



## Profibus L2 Indoor

### Application:

This system cable is used to interconnect L2-BUS components. This cable is an economical solution for the cell and field area. For the information exchange between different automation systems as well as for communication with the connected decentralized field units, serial fieldbus systems are used. The types mentioned here are suitable for indoor laying and are equipped with a special PVC jacket.



### Construction:

Type/Area of Application	Fixed Installation, Indoor
Cable Construction	1x2x0.64 mm
Inner Conductor Diameter	Copper, bare (AWG 22/1)
Conductor Insulation	Foam-skin-PE
Conductor Colors	Red, green
Stranding Element	2 conductors + 2 fillers stranded together
Shielding	Polyester foil, aluminum-lined
Total Shielding	Cu braid, tinned
Outer Jacket Material	PVC
Outer Diameter	7.8 mm $\pm$ 0.4 mm
Outer Jacket Color	Grey/Violet



## Electrical Data:

Characteristic Impedance@3-20Hz	150 $\Omega$ $\pm$ 10 $\Omega$				
Conductor Resistance	55.0 Ohm/km max.				
Insulation Resistance	1.00 GOhm x km min.				
Mutual Capacitance@1 KHz	30.0 nF/km nom.				
Working Voltage	Max: 250 V				
Test Voltage	1.5 KV				
Attenuation	9.6	kHz	<	2.5	dB/km
	38.4	kHz	<	4	dB/km
	4	MHz	<	22	dB/km
	16	MHz	<	42	dB/km

## Technical Data:

Weight	approximately 69.0 kg/km
Min. Bending Radius (Laying)	15 x OD mm
Operating Temp.Range, min.	-40 °C
Operating Temp.Range, max.	+70 °C

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## Profibus L2 UL FT4

### Application:

This system cable is used to interconnect L2-BUS components. This cable is an economical solution for the cell and field area. For the information exchange between different automation systems as well as for communication with the connected decentralized field units, serial field bus systems are used. The type described here is suitable for the installation in areas where the FT4 standard (special fire standard "vertical tray") according to UL/CSA applies. For this purpose the line was equipped with a special outer PVC jacket.



### Construction:

Type/Area of Application	Fixed Installation, Indoor
Cable Construction	1x2x0.64 mm
Inner Conductor Diameter	Copper, bare (AWG 22/1)
Conductor Insulation	Foam-Skin-PE
Conductor Colors	Red, green
Stranding Element	2 conductors + 2 fillers stranded together
Shielding	Polyester foil, aluminum lined
Total Shielding	Copper braid, tinned
Drain wire	Yes
Outer Jacket Material	PVC
Outer Diameter	8.0 mm $\pm$ 0.4 mm
Outer Jacket Color	Violet



## Electrical Data:

Characteristic Impedance@ -20Hz	150 $\Omega$ $\pm$ 10 $\Omega$				
Conductor Resistance	55.0 Ohm/km max.				
Insulation Resistance	1.00 GOhm x km min.				
Mutual Capacitance@1KHz	30.0 nF/km nom.				
Working Voltage	Max: 250 V				
Test Voltage	1.5 KV				
Attenuation	9.6	kHz	<	2.5	dB/km
	38.4	kHz	<	4.0	dB/km
	4.0	MHz	<	22.0	dB/km
	16.0	MHz	<	45.0	dB/km

## Technical Data:

Weight	approximately 66.0 kg/km
Min. Bending Radius for Laying	15 x OD mm
Operating Temperature Range, min.	-40 °C
Operating Temperature Range, max.	+70 °C

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## Profibus L2 Outdoor + Industry

### Application:

This system cable is used to interconnect L2-BUS components. This cable is an economical solution for the cell and field area. For the information exchange between different automation systems as well as for communication with the connected decentralized field units, serial field bus systems are used. The types mentioned here are suitable for outdoor laying (PE jacket) and industry laying (PUR jacket).



### Construction:

Type/Area of Application	Fixed Installation, Outdoor /Heavy Duty
Cable Construction	1x2x0.64 mm
Inner Conductor Diameter	Copper, bare (AWG 22/1)
Conductor Insulation	Foam-skin-PE
Conductor Colors	Red, green
Stranding Element	2 conductors + 2 fillers stranded together
Shielding	Polyester foil, aluminum-lined
Total Shielding	Cu braid, tinned
Outer Jacket Material	PE/PUR
Outer Diameter	8.0 mm $\pm$ 0.4 mm
Outer Jacket Color	Black



## Electrical Data:

Characteristic Impedance @ 3-20Hz	150 $\Omega$ $\pm$ 10 $\Omega$				
Conductor Resistance	55.0 Ohm/km max.				
Insulation Resistance	1.00 GOhm x km min.				
Mutual Capacitance @ 1 KHz	30.0 nF/km nom.				
Working Voltage	Max: 250 V				
Test Voltage	1.5 kV				
Attenuation	9.6	kHz	<	2.5	dB/km
	38.4	kHz	<	4.0	dB/km
	4.0	MHz	<	22.0	dB/km
	16.0	MHz	<	42.0	dB/km

## Technical Data:

Weight:	approximately 66.0 kg/km
Min. Bending Radius (Laying)	15 x OD mm
Operating Temp.Range, min.	-40 °C
Operating Temp.Range, max.	+70 °C

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## Profibus L2 Direct Burial

### Application:

This system cable is used to interconnect L2-BUS components. This cable is an economical solution for the cell and field area. For the information exchange between different automation systems as well as for communication with the connected decentralized field units, serial field bus systems are used. The above mentioned type is suitable for underground installation and is equipped with a special PVC/PE jacket.



### Construction:

Type/Area of Application	Underground Laying
Cable Construction	1x2x0.64 mm
Inner Conductor Diameter	Copper, bare (AWG 22/1)
Conductor Insulation	Foam-Skin-PE
Conductor Colors	Red, green
Stranding Element	2 conductors + 2 fillers stranded together
Shielding	Polyester foil, aluminum lined
Total Shielding	Copper braid, tinned
Inner Jacket Material	PVC
Outer Jacket Material	PE
Outer Diameter	10.0 mm $\pm$ 0.2 mm
Outer Jacket Color	Black



## Electrical Data:

Characteristic Impedance @3-20Hz	150 $\Omega \pm 10 \Omega$				
Conductor Resistance	57.1 Ohm/km max.				
Insulation Resistance	1.00 GOhm x km min.				
Mutual Capacitance @1KHz	30.0 nF/km nom.				
Working Voltage	Max: 250 V				
Test Voltage	1.5 kV				
Attenuation	9.6	kHz	<	2.1	dB/km
	38.4	kHz	<	3.1	dB/km
	3.0	MHz	<	18.2	dB/km
	20.0	MHz	<	47.0	dB/km

## Technical Data:

Weight	approximately 92.0 kg/km
Min. Bending Radius for Laying	18 x OD mm
Operating Temperature Range, min.	-40 °C
Operating Temperature Range, max.	+70 °C

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## Profibus L2, 7-wire

### Application:

This system cable is used to interconnect L2-BUS components. This cable is an economical solution for the cell and field area. For the information exchange between different automation systems as well as for communication with the connected decentralized field units, serial field bus systems are used. With this cord design, the type mentioned here is suitable for laying in regular mobile applications and is equipped with a special PVC jacket



### Construction:

Type/Area of Application	Mobile Use
Cable Construction	1x2x0.64 mm (stranded)
Inner Conductor Diameter	Copper, bare (AWG 24/7)
Conductor Insulation:	Foam-Skin-PE
Conductor Colors 1	Red, green
Stranding Element	2 conductors + 2 fillers stranded together
Shielding	Polyester foil, aluminum lined
Total Shielding	Copper braid, tinned
Outer Jacket Material	PVC
Outer Diameter	7.8 mm $\pm$ 0.3 mm
Outer Jacket Color	Violet



## Electrical Data:

Characteristic Impedance@3-20Hz	150 $\Omega$ $\pm$ 10 $\Omega$				
Conductor Resistance	86.7 Ohm/km max.				
Insulation Resistance	1.00 GOhm x km min.				
Mutual Capacitance@1KHz	30.0 nF/km nom.				
Working Voltage	Max: 250 V				
Test Voltage:	1.5 kV				
Attenuation	9.6	kHz	<	3.0	dB/km
	38.4	kHz	<	5.0	dB/km
	4.0	MHz	<	26.0	dB/km
	16.0	MHz	<	55.0	dB/km

## Technical Data:

Weight	approximately 75.0 kg/km
Min. Bending Radius for Laying	10 x OD mm
Operating Temperature Range, min.	-20 °C
Operating Temperature Range, max.	+70 °C

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## Profibus L2 Drag Chain (Track)

### Application:

This system cable is used to interconnect L2-BUS components. This cable is an economical solution for the cell and field area. For the information exchange between different automation systems as well as for communication with the connected decentralized field units, serial field bus systems are used. The above mentioned types are suitable for drag chains (stranded).



### Construction:

Type/Area of Application	Drag Chain Applications
Cable Construction	1x2x0.64 mm (stranded)
Inner Conductor Diameter	Copper, bare (AWG 24/19)
Conductor Insulation	Foam-skin-PE
Conductor Colors	Red, green
Stranding Element	2 conductors + 2 fillers stranded together
Shielding	Polyester foil, aluminum-lined
Total Shielding	Cu braid, tinned
Outer Jacket Material	PUR
Outer Diameter	8.0 mm $\pm$ 0.4 mm
Outer Jacket Color	Violet



## Electrical Data:

Characteristic Impedance@3-20Hz	150 $\Omega$ $\pm$ 10 $\Omega$				
Conductor Resistance	82.0 Ohm/km max.				
Insulation Resistance	1.00 GOhm x km min.				
Mutual Capacitance@1KHz	30.0 nF/km nom.				
Working Voltage	Max: 250 V				
Test Voltage	1.5 kV				
Attenuation	9.6	kHz	<	3.0	dB/km
	38.4	kHz	<	5.0	dB/km
	4.0	MHz	<	25.0	dB/km
	16.0	MHz	<	52.0	dB/km

## Technical Data:

Weight	approximately 65.0 kg/km
Min. Bending Radius (Laying)	7.5 x OD mm
Operating Temp.Range, min.	-40 °C
Operating Temp.Range, max.	+70 °C

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## Profibus ET200X + ECOFAST

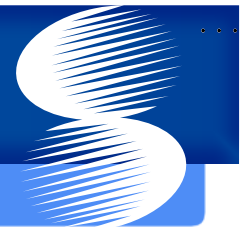
### Application:

The Profibus-ET200X and Profibus ECOFAST lines used in the area of process automation. These BUS systems are a very economical solution for the cell and field area. For the information exchange between different automation systems as well as for communication with the connected decentralized field units, serial field bus systems are used. The series hybrid are characterized by a special construction with data and power supply in one cable. These types are suited for the application in drag chains and similar mobile applications.



### Construction:

Type/Area of Application	Drag Chain Applications	Mobile Use
Cable Construction	1x2x0.65 mm + 3x1x0.75 mm <sup>2</sup> (stranded)	1x2x0.65 mm + 4x1x1.5 mm <sup>2</sup> (stranded)
Inner Conductor Diameter 1	Copper, bare (AWG 22/19)	Copper, bare (AWG 24/19)
Inner Conductor Diameter 2	Copper, bare (AWG 18/24)	Copper, bare (AWG 18/84)
Conductor Insulation 1	Foam-skin-PE	Foam-skin-PE
Conductor Insulation 2	PVC	TPM
Conductor Colors 1	red, green	red, green
Conductor Colors 2	black, blue, green-yellow	back, back, back, back
Stranding Element	Double Conductor	2 conductors + 2 fillers stranded together
Wrapping	Polyester foil over stranded bundle	Polyester foil over stranded bundle
Shielding	Foil + Braid	Foil + Braid
Overall wrapping	Polyester foil	-
Outer Jacket Material	PUR	TPU
Outer Diameter	9.5 mm ± 0.5 mm	11.0 mm ± 0.3 mm
Outer Jacket Color	Green	Violet



## Electrical Data:

Characteristic Impedance@3-20Hz	150 $\Omega$ $\pm$ 10 $\Omega$					150 $\Omega$ $\pm$ 10 $\Omega$				
Conductor Resistance	84.0 Ohm/km max.					89.9 Ohm/km max.				
Insulation Resistance	1.00 GOhm x km min.					1.00 GOhm x km min.				
Mutual Capacitance@1KHz	30.0 nF/km nom.					30.0 nF/km nom.				
Working Voltage	Max: 250 V									
Test Voltage	1.5 kV					1.5 kV				
Attenuation	9.6	kHz	<	3.0	dB/km	9.6	kHz	<	3.0	dB/km
	38.4	kHz	<	5.0	dB/km	38.4	kHz	<	5.0	dB/km
	4.0	MHz	<	25.0	dB/km	4.0	MHz	<	30.0	dB/km
	16.0	MHz	<	52.0	dB/km	16.0	MHz	<	60.0	dB/km

## Technical Data:

Weight	approximately 105.0kg/km	approximately 159.0kg/km
Min. Bending Radius (Laying)	14 x OD mm	15 x OD mm
Operating Temp.Range, min.	- 5 °C	-20 °C
Operating Temp.Range, max.	+60 °C	+60 °C

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## Profibus L2 Torsion + Festoon

### Application:

The series TORSION and FESTOON are used to interconnect Profibus BUS components. This BUS system is a very economical solution for the field area. For the information exchange between different automation systems as well as for communication with the connected decentralized field units, serial field bus systems are used. The lines described here are designed torsionable or hanging movable construction. Areas such as robot applications and/or garland suspension are easily realized.



### Construction:

Type/Area of Application	Torsion Applications	Mobile Use
Cable Construction	1x2x0.64 mm (stranded)	1x2x0.65 mm (stranded)
Inner Conductor Diameter	Copper, bare (AWG 23/19)	Copper, bare (AWG 24/19)
Conductor Insulation	Foam-skin-PE	Cell PE
Conductor Colors	red, green	red, green
Stranding Element	2 conductors + 2 fillers stranded together	2 conductors + 2 fillers stranded together
Wrapping	Polyester foil over stranded bundle	Polyester foil over stranded bundle
Shielding	Polyester foil, Copper bare	Polyester foil, aluminum-lined
Total Shielding	Copper shifting, tinned	Copper braid, tinned
Outer Jacket Material	PUR	PVC
Outer Diameter	8.0 mm $\pm$ 0.3 mm	8.0 mm $\pm$ 0.3 mm
Outer Jacket Color	Violet	Green



## Electrical Data:

Characteristic Impedance@3-20Hz	150 $\Omega$ $\pm$ 10 $\Omega$				
Conductor Resistance	66.5 Ohm/km max.				
Insulation Resistance	1.00 GOhm x km min.				
Mutual Capacitance@1KHz	30.0 nF/km nom.				
Working Voltage	Max: 250 V				
Test Voltage	1.5 KV				
Attenuation	9.6	kHz	<	3.0	dB/km
	38.4	kHz	<	5.0	dB/km
	4.0	MHz	<	25.0	dB/km
	16.0	MHz	<	51.0	dB/km

## Technical Data:

Weight	approximately 91.0 kg/km	approximately 64.0 kg/km
Min. Bending Radius (Laying)	12.5 x OD mm	5 x OD mm
Operating Temp.Range, min.	- 5 °C	-40 °C
Operating Temp.Range, max.	+60 °C	+60 °C

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