PROconnect Connectors

Article Number	Description	Connector	Degree
114030004	PROconnect RJ45 Cat5, 90° Connector	RJ45 Cat5	90°
114030006	PROconnect RJ45 Cat5, 180° Connector	RJ45 Cat5	180°
112030008	PROconnect RJ45/8A Cat6A, 180° Connector	RJ45 Cat6A	180°
112030009	PROconnect RJ45/8A Cat6A, 360° Connector	RJ45 Cat6A	360°
112030023	PROconnect M12 D-coded Cat5 Connector	M12 D Cat5	
112030022	PROconnect M12 X-coded Cat6A Connector	M12 X Cat6A	
112101000	PROconnect Patch Panel for RJ45	RJ45 Cat6A	

PROconnect Industrial Ethernet Cables

Article Number	Description
114060020	PROconnect Cat5 SF/FTP Type B
114060021	PROconnect Cat5 SF/FTP Type C
114060022	PROconnect Cat5 SF/FTP Type R
114060030	PROconnect Cat6A SF/FTP Type B
114060031	PROconnect Cat6A SF/FTP Type C
114060032	PROconnect Cat6A SF/FTP Type R
112020005	Cable Stripping Tool

PROconnect Patch Cables - Shielded, Type B (Other lengths available upon request)

Article Number	Cable Design	Connector 1	Connector 2	Length
140000000-00015	2x2 AWG24/7 Cat5 SF/UTP	RJ45	RJ45	15 cm/ 0.5ft
140000000-00030	2x2 AWG24/7 Cat5 SF/UTP	RJ45	RJ45	30 cm/ 1ft
140000000-00050	2x2 AWG24/7 Cat5 SF/UTP	RJ45	RJ45	50 cm/1.6ft
140000000-00100	2x2 AWG24/7 Cat5 SF/UTP	RJ45	RJ45	1m/3.3ft
140000000-00200	2x2 AWG24/7 Cat5 SF/UTP	RJ45	RJ45	2m/6.6ft
140000000-00300	2x2 AWG24/7 Cat5 SF/UTP	RJ45	RJ45	3m/ 9.8ft
140000000-00500	2x2 AWG24/7 Cat5 SF/UTP	RJ45	RJ45	5m/16.4ft
140000000-01000	2x2 AWG24/7 Cat5 SF/UTP	RJ45	RJ45	10m/32.8ft

Article Number	Cable Design	Connector 1	Connector 2	Length
140000010-00015	4x2 AWG26/7 Cat6A SF/UTP	RJ45	RJ45	15 cm/0.5ft
140000010-00030	4x2 AWG26/7 Cat6A SF/UTP	RJ45	RJ45	30 cm/1ft
140000010-00050	4x2 AWG26/7 Cat6A SF/UTP	RJ45	RJ45	50 cm/1.6ft
140000010-00100	4x2 AWG26/7 Cat6A SF/UTP	RJ45	RJ45	1m/3.3ft
140000010-00200	4x2 AWG26/7 Cat6A SF/UTP	RJ45	RJ45	2m/6.6ft
140000010-00300	4x2 AWG26/7 Cat6A SF/UTP	RJ45	RJ45	3m/9.8ft
140000010-00500	4x2 AWG26/7 Cat6A SF/UTP	RJ45	RJ45	5m/16.4ft
140000010-01000	4x2 AWG26/7 Cat6A SF/UTP	RJ45	RJ45	10m/32.8ft

PROconnect Patch Cables cont.

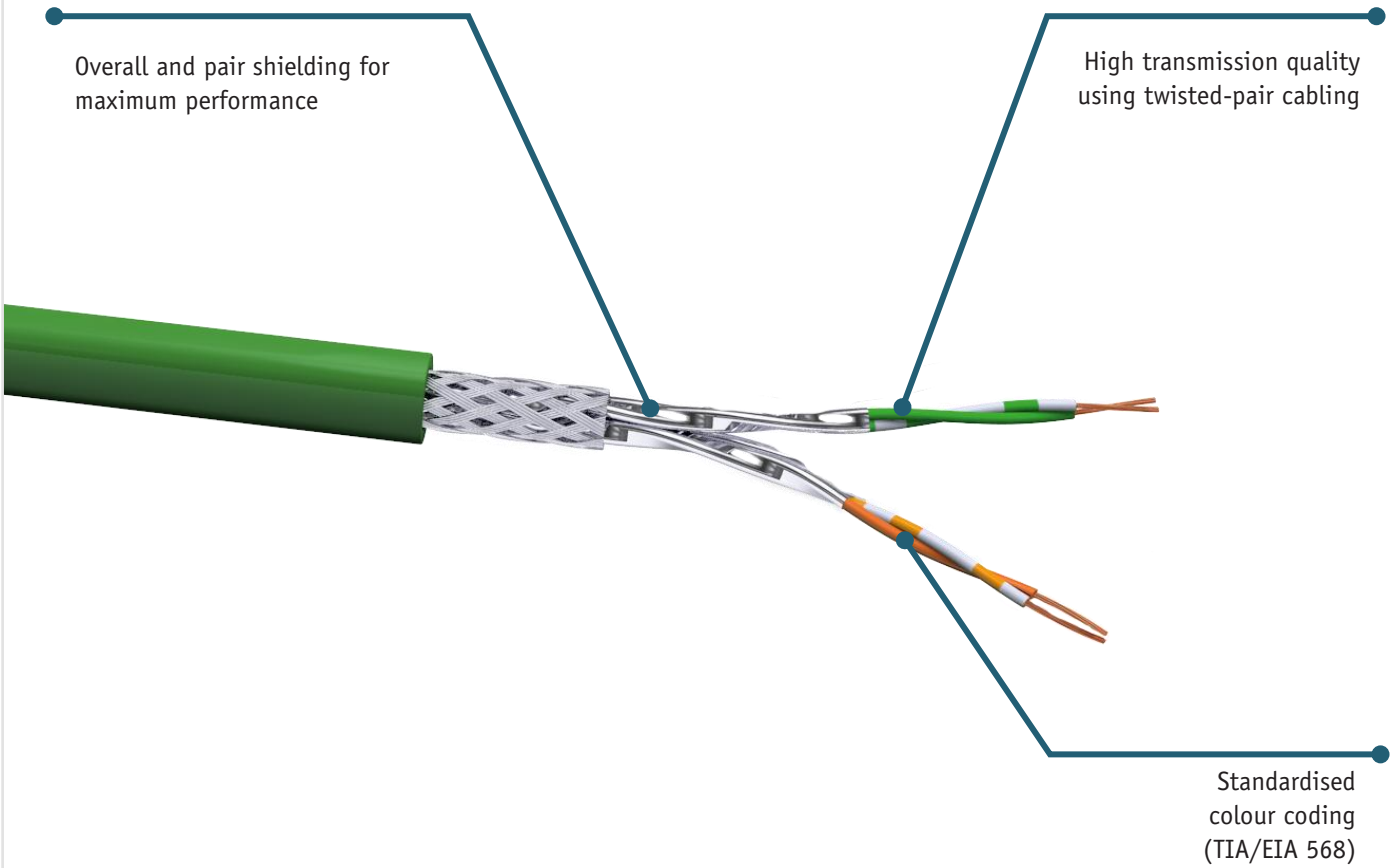
Article Number	Cable Design	Connector 1	Connector 2	Length
140001000-00015	2x2 AWG24/7 Cat5 SF/UTP	M12-D	M12-D	15 cm/0.5ft
140001000-00030	2x2 AWG24/7 Cat5 SF/UTP	M12-D	M12-D	30 cm/1ft
140001000-00050	2x2 AWG24/7 Cat5 SF/UTP	M12-D	M12-D	50 cm/1.6ft
140001000-00100	2x2 AWG24/7 Cat5 SF/UTP	M12-D	M12-D	1m/3.3ft
140001000-00200	2x2 AWG24/7 Cat5 SF/UTP	M12-D	M12-D	2m/6.6ft
140001000-00300	2x2 AWG24/7 Cat5 SF/UTP	M12-D	M12-D	3m/9.8ft
140001000-00500	2x2 AWG24/7 Cat5 SF/UTP	M12-D	M12-D	5m/16.4ft
140001000-01000	2x2 AWG24/7 Cat5 SF/UTP	M12-D	M12-D	10m/32.8ft

Article Number	Cable Design	Connector 1	Connector 2	Length
140002010-00015	4x2 AWG26/7 Cat6A SF/UTP	M12-X	M12-X	15 cm/0.5ft
140002010-00030	4x2 AWG26/7 Cat6A SF/UTP	M12-X	M12-X	30 cm/1ft
140002010-00050	4x2 AWG26/7 Cat6A SF/UTP	M12-X	M12-X	50 cm/1.6ft
140002010-00100	4x2 AWG26/7 Cat6A SF/UTP	M12-X	M12-X	1m/3.3ft
140002010-00200	4x2 AWG26/7 Cat6A SF/UTP	M12-X	M12-X	2m/6.6ft
140002010-00300	4x2 AWG26/7 Cat6A SF/UTP	M12-X	M12-X	3m/9.8ft
140002010-00500	4x2 AWG26/7 Cat6A SF/UTP	M12-X	M12-X	5m/16.4ft
140002010-01000	4x2 AWG26/7 Cat6A SF/UTP	M12-X	M12-X	10m/32.8ft

Article Number	Cable Design	Connector 1	Connector 2	Length
140101000-00015	2x2 AWG24/7 Cat5 SF/UTP	RJ45	M12-D	15 cm/0.5ft
140101000-00030	2x2 AWG24/7 Cat5 SF/UTP	RJ45	M12-D	30 cm/1ft
140101000-00050	2x2 AWG24/7 Cat5 SF/UTP	RJ45	M12-D	50 cm/1.6ft
140101000-00100	2x2 AWG24/7 Cat5 SF/UTP	RJ45	M12-D	1m/3.3ft
140101000-00200	2x2 AWG24/7 Cat5 SF/UTP	RJ45	M12-D	2m/6.6ft
140101000-00300	2x2 AWG24/7 Cat5 SF/UTP	RJ45	M12-D	3m/9.8ft
140101000-00500	2x2 AWG24/7 Cat5 SF/UTP	RJ45	M12-D	5m/16.4ft
140101000-01000	2x2 AWG24/7 Cat5 SF/UTP	RJ45	M12-D	10m/32.8ft

Article Number	Cable Design	Connector 1	Connector 2	Length
140202010-00015	4x2 AWG26/7 Cat6A SF/UTP	RJ45	M12-X	15 cm/0.5ft
140202010-00030	4x2 AWG26/7 Cat6A SF/UTP	RJ45	M12-X	30 cm/1ft
140202010-00050	4x2 AWG26/7 Cat6A SF/UTP	RJ45	M12-X	50 cm/1.6ft
140202010-00100	4x2 AWG26/7 Cat6A SF/UTP	RJ45	M12-X	1m/3.3ft
140202010-00200	4x2 AWG26/7 Cat6A SF/UTP	RJ45	M12-X	2m/6.6ft
140202010-00300	4x2 AWG26/7 Cat6A SF/UTP	RJ45	M12-X	3m/9.8ft
140202010-00500	4x2 AWG26/7 Cat6A SF/UTP	RJ45	M12-X	5m/16.4ft
140202010-01000	4x2 AWG26/7 Cat6A SF/UTP	RJ45	M12-X	10m/32.8ft

PROconnect Cat5 SF/FTP



HIGHLIGHTS

Easy installation:

- Fast Connect
- Standardised colour coding

High performance:

- Excellent signal quality
- Up to 100 Mbit/s

PROconnect Cat5 SF/FTP | Technical details

Article	Typ B	Typ C	Typ R
Item number	114060020	114060021	114060022
Construction			
Cable construction	2x2xAWG24/7 SF/FTP		
Conductor	AWG 24/7, tinned		
Insulation	Polyolefin (SFS-PE)		
Wire diameter	1,38 ± 0,05 mm		
Colour code	TIA/EIA 568: Pair 1: white-orange/orange Pair 2: white-green/green		
Pair shielding	Plastic laminated aluminium foil		
Inner jacket	Special PVC	FRNC Compound	
Overall shield	Plastic laminated aluminium foil Copper braiding (Wire 0,10 tinned, Optical coverage > 80%)		
Outer jacket	Special PVC	PUR FHF	
Jacket colour	green, RAL 6018		
Outer diameter	7,4 ± 0,2 mm		
Wall thickness	Nom. 0,7 ± 0,1 mm		
Weight	75 kg/km		
Copper index	26 kg/km		
Applications			
Signal type / Category	Cat.5		
Data rates	10 Mbit/s, 100 Mbit/s		
Application	fixed installation flexible	Energy/drag chains	Robots
Fast Connect (FC) cable	Yes		
Environmental conditions / Product characteristics			
Temperature, fixed installation	-30° - 80°C	-40° - 80°C	
Temperature, moving	-15° - 50°C	-25° - 60°C	
Bend radius, fixed installation	8 x Outer diameter	8 x Outer diameter	8 x Outer diameter
Bend radius, moving	15 x Outer diameter	15 x Outer diameter	15 x Outer diameter
Bend radius, drag chain	15 x Outer diameter	15 x Outer diameter	15 x Outer diameter
Bend cycles, drag chain	50.000	> 1.000.000	
Drag chain speed	0,3 m/min	3m/s	
Torsion cycles			> 1,5 Mio. at ± 180°/m
max. tractive force	120 Nm		
Absence of specific substances (jacket)	silicone-free, LABS-free, lead-free, cadmium-free, FCKW-free	halogen-free, silicone-free, LABS-free, lead-free, cadmium-free, FCKW-free	
Flame retardancy	EN 60332-1-2 EN 13501-6 Class Fca UL AWM 2175	EN 60332-1-2 EN 13501-6 Class Fca IEC 60754-2 UL AWM 21586	
UV-resistant	Yes		
Oil-resistant	IEC 60811-2-1 (IRM 902, 4h at 70°C)	IEC 60811-2-1 (IRM 902, 4h at 70°C; IRM 902, 7dh at 90°C; IRM 902, 21d at 90°C Total EDC 95-11, 1680h at 70 °C)	
LABS-free	VDMA 24364-B2-L		

PROconnect Cat5 SF/FTP | Technical details

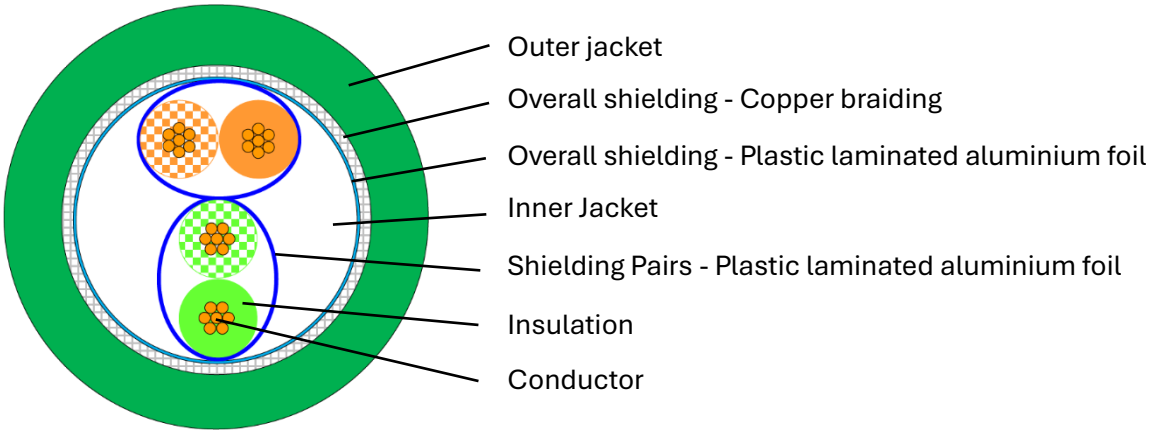
Article	Typ B	Typ C	Typ R
Item number	114060020	114060021	114060022
Electrical Data			
Loop resistance	max. 160 Ohm / km (VDE 0812)		
Insulation resistance	min. 5 GOhm x km at +20°C		
Operating capacity	nom. 45 nF / km		
Nominal characteristic impedance	100 Ohm ± 5 Ohm		
Test voltage	700 V / AC		
Velocity of propagation (NVP)	77 %		
Signal Term	max. 450 ns/100m		
Running time difference	< 5 ns/100m		
Screening attenuation to 1000 MHz	> 80 dB		
Coupling attenuation	> 90 dB		
Transfer impedance	< 5 mOhm/m at 10MHz		
Compliance/Approvals			
RoHS	Yes		
CE	Yes		

PROconnect Cat5 SF/FTP | Technical details

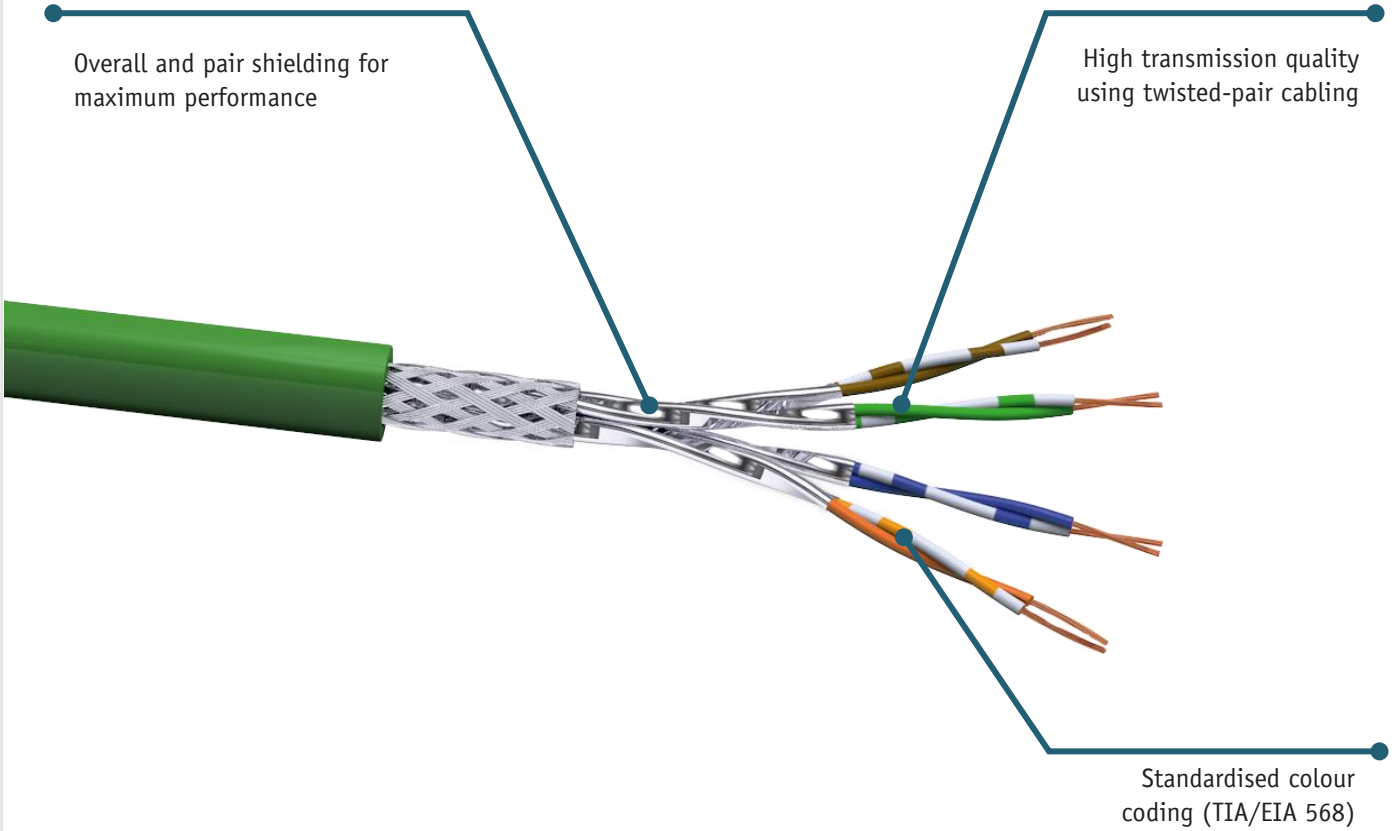
Transmission performance

f [MHz]	Dämpfung/ Attenuation (dB/100m)	NEXT (dB)	ACR (dB/10m)	ELFEXT (dB/10m)	RL (dB)
1	1,9	85	83	80	23
4	3,7	85	81	78	27
10	5,6	85	79	75	30
16	7,2	85	78	66	30
20	8,1	82	74	62	30
31,25	10,2	80	70	60	30
62,5	14,1	78	64	55	30
100	18,1	76	58	48	28
200	25,4	74	49	40	26

Structure



PROconnect Cat6A SF/FTP



HIGHLIGHTS

Easy installation:

- Fast Connect
- Standardised colour coding

High performance:

- Excellent signal quality
- Up to 10 Gbit/s

PROconnect Cat6A SF/FTP | Technical details

Article	Typ B	Typ C	Typ R
Item number	114060030	114060031	114060032
Construction			
Cable construction	4x2xAWG24/7 SF/FTP		
Conductor	AWG 24/7, tinned		
Insulation	Polyolefin (SFS-PE)		
Wire diameter	1,38 ± 0,05 mm		
Colour code	TIA/EIA 568: Pair 1: blue/white-blue Pair 2: white-orange/orange Pair 3: white-green/green Pair 4: white-brown/brown		
Pair shielding	Plastic laminated aluminium foil		
Inner jacket	Special PVC	FRNC Compound	
Overall shield	Plastic laminated aluminium foil Copper braiding (Wire 0,10 tinned, Optical coverage > 80%)		
Outer jacket	Special PVC	PUR FHF	
Jacket colour	green, RAL 6018		
Outer diameter	9,0 ± 0,2 mm	9,8 ± 0,2 mm	
Wall thickness	Nom. 1,0 ± 0,1 mm		
Weight	103 kg/km	105 kg/km	
Copper index	41 kg/km		
Applications			
Signal type / Category	Cat.6A		
Data rates	10 Mbit/s, 100 Mbit/s, 1 Gbit/s, 10 Gbit/s		
Application	fixed installation flexible	Energy/drag chains	Robots
Fast Connect (FC) cable	Yes		
Environmental conditions / Product characteristics			
Temperature, fixed installation	-30° - 80°C	-40° - 80°C	
Temperature, moving	-15° - 50°C	-25° - 60°C	
Bend radius, fixed installation	8 x Outer diameter	8 x Outer diameter	8 x Outer diameter
Bend radius, moving	15 x Outer diameter	15 x Outer diameter	15 x Outer diameter
Bend radius, drag chain	15 x Outer diameter	15 x Outer diameter	15 x Outer diameter
Bend cycles, drag chain	50.000	> 2.000.000	
Drag chain speed	0,3 m/min	3m/s	
Torsion cycles			> 3 Mio. at ± 180°/m
max. tractive force	140 Nm		
Absence of specific substances (jacket)	silicone-free, LABS-free, lead-free, cadmium-free, FCKW-free	halogen-free, silicone-free, LABS-free, lead-free, cadmium-free, FCKW-free	
Flame retardancy	EN 60332-1-2 EN 13501-6 Class Fca UL AWM 2175	EN 60332-1-2 EN 13501-6 Class Fca IEC 60754-2 UL AWM 21586	
UV-resistant	Yes		
Oil-resistant	IEC 60811-2-1 (IRM 902, 4h at 70°C)	IEC 60811-2-1 (IRM 902, 4h at 70°C; IRM 902, 7dh at 90°C; IRM 902, 21d at 90°C Total EDC 95-11, 1680h at 70 °C)	
LABS-free	VDMA 24364-B2-L		

PROconnect Cat6A SF/FTP | Technical details

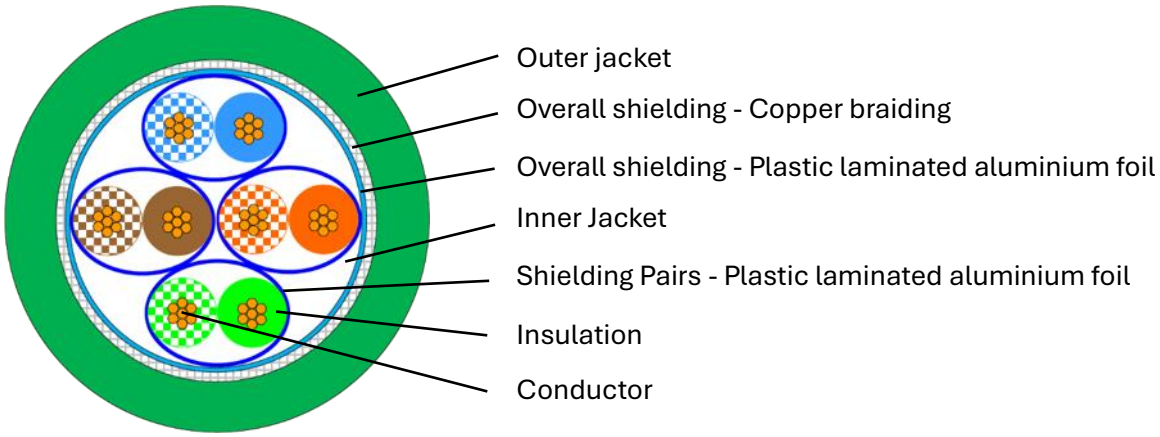
Article	Typ B	Typ C	Typ R
Item number	114060030	114060031	114060032
Electrical Data			
Loop resistance	max. 160 Ohm / km (VDE 0812)		
Insulation resistance	min. 5 GOhm x km at +20°C		
Operating capacity	nom. 45 nF / km		
Nominal characteristic impedance	100 Ohm ± 5 Ohm		
Test voltage	700 V / AC		
Velocity of propagation (NVP)	77 %		
Signal Term	max. 450 ns/100m		
Running time difference	< 5 ns/100m		
Screening attenuation to 1000 MHz	> 80 dB		
Coupling attenuation	> 90 dB		
Transfer impedance	< 5 mOhm/m at 10MHz		
Compliance/Approvals			
RoHS	Yes		
CE	Yes		

PROconnect Cat6A SF/FTP | Technical details

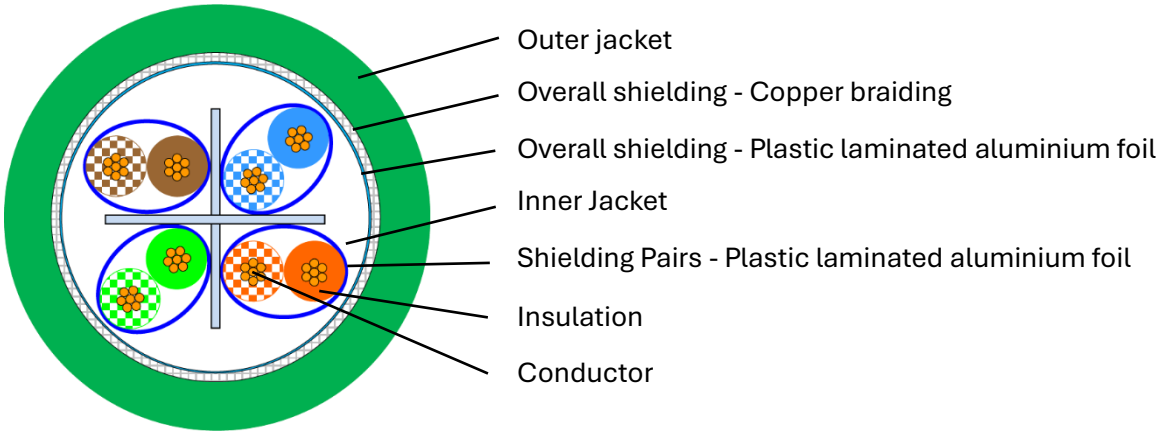
Transmission performance

f [MHz]	Dämpfung/ Attenuation (dB/100m)	NEXT (dB)	ACR (dB/10m)	ELFEXT (dB/10m)	RL (dB)
1	1,9	85	83	80	23
4	3,7	85	81	78	27
10	5,6	85	79	75	30
16	7,2	85	78	66	30
20	8,1	82	74	62	30
31,25	10,2	80	70	60	30
62,5	14,1	78	64	55	30
100	18,1	76	58	48	28
200	25,4	74	49	40	26
300	33,8	72	38	37	24
400	36,9	70	33	35	23
500	40,5	68	27	32	21

Structure (Typ B)



Structure (Typ C und Typ R)



PROconnect Patch Cable Cat5 | Technical Details

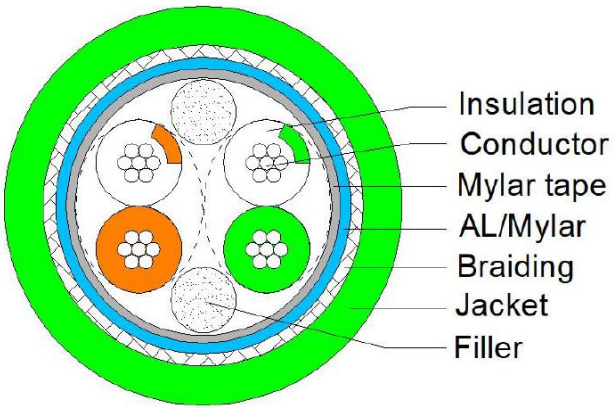
Articel	**RJ45 – RJ45**	**RJ45 – M12-D**	**M12-D – M12-D**
Article number	140000000-xxxxx	140001000-xxxxx	140101000-xxxxx
Length	xxxxx in cm (Example: 00050 corresponds to 50 cm)		
Application areas			
Signal type / Category	Cat.5, Class D		
Max. Transmission rates	100 Mbit/s		
Application	fixed and flexible installation		
Connectors			
Connector A			
connection type	RJ45	RJ45	M12 D coded
pin count	4		
Coating contact	gold plated		
Degree of protection	IP20	IP20	IP67
Connector B			
connection type	RJ45	M12 D coded	M12 D coded
pin count	4		
Coating contact	gold plated		
Degree of protection	IP20	IP67	IP67
Cable specifications			
Cable construction	2x2xAWG24/7 SF/UTP		
Conductor	7*0,20 mm - bare copper		
Insulation	High-Density Polyethylen (HDPE)		
Wire diameter	1,13 ± 0,05 mm		
Filler	Cotton rope		
Overall shielding	aluminium composite foil Tinned copper braid (coverage ≥ 85%)		
Material jacket	PVC		
Jacket Color	green, RAL 6018		
Outer-diameter (jacket)	6,5 ± 0,3 mm		
Thickness (jacket)	approx 0,8 mm		
Environmental conditions / Product characteristics			
Operating temperature	-40° - 80°C		
Installation temperature	-20° - 60°C		
Bending radius	Fixed: 4 x Outer diameter Occasional movement: 8 x Outer diameter		
Freedom from ingredients (jacket)	lead-free, cadmium-free, CFC-free		
Flame resistance	EN 60332-1-2, FT2		
UV resistance	300h (UL 1581)		
Oil resistance	IRM 902, 70°C x 4h (EN 50290-2-22)		
LABS-free	VDMA 24364-B2-L		
Electrical properties			
Conductor resistance	≤ 145 Ohm / km		
Insulation resistance	≥ 5 GOhm x km		
Electrical capacity line constant	nom. 56 nF / km		
Nominal impedance	100 Ohm ± 15 Ohm		
Nominal voltage max.	300 V / DC		
Signal propagation speed (NVP)	67 %		
Delay skew	≤ 25 ns/100m		
conformities/approvals			
RoHS	Yes		
UL	Recognized AWM Style 20276		

PROconnect Patch Cable Cat5 | Technical Details

Transmission characteristics

Frequency [MHz]	Attenuation (dB)	NEXT (dB)	RL (dB)	ACR-F (dB)
1	3,0	60,0	19,0	58,6
4	3,9	54,8	19,0	46,6
8	5,5	50,0	19,0	40,6
10	6,2	48,5	19,0	38,6
16	7,9	45,2	19,0	34,5
20	8,9	43,7	19,0	32,6
25	10,0	42,1	18,0	30,7
31,25	11,2	40,5	17,1	28,7
62,5	16,2	35,7	14,1	22,7
100	21,0	32,3	12,0	18,6

Design



technical drawing

PROconnect Patch Cable Cat6A | Technical Details

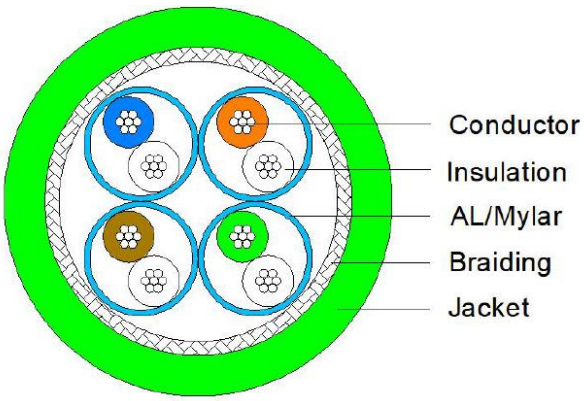
Articel	RJ45 – RJ45	RJ45 – M12-X	M12-X – M12-X
Article number	140000010-xxxxx	140002010-xxxxx	140202010-xxxxx
Length	xxxxx in cm (Example: 00050 corresponds to 50 cm)		
Application areas			
Signal type / Category	Cat.6A, Class EA		
Max. Transmission rates	10 Gbit/s		
Application	fixed and flexible installation		
Connectors			
Connector A			
connection type	RJ45	RJ45	M12 X coded
pin count	8		
Coating contact	gold plated		
Degree of protection	IP20	IP20	IP67
Connector B			
connection type	RJ45	M12 X coded	M12 X coded
pin count	8		
Coating contact	gold plated		
Degree of protection	IP20	IP67	IP67
Cable specifications			
Cable construction	4x2xAWG26/7 S/FTP		
Conductor	7*0,16 mm - bare copper		
Insulation	Polyethylen (PE)		
Wire diameter	1,0 ± 0,05 mm		
Pair shielding	aluminium composite foil		
Overall shielding	Tinned copper braid (coverage ≥ 85%)		
Material jacket	PVC		
Jacket Color	green, RAL 6018		
Outer-diameter (jacket)	6,1 ± 0,3 mm		
Thickness (jacket)	approx 0,55 mm		
Environmental conditions / Product characteristics			
Operating temperature	-40° - 80°C		
Installation temperature	-20° - 60°C		
Bending radius	Fixed: 6 x Outer diameter Occasional movement: 10 x Outer diameter		
Freedom from ingredients (jacket)	lead-free, cadmium-free, CFC-free		
Flame resistance	VW-1, CMX		
UV resistance	720h (UL 1581)		
Oil resistance	IRM 902, 70°C x 4h (EN 50290-2-22)		
LABS-free	VDMA 24364-B2-L		
Electrical properties			
Conductor resistance	≤ 148 Ohm / km		
Insulation resistance	≥ 5 GOhm x km		
Electrical capacity line constant	nom. 56 nF / km		
Nominal impedance	100 Ohm ± 15 Ohm		
Nominal voltage max.	300 V / DC		
Signal propagation speed (NVP)	77 %		
Delay skew	≤ 45 ns/100m		
conformities/approvals			
RoHS	Yes		
UL	Recognized AWM Style 20276		

PROconnect Patch Cable Cat6A | Technical Details

Transmission characteristics

Frequency [MHz]	Attenuation (dB)	NEXT (dB)	RL (dB)	ACR-F (dB)	PSNEXT (dB)	PSACR-F (dB)
1	1,9	65,0	19,1	64,2	62,0	61,1
4	3,5	34,1	21,0	52,1	61,8	49,1
8	5,0	59,4	21,0	46,1	57,0	43,1
10	5,5	57,8	21,0	44,2	55,5	41,2
16	7,0	54,7	20,0	40,1	52,2	37,1
20	7,8	53,1	19,5	38,2	50,7	35,2
25	8,8	51,5	19,0	36,2	49,1	33,2
31,25	9,8	50,0	18,5	34,3	47,5	31,3
62,5	14,0	45,1	16,0	28,3	42,7	25,3
100	18,0	41,8	14,0	24,2	39,3	21,2
200	26,1	36,9	11,0	18,2	34,3	15,2
250	29,5	35,3	10,0	16,2	32,7	13,2
300	32,7	34,0	9,2	14,6	31,4	11,6
400	38,4	29,9	8,0	12,1	27,1	9,1
500	43,8	26,7	8,0	10,2	23,8	7,2

Design



technical drawing