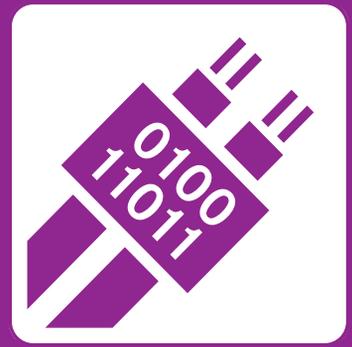


UNITRONIC®

Data Communication Systems



Bus Cable & Connectors	156
DeviceNet™	162
PROFIBUS	168
CAN Bus	184
RS485/RS422	190
AS-Interface	191
Data Highway	194
Interbus	195
Genius™	197
CC-Link	198
FOUNDATION Fieldbus	200
Sensor & Actuator Wiring	201
Flexible Data, Signal & Control Cable	205
Flexible UL/CSA Electronic Cable	208
Low Voltage UL/CSA Data, Communication & Control Cable	213
Flexible European Electronic Cable	221
Continuous Flex Data, Signal & Control Cable	227

BUS CABLE & CONNECTORS**Reference**

UNITRONIC® Bus Cable Attributes	159
Quick Select Chart	160

DeviceNet™

UNITRONIC® BUS DeviceNet™, Gray For DeviceNet Bus Systems; Stationary Applications; 120 Ω	162
UNITRONIC® BUS DeviceNet™ FD, Gray For DeviceNet Bus Systems; Continuous Flex Applications; 120 Ω	163
UNITRONIC® BUS DeviceNet™, Violet For DeviceNet Bus Systems; Stationary Applications; 120 Ω	164
UNITRONIC® BUS DeviceNet™ FD, Violet For DeviceNet Bus Systems; Continuous Flex Applications; 120 Ω	165
DeviceNet™ Field Wireable Connectors	166
DeviceNet™ PCB Connectors	166
DeviceNet™ Feed-Through Receptacles	167
DeviceNet™ T-Connectors	167

PROFIBUS

UNITRONIC® BUS PB For PROFIBUS-DP/FMS/FIP Bus Systems; Stationary Applications; 150 Ω	168
UNITRONIC® BUS PB FD For PROFIBUS-DP/FMS/FIP Bus Systems; Continuous Flex Applications; 150 Ω	169
UNITRONIC® BUS PB FD HYBRID For PROFIBUS-DP/FMS/FIP Bus Systems; Continuous Flex Applications; 150 Ω	170
UNITRONIC® BUS PB TORSION For PROFIBUS-DP/FMS/FIP Bus Systems; Torsion Applications; 150 Ω	171
UNITRONIC® BUS PB FESTOON For PROFIBUS-DP/FMS/FIP Bus Systems; Festoon Applications; 150 Ω	172
EPIC® Data PROFIBUS Connectors 35° Screw Terminal	173
EPIC® Data PROFIBUS Connectors 35° Fast Connect	174
EPIC® Data PROFIBUS Connectors 90° Screw Terminal	175
EPIC® Data PROFIBUS Connectors 90° LED Screw Terminal	176
EPIC® Data PROFIBUS Connectors 90° Spring Type	177



EPIC® Data PROFIBUS Connectors 90° Fast Connect	178
EPIC® Data PROFIBUS Connectors 90° LED Fast Connect	179
EPIC® Data PROFIBUS Connectors 180° Screw Terminal	180
EPIC® Data PROFIBUS Connectors 180° Fast Connect	181
PROFIBUS Field Wireable M 12 Connectors	182
PROFIBUS T-Connectors	182
PROFIBUS Termination Resistors	183
CAN Bus	
UNITRONIC® BUS CAN For CAN Bus Systems; Stationary Applications; 120 Ω	184
UNITRONIC® BUS CAN FD For CAN Bus Systems; Continuous Flex Applications; 120 Ω	185
EPIC® Data CAN Bus Connectors 90° Screw Terminal	186
EPIC® Data CAN Bus Connectors 180° Screw Terminal	187
CAN Bus Field Wireable M 12 Connectors	188
CAN Bus T-Connectors	188
CAN Bus Termination Resistors	189
RS485/RS422	
UNITRONIC® BUS LD & LD FD P For RS485/RS422 Bus Systems; Stationary & Continuous Flex Applications; 100 - 120 Ω	190
AS-Interface	
UNITRONIC® BUS ASi For Actuator Sensor Interface (ASi) Bus Systems; Stationary & Flexible Applications; 140 Ω	191
UNITRONIC® BUS ASi FD For Actuator Sensor Interface (ASi) Bus Systems; Continuous Flex Applications; 140 Ω	192
SKINTOP® DIX-ASi Cable Bushings for ASi Bus Cables; PG & Metric	193
Data Highway	
UNITRONIC® BUS BlueFlex™ For Data Highway and Data Highway+ Bus Systems, Continuous Flex Applications; 78 Ω	194

UNITRONIC®

**Bus Cable &
Connectors**





Interbus

UNITRONIC® BUS Interbus 195

For Interbus Bus Systems (IBS); Stationary Applications; 100 Ω

UNITRONIC® BUS Interbus FD 196

For Interbus Bus Systems (IBS); Continuous Flex Applications; 100 Ω

Genius™

UNITRONIC® BUS Genius™ 197

Genius™ I/O Twinaxial Bus Cable for Continuous Flex Applications; 100 Ω

CC-Link

UNITRONIC® BUS CC-Link 198

For CC-Link Bus Systems; Stationary Applications; 110 Ω

UNITRONIC® BUS CC-Link FD 199

For CC-Link Bus Systems; Continuous Flex Applications; 110 Ω

FOUNDATION Fieldbus

UNITRONIC® BUS FOUNDATION Fieldbus 200

For Fieldbus FOUNDATION Bus Systems, Stationary Applications; 100 Ω

Sensor & Actuator Wiring

UNITRONIC® SENSOR FD 201

Multi-Conductor Continuous Flex Communication Cable with PUR Jacket; 300V

M8 Field Wireable Sensor/Actuator Connectors 202

M12 Field Wireable Sensor/Actuator Connectors 203

Bus Cable in Other Catalog Sections

PROFIBUS Cordsets 635

DeviceNet™ Cordsets 640

UNITRONIC® Bus Cable Attributes

Bus System	Part Number	Cable Attributes, see page 659				Page
		Oil Resistance	Flame Resistance	Motion Type	Mechanical Properties	
DeviceNet™	4001, 4002	OR-01	FR-02	FL-02	MP-01	162
	6001, 6002	OR-01	FR-03	CF-02	MP-01	163
	2170342, 2170343	OR-02	FR-03	CF-02	MP-01	164
	2170340, 2170341	OR-00	FR-03	CF-02	MP-01	164
	2170344, 2170345	OR-04	FR-02	CF-02	MP-05	165
	2170346, 2170347	OR-02	FR-03	CF-02	MP-01	165
PROFIBUS	2170220	OR-00	FR-01	FL-01	MP-01	168
	2170219	OR-00	FR-02	FL-01	MP-01	168
	2170824	OR-00	FR-02	FL-02	MP-01	168
	2170820	OR-00	FR-03	FL-01	MP-01	168
	2170853	OR-04	FR-03	FL-01	MP-05	168
	2170222	OR-04	FR-01	CF-02	MP-05	169
	2170822, 2170322	OR-04	FR-02	CF-02	MP-05	169
	2170875	OR-02	FR-03	CF-02	MP-01	170
	2170332	OR-04	FR-02	FL-02 (Torsion ±180°/m)	MP-05	171
2170331	OR-02	FR-03	FL-02 (Festoon bending: 70 mm min. bending radius)	MP-01	172	
CAN Bus	2170260 to 2170270	OR-00	FR-02	FL-02	MP-01	184
	2170272 to 2170279	OR-04	FR-02	CF-02	MP-05	185
RS485/RS422	2170203, 2170803	OR-00	FR-01	FL-02	MP-01	190
	2170204, 2170205	OR-00	FR-01	FL-02	MP-01	190
	2170213	OR-04	FR-01	CF-02	MP-05	190
	2170813	OR-04	FR-02	CF-02	MP-05	190
	2170214	OR-04	FR-01	CF-02	MP-05	190
	2170814	OR-04	FR-02	CF-02	MP-05	190
	2170215	OR-04	FR-01	CF-02	MP-05	190
	2170815	OR-04	FR-02	CF-02	MP-05	190
AS-Interface	2170842, 2170843	OR-02	FR-03	CF-02	MP-01	191
	2170228, 2170229	OR-00	FR-01	FL-02	MP-01	191
	2170371, 2170372	OR-00	FR-00	FL-02	MP-01	191
	2170230, 2170231, 2170232	OR-04	FR-00	FL-02	MP-02	191
	2170357, 2170358, 2170317, 2170318	OR-04	FR-01	CF-02	MP-05	192
	2170830, 2170831	OR-02	FR-02	CF-02	MP-02	192
Data Highway	3649FD	OR-01	FR-02	CF-01	MP-01	194
Interbus	2170206	OR-00	FR-01	FL-02	MP-01	195
	2170208	OR-04	FR-01	FL-02	MP-05	195
	2170209	OR-00	FR-02	FL-02	MP-01	195
	2170216, 2170218	OR-04	FR-01	CF-02	MP-05	196
	2170818	OR-04	FR-02	CF-02	MP-05	196
Genius™	911264	OR-04	FR-02	CF-01	MP-05	197
CC-Link	2170360	OR-00	FR-03	FL-02	MP-01	198
	2170370	OR-04	FR-02	CF-02	MP-05	199
FOUNDATION Fieldbus	2170350	OR-02	FR-03	FL-02	MP-01	200
	2170351, 2170353	OR-02	FR-03	FL-00	MP-01	200
	2170352	OR-02	FR-03	FL-02	MP-01	200
Sensor & Actuator Wiring	7038864 to 7038887	OR-04	FR-01	CF-02	MP-05	201

Quick Select Chart: Cable & Connectors

Bus Systems	Cable	Applications	Jacket
DeviceNet™	UNITRONIC® BUS DeviceNet™ Gray	Stationary & Continuous Flex	PVC
	UNITRONIC® BUS DeviceNet™ Violet	Stationary & Continuous Flex	PVC, PUR, Halogen-free
PROFIBUS	UNITRONIC® BUS PB	Stationary	PVC, Halogen-free
	UNITRONIC® BUS PB FD	Continuous Flex	PUR
	UNITRONIC® BUS PB FD HYBRID	Continuous Flex	PVC
	UNITRONIC® BUS PB TORSION	Torsion	Halogen-free PUR
	UNITRONIC® BUS PB FESTOON	Festoon	PVC
CAN Bus	UNITRONIC® BUS CAN	Stationary	PVC
	UNITRONIC® BUS CAN FD	Continuous Flex	Halogen-free PUR
RS485, RS422	UNITRONIC® BUS LD	Stationary	PVC
	UNITRONIC® BUS LD FD P	Continuous Flex	PUR
AS-Interface	UNITRONIC® BUS ASi	Stationary & Flexible	PVC, Rubber, TPE
	UNITRONIC® BUS ASi FD	Continuous Flex	PUR, TPE
Data Highway	UNITRONIC® BUS BlueFlex	Continuous Flex	PVC
Interbus	UNITRONIC® BUS Interbus	Stationary	PVC, Halogen-free PUR
	UNITRONIC® BUS Interbus FD	Continuous Flex	PUR
Genius™	UNITRONIC® BUS Genius™	Continuous Flex	PUR
CC-Link	UNITRONIC® BUS CC-Link	Stationary	PVC
	UNITRONIC® BUS CC-Link FD	Continuous Flex	PUR
FOUNDATION Fieldbus	UNITRONIC® BUS FOUNDATION Fieldbus	Stationary	PVC
All systems: Sensor & Actuator Wiring	UNITRONIC® SENSOR FD	Continuous Flex	PUR

Connectors for Bus Systems	Connector	Page
DeviceNet™	DeviceNet™ Field Wireable Connectors	166
	DeviceNet™ PCB Connectors	166
	DeviceNet™ Feed-Through Receptacles	167
	DeviceNet™ T-Connectors	167
PROFIBUS	EPIC® Data PROFIBUS Connectors, 35°	173
	EPIC® Data PROFIBUS Connectors, 90°	175
	EPIC® Data PROFIBUS Connectors, 180°	180
	PROFIBUS Field Wireable M12 Connectors	182
	PROFIBUS T-Connectors	182
	PROFIBUS Termination Resistors	183
CAN Bus	EPIC® Data CAN BUS Connectors, 90°	186
	EPIC® Data CAN BUS Connectors, 180°	187
	CAN Bus Field Wireable M12 Connectors	188
	CAN Bus T-Connectors	188
	CAN Bus Termination Resistors	189
Sensor/Actuator	Field Wireable M8 and M12 Sensor/Actuator	202, 203

Reference

Impedance	Capacitance	Voltage	Page
120 Ω	12 pF/ft	300V	162
			163
120 Ω	12 pF/ft	300V	164
			165
150 Ω ± 15 Ω	9 pF/ft	250V	168
150 Ω ± 15 Ω	9 pF/ft	250V	169
150 Ω ± 15 Ω	9 pF/ft	600V	170
150 Ω ± 15 Ω	9 pF/ft	300V	171
150 Ω ± 15 Ω	9 pF/ft	600V	172
120 Ω ± 15 Ω	12 pF/ft	250V	184
120 Ω ± 15 Ω	18 pF/ft	250V	185
100 Ω ± 20 Ω	18 pF/ft	250V	190
100 Ω ± 20 Ω	18 pF/ft	250V	190
70 - 140 Ω	24 pF/ft	300V	191
70 - 140 Ω	24 pF/ft	300V	192
78 Ω	17 pF/ft	300V	194
100 Ω	18 pF/ft	250V	195
100 Ω	18 pF/ft	250V	196
100 Ω	18 pF/ft	300V	197
110 Ω ± 15 Ω	18 pF/ft	300V	198
110 Ω ± 15 Ω	18 pF/ft	300V	199
110 Ω ± 20 Ω	20 pF/ft	300V	200
—	—	300V	201

UNITRONIC® BUS DeviceNet™ Gray

For DeviceNet Bus Systems; Stationary Applications; 120 Ω



UNITRONIC® BUS DeviceNet cables provide reliable data and power transfer between industrial automation devices like sensors, actuators & PLCs. The cables are designed to perform in harsh chemical & mechanical environments and are in full compliance with ODVA specifications.

Recommended Applications

DeviceNet bus systems; wiring of automation devices like sensors, actuators, PLCs, and PCs

Approvals



Rate Table

Communication Rate	Maximum Length: Trunk Cable				Maximum Length: Drop Cable			
	THICK		THIN		THICK		THIN	
	(feet)	(meters)	(feet)	(meters)	(feet)	(meters)	(feet)	(meters)
125 Kbps	1640	500	328	100	512	156	20	6
250 Kbps	820	250	328	100	256	78	20	6
500 Kbps	328	100	328	100	128	39	20	6

Construction

Conductors: Stranded tinned copper

Insulation: Power conductors: PVC; Data conductors: Polyethylene

Shielding: Pairs: tri-laminated foil shield (100% coverage); tinned copper drain wire; overall foil wrap and braid (65% coverage)

Jacket: Gray PVC

Application Advantage

- Cable can supply device with power and data, wiring is minimized
- Full compliance with ODVA specifications
- Communication rate up to 500 Kbps
-

Lapp Systems Advantage

For DeviceNet™ cordsets, see page 640



Cable Attributes, see page 659

OR-01	FR-02	FL-02	MP-01
OIL	FLAME	MOTION	MECHANICAL

Similar Cables

- UNITRONIC® BUS DeviceNet™ Violet

Complete the Installation



SKINTOP® MS-SC: page 528

Technical Data

Minimum Bend Radius: - for installation: 10 x cable diameter	Nominal Capacitance: 12 pF/ft
Temperature Range: -20°C to +75°C	Color Code: - Power pair: Red & black - Data pair: Blue & white
Nominal Voltage: 300V	Approvals: UL: CL2 Canada: CSA AWM
Characteristic Impedance: 120 Ω	

Part Number	Type	Conductor Description (AWG/Pair)	Nominal Outer Diameter (inches / mm)		Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
Stationary							
4001	Thick	18 AWG/1pr + 15 AWG/1pr	0.437	11.1	57	140	53112240
4002	Thin	24 AWG/1pr + 22 AWG/1pr	0.260	6.6	20	43	53112210

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS DeviceNet™ FD Gray

For DeviceNet Bus Systems; Continuous Flex Applications; 120 Ω



UNITRONIC® BUS DeviceNet FD cables provide reliable data and power transfer between industrial automation devices like sensors, actuators & PLCs. The cables are designed to perform in harsh chemical & mechanical environments and are in full compliance with ODVA specifications.

Recommended Applications

DeviceNet bus systems; cable tracks and moving machine parts, wiring of automation devices like sensors, actuators, PLCs, and PCs

Approvals



Construction

Conductors: Stranded tinned copper

Insulation: Power conductors: PVC;
Data conductors: Polyethylene

Shielding: Pairs: tri-laminated foil shield (100% coverage); tinned copper drain wire; overall foil wrap and braid (65% coverage)

Jacket: Gray PVC

Application Advantage

- Cable can supply device with power and data, wiring is minimized
- Full compliance with ODVA specifications
- Communication rate up to 500 Kbps
- Oil-resistant PVC jacket

Rate Table

Communication Rate	Maximum Length: Trunk Cable				Maximum Length: Drop Cable			
	THICK		THIN		THICK		THIN	
	(feet)	(meters)	(feet)	(meters)	(feet)	(meters)	(feet)	(meters)
125 Kbps	1640	500	328	100	512	156	20	6
250 Kbps	820	250	328	100	256	78	20	6
500 Kbps	328	100	328	100	128	39	20	6

Lapp Systems Advantage

For DeviceNet™ cordsets, see page 640



Cable Attributes, see page 659

OR-01	FR-03	CF-02	MP-01
OIL	FLAME	MOTION	MECHANICAL

Similar Cables

- UNITRONIC® BUS DeviceNet™ FD Violet

Complete the Installation

	SKINTOP® MS-SC: page 528
--	--------------------------------

Technical Data

Minimum Bend Radius: - for continuous flexing: 10 x cable diameter	Nominal Capacitance: 12 pF/ft
Temperature Range: -20°C to +75°C	Color Code: - Power pair: Red & black - Data pair: Blue & white
Nominal Voltage: 300V	Approvals: UL: CL2 CM (6002) Canada: CSA AWM (6001) CSA CMG (6002)
Characteristic Impedance: 120 Ω	

Part Number	Type	Conductor Description (AWG/Pair)	Nominal Outer Diameter (inches)	Nominal Outer Diameter (mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
Continuous Flex							
6001	Thick	18 AWG/1pr + 14 AWG/1pr	0.468	11.9	60	145	53112240
6002	Thin	24 AWG/1pr + 22 AWG/1pr	0.283	7.2	23	43	53112210

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS DeviceNet™ Violet

For DeviceNet Bus Systems; Stationary Applications; 120 Ω



UNITRONIC® BUS DeviceNet cables provide reliable data and power transfer between industrial automation devices like sensors, actuators & PLCs. The cables are designed to perform in harsh chemical & mechanical environments and are in full compliance with ODVA specifications.

Recommended Applications

DeviceNet bus systems; wiring of automation devices like sensors, actuators, PLCs, and PCs

Approvals



Construction

Conductors: Stranded tinned copper

Insulation: Power conductors: PVC (PVC jacket); polyethylene (Halogen-free jacket); Data conductors: Polyethylene

Shielding: Pairs: tri-laminated foil shield; tinned copper drain wire; overall foil wrap and braid

Jacket: Violet PVC or halogen-free

Application Advantage

- Cable can supply device with power and data, minimizing wiring
- Communication rate up to 500Kbps
- Oil-resistant PVC or abrasion-resistant PUR
- Full compliance with ODVA specifications

Cable Attributes

See attribute list by part number on page 159

OIL | FLAME | MOTION | MECHANICAL

Similar Cables

- UNITRONIC® BUS DeviceNet™ Gray

Complete the Installation



SKINTOP®
MS-SC:
page528

Technical Data

Minimum Bend Radius:
- for installation: 7.5 x cable diameter

Temperature Range:
- PVC: -20°C to +75°C
- Halogen-free: -25°C to +75°C

Nominal Voltage: 300V

Characteristic Impedance: 120 Ω

Nominal Capacitance: 12 pF/ft

Color Code:
- Power pair: Red & black
- Data pair: Blue & white

Approvals: UL: CMG
PLTC (2170342, 2170340)
CL2 (2170343)
Canada: cUL CMG

Part Number	Type	Conductor Description (AWG/Pair)	Nominal Outer Diameter (inches)	(mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
Stationary: PVC							
2170342	Thick	18 AWG/1pr + 15 AWG/1pr	0.480	12.2	59	129	53112240
2170343	Thin	24 AWG/1pr + 22 AWG/1pr	0.272	6.9	22	45	53112210
Stationary: Halogen-Free & Flame Retardant (FRNC)							
2170340	Thick	18 AWG/1pr + 15 AWG/1pr	0.480	12.2	59	131	53112240
2170341	Thin	24 AWG/1pr + 22 AWG/1pr	0.272	6.9	22	47	53112210

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS DeviceNet™ FD Violet

For DeviceNet Bus Systems; Continuous Flex Applications; 120 Ω

LAPP KABEL STUTTGART UNITRONIC® DeviceNet THICK FD P



LAPP KABEL STUTTGART UNITRONIC® DeviceNet THIN FD P



UNITRONIC® BUS DeviceNet FD cables provide reliable data and power transfer between industrial automation devices like sensors, actuators & PLCs. The cables are designed to perform in harsh chemical & mechanical environments and are in full compliance with ODVA specifications.

Recommended Applications

DeviceNet bus systems; cable tracks and moving machine parts; wiring of automation devices like sensors, actuators, PLCs, and PCs

Construction

Conductors: Stranded tinned copper

Insulation: Power conductors: PVC (PVC jacket); polyethylene (PUR jacket);

Data conductors: Polyethylene

Shielding: Pairs: tri-laminated foil shield; tinned copper drain wire; overall foil wrap and braid

Jacket: Violet PVC or polyurethane

Application Advantage

- Cable can supply device with power and data, minimizing wiring
- Communication rate up to 500Kbps
- Oil-resistant PVC or halogen-free jacket options
- Full compliance with ODVA specifications

Approvals



Cable Attributes			
See attribute list by part number on page 159			
OIL	FLAME	MOTION	MECHANICAL

Similar Cables
<ul style="list-style-type: none"> • UNITRONIC® BUS DeviceNet™ FD Gray

Complete the Installation	
	SKINTOP® MS-SC: page 528

Technical Data

Minimum Bend Radius: - for continuous flexing:	15 x cable diameter	Color Code: - Power pair: Red & black - Data pair: Blue & white
Temperature Range: - PUR: - PVC:	-40°C to +75°C -10°C to +75°C	Approvals: UL: CMG (2170346, 2170347) CMX (2170344, 2170345) PLTC (2170346) CLX2 (2170344, 2170345) CL2 (2170347) Canada: cUL CMG (2170346, 2170347) cUL CMX (2170344, 2170345)
Nominal Voltage:	300V	
Characteristic Impedance:	120 Ω	
Nominal Capacitance:	12 pF/ft	

Part Number	Type	Conductor Description (AWG/Pair)	Nominal Outer Diameter (inches)	Nominal Outer Diameter (mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
Continuous Flex: PUR							
2170344	Thick	18 AWG/1pr + 15 AWG/1pr	0.480	12.2	63	124	53112240
2170345	Thin	24 AWG/1pr + 22 AWG/1pr	0.272	6.9	22	45	53112210
Continuous Flex: PVC							
2170346	Thick	18 AWG/1pr + 15 AWG/1pr	0.480	12.2	63	131	53112240
2170347	Thin	24 AWG/1pr + 22 AWG/1pr	0.272	6.9	22	47	53112210

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

DeviceNet™ Field Wireable Connectors

DN4110150
DN4110151



DN4110152
DN4110153



DN 4110157



DN4110156



DN4110155



DN4110154



Technical Data

Temperature Range:	max +85 °C
Nominal Voltage:	250V / 125V
Nominal Current:	4A or 9A

Application Advantage

- Quick & easy on-site assembly

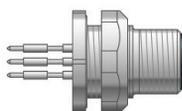
Part Number	Number of Positions	PG Connection	Min. Cable Diameter (mm)	Max. Cable Diameter (mm)	Nominal Voltage	Nominal Current
7/8" Straight Male Connectors, Screw Connection						
DN4110150	5	PG 9	6	8	250V	9A
DN4110151	5	PG 13	10	12	250V	9A
7/8" Straight Female Connectors, Screw Connection						
DN4110152	5	PG 9	6	8	250V	9A
DN4110153	5	PG 13	10	12	250V	9A
M12 Straight Male Connector, Screw Connection						
DN4110157	5	PG 9	4	8	125V	4A
M12 Straight Female Connector, Screw Connection						
DN4110156	5	PG 9	4	8	125V	4A
M12 90° Male Connector, Screw Connection						
DN4110155	5	PG 9	4	8	125V	4A
M12 90° Female Connector, Screw Connection						
DN4110154	5	PG 9	4	8	125V	4A

DeviceNet™ PCB Connectors

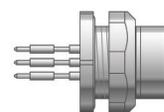
DN4110007



DN4110045



DN4110044



Technical Data

Temperature Range:	-40°C to 105°C
---------------------------	----------------

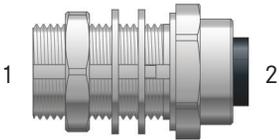
Part Number	End Connector	Number of Positions	Nominal Voltage	Nominal Current
PCB Connectors				
DN4110007	Female 7/8"	5	300V	9A
DN4110044	Female M12	5	250V	4A
DN4110045	Male M12	5	250V	4A

Photographs are not to scale and are not true representations of the products in question.

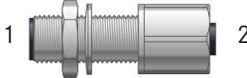
For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

DeviceNet™ Feed-Through Receptacles

DN4110051



DN4110043



Technical Data

Temperature Range: -40°C to 75°C

Protection Rating: IP67

Part Number	End Connector 1	End Connector 2	Nominal Voltage	Nominal Current
Feed-Through Receptacles				
DN4110051	Male 7/8" 5-position	Female 7/8" 5-position	300V	9A
DN4110043	Male M12 5-position	Female M12 5-position	250V	4A

DeviceNet™ T-Connectors

DN4110012



DN4110013



DN4110014



Technical Data

Temperature Range: -40°C to 75°C

Part Number	End Connector 1	End Connector 2	End Connector 3	Nominal Voltage	Nominal Current
T-Connectors					
DN4110012	Female 7/8" 5-position	Female 7/8" 5-position	Male 7/8" 5-position	300V	9A
DN4110013	Female M12 5-position	Female M12 5-position	Male M12 5-position	250V	4A
DN4110014	Male 7/8" 5-position	Female M12 5-position	Female 7/8" 5-position	250V	4A

Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS PB

For PROFIBUS-DP/FMS/FIP Bus Systems; Stationary Applications; 150 Ω

LAPP KABEL STUÏGART UNITRONIC® BUS PB



LAPP KABEL STUÏGART UNITRONIC® BUS PB FC



UNITRONIC® BUS PROFIBUS cables are designed for automation networks requiring fast and reliable data exchange between controllers and field devices. Additional styles are available upon request (e.g., armored, high temperature, direct burial for outdoor, PROFIBUS PA for intrinsic safety).

Recommended Applications

Wiring of automation devices like sensors, actuators, PLCs, and PCs in dry or damp environments; PROFIBUS bus systems DP, FMS, and FIP

Maximum Cable Length by Bit Rate for One Bus Segment

Communication Rate	Length of Cable Segment (feet) (meters)	
93.75 Kbps	3936	1200
187.5 Kbps	3280	1000
500 Kbps	1312	400
1.5 Mbps	656	200
12.0 Mbps	328	100

Construction

Conductors: Solid and stranded bare copper

Insulation: Polyethylene

Shielding: Specially designed foil/tinned copper braid

Jacket: Violet PVC (except 2170853: halogen-free)

Application Advantage

- Maximum EMI protection
- Fast connect style for quick installation
- Communication rate up to 12.0 Mbit/s
- Lapp USA is a member of the PROFIBUS User Organization (PNO)
- Call your sales representative for additional styles

Lapp Systems Advantage

For PROFIBUS cordsets, see page 635



Approvals



Cable Attributes

See attribute list by part number on page 159

OIL | FLAME | MOTION | MECHANICAL

Similar Cables

- UNITRONIC® BUS PB FD

Complete the Installation



SKINTOP® MS-SC: page 528



EPIC® Data Connectors page 173

Technical Data

Minimum Bend Radius:
- for installation: 10 x cable diameter

Color Code: Red & green pair

Temperature Range:
- PVC: -40°C to +80°C
- Halogen-free: -30°C to +80°C

Approvals:
UL: CMG (see table below)
CMX (2170219)
CL3 (2170824, 2170820)
Canada: cUL CMG (see table below)
cUL CMX (2170219)

Characteristic Impedance: 150 Ω ± 15 Ω

Nominal Capacitance: 9 pF/ft

Part Number	Jacket Type	Conductor Description (AWG/Pair)	Approvals	Nominal Outer Diameter (inches) (mm)		Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
Stationary								
2170220	PVC	22 AWG/ 1pr	—	0.315	8	20	50	53112220
2170219	PVC	22 AWG/ 1pr	UL/CSA CMX	0.315	8	20	38	53112220
2170824*	PVC	24 AWG/ 1pr, 7 wire	UL/CSA CMG	0.315	8	20	37	53112220
Stationary: Fast Connect								
2170820	PVC	22 AWG/ 1pr	UL/CSA CMG	0.315	8	17	56	53112220
2170853	Halogen-free	22 AWG/ 1pr	UL/CSA CMG	0.315	8	20	50	53112220

*For applications where vibrations occur.

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS PB FD

For PROFIBUS-DP/FMS/FIP Bus Systems; Continuous Flex Applications; 150 Ω

LAPP KABEL STUTTGART UNITRONIC® BUS PB FD P



LAPP KABEL STUTTGART UNITRONIC® BUS PB FD P FC



UNITRONIC® BUS PROFIBUS FD cables are designed for automation networks requiring fast and reliable data exchange between controllers and field devices.

Construction

Conductors: Stranded bare copper

Insulation: Polyethylene

Shielding: Specially designed foil/tinned copper braid

Jacket: Violet polyurethane

Recommended Applications

Highly flexible applications like cable tracks & moving machine parts; PROFIBUS bus systems DP, FMS, and FIP

Application Advantage

- Oil-resistant and flame retardant outer jacket
- Fast connect style for quick installation
- Communication rate up to 12 Mbit/s
- Lapp USA is a member of the PROFIBUS User Organization (PNO)

Approvals



Lapp Systems Advantage

For PROFIBUS cordsets, see page 635



Cable Attributes

See attribute list by part number on page 159

OIL FLAME MOTION MECHANICAL

Similar Cables

- UNITRONIC® BUS PB TORSION

Complete the Installation



SKINTOP®
MS-SC:
page 528



EPIC® Data
Connectors:
page 173

Technical Data

Minimum Bend Radius:
- for continuous flexing:
- 2170222 & 2170822: 9 x cable diameter
- 2170322: 15 x cable diameter

Temperature Range:
- for stationary use: -40°C to +80°C
- for flexible use: -30°C to +70°C

Characteristic Impedance: 150 Ω ± 15 Ω

Nominal Capacitance: 9 pF/ft

Color Code: Red & green pair

Approvals:
UL: CMX (2170822, 2170322)
Canada: cUL CMX (2170822, 2170322)
Additional: Torsion rated for Wind Market (± 150°/m) (2170222, 2170822)

Part Number	Jacket Type	Conductor Description (AWG/Pair)	Approvals	Nominal Outer Diameter (inches) (mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
Continuous Flex							
2170222	PUR	24 AWG / 1pr	—	0.315 8	20	43	53112220
2170822	PUR	24 AWG / 1pr	UL/CSA CMX	0.315 8	20	39	53112220
Continuous Flex: Fast Connect							
2170322	PUR	24 AWG / 1pr	UL/CSA CMX	0.315 8	17	53	53112220

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS PB FD HYBRID

For PROFIBUS-DP/FMS/FIP Bus Systems; Continuous Flex Applications; 150 Ω

LAPP KABEL STUTTGART UNITRONIC® PB FD HYBRID



UNITRONIC® BUS PB FD HYBRID is designed for automation networks requiring fast and reliable data exchange between controllers and field devices.

Construction

Conductors: Data pairs: stranded bare copper; Power conductors: stranded bare copper

Insulation: Data pairs: Polyethylene; Power conductors: PVC

Shielding: Screened pair and 4 control conductors twisted together with yarn; Data pairs: specially designed foil/tinned copper braid

Jacket: Violet PVC

Recommended Applications

Highly flexible hybrid (data and power) applications like power chains & moving machine parts; PROFIBUS bus systems DP, FMS, and FIP

Application Advantage

- Hybrid cable for data transmission and power supply
- Oil-resistant and flame retardant outer jacket
- Sunlight resistant
- Lapp USA is a member of the PROFIBUS User Organization (PNO)

Approvals



Cable Attributes, see page 659

OR-02	FR-03	CF-02	MP-01
OIL	FLAME	MOTION	MECHANICAL

Similar Cables

- UNITRONIC® BUS PB FD

Complete the Installation



SKINTOP® Strain Relief: page 502

Technical Data

Minimum Bend Radius: - for stationary use: 10 x cable diameter - for continuous flexing: 15 x cable diameter	Nominal Capacitance: 9 pF/ft
Temperature Range: -5°C to +80°C	Color Code: - Data pairs: Red & green - Power conductors: Black conductors with white numbers: 1, 2, 3, 4
Nominal Voltage: 600V (not for power applications)	Approvals: UL: CMG CL3 Canada: cUL CMG
Characteristic Impedance: 150 Ω ± 15 Ω	

Part Number	Jacket Type	Conductor Description (AWG/Pair + AWG/Conductors)	Approval	Nominal Outer Diameter (inches)	Nominal Outer Diameter (mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® Non-Metallic PG Thread
Continuous Flex 2170875	PVC	24 AWG/1pr + 16 AWG/4c	UL/CSA CMG	0.445	11.3	60	104	S2116

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS PB TORSION

For PROFIBUS-DP/FMS/FIP Bus Systems; Torsion Applications; 150 Ω

LAPP KABEL STUTTGART UNITRONIC® BUS PB TORSION



UNITRONIC® BUS PB TORSION is designed for automation networks requiring fast and reliable data exchange between controllers and field devices.

Construction

Conductors: Stranded bare copper

Insulation: Polyethylene

Shielding: Specially designed foil/tinned copper braid

Jacket: Violet halogen-free polyurethane

Recommended Applications

Torsion applications like robots; PROFIBUS bus systems DP, FMS, and FIP

Application Advantage

- For torsional stress ± 180°/meter
- Halogen-free and flame retardant outer jacket
- Communication rate up to 12 Mbit/s
- Lapp USA is a member of the PROFIBUS User Organization (PNO)

Approvals



Cable Attributes, see page 659

OR-04	FR-02	FL-02	MP-05
OIL	FLAME	MOTION	MECHANICAL

Similar Cables

- UNITRONIC® BUS PB FD

Complete the Installation

	SKINTOP® MS-SC: page 528		EPIC® Data Connectors: page 173
--	--------------------------------	--	---------------------------------------

Technical Data

Minimum Bend Radius: - for stationary use: 4 x cable diameter - for flexible use: 15 x cable diameter	Nominal Capacitance: 9 pF/ft
Temperature Range: -25°C to +75°C	Color Code: Red & green
Nominal Voltage: 300V (not for power applications)	Approvals: UL: CMX Canada: cUL CMX
Characteristic Impedance: 150 Ω ± 15 Ω	

Part Number	Jacket Type	Conductor Description (AWG/Pair)	Approval	Nominal Outer Diameter (inches) (mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
Torsion							
2170332	PUR	22 AWG/1pr	UL/CSA CMX	0.315 8	21	44	53112220

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS PB FESTOON

For PROFIBUS-DP/FMS/FIP Bus Systems; Festoon Applications; 150 Ω

LAPP KABEL STUÏTGART UNITRONIC® BUS PB FESTOON



UNITRONIC® BUS PB FESTOON is designed for automation networks requiring fast and reliable data exchange between controllers and field devices.

Recommended Applications

Festoon applications like cable trolleys; PROFIBUS bus systems DP, FMS, and FIP

Approvals



Construction

Conductors: Stranded bare copper

Insulation: Polyethylene

Shielding: Specially designed foil/tinned copper braid

Jacket: Violet PVC

Application Advantage

- CL3 rating for installation in trays
- Oil-resistant and flame retardant outer jacket
- Communication rate up to 12 Mbit/s
- Sunlight resistant
- Lapp USA is a member of the PROFIBUS User Organization (PNO)

Cable Attributes, see page 659

OR-02	FR-03	FL-02	MP-01
OIL	FLAME	MOTION	MECHANICAL

Similar Cables

- UNITRONIC® BUS PB FD

Complete the Installation



SKINTOP®
MS-SC:
page 528



EPIC® Data
Connectors:
page 173

Technical Data

Minimum Bend Radius: - for stationary use: 4 x cable diameter - for flexible use: 9 x cable diameter	Characteristic Impedance: 150 Ω ± 15 Ω
Temperature Range: - for stationary use: -40°C to +75°C - for flexible use: -5°C to +70°C	Nominal Capacitance: 9 pF/ft
Nominal Voltage: 600V (not for power applications)	Color Code: Red & green
	Approvals: UL: CMG CL3 Canada: cUL CMG

Part Number	Jacket Type	Conductor Description (AWG/Pair)	Approval	Nominal Outer Diameter (inches)	Nominal Outer Diameter (mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
2170331	PVC	24 AWG/1pr	UL/CSA CMG	0.315	8	17	43	53112220

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

EPIC® Data PROFIBUS Connectors

35° Screw Terminal



EPIC® Data PROFIBUS connectors are screw terminal, 9 pin D-Sub connectors with an integrated adjustable termination resistor. The cable entry is 35° angled. Connectors are available with additional programming /diagnostic interface.

Usage Notes

- When used as a through connector the switch must be in the “OFF” position. If used as a terminating connector the switch must be in the “ON” position.
- If the switch is in the “ON” position, the outgoing bus cable is disconnected.
- Switch is clearly visible when connector is plugged in and operational.

Approvals



Design

Dimensions: 54 mm x 40mm x 17 mm (L x W x H)

Connection Type: Screw terminal

For Cable Diameter: 0.197 - 0.315 in (5 - 8 mm)

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

Interface: 9 pin D-Sub socket

Weight: 40g

Insertion/Withdrawal Cycles: > 200

Application Advantage

- Standardized interfaces
- Cost-saving due to quick installation
- Easy to connect
- Small design
- Fully compatible with market standard

Technical Data

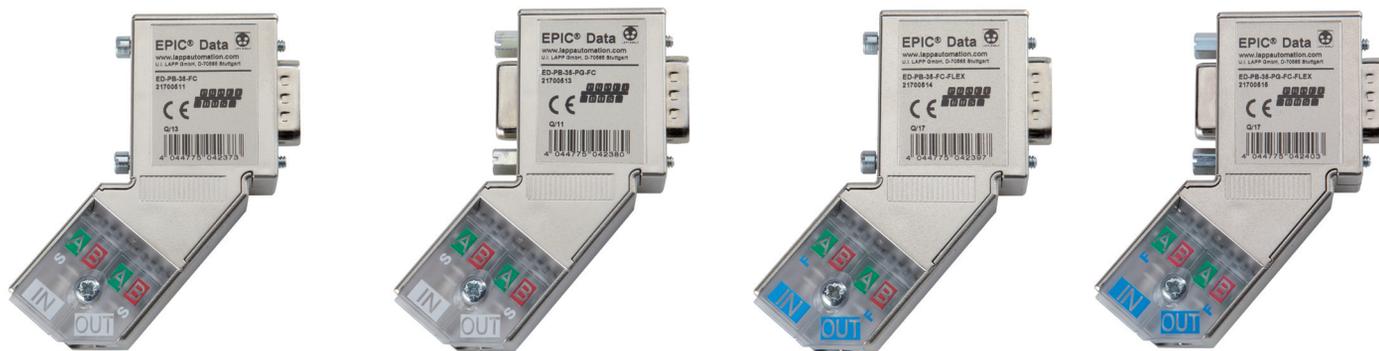
Temperature Range: - Operating: 0°C to +60°C - Transport & storage: -25°C to +80°C - Relative humidity: max. 75% at +25°C	Current Consumption: max. 12.5 mA
Protection Rating: IP20	Approvals: UL: Programmable Controllers: Components Canada: Programmable Controllers Certified: Component Additional: CE & RoHS D-Sub pin assignment in accordance with PROFIBUS
Supply Voltage: 4.75 - 5.25V DC	
Transmission Rate: max. 12 Mbit/s	

Part Number	Cable Outlet	Programming/Diagnostics
EPIC® Data PROFIBUS Connectors		
21700507	35°	No
21700506	35°	Yes

Photographs are not to scale and do not represent detailed images of the respective products. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

EPIC® Data PROFIBUS Connectors

35° Fast Connect



EPIC® Data PROFIBUS connectors are fast connect, 9 pin D-Sub connectors with an integrated adjustable termination resistor. The cable entry is 35° angled. Connectors are available with additional programming/diagnostic interface.

Usage Notes

- When used as a through connector the switch must be in the “OFF” position. If used as a terminating connector the switch must be in the “ON” position.
- If the switch is in the “ON” position, the outgoing bus cable is disconnected.
- Switch is clearly visible when connector is plugged in.

Approvals



Design

Dimensions: 95 mm x 70 mm x 17 mm (L x W x H)

Connection Type: Fast connect

For Cable Diameter: 0.197 - 0.315 in (5 - 8 mm)

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

Interface: 9 pin D-Sub socket

Weight: 50g

Insertion/Withdrawal Cycles: 50g

Application Advantage

- Suitable for FC cables
- Standardized interfaces
- Cost-saving due to quick installation
- Easy to connect
- Fully compatible with market standard

Technical Data

Temperature Range: - Operating: 0°C to +60°C - Transport & storage: -25°C to +80°C - Relative humidity: max. 75% at +25°C	Current Consumption: max. 12.5 mA		
		Protection Rating: IP20	Interfaces: - PROFIBUS station: 9 pin D-Sub socket - PROFIBUS cable: FC standard cable ø 0.64 mm
Transmission Rate: max. 12 Mbit/s			

Part Number	Cable Outlet	Cable Type	Programming/Diagnostics
EPIC® Data PROFIBUS Connectors			
21700511	35°	Solid	No
21700513	35°	Solid	Yes
21700514	35°	Stranded	No
21700515	35°	Stranded	Yes

Complete the Installation

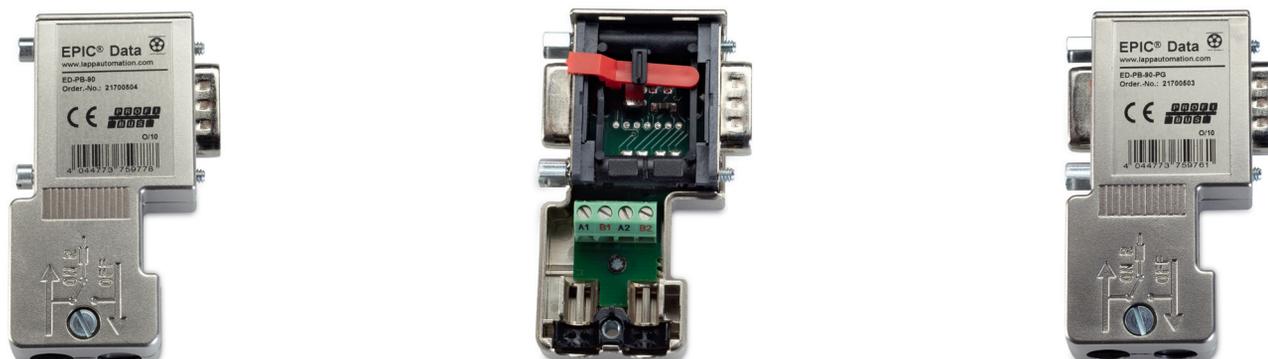


FC Stripping Tool
page 259

Photographs are not to scale and do not represent detailed images of the respective products. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

EPIC® Data PROFIBUS Connectors

90° Screw Terminal



EPIC® Data PROFIBUS connectors are screw terminal, 9 pin D-Sub connectors with an integrated adjustable termination resistor. The cable entry is 90° angled. Connectors are available with additional programming/ diagnostic interface.

Usage Notes

- When used as a through connector the switch must be in the “OFF” position. If used as a terminating connector the switch must be in the “ON” position.
- If the switch is in the “ON” position, the outgoing bus cable is disconnected.
- Switch is clearly visible when connector is terminated.

Approvals



Design

Dimensions: 64 mm x 40 mm x 17 mm (L x W x H)

Connection Type: Screw terminal

For Cable Diameter: 0.197 - 0.315 in (5 - 8 mm)

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

Interface: 9 pin D-Sub socket

Weight: 40g

Insertion/Withdrawal Cycles: > 200

Application Advantage

- Standardized interfaces
- Cost-saving due to quick installation
- Easy to connect
- Small design
- Fully compatible with market standard

Technical Data

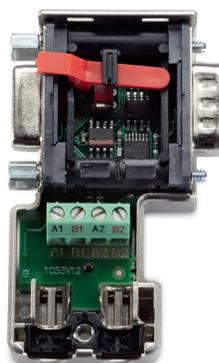
Temperature Range: - Operating: 0°C to +60°C - Transport & storage: -25°C to +80°C - Relative humidity: max. 75% at +25°C	Current Consumption: max. 12.5 mA	
		Interfaces: - PROFIBUS station: 9 pin D-Sub socket - PROFIBUS cable: 4 terminal blocks for wires up to 1 mm ²
		Approvals: UL: Programmable Controllers: Components Canada: Programmable Controllers Certified: Component Additional: CE & RoHS D-Sub pin assignment in accordance with PROFIBUS
Protection Rating: IP20		
Supply Voltage: 4.75 - 5.25V DC (supplied from terminal)		
Transmission Rate: max. 12 Mbit/s		

Part Number	Cable Outlet	Programming/Diagnostics
EPIC® Data PROFIBUS Connectors		
21700504	90°	No
21700503	90°	Yes

Photographs are not to scale and do not represent detailed images of the respective products. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

EPIC® Data PROFIBUS Connectors

90° LED Screw Terminal



EPIC® Data PROFIBUS connectors are screw terminal, 9 pin D-Sub connectors with an integrated adjustable termination resistor. The cable entry is 90° angled. Connectors are available with additional programming/ diagnostic interface.

Usage Notes

- When used as a through connector the switch must be in the “OFF” position. If used as a terminating connector the switch must be in the “ON” position.
- If the switch is in the “ON” position, the outgoing bus cable is disconnected.
- Switch is clearly visible when connector is plugged in and operational.

Approvals



Design

Dimensions: 64 mm x 40 mm x 17 mm (L x W x H)

Connection Type: Screw terminal

For Cable Diameter: 0.197 - 0.315 in. (5 - 8 mm)

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

Interface: 9 pin D-Sub socket

Weight: 40g

Insertion/Withdrawal Cycles: > 200

Application Advantage

- 3 status LEDs indicate: bus operation, station transmission, terminating resistance
- Easy troubleshooting
- Cost-saving due to quick installation
- Easy to connect
- Fully compatible with market standard

Technical Data

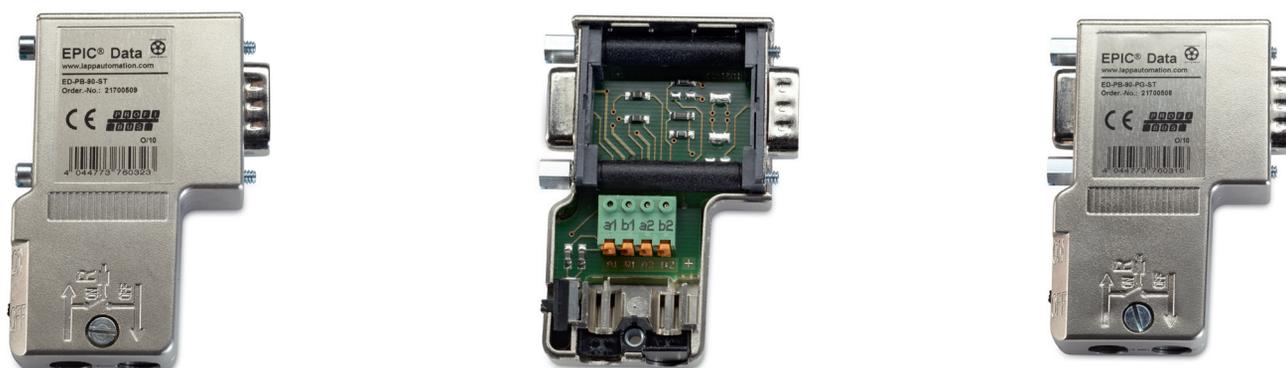
Temperature: - Operating: 0°C to +60°C - Transport & storage: -25°C to +80°C - Relative humidity: max. 75% at +25°C	Protection Rating: IP20	Supply Voltage: 4.75 - 5.25V DC (supplied from terminal)	Transmission Rate: max. 12 Mbit/s	Current Consumption: max. 35 mA
				Interfaces: - PROFIBUS station: 9 pin D-Sub socket - PROFIBUS cable: 4 terminal blocks for wires up to 1 mm ²
				Approvals: UL: Programmable Controllers: Components Canada: Programmable Controllers Certified: Component Additional: CE & RoHS D-Sub pin assignment in accordance with PROFIBUS

Part Number	Cable Outlet	Programming/Diagnostics
EPIC® Data PROFIBUS Connectors		
21700530	90°	No
21700529	90°	Yes

Photographs are not to scale and do not represent detailed images of the respective products. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

EPIC® Data PROFIBUS Connectors

90° Spring Type



EPIC® Data PROFIBUS connectors are spring-type, 9 pin D-Sub connectors with an integrated adjustable termination resistor. The cable entry is 90° angled. Connectors are available with additional programming/diagnostic interface.

Usage Notes

- When used as a through connector the switch must be in the “OFF” position. If used as a terminating connector the switch must be in the “ON” position.
- If the switch is in the “ON” position, the outgoing bus cable is disconnected.
- Contact is automatically created when the stripped conductor is inserted into the spring terminal. The orange lever must be pressed to break the connection.
- Switch is clearly visible when connector is plugged in and operational.

Approvals



Design

Dimensions: 65 mm x 48 mm x 16 mm (L x W x H)

Connection Type: Spring type

For Cable Diameter: 0.197 - 0.315 in. (5 - 8 mm)

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

Interface: 9 pin D-Sub socket

Weight: 40g

Insertion/Withdrawal Cycles: > 200

Application Advantage

- Standardized interfaces
- Cost-saving due to quick installation
- Easy to connect
- Fully compatible with market standard

Technical Data

<p>Temperature:</p> <ul style="list-style-type: none"> - Operating: 0°C to +60°C - Transport & storage: -25°C to +80°C - Relative humidity: max. 75% at +25°C <p>Protection Rating: IP20</p> <p>Supply Voltage: 4.75 - 5.25V DC (supplied from terminal)</p> <p>Transmission Rate: max. 12 Mbit/s</p>	<p>Current Consumption: max. 12.5 mA</p> <p>Interfaces:</p> <ul style="list-style-type: none"> - PROFIBUS station: 9 pin D-Sub socket - PROFIBUS cable: 4 spring type terminals for wires up to 0.5 mm² (solid conductor) <p>Approvals:</p> <ul style="list-style-type: none"> UL: Programmable Controllers: Components Canada: Programmable Controllers Certified: Component Additional: CE & RoHS D-Sub pin assignment in accordance with PROFIBUS
--	--

Part Number	Cable Outlet	Cable Type	Programming/Diagnostics
EPIC® Data PROFIBUS Connectors			
21700509	90°	Solid	No
21700508	90°	Solid	Yes

Photographs are not to scale and do not represent detailed images of the respective products. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

EPIC® Data PROFIBUS Connectors

90° Fast Connect



EPIC® Data PROFIBUS connectors are fast connect, 9 pin D-Sub connector with an integrated adjustable termination resistor. The cable entry is 90° angled. Connectors are available with additional programming/diagnostic interface.

Usage Notes

- When used as a through connector the switch must be in the “OFF” position. If used as a terminating connector the switch must be in the “ON” position.
- If the switch is in the “ON” position, the outgoing bus cable is disconnected.
- Switch is clearly visible when connector is plugged in and operational.

Approvals



Design

Dimensions: 72 mm x 40 mm x 17 mm (L x W x H)

Connection Type: Fast connect

For Cable Diameter: 0.197 - 0.315 in (5 - 8 mm)

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

Interface: 9 pin D-Sub socket

Weight: 40g

Insertion/Withdrawal Cycles: > 200

Application Advantage

- Suitable for FC cables
- Standardized interfaces
- Cost-saving due to quick installation
- Easy to connect
- Fully compatible with market standard

Technical Data

Temperature: - Operating: -25°C to +70°C - Transport & storage: -25°C to +80°C - Relative humidity: max. 75% at +25°C	Current Consumption: max. 12.5 mA	
		Interfaces: - PROFIBUS station: 9 pin D-Sub socket - PROFIBUS cable: FC standard cable ø 0.64 mm
Protection Rating: IP20		
Supply Voltage: 4.75 - 5.25V DC (supplied from terminal)		
Transmission Rate: max. 12 Mbit/s		

Part Number	Cable Outlet	Cable Type	Programming/Diagnostics
EPIC® Data PROFIBUS Connectors			
21700502	90°	Solid	No
21700501	90°	Solid	Yes
21700528	90°	Stranded	No
21700527	90°	Stranded	Yes

Complete the Installation



FC Stripping Tool
page 259

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

For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

EPIC® Data PROFIBUS Connectors

90° LED Fast Connect



EPIC® Data PROFIBUS connectors are fast connect, 9 pin D-Sub connector with an integrated adjustable termination resistor. The cable entry is 90° angled. Connectors are available with additional programming/diagnostic interface.

Usage Notes

- When used as a through connector the switch must be in the “OFF” position. If used as a terminating connector the switch must be in the “ON” position.
- If the switch is in the “ON” position, the outgoing bus cable is disconnected.
- Switch is clearly visible when connector is plugged in and operational.

Approvals



Design

Dimensions: 64 mm x 40 mm x 17 mm (L x W x H)

Connection Type: Fast connect

For Cable Diameter: 0.197 - 0.315 in (5 - 8 mm)

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

Interface: 9 pin D-Sub socket

Weight: 40g

Insertion/Withdrawal Cycles: > 200

Application Advantage

- 3 status LEDs indicate: bus operation, station transmission, terminating resistance
- Easy troubleshooting
- Visual connection control
- Cost-saving due to quick installation
- Easy to connect
- Fully compatible with market standard

Technical Data

<p>Temperature:</p> <ul style="list-style-type: none"> - Operating: 0°C to +60°C - Transport & storage: -25°C to +80°C - Relative humidity: max. 75% at +25°C <p>Protection Rating: IP20</p> <p>Supply Voltage: 4.75 - 5.25V DC (supplied from terminal)</p> <p>Transmission Rate: max. 12 Mbit/s</p>	<p>Current Consumption: max. 35 mA</p> <p>Interfaces:</p> <ul style="list-style-type: none"> - PROFIBUS station: 9 pin D-Sub socket - PROFIBUS cable: FC standard cable ø 0.64 mm <p>Approvals:</p> <ul style="list-style-type: none"> UL: Programmable Controllers: Components Canada: Programmable Controllers Certified: Component Additional: CE & RoHS D-Sub pin assignment in accordance with PROFIBUS
--	---

Part Number	Cable Outlet	Cable Type	Programming/Diagnostics
EPIC® Data PROFIBUS Connectors			
21700547	90°	Solid	No
21700546	90°	Solid	Yes
21700549	90°	Stranded	No
21700539	90°	Stranded	Yes

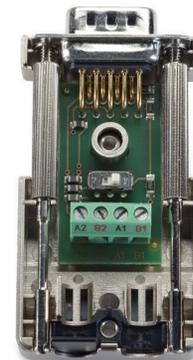
Complete the Installation



Photographs are not to scale and do not represent detailed images of the respective products. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

EPIC® Data PROFIBUS Connectors

180° Screw Terminal



EPIC® Data PROFIBUS connectors are screw terminal, 9 pin D-Sub connectors with an integrated adjustable termination resistor. The cable entry is 180°. Connectors are available with additional programming/ diagnostic interface.

Usage Notes

- When used as a through connector the switch must be in the “OFF” position. If used as a terminating connector the switch must be in the “ON” position.
- If the switch is in the “ON” position, the outgoing bus cable is disconnected.
- Switch is clearly visible when connector is plugged in and operational.

Approvals



Design

Dimensions: 68 mm x 39.5 mm x 17 mm (L x W x H)

Connection Type: Screw terminal

For Cable Diameter: 0.197 - 0.315 in (5 - 8 mm)

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

Interface: 9 pin D-Sub socket

Weight: 40g

Insertion/Withdrawal Cycles: > 200

Application Advantage

- Standardized interfaces
- Cost-saving due to quick installation
- Easy to connect
- Fully compatible with market standard

Technical Data

Temperature:

- Operating: 0°C to +60°C
- Transport & storage: -25°C to +80°C
- Relative humidity: max. 75% at +25°C

Protection Rating:

IP20

Supply Voltage:

4.75 - 5.25V DC
(supplied from terminal)

Transmission Rate:

max. 12 Mbit/s

Current Consumption:

max. 12.5 mA

Interfaces:

- PROFIBUS station: 9 pin D-Sub socket
- PROFIBUS cable: 4 terminal blocks for wires up to 1 mm²

Approvals:

- UL: Programmable Controllers: Components
- Canada: Programmable Controllers Certified: Component
- Additional: CE & RoHS
- D-Sub pin assignment in accordance with PROFIBUS

Part Number	Cable Outlet	Programming/Diagnostics
EPIC® Data PROFIBUS Connectors		
21700505	180°	No

Photographs are not to scale and do not represent detailed images of the respective products. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

EPIC® Data PROFIBUS Connectors

180° Fast Connect



EPIC® Data PROFIBUS connectors are fast connect, 9 pin D-Sub connectors with an integrated adjustable termination resistor. The cable entry is 180°. Connectors are available with additional programming/diagnostic interface.

Usage Notes

- When used as a through connector the switch must be in the “OFF” position. If used as a terminating connector the switch must be in the “ON” position.
- If the switch is in the “ON” position, the outgoing bus cable is disconnected.
- Switch is clearly visible when connector is plugged in and operational.

Approvals



Design

Dimensions:

Connection Type: Fast connect

For Cable Diameter: 0.197 - 0.315 in (5 - 8 mm)

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

Interface: 9 pin D-Sub socket

Weight: 50g

Insertion/Withdrawal Cycles: > 200

Application Advantage

- Suitable for FC cables
- Standardized interfaces
- Cost-saving due to quick installation
- Easy to connect
- Fully compatible with market standard

Technical Data

Temperature: - Operating: -25°C to +70°C - Transport & storage: -25°C to +80°C - Relative humidity: max. 75% at +25°C	Current Consumption: max. 12 mA
IP Protection Rating: IP20	Approvals: UL: Programmable Controllers: Components Canada: Programmable Controllers Certified: Component Additional: CE & RoHS D-Sub pin assignment in accordance with PROFIBUS
Supply Voltage: 4.75 - 5.25V DC (supplied from terminal)	
Transmission Rate: max. 12 Mbit/s	

Part Number	Cable Outlet	Cable Type	Programming/Diagnostics
EPIC® Data PROFIBUS Connectors			
21700544	180°	Solid	No
21700545	180°	Stranded	No

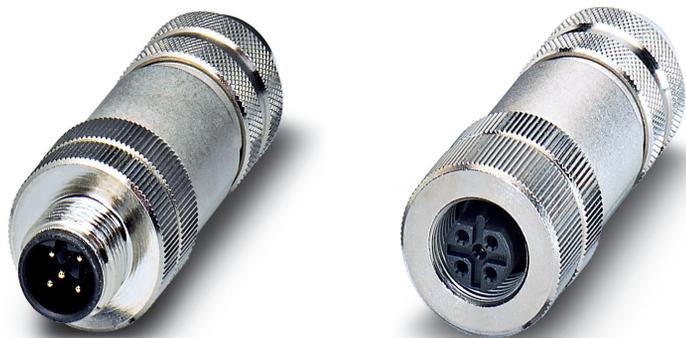
Complete the Installation



FC Stripping Tool
page 259

Photographs are not to scale and do not represent detailed images of the respective products. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

PROFIBUS Field Wireable M 12 Connectors



Application Advantage

- Quick and easy on-site assembly
- Robust shielded design
- Space-saving compact design

Approvals



Technical Data

Temperature Range:	-40°C to +85°C	Screw Connection:	PG 9
Nominal Voltage:	60V	Coding:	B-inverse
Nominal Current:	4A	Protection Rating:	IP67
Contact Resistance:	3mΩ	Approvals:	RoHS

Part Number	Number of Positions	Coding	Conductor Cross Section (mm)		Conductor Cross Section (AWG)		Cable Diameter (mm)	
			Min.	Max.	Min.	Max.	Min.	Max.
M 12 Straight Male Connector, Screw Connection								
22260653	5	B-inverse	0.25	0.75	24	18	6	8.5
M 12 Straight Female Connector, Screw Connection								
22260646	5	B-inverse	0.25	0.75	24	18	6	8.5

PROFIBUS T-Connectors



Approvals



Application Advantage

- Robust shielded design
- Space-saving compact design
- Standardized interfaces

Technical Data

Temperature Range:	-25°C to +80°C	Screw Connection:	Male M12 connector to female M12 connector and male M12 connector
Nominal Voltage:	60V	Coding:	B-inverse
Nominal Current:	4A	Protection Rating:	IP67
Contact Resistance:	5mΩ	Approvals:	RoHS

Part Number	Number of Pins	Coding	Nominal Voltage	Nominal Current
M 12 T-Connector				
22260761	4	B-inverse	60V	4A

Photographs are not to scale and are not true representations of the products in question.

For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

PROFIBUS Termination Resistors



Approvals



Application Advantage

- Robust design
- Standardized interfaces
- Space-saving compact design
- Female connector with shielded design

Technical Data

Temperature Range:		Coding:	B-inverse
- Male:	-25°C to +95°C	Protection Rating:	
- Female:	-40°C to +85°C	- Male:	IP65/IP67/IP69K
Nominal Voltage:		- Female:	IP67
- Male:	60V	Approvals:	RoHS
- Female:	32V		
Nominal Current:	4A		
Contact Resistance:	5mΩ		

Part Number	Number of Positions	Coding	Nominal Voltage	Nominal Current	Standard Pack
M 12 Straight Male Connector with Integrated Termination Resistor					
22260722	4	B-inverse	60V	4A	5
M 12 Straight Female Connector with Integrated Termination Resistor, Shielded					
22261001	4	B-inverse	32V	4A	5

Photographs are not to scale and are not true representations of the products in question.
 For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS CAN

For CAN Bus Systems; Stationary Applications; 120 Ω

LAPP KABEL STUTTGART UNITRONIC® BUS CAN



UNITRONIC® BUS CAN is designed to the CAN open and ISO11898 standard. It is well suited for high-speed motion control and feedback loop applications, providing high reliability and efficient use of network bandwidth.

Recommended Applications

Motion control systems; assembly, welding, and material handling machines; single cable wiring of multi-input sensor blocks; smart sensors; pneumatic valves; barcode readers; drives and operator interfaces

Approvals



Rate Table (ISO 11898 Recommendations)

Distance (m)	AWG	Max. Rate
0 - 40	22	1 Mbps @ 40 m
40 - 300	22, 20	50 kbps @ 100 m
300 - 600	20	100 kbps @ 500 m
600 - 1000	19	50 kbps @ 1 km

Cable Attributes, see page 659

OR-00	FR-02	FL-02	MP-01
OIL	FLAME	MOTION	MECHANICAL

Similar Cables

- UNITRONIC® BUS CAN FD

Complete the Installation

SKINTOP® MS-SC: page 528	CAN Bus Connectors page 186
--------------------------	-----------------------------

Technical Data

Minimum Bend Radius: 10 x cable diameter	Nominal Capacitance: 12 pF/ft
Temperature Range: -30°C to +80°C	Color Code: DIN 47100: Chart 8, page 697 - Pair 1: White & brown - Pair 2: Green & yellow
Nominal Voltage: 250V	Approvals: UL: CMX Canada: cUL CMX
Characteristic Impedance: 120 Ω ± 15%	

Part Number	Conductor Description (AWG/Pair)	Nominal Outer Diameter (inches)	(mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
Stationary						
2170260	24 AWG/1pr	0.224	5.7	11	28	53112220
2170261	24 AWG/2pr	0.299	7.6	23	46	53112220
2170263	22 AWG/1pr	0.268	6.8	17	37	53112220
2170264	22 AWG/2pr	0.335	8.5	31	59	53112220
2170266	20 AWG/1pr	0.296	7.5	28	60	53112220
2170267	20 AWG/2pr	0.382	9.7	40	71	53112230
2170269	19 AWG/1pr	0.343	8.7	35	73	53112220
2170270	19 AWG/2pr	0.453	11.5	54	95	53112230

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS CAN FD

For CAN Bus Systems; Continuous Flex Applications; 120 Ω

LAPP KABEL STUTTGART UNITRONIC® BUS CAN FD



UNITRONIC® BUS CAN FD is designed to the CAN open and ISO11898 standard. It is well suited for high-speed motion control and feedback loop applications, providing high reliability and efficient use of network bandwidth.

Recommended Applications

Motion control systems; assembly, welding, and material handling machines; single cable wiring of multi-input sensor blocks; smart sensors; pneumatic valves; barcode readers; drives and operator interfaces

Approvals



Rate Table (ISO 11898 Recommendations)

Distance (m)	AWG	Max. Rate
0 - 40	22	1 Mbps @ 40 m
40 - 300	22, 20	50 kbps @ 100 m
300 - 600	20	100 kbps @ 500 m
600 - 1000	19	50 kbps @ 1 km

Construction

Construction: 7-wire strands of bare copper

Insulation: Polyethylene

Shielding: Tinned copper braid shield

Jacket: Violet halogen-free polyurethane

Application Advantage

- Designed for continuous flex applications
- Signal integrity in stationary motion applications
- Flame retardant
- Oil-resistant jacket
- Flexible for ease of routing

Cable Attributes, see page 659

OR-04	FR-02	CF-02	MP-05
OIL	FLAME	MOTION	MECHANICAL

Similar Cables

- UNITRONIC® BUS CAN

Complete the Installation

	SKINTOP® MS-SC: page 528		CAN Bus Connectors page 186
--	--------------------------------	--	-----------------------------------

Technical Data

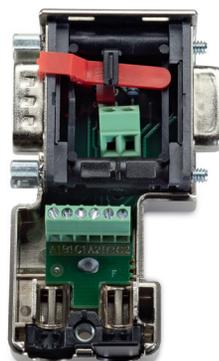
Minimum Bend Radius:	15 x cable diameter	Nominal Capacitance:	18 pF/ft
Temperature Range:	- for installation: -40°C to +80°C - for continuous flexing: -30°C to +70°C	Color Code:	DIN 47100: Chart 8, page 697 - Pair 1: White & brown - Pair 2: Green & yellow
Nominal Voltage:	250V	Approvals:	UL: CMX Canada: c UL CMX
Characteristic Impedance:	120 Ω ± 15 %		

Part Number	Conductor Description (AWG/Pair)	Nominal Outer Diameter (inches)	(mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
Continuous Flex						
2170272	24 AWG/1pr	0.252	6.4	16	27	53112210
2170273	24 AWG/2pr	0.331	8.4	22	44	53112220
2170275	22 AWG/1pr	0.268	6.8	22	40	53112210
2170276	22 AWG/2pr	0.378	9.6	35	59	53112230
2170278	20 AWG/1pr	0.315	8.0	28	50	53112220
2170279	20 AWG/2pr	0.426	10.8	40	67	53112230

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

EPIC® Data CAN Bus Connectors

90° Screw Terminal



EPIC® Data CAN bus connectors are screw terminal, 9 pin D-Sub connectors with an integrated adjustable termination resistor. The cable entry is 90° angled. Connectors are available with additional programming/diagnostic interface.

Usage Notes

- When used as a through connector the switch must be in the “OFF” position. If used as a terminating connector, the switch must be in the “ON” position.
- No loose parts.

Approvals



Design

Dimensions: 65 mm x 48 mm x 16 mm (L x W x H)

Connection Type: Screw terminal

For Cable Diameter: 0.197 - 0.315 in (5 - 8 mm)

Terminating Resistor: 120 Ω integrated and connectable with slide switch

Interface: 9 pin D-Sub socket

Weight: 40 g

Insertion/Withdrawal Cycles: > 200

Application Advantage

- With additional 24V DC output to supply external devices (GND = pin, CAN V+ = pin 9)
- Cost-saving due to quick installation
- Easy to connect
- Standardized interfaces
- Small design

Technical Data

<p>Temperature:</p> <ul style="list-style-type: none"> - Operating: 0°C to +60°C - Transport & storage: -25°C to +75°C - Relative humidity: max. 75% at +25°C <p>Protection Rating: IP20</p> <p>Transmission Rate: max. 1 Mbit/s</p>	<p>Interfaces:</p> <ul style="list-style-type: none"> - CAN bus station: 9 pin D-Sub socket - CAN bus cable: 6 terminal blocks for wires up to 1 mm² - D-Sub assignments: Pin 2: CAN Low Pin 7: CAN High Pin 3: CAN Gnd Pin 9: CAN V+ Pin 6: Gnd <p>Approvals:</p> <ul style="list-style-type: none"> UL: Programmable Controllers: Components Canada: Programmable Controllers Certified: Component Additional: CE & RoHS
--	---

Part Number	Cable Outlet	Programming/Diagnostics
EPIC® Data CAN Bus Connectors		
21700537	90°	No
21700536	90°	Yes

Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

EPIC® Data CAN Bus Connectors

180° Screw Terminal



EPIC® Data CAN bus connectors are screw terminal, 9 pin D-Sub connectors with an integrated adjustable termination resistor. The cable entry is 180°. Connectors are available with additional programming/diagnostic interface.

Usage Notes

- When used as a through connector the switch must be in the “OFF” position. If used as a terminating connector, the switch must be in the “ON” position.
- No loose parts.

Approvals



Design

Dimensions: 67.5 mm x 35 mm x 17 mm (L x W x H)

Connection Type: Screw terminal

For Cable Diameter: 0.197 - 0.315 in (5 - 8 mm)

Terminating Resistor: 120 Ω integrated and connectable with slide switch

Interface: 9 pin D-Sub socket

Weight: 40 g

Insertion/Withdrawal Cycles: > 200

Application Advantage

- Cost-saving due to quick installation
- Easy to connect
- Standardized interfaces

Technical Data

Temperature: - Operating: 0°C to +60°C - Transport & storage: -25°C to +75°C - Relative humidity: max. 75% at +25°C	Interfaces: - CAN bus station: 9 pin D-Sub socket - CAN bus cable: 6 terminal blocks for wires up to 1 mm ² - D-Sub assignments: Pin 2: CAN Low Pin 7: CAN High Pin 3: CAN Gnd
Transmission Rate: max. 1 Mbit/s	Approvals: UL: Programmable Controllers: Components Canada: Programmable Controllers Certified: Component Additional: CE & RoHS

Part Number	Cable Outlet	Programming/Diagnostics
EPIC® Data CAN Bus Connectors		
21700538	180°	No

Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

CAN Bus Field Wireable M12 Connectors



Application Advantage

- Quick and easy on-site assembly
- Robust shielded design
- Space-saving compact design

Approvals



Technical Data

🌡️ Temperature Range:	-40°C to +85°C	🔩 Screw Connection:	PG 9
⚡ Nominal Voltage:	60V	🎯 Coding:	A-standard
🔄 Nominal Current:	4A	🛡️ Protection Rating:	IP67
Ω Contact Resistance:	3mΩ	✅ Approvals:	RoHS

Part Number	Number of Positions	Coding	Conductor Cross-Section (mm)		Conductor Cross-Section (AWG)		Cable Diameter (mm)	
			Min.	Max.	Min.	Max.	Min.	Max.
M12 Straight Male Connector, Screw Connection								
22260135	5	A-standard	0.25	0.75	24	18	6	8
M12 Straight Female Connector, Screw Connection								
22260136	5	A-standard	0.25	0.75	24	18	6	8

CAN Bus T-Connectors



Approvals



Application Advantage

- Robust shielded design
- Space-saving compact design
- Standardized interfaces

Technical Data

🌡️ Temperature Range:	-20°C to +90°C	🔩 Screw Connection:	Female M12 connector to male M12 connector and female M12 connector
⚡ Nominal Voltage:	60V	🎯 Coding:	A-standard
🔄 Nominal Current:	4A	🛡️ Protection Rating:	IP65/IP67
Ω Contact Resistance:	5mΩ	✅ Approvals:	RoHS

Part Number	Number of Pins	Coding	Nominal Voltage	Nominal Current	Standard Pack
M12 T-Connector					
22260765	5	A-standard	60V	4A	5

Photographs are not to scale and are not true representations of the products in question.

For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

CAN Bus Termination Resistor



Approvals



Application Advantage

- Robust design
- Standardized interfaces
- Space-saving compact design

Technical Data

Temperature Range:	-25°C to +90°C	Coding:	A-standard
Nominal Voltage:	60V	Protection Rating:	IP65/IP67/IP69K
Nominal Current:	4A	Approvals:	RoHS

Part Number	Number of Positions	Coding	Nominal Voltage	Nominal Current	Standard Pack
M 12 Straight Male Connector with Integrated Termination Resistor					
22260766	4	A-standard	60V	4A	5

Photographs are not to scale and are not true representations of the products in question.
 For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS LD/LD FD P

For RS485/RS422 Bus Systems; Stationary & Continuous Flex Applications; 100 - 120 Ω

LAPP KABEL STUTTGART UNITRONIC® BUS LD

LAPP KABEL STUTTGART UNITRONIC® BUS LD FD P

UNITRONIC® BUS Long Distance (LD) cables are built after the RS-422 and RS-485 standards offering a robust solution for transmitting data over long distances and noisy environments. Stranded bare copper conductors (finer stranding for continuous flex cables) and high-performance PE insulation optimize flexing endurance. Tinned copper braid provides superior EMI protection.

Recommended Applications

Bus systems such as Modbus, SUCOnet P, Modulink P, VariNet-P; dry or damp rooms; FD version suitable for continuous flex applications like cable tracks and moving machine parts

Stationary Construction

Conductors: Stranded bare copper

Insulation: Polyethylene

Shielding: Copper braid

Jacket: Violet PVC

Continuous Flex Construction

Conductors: Stranded bare copper

Insulation: Polyethylene

Shielding: Copper braid

Jacket: Violet polyurethane

Application Advantage

- Maximum EMI protection
- PUR jacket resistant to tear, abrasion & mineral oils
- Flexible for ease of routing

Approvals



Cable Attributes

See attribute list by part number on page 159

OIL | FLAME | MOTION | MECHANICAL

Similar Cables

- UNITRONIC® BUS PB

Complete the Installation



SKINTOP®
MS-SC:
page 528

Technical Data

Minimum Bend Radius:	8 x cable diameter	Characteristic Impedance:	100 - 120 Ω
- Stationary cables:	8 x cable diameter	Nominal Capacitance:	18 pF/ft (800 Hz)
- Continuous flex cables:		Color Code:	DIN 47100: Chart 8, page 697
- for installation:	6 x cable diameter	- Pair 1:	White & brown
- for continuous flexing:	15 x cable diameter	- Pair 2:	Green & yellow
Temperature Range:		- Pair 3:	Gray & pink
- Stationary cables:	-40°C to +80°C	Approvals:	UL: CMX (see below)
- Continuous flex cables:		Canada: CSA CMX (see below)	
- for installation:	-40°C to +80°C		
- for flexible use:	-30°C to +70°C		
Nominal Voltage:	250V		

Part Number	Jacket Type	Approvals	Conductor Description (AWG/Pair)	Nominal Outer Diameter (inches)	(mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
Stationary								
2170203	PVC	—	24 AWG/1pr	0.225	5.7	12	25	53112210
2170803	PVC	UL/CSA CMX	24 AWG/1pr	0.225	5.7	12	26	53112210
2170204	PVC	—	24 AWG/2pr	0.280	7.1	19	30	53112210
2170205	PVC	—	24 AWG/3pr	0.284	7.2	25	48	53112210
Continuous Flex								
2170213	PUR	—	24 AWG/1pr	0.236	6.0	12	26	53112210
2170813	PUR	UL/CSA CMX	24 AWG/1pr	0.244	6.2	12	26	53112210
2170214	PUR	—	24 AWG/2pr	0.311	7.9	22	44	53112220
2170814	PUR	UL/CSA CMX	24 AWG/2pr	0.327	8.3	22	44	53112220
2170215	PUR	—	24 AWG/3pr	0.315	8.0	26	52	53112220
2170815	PUR	UL/CSA CMX	24 AWG/3pr	0.331	8.4	26	52	53112220

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS ASI

For Actuator Sensor Interface (ASi) Bus Systems; Stationary & Flexible Applications; 140 Ω

LAPP KABEL STUTTGART UNITRONIC® BUS ASI

LAPP KABEL STUTTGART UNITRONIC® BUS ASI

LAPP KABEL STUTTGART UNITRONIC® BUS ASI

UNITRONIC® BUS ASI is a geometrically-coded, 2-conductor flat cable designed for data and power transfer between simple I/O devices on the sensor/actuator level. The cable is available with 3 different jackets: PVC, rubber, or TPE. The voltage drop on the long distance version is smaller due to larger conductor cross-sections.

Recommended Applications

Data and power transmission between sensors, actuators, slaves, repeaters and master; TPE version suitable for wet areas and cooling lubricants

Construction

Conductors: Stranded tinned copper

Insulation: PVC, rubber, or TPE

Jacket: PVC, EPDM (rubber), or TPE

Application Advantage

- Data and power transmission in one cable
- Quick connections to ASi-module due to piercing technology
- Protection against polarity reversal
- UNITRONIC® BUS ASI LD (Long Distance) allows even longer cable runs; more devices or devices with higher power demand can be connected to the network.

Approvals



Cable Attributes

See attribute list by part number on page 159

OIL FLAME MOTION MECHANICAL

Similar Cables

- UNITRONIC® BUS ASI FD Continuous Flex Cable

Complete the Installation



SKINTOP® Strain Relief: page 502



SKINTOP® DIX-ASI: page 193

Technical Data

Minimum Bend Radius:

- for stationary use: 12 mm
- for flexible use:
 - PVC & rubber: 24 mm
 - TPE: 16 mm

Temperature Range:

- PVC:
 - during use: -30°C to +90°C
 - during installation: -20°C to +90°C
- Rubber & TPE:
 - during use: -40°C to +85°C
 - during installation: -30°C to +85°C

Peak Voltage:

- Yellow & black: 300V (not for power applications)
- Red: 300V

Test Voltage:

2000V



Characteristic Impedance: 70 - 140 Ω (@ 167 KHz)



Nominal Capacitance: 24 pF/ft



Color Code: Blue & brown



Approvals: UL: CMG (PVC jacket)
CL2 (PVC jacket)
AWM 2095 (PVC jacket)
Canada: cUL CMG (PVC jacket)
Additional: ASi
RoHS

Part Number	Approvals	Conductor Description	Jacket Color	Application	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)
PVC Jacket						
2170842	UL/CSA CMG	2 x 16 AWG	Yellow	Data & power transmission	19	47
2170843	UL/CSA CMG	2 x 16 AWG	Black	Transmission of 30V DC auxiliary power	19	47
EPDM Rubber Jacket						
2170228	—	2 x 16 AWG	Yellow	Data & power transmission	19	57
2170229	—	2 x 16 AWG	Black	Transmission of 30V DC auxiliary power	19	57
2170371	—	2 x 14 AWG	Yellow	Long distance, data & power transmission	32	57
2170372	—	2 x 14 AWG	Black	Long distance, transmission of 30V DC auxiliary power	32	57
TPE Jacket						
2170230	—	2 x 16 AWG	Yellow	Data & power transmission	19	43
2170231	—	2 x 16 AWG	Black	Transmission of 30V DC auxiliary power	19	43
2170232	—	2 x 16 AWG	Red	Transmission of 230V AC auxiliary power	19	43

Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS ASi FD

For Actuator Sensor Interface (ASi) Bus Systems; Continuous Flex Applications; 140 Ω

LAPP KABEL STUÏGART UNITRONIC® BUS ASi FD

LAPP KABEL STUÏGART UNITRONIC® BUS ASi FD

UNITRONIC® BUS ASi FD is a geometrically-coded, 2-conductor flat cable designed for data and power transfer between simple I/O devices on the sensor/actuator level. This cable is suitable for continuous flex applications and has a halogen-free PUR or oil-resistant TPE jacket.

Recommended Applications

Continuous flex applications e.g. cable tracks and moving machine parts; data and power transmission between sensors, actuators, slaves, repeaters and master

Approvals



Construction

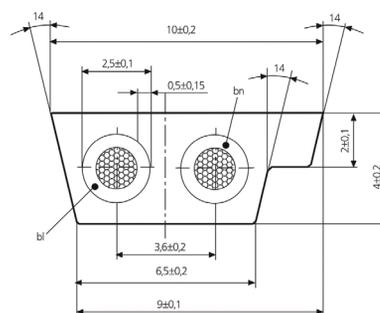
Conductors: Stranded tinned copper

Insulation: Polyurethane or TPE

Jacket: Polyurethane or TPE

Application Advantage

- Data and power transmission in one cable
- Quick connections to ASi-module due to piercing technology
- PUR-jacketed version is halogen-free and highly oil-resistant
- UNITRONIC® BUS ASi FD LD (Long Distance) allows even longer cable runs between modules



Cable Attributes

See attribute list by part number on page 159

OIL FLAME MOTION MECHANICAL

Similar Cables

- UNITRONIC® BUS ASi

Complete the Installation



SKINTOP®
Strain Relief:
page 502



SKINTOP®
DIX -ASi:
page 193

Technical Data

Minimum Bend Radius:

- for stationary use: 12 mm
- for continuous flexing: 24 mm

Temperature Range:

- PUR:
 - fixed installation: -40°C to +80°C
 - flexible without fixing: -30°C to +80°C
- TPE:
 - fixed installation: -40°C to +105°C
 - flexible without fixing: -30°C to +105°C

Peak Voltage: 300V

Test Voltage:

2000V

Characteristic Impedance:

70 - 140 Ω (@ 167 KHz)

Nominal Capacitance:

24 pF/ft

Color Code:

Blue & brown

Approvals:

UL: AWM
Canada: cRU AWM
Additional: ASi
RoHS

Part Number	Approval	Conductor Description	Jacket Color	Application	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)
PUR, FRNC, Halogen-Free Jacket						
2170357	UL/CSA AWM	2 x 16 AWG	Yellow	Data & power transmission	19	43
2170358	UL/CSA AWM	2 x 16 AWG	Black	Transmission of 30V DC auxiliary power	19	43
2170317	UL/CSA AWM	2 x 14 AWG	Yellow	Long distance, data & power transmission	32	50
2170318	UL/CSA AWM	2 x 14 AWG	Black	Long distance, transmission of 30V DC auxiliary power	32	50
TPE Jacket						
2170830	UL/CSA AWM	2 x 16 AWG	Yellow	Data & power transmission	19	43
2170831	UL/CSA AWM	2 x 16 AWG	Black	Transmission of 30V DC auxiliary power	19	43

Photographs are not to scale and are not true representations of the products in question.

For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

SKINTOP® DIX-ASi

Cable Bushings for UNITRONIC® ASi Bus Cable; PG & Metric



Approvals



Complete the Installation



SKINTOP®
PG:
page 502



SKINTOP®
Metric:
page 502

Technical Data

Materials:	NBR	Protection Class:	IP54 IP68, 5 bar (when optimally filled)
Temperature Range:	-40°C to +100°C	Approvals:	CE & RoHS
Color:	Black (RAL 9005)		

Part Number	Thread Type & Size	Standard Pack Size
SKINTOP® DIX-ASi: PG		
53611000	PG 11	50
SKINTOP® DIX-ASi: Metric		
53611001	M20	50

Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS BlueFlex™

For Data Highway and Data Highway+ Bus Systems; Continuous Flex Applications; 78 Ω



UNITRONIC® BUS BlueFlex™ is designed for use in Rockwell/Allen Bradley DH, DH+, and Remote I/O networks. BlueFlex™ is constructed to withstand continuous flex applications where EMC conditions are pervasive.

Recommended Applications

Industrial automation and process control field networks; sensors; valves; gauges; barcode readers; drives and operator interfaces.

Construction

Conductors: Finely stranded tinned copper

Insulation: Electronic-grade flexible TPE

Shielding: Overall tape shield; flexible tinned copper braid (85% coverage)

Jacket: Blue PVC

Application Advantage

- Signal integrity in continuous motion applications
- Flame- and oil-resistant jacket
- Flexible for ease of routing

Approvals



Cable Attributes, see page 659



Complete the Installation



SKINTOP®
MS-SC:
page 528

Technical Data

Minimum Bend Radius: - for stationary use: 5 x cable diameter - for continuous flexing: 12 x cable diameter	Characteristic Impedance: 78 Ω
Temperature Range: -20 °C to +80 °C	Nominal Capacitance: 17 pF/ft
Nominal Voltage: 300V	Color Code: Blue/natural
Test Voltage: 3000V	Approvals: UL: AWM 2661 Additional: RoHS

Part Number	Conductor Description (AWG/Pair)	Nominal Outer Diameter		Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
		(inches)	(mm)			
3649FD	20 AWG/1pr	0.242	6.15	14	33	53112210

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS Interbus

For Interbus Bus Systems (IBS); Stationary Applications; 100 Ω

LAPP KABEL STUTTGART UNITRONIC® BUS IBS



LAPP KABEL STUTTGART UNITRONIC® BUS IBS P COMBI



UNITRONIC® BUS Interbus guarantees high operation security during data transmission. This shielded and flexible cable is available with a PVC or PUR jacket (INBC).

Construction

Conductors: Stranded bare copper

Insulation: Polyethylene

Shielding: Copper braid

Jacket: Violet PVC or halogen-free polyurethane (2170208)

Recommended Applications

Assembly, welding, and material handling machines; wiring of sensors, actuators, and other network devices; cable allows a data transmission rate of 500 kbit/s at a maximum length of 400 m

Application Advantage

- High operation security during data transmission
- Oil-resistant jacket
- Halogen-free & flame retardant PUR jacket
- Certified by Interbus Club

Approvals



Cable Attributes

See attribute list by part number on page 159

OIL	FLAME	MOTION	MECHANICAL
-----	-------	--------	------------

Similar Cables

- UNITRONIC® BUS Interbus FD

Complete the Installation



SKINTOP®
MS-SC:
page 528



EPIC®
Connectors:
page 278

Technical Data

Minimum Bend Radius: 8 x cable diameter	Characteristic Impedance: 100 Ω ± 15%
Temperature Range: - for stationary use: -30°C to +80°C - for flexible use: -5°C to +70°C	Nominal Capacitance: 18 pF/ft
Nominal Voltage: 250V (not for power applications)	Color Code: DIN 47100: Chart 8, page 697
Test Voltage: 1500V	Approvals: UL: CMX (2170209) Canada: cUL CMX (2170209) Additional: Interbus Phoenix Contact RoHS

Part Number	Cable Type	Approvals	Conductor Description (AWG/Pair) + (AWG/Conductors)	Nominal Outer Diameter (inches) (mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
2170206	Remote Bus Cable (RBC)	—	24 AWG/3pr	0.284 7.2	25	48	53112220
2170208	Installation Remote Bus Cable (INBC)	—	24 AWG/3pr + 18 AWG/3c	0.311 7.9	40	57	53112220
2170209	Remote Bus Cable (RBC)	UL/CSA CMX	24 AWG/3pr	0.284 7.2	25	48	53112220

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS Interbus FD

For Interbus Bus Systems (IBS); Continuous Flex Applications; 100 Ω



UNITRONIC® BUS Interbus FD is designed for continuous flex applications in harsh industrial environments. The high-performance PUR jacket provides protection against tearing, abrasion, and mineral oils when used in cable tracks.

Recommended Applications

Cable tracks, moving machinery, and linear tracks in dry and damp rooms; harsh industrial environments; RBC cable allows a data transmission rate of 500 kbit/s at a maximum length of 400 m; IRBC maximum cable run is 50 m

Construction

Conductors: Stranded bare copper

Insulation: Polyethylene

Shielding: Copper braid

Jacket: Violet polyurethane

Application Advantage

- High operation security for data transmission in cable tracks
- Excellent abrasion and oil resistance
- Halogen-free
- Certified by Interbus Club

Approvals



Cable Attributes			
See attribute list by part number on page 159			
OIL	FLAME	MOTION	MECHANICAL

Similar Cables
• UNITRONIC® BUS Interbus

Complete the Installation		
	SKINTOP® MS-SC: page 528	
		EPIC® Connectors: page 278

Technical Data

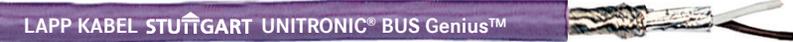
Minimum Bend Radius: - for continuous flexing:	15 x cable diameter	Nominal Capacitance:	18 pF/ft
Temperature Range: - for stationary use: - for continuous flexing:	-40°C to +80°C -30°C to +70°C	Color Code: - 2170216: - 2170218 & 2170818: - Data pairs: - Power conductors:	DIN 47100: Chart 8, page 697 White & brown, green & yellow, gray & pink Red, blue, green/yellow
Nominal Voltage:	250V	Approvals:	UL: CMX (2170818) Canada: cUL CMX (2170818) Additional: Interbus Phoenix Contact RoHS
Test Voltage:	1500V		
Characteristic Impedance:	100 Ω ± 15%		

Part Number	Cable Type	Approvals	Conductor Description (AWG/Pair) + (AWG/Conductors)	Nominal Outer Diameter (inches) (mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
2170216	Remote Bus Cable (RBC)	—	24 AWG/3pr	0.311 7.9	26	43	53112220
2170218	Installation Remote Bus Cable (INBC)	—	24 AWG/3pr + 18 AWG/3c	0.311 7.9	42	62	53112220
2170818	Installation Remote Bus Cable (INBC)	UL/CSA CMX	24 AWG/3pr + 18 AWG/3c	0.311 7.9	42	62	53112220

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS Genius™

Genius™ I/O Twinaxial Bus Cable; Continuous Flex Applications; 100 Ω



UNITRONIC® BUS Genius™ is designed for use in GE Fanuc's Genius I/O, Field Control™, and VersaMax® networks. Genius network flexibility allows users to deploy the most efficient combination of high-density and low-density distributed I/O for their application.

Recommended Applications

Industrial automation and process control field networks; sensors; valves; gauges; barcode readers; drives and operator interfaces.

Construction

- Conductors:** Finely stranded tinned copper
- Insulation:** TPE
- Shielding:** Foil and flexible tinned copper spiral shield (92% coverage)
- Jacket:** Violet polyurethane

Application Advantage

- Signal integrity in continuous motion applications
- Flame- and oil-resistant jacket
- Flexible for ease of routing

Approvals



Cable Attributes, see page 659

OR-04	FR-02	CF-01	MP-05
OIL	FLAME	MOTION	MECHANICAL

Complete the Installation

	SKINTOP® MS-SC: page 528		EPIC® Connectors: page 278
--	--------------------------------	--	----------------------------------

Technical Data

Minimum Bend Radius: - for stationary use: 5 x cable diameter - for continuous flexing: 10 x cable diameter	Test Voltage: 3000V
Temperature Range: - for stationary use: -40°C to +80°C - for flexible use: -20°C to +80°C	Characteristic Impedance: 100 Ω
Nominal Voltage: 300V	Nominal Capacitance: 18 pF/ft
	Color Code: White & brown pair
	Approvals: UL: AWM 20233 Additional: RoHS

Part Number	Conductor Description (AWG/Pair)	Nominal Outer Diameter		Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
		(inches)	(mm)			
911264	22 AWG/1pr	0.258	6.5	12	40	53112210

Genius™ is a registered trademark of GE Fanuc Automation. Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS CC-Link

For CC-Link Bus Systems; Stationary Applications; 110 Ω

LAPP KABEL STUTTGART UNITRONIC® BUS CC-Link

UNITRONIC® BUS CC-Link provides high-speed communication, linking a wide range of automation devices over a single cable. CC-Link cables can be used in long distance network configurations up to 1.2km (at 156 kbps).

Recommended Applications

Digital & analog I/O; temperature controllers; variable frequency drives; servo drives; robots

Approvals



Construction

Conductors: Stranded bare copper

Insulation: Polyethylene

Shielding: Foil and tinned copper braid

Jacket: Red PVC

Application Advantage

- Signal integrity in high-EMC applications
- Passes the CC-Link Conformance Test in Japan
- Flame- and oil-resistant jacket
- Flexible for ease of routing
- Sunlight resistant

Cable Attributes, see page 659

OR-00	FR-03	FL-02	MP-01
OIL	FLAME	MOTION	MECHANICAL

Similar Cables

- UNITRONIC® BUS CC-Link FD

Complete the Installation

	SKINTOP® MS-SC: page 528		EPIC® Connectors: page 278
--	--------------------------	--	----------------------------

Technical Data

Minimum Bend Radius:	5 x cable diameter	Nominal Capacitance:	18 pF/ft
Temperature Range:	-40°C to +70°C	Color Code:	White, blue, yellow
Nominal Voltage:	300V	Approvals:	UL: PLTC CM Canada: cUL CM Additional: CC-Link RoHS
Test Voltage:	2000V		
Characteristic Impedance:	110 Ω ± 15 Ω		

Part Number	Conductor Description (AWG/Conductor)	Nominal Outer Diameter (inches) (mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
2170360	20 AWG/3c	0.303 7.7	26	51	53112220

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS CC-Link FD

For CC-Link Bus Systems; Continuous Flex Applications; 110 Ω

LAPP KABEL STUTTGART UNITRONIC® BUS CC-Link FD



UNITRONIC® BUS CC-Link FD is a continuous flex cable for field bus networks for both control and information data to provide efficient integrated factory and process automation.

Recommended Applications

Continuous flex applications like cable tracks and moving machine parts.

Construction

Conductors: Stranded bare copper

Insulation: Polyethylene

Shielding: Tinned copper braid

Inner Jacket: FRNC

Outer Jacket: Red polyurethane

Application Advantage

- Signal integrity in high-EMC applications
- Passes the CC-Link Conformance Test in Japan
- Flame- and oil-resistant halogen-free jacket
- Flexible for ease of routing

Approvals



Cable Attributes, see page 659

OR-04	FR-02	CF-02	MP-05
OIL	FLAME	MOTION	MECHANICAL

Similar Cables

- UNITRONIC® BUS CC-Link

Complete the Installation

	SKINTOP® MS-SC: page 528		EPIC® Connectors: page 278
--	--------------------------------	--	----------------------------------

Technical Data

Minimum Bend Radius: - for stationary use: 4 x cable diameter - for continuous flexing: 8 x cable diameter	Characteristic Impedance: 110 Ω ± 15 Ω
Temperature Range: -40°C to +80°C	Nominal Capacitance: 18 pF/ft
Nominal Voltage: 300V	Color Code: White, blue, yellow
Test Voltage: 2000V	Approvals: UL: AWM 20233 Additional: CC-Link RoHS

Part Number	Conductor Description (AWG/Conductor)	Nominal Outer Diameter (inches)	Nominal Outer Diameter (mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread
2170370	20 AWG/3c	0.335	8.5	27	56	53112220

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® BUS FOUNDATION Fieldbus

For Fieldbus FOUNDATION Bus Systems; Stationary Applications; 100 Ω

LAPP KABEL STUẏGART UNITRONIC® BUS FF

LAPP KABEL STUẏGART UNITRONIC® BUS FF 3 ARM (YE)

LAPP KABEL STUẏGART UNITRONIC® BUS FF 3 ARM (BU)

LAPP KABEL STUẏGART UNITRONIC® BUS FF2

UNITRONIC® BUS FOUNDATION Fieldbus has been specifically designed to meet the demands of the hazardous industrial and process automation. Using a distributed architecture where the control is in the devices themselves, FOUNDATION Fieldbus integrates low-speed sensors and actuators with high-speed controllers and servers in a single system.

Recommended Applications

Sensors, actuators and PLCs in intrinsically safe areas like magnetic flow meters, temperature sensors, and pressure sensors.

Construction

Conductors: Stranded bare copper

Insulation: Pair: XLPE; Conductor: PVC

Shielding: Foil and tinned copper braid; 2170351 & 2170353: armored, longitudinally welded spiral corrugated copper tape

Jacket: Yellow or blue PVC

Application Advantage

- Can withstand temperatures up to +105°C
- Sunlight resistant
- Cables meet the requirements of ISA ISP50 and the Fieldbus FOUNDATION for cable type A

Approvals



Cable Attributes

See attribute list by part number on page 159

OIL | FLAME | MOTION | MECHANICAL

Complete the Installation



SKINTOP®
ATEX*
page 516



SKINTOP®
MS-SC:
page 528

*SKINTOP® ATEX only for P/Ns 2170350 & 2170352

Technical Data

Minimum Bend Radius: 5 x cable diameter

Temperature Range:
- 2170350, 2170351 & 210353: -25°C to +105°C
- 2170352: -40°C to +105°C

Nominal Voltage: 300V

Test Voltage: 1500V

Characteristic Impedance: 100 Ω ± 20 Ω

Nominal Capacitance: 20 pF/ft

Color Code:
- 2170350, 2170351 & 2170353: Blue & brown twisted pair, plus green/yellow ground
- 2170352: Blue & brown twisted pair

Approvals:
UL: PLTC
CMG
Canada: cUL CMG
Additional: RoHS

Part Number	Conductor Description (AWG/Pair) + (AWG/Conductor)	Jacket Color	Nominal Outer Diameter (inches) (mm)		Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® ATEX Metric Thread
3-Core, No Armor							
2170350	18 AWG/1pr + 18 AWG/1c	Yellow	0.311	7.9	41	62	54115210
3-Core, Armored							
2170351	18 AWG/1pr + 18 AWG/1c	Yellow	0.484	12.3	84	122	—
2170353	18 AWG/1pr + 18 AWG/1c	Blue	0.484	12.3	84	122	—
2-Core, No Armor							
2170352	18 AWG/1pr	Yellow	0.311	7.9	36	55	54115210

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

UNITRONIC® SENSOR FD

Multi-Conductor Continuous Flex Communication Cable with PUR Jacket; 300V



UNITRONIC® SENSOR FD is designed for sensor and actuator wiring. Constructed with extra-fine stranding, this cable is suitable for continuous flex applications. The abrasion- and tear-resistant PUR jacket provides superior service life in harsh environments and is also resistant to most oils, solvents, and coolants.

Recommended Applications

Wiring of sensors and actuators; data transmission cables to connect to M8 or M12 connectors; automation technology; plant engineering

Approvals



Unshielded Construction

- Conductors:** Super fine stranded bare copper
- Insulation:** Polypropylene
- Jacket:** Halogen-free black polyurethane

Shielded Construction

- Conductors:** Super fine stranded bare copper
- Insulation:** Polypropylene
- Shielding:** Tinned copper braid
- Jacket:** Halogen-free black polyurethane

Application Advantage

- Designed for continuous flexing
- Highly flexible construction for ease of routing in tight spaces
- Excellent abrasion and cut resistance
- Outstanding oil, solvent, and coolant resistance
- Round geometry facilitates liquid-tight installation

Cable Attributes, see page 659



Complete the Installation



Technical Data

Minimum Bend Radius:	- for stationary use: 5 x cable diameter - for continuous flexing: 10 x cable diameter	Color Code:	- 3 conductors: 1: Brown, 2: Blue, 3: Black - 4 conductors: 1: Brown, 2: White, 3: Blue, 4: Black - 5 conductors: 1: Brown, 2: White, 3: Blue, 4: Black, 5: Gray - 8 conductors: 1: White, 2: Brown, 3: Green, 4: Yellow, 5: Gray, 6: Pink, 7: Blue, 8: Red
Temperature Range:	- for stationary use: -40°C to +80°C - for flexible use: -15°C to +80°C	Approvals:	UL: AWM 20549 Additional: RoHS
Nominal Voltage:	300V		

Part Number	Number of Conductors (incl. ground)	Nominal Outer Diameter		Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® Non-Metallic/MS-SC PG Thread
		(inches)	(mm)			
24 AWG (0.25 mm²) Unshielded						
7038867	5	0.185	4.7	8	23	S2107*
7038868	8	0.232	5.9	13	34	S2107*
22 AWG (0.34 mm²) Unshielded						
7038864	3	0.181	4.6	7	20	S2107*
7038865	4	0.185	4.7	8	27	S2107*
7038866	5	0.201	5.1	11	30	S2107*
22 AWG (0.34 mm²) Shielded						
7038885	3	0.181	4.6	13	79	53112210**
7038886	4	0.185	4.7	16	88	53112210**
7038887	5	0.201	5.1	18	97	53112210**

* SKINTOP® Non-Metallic for unshielded cable.

** SKINTOP® MS-SC for shielded cable.

Recommended SKINTOP® assumes minimal OD variance. Additional configurations are available, please see our SKINTOP® Section. Photographs are not to scale and are not true representations of the products in question. For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

M8 Field Wireable Sensor/Actuator Connectors



Application Advantage

- Quick and easy on-site assembly
- Screw and Fast Connect design available
- Standardized interfaces

Approvals



Technical Data

<p>Temperature Range:</p> <ul style="list-style-type: none"> - Screw: -40°C to +85°C - IDC: -25°C to +80°C <p>Nominal Voltage: 30 or 60V</p> <p>Nominal Current: 4A</p>	<p>Coding: A-standard</p> <p>IP Protection Rating:</p> <ul style="list-style-type: none"> - Screw: IP67 - IDC: IP65/67 <p>Approvals: RoHS</p>
--	--

Part Number		Number of Positions	Conductor Cross-Section (mm)		Cable Diameter (mm)		Nominal Voltage
Male	Female		Min.	Max.	Min.	Max.	
M8 Straight Connector, Screw Connection							
22260120	22260125	3	0.14	0.50	3.5	5	60V
22260121	22260126	4	0.14	0.50	3.5	5	30V
M8 Straight Connector, Insulation Displacement							
22260985	22260986	3	0.25	0.50	2.5	5	60V
22260044	22260046	4	0.25	0.50	2.5	5	30V

Photographs are not to scale and are not true representations of the products in question.
 For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

M 12 Field Wireable Sensor/Actuator Connectors

Screw Connection



Shielded Screw Connection



Insulation Displacement



Application Advantage

- Quick and easy on-site assembly
- No special tools required with fast connect design
- Shielded styles are available

Approvals



Technical Data

Temperature Range: - Screw: -40°C to +85°C - IDC: -25°C to +80°C	IP Protection Rating: - Screw: IP67 - IDC: IP65/67
Coding: A-standard	

Part Number		Number of Positions	PG Screw Connection	Conductor Cross-Section (mm)		Cable Diameter (mm)		Nominal Voltage	Nominal Current
Male	Female			Min.	Max.	Min.	Max.		
M 12 Straight Connector, Screw Connection									
22260649	22260640	4	PG 7	0.25	0.75	4	6	250V	4A
22260129	22260127	5	PG 7	0.25	0.75	4	6	60V	4A
M 12 Straight Connector, Screw Connection, Shielded									
22260135	22260136	5	PG 9	0.25	0.75	6	8	60V	4A
22260825	22260826	8	PG 9	0.25	0.75	6	8	30V	2A
M 12 Straight Connector, Insulation Displacement									
22260132	22260131	4	—	0.14	0.34	3.5	6	125V	4A
22260134	22260133	4	—	0.34	0.75	4	8	250V	4A

Photographs are not to scale and are not true representations of the products in question.
 For current information go to our website. If not otherwise specified, all values relating to the product are nominal values.

