

### FMB610 Bus cables



- PVC outer jacket
- Shielded
- Flame resistance
- Oil-resistant
- UV-resistance

### Dynamic Information

	Min. bending radius	Moving in cable carriers	12.5 x d
		Flexible moving	10 x d
		Fixed installation	7 x d
	Temperature	Moving in cable carriers	+5°C to +70°C
		Flexible moving	-5°C to +70°C
		Fixed installation	-15°C to +70°C
	v max.	Unsupported	3 m/s
		Gliding	2 m/s
	a max.	30 m/s <sup>2</sup>	
	Travel distance	Unsupported travels and up to 20 m for gliding applications	

### Cable structure

	Conductor	Conductor consisting of bare copper wires (according to EN 60228).
	Conductor insulation	According to bus specification.
	Conductor construction	According to bus specification.
	Color code	According to bus specification.
	Overall shield	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 55 %, optical approx. 80 %
	Outer jacket	Low-adhesion PVC mixture, adapted to suit the requirements in cable carriers. Color: Red lilac RAL 4001

## Electrical Information

	Nominal voltage	50 V (following VDE0298-3)
	Test voltage	500 V (following EN50395)

## Properties and approvals

	UV-resistance	Medium
	Oil resistance	Oil-resistant (following IEC60811-404, tested by SGS), bio-oil-resistant (following VDMA24568, tested by SGS)
	Flame resistance	According to IEC 60332-1-2、VW-1、FT1
	REACH	According to the regulation (EC) No. 1907/2006 (REACH)
	EAC	Certificate No. KG 417/043.CN.02.00249
	Lead-free	Following 2015/863/EU (RoHS-II Tested by SGS)
	Cleanroom	Following ISO 14644-1
	CE	Following 2014/35/EU
	UL	Following UL2464, 300V, 80°C

## Guaranteed service life

Double strokes	5 million times	7.5 million times	10 million times
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
+5/+15	15	16	17
+15/+60	12.5	13.5	14.5
+60/+70	15	16	17

### FMB610 Bus cables

Part No.	Number of cores and conductor nominal cross-section [mm]	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
Profibus				
FMB610.001	(2x0.25)C	8.5	25	75
CAN-Bus				
FMB610.020 <sup>④</sup>	(4x0.25)C	7.0	23	64
FMB610.021	(2x0.5)C	8.5	32	82
FMB610.022 <sup>④</sup>	(4x0.5)C	8.5	43	91
CC-Link				
FMB610.035	(3x0.5)C	8.0	40	76
Ethernet/CAT5				
FMB610.040 <sup>④</sup>	(4x0.25)C	6.5	29	69
Ethernet/CAT5e				
FMB610.045	(4x(2x0.15))C	7.5	33	66
Ethernet/CAT6				
FMB610.049	(4x(2x0.15))C	7.5	33	66
Ethernet/CAT6A				
FMB610.050	4x(2x0.20)C	10.0	65	120
Ethernet/CAT7				
FMB610.052	(4x(2x0.15)C)C	9.5	89	129
FireWireIEEE 1394b				
FMB610.056	(2x(2x0.15)C+2x0.38)C	9.0	59	91
Profinet				
FMB610.060 <sup>④⑤</sup>	(4x0.38)C	7.0	33	64
USB3.0				
FMB610.068	(2x(2xAWG28)+2x(2xAWG28)C)C	7.0	39	64

- ④ Cables marked with ④ are four-star twisted design.  
 ⑤ Outer jacket color is yellow-green (similar to RAL 6018)

Note: The outer diameters are reference values.

G: With green-yellow earth core

x: Without earth core

AWG: American Wire Gauge






Part No.	Characteristic wave impedance approx. [Ω]	Core group	Colour code
<b>Profibus</b>			
FMB610.001	150	(2x0.25)C	red, green
<b>CAN-Bus</b>			
FMB610.020	120	(4x0.25)C	white, green, brown, yellow (Star-quad)
FMB610.021	120	(2x0.5)C	white,brown
FMB610.022	120	(4x0.5)C	white, green, brown, yellow (Star-quad)
<b>CC-Link</b>			
FMB610.035	110	(3x0.5)C	white, blue, yellow
<b>Ethernet/CAT5</b>			
FMB610.040	100	(4x0.25)C	white, green, brown, yellow (Star-quad)
<b>Ethernet/CAT5e</b>			
FMB610.045	100	(4x(2x0.15))C	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
<b>Ethernet/CAT6</b>			
FMB610.049	100	(4x(2x0.15))C	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
<b>Ethernet/CAT6A</b>			
FMB610.050	100	4x(2x0.20)C	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
<b>Ethernet/CAT7</b>			
FMB610.052	100	(4x(2x0.15)C)	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
<b>FireWireIEEE 1394b</b>			
FMB610.056	110	2x(2x0.15)C	orange/blue, blue/red
		2x0.38	black,white
<b>Profinet</b>			
FMB610.060	100	(4x0.38)C	white, orange, blue, yellow (Star-quad)
<b>USB3.0</b>			
FMB610.068	90	2x(2xAWG28)	red/black, green/white-green
		2x(2xAWG28)C	blue/yellow,orange/purple

### FMB910 Bus cables










- TPE outer jacket
- Shielded
- Flame resistance
- Oil-resistant
- Hydrolysis and microbe-resistant
- UV-resistance

### Dynamic Information

	Min. bending radius	Moving in cable carriers	10 x d (FMB910.001-.049和FMB910.060) 12.5 x d (FMB910.050-.055和FMB910.070)
		Flexible moving	8 x d
		Fixed installation	5 x d
	Temperature	Moving in cable carriers	-35°C to +70°C
		Flexible moving	-45°C to +70°C
		Fixed installation	-50°C to +70°C
	v max.	Unsupported	10 m/s
		Gliding	6 m/s
	a max.	100 m/s <sup>2</sup>	
	Travel distance	Unsupported travel distances and for gliding applications up to 400 m and more	

### Cable structure

	Conductor	Conductor consisting of bare copper wires (according to EN 60228).
	Conductor insulation	According to bus specification.
	Conductor construction	According to bus specification.
	Color code	According to bus specification.
	Inner jacket	TPE mixture adapted to suit the requirements in cable carriers.
	Overall shield	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70 %, optical approx. 90 %
	Outer jacket	Low-adhesion mixture on the basis of TPE, especially abrasion-resistant and highly flexible, adapted to suit the requirements in cable carriers. Color: Red lilac RAL 4001

## Electrical Information

	Nominal voltage	50 V (following VDE0298-3)
	Test voltage	500 V (following EN50395)

## Properties and approvals

	UV-resistance	Medium
	Hydrolysis-resistance	High
	Cold-resistant	-50°C
	Oil resistance	Oil-resistant (following IEC60811-404, tested by SGS), bio-oil-resistant (following VDMA24568, tested by SGS)
	Flame resistance	According to IEC 60332-1-2, VW-1, FT1FMB910.030/FMB910.065/FMB910.066: According to IEC 60332-1-2, FT2
	REACH	Accordding to the regulation (EC) No. 1907/2006 (REACH)
	EAC	Certificate No. KG 417/043.CN.02.00249
	Lead-free	Following 2015/863/EU (RoHS-II Tested by SGS)
	Cleanroom	Following ISO 14644-1
	CE	Following 2014/35/EU
	UL	Following UL21481, 300V, 80°C

## Guaranteed service life

Temperature, from/to [°C]	5 million times		7.5 million times		10 million times	
	FMB910.001-.049	FMB910.050-.070	FMB910.001-.049	FMB910.050-.070	FMB910.001-.049	FMB910.050-.070
	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-35/-25	12.5	15	13.5	16	14.5	17
-25/+60	10	12.5	11	13.5	12	14.5
+60/+70	12.5	15	13.5	16	14.5	17

### FMB910 Bus cables

Part No.	Number of cores and conductor nominal cross-section [mm]	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
<b>Profibus</b>				
FMB910.001	(2×0.25)C	9.0	33.0	92.0
FMB910.002	(2×0.25)C+4×1.5	12.5	94.0	191.0
FMB910.003	(2×0.25)C+3G0.75	11.5	55.0	145.0
<b>Interbus</b>				
FMB910.010	(3x(2x0.25))C	9.0	47.0	91.0
FMB910.011	(3×(2×0.25)+(3G1.0)C	10.5	87.0	152.0
<b>CAN-Bus</b>				
FMB910.020 <sup>④</sup>	(4×0.25)C	6.5	28.0	58.0
FMB910.021	(2×0.5)C	8.0	39.0	81.0
FMB910.022 <sup>④</sup>	(4×0.5)C	8.0	43.0	87.0
<b>DeviceNet</b>				
FMB910.030 <sup>④</sup>	((2×AWG24)C+2×AWG22)C	7.0	36.0	57.0
FMB910.031 <sup>④</sup>	((2×AWG18)C+2×AWG15)C	11.5	103.0	174.0
<b>CC-Link</b>				
FMB910.035	(3×AWG20)C	8.5	43.0	96.0
<b>Ethernet/CAT5</b>				
FMB910.040	(4×0.25)C	7.0	33.0	59.0
<b>Ethernet/CAT5e</b>				
FMB910.045	(4×(2×0.15))C	8.5	42.0	84.0
<b>Ethernet/CAT6</b>				
FMB910.049	(4×(2×0.15))C	8.5	42.0	84.0
<b>Ethernet/CAT6A</b>				
FMB910.050	(4×(2×0.15)C)C	10.5	83.0	134.0
<b>Ethernet/CAT7</b>				
FMB910.052	(4×(2×0.15)C)C	10.5	89.0	133.0
<b>FireWireIEEE 1394a</b>				
FMB910.055	2×(2×0.15)C+2×(0.34)C	8.0	39.0	76.0
<b>Profinet</b>				
FMB910.060	(4×0.38)C	7.5	39.0	74.0
<b>USB</b>				
FMB910.065	((2×AWG28)+2×AWG20)C	5.5	28.0	45.0
FMB910.066	((2×AWG24)+2×AWG20)C	6.5	32.0	51.0
<b>DVI</b>				
FMB910.070	(4×(2×AWG28)C+(2×AWG28)+3×AWG28)C	9.0	35.0	95.0

④) Cables marked with ④ are four-star twisted design.

⑤) Without inner jacket

Note: The outer diameters are reference values.

G: With green-yellow earth core

x: Without earth core

AWG: American Wire Gauge

Part No.	Characteristic wave impedance approx. [Ω]	Core group	Colour code
<b>Profibus</b>			
FMB910.001	150	(2x0.25)C	red, green
FMB910.002	150	(2x0.25)C 4x1.5	red/green black with white numbers 1-4
FMB910.003	150	(2x0.25)C 3G0.75	red/green black, blue, green-yellow
<b>Interbus</b>			
FMB910.010	100	3x(2x0.25)	white/brown, green/yellow, grey/pink
FMB910.011	100	3x(2x0.25) (3G1.0)	white/brown, green/yellow, grey/pink red, blue, green-yellow
<b>CAN-Bus</b>			
FMB910.020	120	(4x0.25)C	white, green, brown, yellow (Star-quad)
FMB910.021	120	(2x0.5)C	white, brown
FMB910.022	120	(4x0.5)C	white, green, brown, yellow (Star-quad)
<b>DeviceNet</b>			
FMB910.030	120	(2xAWG24)C 2xAWG22	white/blue red, black
FMB910.031	120	(2xAWG18)C 2xAWG15	white/blue red, black
<b>CC-Link</b>			
FMB910.035	110	3xAWG20	white, blue, yellow
<b>Ethernet/CAT5</b>			
FMB910.040	100	(4x0.25)C	white, green, brown, yellow (Star-quad)
<b>Ethernet/CAT5e</b>			
FMB910.045	100	4x(2x0.15)	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
<b>Ethernet/CAT6</b>			
FMB910.049	100	4x(2x0.15)	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
<b>Ethernet/CAT6A</b>			
FMB910.050	100	4x(2x0.15)C	white/blue, white/orange, white/green, white/brown
<b>Ethernet/CAT7</b>			
FMB910.052	100	4x(2x0.15)C	white/blue, white/orange, white/green, white/brown
<b>FireWireIEEE 1394a</b>			
FMB910.055	100	2x(2x0.15)C 2x(0.34)C	orange/blue, green/red white, black
<b>Profinet</b>			
FMB910.060	100	4x0.38	white, orange, blue, yellow (Star-quad)



Part No.	Characteristic wave impedance approx. [Ω]	Core group	Colour code
USB			
FMB910.065	90	(2xAWG28)	white/green
		2xAWG20	red, black
FMB910.066	90	(2xAWG28)	white/green
		2xAWG20	red, black
DVI			
FMB910.070	100	4x(2xAWG28)C	4 x white/yellow with element-shield in blue, black, red, white
		(2xAWG28)	white/brown
		3xAWG28	green, yellow, grey

## FMB911 Bus cables



- PUR outer jacket
- Shielded
- Coolant-resistant
- Notch-resistant
- Flame resistance
- Oil-resistant
- Hydrolysis and microbe-resistant
- UV-resistance

### Dynamic Information

	Min. bending radius	Moving in cable carriers	12.5 x d
		Flexible moving	10 x d
		Fixed installation	7 x d
	Temperature	Moving in cable carriers	-20°C to +70°C
		Flexible moving	-40°C to +70°C
		Fixed installation	-50°C to +70°C
	v max.	Unsupported	3 m/s
		Gliding	2 m/s
	a max.	30 m/s <sup>2</sup>	
	Travel distance	Unsupported travels and up to 20 m for gliding applications	













### Cable structure

	Conductor	Conductor consisting of bare copper wires (according to EN 60228).
	Conductor insulation	According to bus specification.
	Conductor construction	According to bus specification.
	Color code	According to bus specification.
	Overall shield	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70 %, optical approx. 90 %
	Outer jacket	Low-adhesion mixture on the basis of PUR, especially abrasion-resistant and highly flexible, adapted to suit the requirements in cable carriers. Color: Red lilac RAL 4001

### Electrical Information

	Nominal voltage	50 V (following VDE0298-3)
	Test voltage	500 V (following EN50395)

### Properties and approvals

	UV-resistance	Medium
	Hydrolysis-resistance	High
	Cold-resistant	-50°C
	Oil resistance	Oil-resistant (following IEC60811-404, tested by SGS), bio-oil-resistant (following VDMA24568, tested by SGS)
	Flame resistance	According to IEC 60332-1-2、VW-1、FT1
	Halogen-free	Following IEC60754
	REACH	According to the regulation (EC) No. 1907/2006 (REACH)
	EAC	Certificate No. KG 417/043.CN.02.00249
	Lead-free	Following 2015/863/EU (RoHS-II Tested by SGS)
	Cleanroom	Following ISO 14644-1
	CE	Following 2014/35/EU
	UL	Following UL20233, 300V, 80°C

### Guaranteed service life

Double strokes	5 million times	7.5 million times	10 million times
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-20/-10	15	16	17
-10/+60	12.5	13.5	14.5
+60/+70	15	16	17

**FMB911 Bus cables**

Part No.	Number of cores and conductor nominal cross-section [mm]	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
<b>Profibus</b>				
FMB911.001	(2x0.25)C	8.5	25	75
<b>CAN-Bus</b>				
FMB911.020 <sup>④</sup>	(4x0.25)C	7.5	23	64
FMB911.021	(2x0.5)C	8.5	32	82
FMB911.022 <sup>④</sup>	(4x0.5)C	8.5	43	91
<b>CC-Link</b>				
FMB911.035	(3x0.5)C	8	40	76
<b>Ethernet/CAT5</b>				
FMB911.040 <sup>④</sup>	(4x0.25)C	6.5	29	69
<b>Single Pair Ethernet</b>				
FMB911.042	(2x0.15)C	5.5	12	33
<b>Ethernet/CAT5e</b>				
FMB911.045	(4x(2x0.15))C	7.5	33	66
<b>Ethernet/CAT6</b>				
FMB911.049	(4x(2x0.15))C	7.5	33	66
<b>Ethernet/CAT6A</b>				
FMB911.050	4x(2x0.2)C	10	65	120
<b>Ethernet/CAT7</b>				
FMB911.052	(4x(2x0.15)C)C	9.5	89	129
<b>FireWireIEEE 1394b</b>				
FMB911.056	(2x(2x0.15)C+2x0.38)C	9	59	91
<b>Profinet</b>				
FMB911.060 <sup>④⑤</sup>	(4x0.38)C	7	33	64
<b>USB3.0</b>				
FMB911.068	(2x(2xAWG28)+2x(2xAWG28)C)C	7	39	64

- ④) Cables marked with ④ are four-star twisted design.  
 ⑤) Outer jacket color is yellow-green (similar to RAL 6018)

Note: The outer diameters are reference values.  
 G: With green-yellow earth core  
 x: Without earth core  
 AWG: American Wire Gauge

Part No.	Characteristic wave impedance approx. [ $\Omega$ ]	Core group	Colour code
<b>Profibus</b>			
FMB911.001	150	(2x0.25)C	red, green
<b>CAN-Bus</b>			
FMB911.020	120	(4x0.25)C	white, green, brown, yellow (Star-quad)
FMB911.021	120	(2x0.5)C	white,brown
FMB911.022	120	(4x0.5)C	white, green, brown, yellow (Star-quad)
<b>CC-Link</b>			
FMB911.035	110	(3x0.5)C	white, blue, yellow
<b>Ethernet/CAT5</b>			
FMB911.040	100	(4x0.25)C	white, green, brown, yellow (Star-quad)
<b>Single Pair Ethernet</b>			
FMB911.042	100	(2x0.15)C	white/blue
<b>Ethernet/CAT5e</b>			
FMB911.045	100	(4x(2x0.15))C	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
<b>Ethernet/CAT6</b>			
FMB911.049	100	(4x(2x0.15))C	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
<b>Ethernet/CAT6A</b>			
FMB911.050	100	(4x(2x0.2))C	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
<b>Ethernet/CAT7</b>			
FMB911.052	100	(4x(2x0.15)C)C	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
<b>FireWireIEEE 1394b</b>			
FMB911.056	110	2x(2x0.15)C	orange/blue, blue/red
		2x0.38	black,white
<b>Profinet</b>			
FMB911.060	100	(4x0.38)C	white, orange, blue, yellow (Star-quad)
<b>USB3.0</b>			
FMB911.068	90	2x(2xAWG28)	red/black, green/white-green
		2x(2xAWG28)C	red/black, green/white-green