retardant acc. to IEC 60332-3

Application

HELUKABEL® MOD-Bus PVC for standard application in this industry network.

Part no.

805698, MOD-Bus Single Pair

805697, MOD-Bus Single Pair armoured

Dimensions and specifications may be changed without prior notice.

کابل مدباس (RS 485) یک زوج AWG 19 ساخت شرکت هلوکیبل

Part Number: 805698

کابل مدباس با کد: 805698