LÜTZE - Ethernet cables • Overview

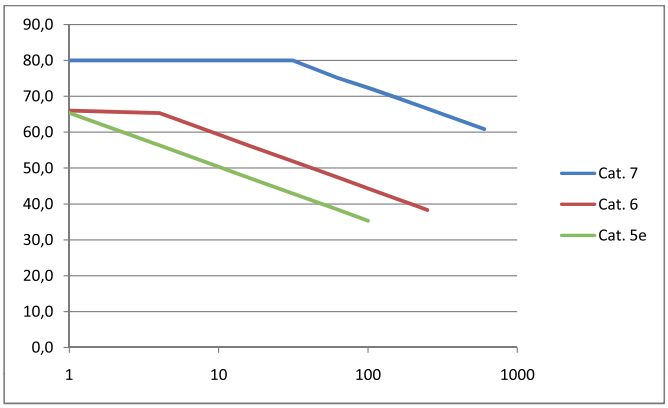
Industrial Ethernet / PROFINET / ETHERCAT				Cat5
LÜTZE Type	**SUPERFLEX®**	**ELECTRONIC**	**ELECTRONIC**	**SUPERFLEX®**
Category	Cat5	Cat5	Cat5	Cat5
Application according to	Profinet Typ C	Profinet Typ B	Profinet Typ A	
Dimensions	2x2xAWG22/7	2x2xAWG22/7	2x2xAWG22/1	2x2xAWG22/19
Part-No.	104303	04307	104301	104302
Screen	•	•	•	•
Jacket	PUR	PVC	PVC	PUR
UL	CMX	CMG	CMG	CMX
Temperature range	moved -25°C/+70°C	fixed -30°C/+80°C	fixed -30°C/+80°C	moved -25°C/+70°C

Cat5e Industrial Ethernet / Ethernet IP				Cat6		Cat7
LÜTZE Type	**ELECTRONIC**	**ELECTRONIC**	**SUPERFLEX®**	**ELECTRONIC**	**SUPERFLEX®**	**ELECTRONIC**
Category	Cat5e	Cat5e	Cat5e	Cat6a	Cat6	Cat7
Application according to	prEN 50173-3	prEN 50173-3	prEN 50173-3	prEN 50173-3		
Dimensions	4x2xAWG 26/7	4x2xAWG 24/7	4x2xAWG 24/19	4x2xAWG 26/7	4x2xAWG26/19	4x2xAWG26/7
Part-No.	104335	104336	104337	104338	104347	104331
Screen	•	•	•	•	•	•
Jacket	PVC	PVC	PUR	PVC	PUR	PVC
UL	CMG	CMG	AWM	CMG	CMX	CMG
Temperature range	fixed -30°C/+80°C	fixed -30°C/+80°C	moved -25°C/+70°C	fixed -30°C/+80°C	moved -25°C/+70°C	fixed -30°C - +80°C

LÜTZE - Ethernet Cables • Transmission Parameters

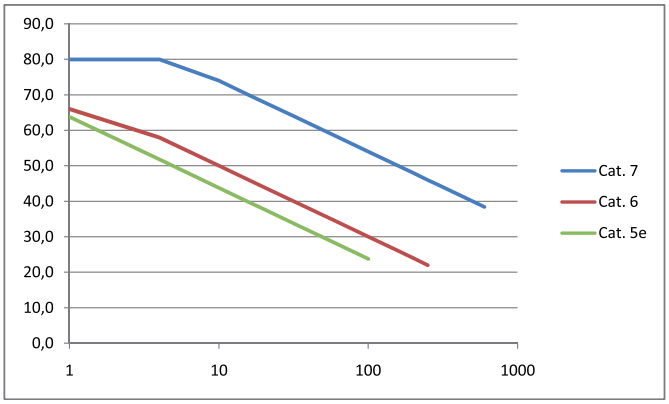
min. Near End Crosstalk (NEXT)

	EN 50288-2-2	EN 50288-5-2	EN 50288-4-2	
Frequenz	Cat. 5e	Cat. 6	Cat. 7	[Unit]
1 MHz	65,3	66,0	80,0	dB
4 MHz	56,3	65,3	80,0	dB
10 MHz	50,3	59,3	80,0	dB
16 MHz	47,2	56,2	80,0	dB
20 MHz	45,8	54,8	80,0	dB
31,25 MHz	42,9	51,9	80,0	dB
62,5 MHz	38,4	47,4	75,1	dB
100 MHz	35,3	44,3	72,4	dB
155 MHz	-	41,4	69,6	dB
200 MHz	-	39,8	67,9	dB
250 MHz	-	38,3	66,5	dB
300 MHz	-	-	65,3	dB
600 MHz	-	-	60,8	dB



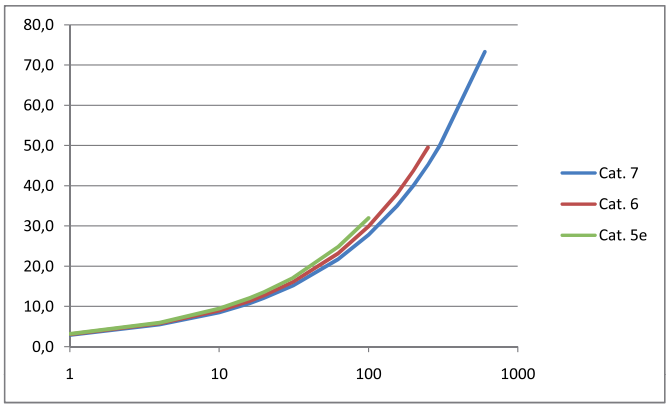
min. Far End Crosstalk (FEXT)

	EN 50288-2-2	EN 50288-5-2	EN 50288-4-2	
Frequenz	Cat. 5e	Cat. 6	Cat. 7	[Unit]
1 MHz	63,8	66,0	80,0	dB
4 MHz	51,8	58,0	80,0	dB
10 MHz	43,8	50,0	74,0	dB
16 MHz	39,7	45,9	69,9	dB
20 MHz	37,8	44,0	68,0	dB
31,25 MHz	33,9	40,1	64,1	dB
62,5 MHz	27,9	34,1	58,1	dB
100 MHz	23,8	30,0	54,0	dB
155 MHz	-	26,2	50,2	dB
200 MHz	-	24,0	48,0	dB
250 MHz	-	22,0	46,0	dB
300 MHz	-	-	44,5	dB
600 MHz	-	-	38,4	dB



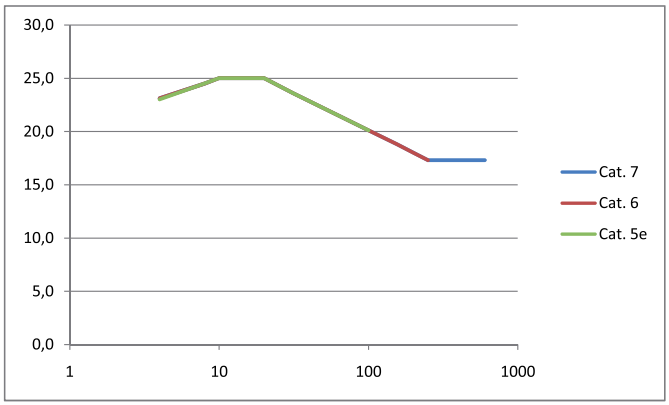
max. Attenuation (α)

	EN 50288-2-2	EN 50288-5-2	EN 50288-4-2	
Frequenz	Cat. 5e	Cat. 6	Cat. 7	[Unit]
1 MHz	3,2	3,1	2,9	dB/100m
4 MHz	6,0	5,8	5,5	dB/100m
10 MHz	9,5	9,0	8,5	dB/100m
16 MHz	12,1	11,4	10,8	dB/100m
20 MHz	13,6	12,8	12,1	dB/100m
31,25 MHz	17,1	16,1	15,2	dB/100m
62,5 MHz	24,8	23,2	21,7	dB/100m
100 MHz	32,0	29,9	27,8	dB/100m
155 MHz	-	38,0	35,0	dB/100m
200 MHz	-	43,7	40,1	dB/100m
250 MHz	-	49,5	45,3	dB/100m
300 MHz	-	-	50,0	dB/100m
600 MHz	-	-	73,3	dB/100m

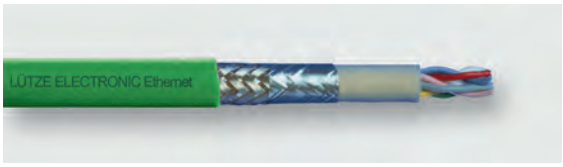


Return Loss (RL)

	EN 50288-2-2	EN 50288-5-2	EN 50288-4-2	
Frequenz	Cat. 5e	Cat. 6	Cat. 7	[Unit]
4 MHz	23,0	23,1	23,1	dB
8 MHz	24,5	24,5	24,5	dB
10 MHz	25,0	25,0	25,0	dB
16 MHz	25,0	25,0	25,0	dB
20 MHz	25,0	25,0	25,0	dB
31,25 MHz	23,6	23,6	23,6	dB
62,5 MHz	21,5	21,5	21,5	dB
100 MHz	20,1	20,1	20,1	dB
155 MHz	-	18,8	18,8	dB
200 MHz	-	18,0	18,0	dB
250 MHz	-	17,3	17,3	dB
350 MHz	-	-	17,3	dB
600 MHz	-	-	17,3	dB



LÜTZE ELECTRONIC ETHERNET BUS (C) PUR
LÜTZE ELECTRONIC ETHERNET BUS (C) PVC



Application
- For the cabling of industrial field bus systems with the globally accepted TCP/IP protocol
- Applicable in automation technology, transport and conveyor technology, machine tool manufacture
- For hard wiring or moving use without compulsory guide in the automation technology, transport and conveyor technology, machine tool manufacture

Properties
- High active and passive interference resistance
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Impedance	100 Ω ± 10 % (1–100 MHz)
Loop resistance	
Wire AWG 22/1= 0.34^2	<110 Ω/km
Braid AWG 24/7= 0.22^2	<165 Ω/km
Braid AWG 26/7=0.14^2	<273 Ω/km
Operating capacitance	<50 pF/m
Rated voltage	250 V
Test voltage	1500 V
Temperature range	
moving	-5 °C to +70 °C
run	-30 °C to +80 °C
Minimum bending radius	
moving	D × 12
fixed	D × 6
Fire performance	Flame-retardant according to VDE 0482 part 265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2
Approvals	UL listed CMG or. CMX 75 °C (see article description **UL**) UL recognized 80 °C 30 V (see article description **UR**)

Design
- Bare copper wire
- Braid according to AWG
- Conductor insulation special polyolefin
- ST static shield
- Galvanised copper wire braid, optical coverage ≥ 85 %
- Jacket special-PUR, matt, adhesion-free surface or PVC
- Jacket colour violet RAL 4001; green RAL 6018

Part-No.	Number of strands/cross-section/ strand colours	Jacket	Outer-∅ approx. mm	Weight kg/100 m	Cu-Index kg/100 m
ELECTRONIC Fast Ethernet / ProfiNet					
104247	(2×2×0.22/AWG24/7) Cat5 **UR** Star quad Transmission pair white/brown; green/ yellow	PUR violet	6.1	6.5	2.5
104243	(2×2×0.22/AWG24/7) Cat5 Star quad Transmission pair white/brown; green/ yellow	PUR violet	6.1	6.5	2.5
104301	(2×2×0.64/AWG22/1)StC Cat5 **UL** Star quad, FC, ProfiNet type A Transmission pair white/blue, yellow/ orange	PVC green	6.5	6.5	3.7
104307	(2×2×0.34/AWG22/7)StC Cat5 **UL** Star quad, FC, ProfiNet type B Transmission pair white/blue, yellow/ orange	PVC green	6.5	6.5	3.1
104327	(4x2xAWG26/7 StC) Cat5e **UL** whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown	PUR green	6.3	5.0	3.0
104335	(4x2xAWG26/7 StC) Cat5e **UL** whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown	PVC green	6.3	5.4	3.0
104336	(4x2xAWG24/7 StC) Cat5e **UL** whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown	PVC green	7.6	6.7	5.5
104338	(4x(2xAWG26/7)St)C Cat6 **UL** whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown	PVC green	6.4	5.3	3.3
104339	(4x(2xAWG26/7)St)C Cat7 **UL** whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown	PUR green	7.0	6.1	3.3
For Siemens Drive-Cliq® system					
104313	(2×2×AWG26) green/yellow, blue/red	PVC green	6.8	7.3	3.4
104311	(2×2×AWG26+2×AWG22) AWG26: green/yellow, blue/pink AWG22: red, black	PUR green	6.8	7.3	3.4

CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

LÜTZE SUPERFLEX® ETHERNET BUS (C) PUR

Application
- For the cabling of industrial field bus systems with the globally accepted TCP/IP protocol
- Applicable in automation technology, transport and conveyor technology, machine tool manufacture
- For continuous flexible application e.g. in c-tracks or free movement

Properties
- High active and passive interference resistance
- Free from paint wetting disruptive substances (LABS-free), RoHS-compliant

Technical data

Impedance	100 Ω ± 10 % (1–100 MHz)
Loop resistance	
Braid AWG 23/19= 0.30^2	<130 Ω/km
Braid AWG 24/19= 0.24^2	<155 Ω/km
Braid AWG 26/19= 0.14^2	<280 Ω/km
Braid AWG 22/7= 0.34^2	<110 Ω/km
Operating capacitance	<50 pF/m
Rated voltage	250 V
Test voltage	1500 V
Temperature range	
moving	-25 °C to +70 °C
fixed	-40 °C to +80 °C
Minimum bending radius	
moving	D × 12
fixed	D × 6
Fire performance	Flame-retardant according to VDE 0482 part 265-2; IEC 60332-1; UL 1581 section VW-1 Flame-Test; CSA FT 1
Halogen-free	according to DIN EN 50264-1; EN 50267-2-1 and EN 60684-2
Approvals	UL listed PLTC (see article description **UL**) UL recognized 80 °C 30 V (see article description **UR**)
Note	**Note on laying PVC C-track cables in chapter 2 of the catalogue TK1.** **Bus cables for robot applications see chapter on robot cables.**

Design
- Bare copper wire
- Braid according to AWG
- Conductor insulation special polyolefin
- ST static shield
- Halogen-free inside jacket
- Galvanised copper wire braid, optical coverage ≥ 85 %
- Jacket special-PUR, matt, adhesion-free surface
- Jacket colour violet RAL 4001; green RAL 6018; black RAL 9005

Part-No.	Number of strands/cross-section/ strand colours	Jacket	Outer-∅ approx. mm	Weight kg/100 m	Cu-Index kg/100 m
SUPERFLEX Fast Ethernet / ProfiNet					
104304	(2×2×AWG23/19)StC Cat5 **UR** Star quad; ProfiNet Transmission pair white/blue; yellow/ orange	PUR green	6.6	7.5	3.7
104246	(4×2×AWG24/19) Cat5 **UR** white/brown, green/yellow, grey/pink, blue/red	PUR violet	9.6	12.5	5.7
104245	(2×2×AWG24/19) Cat5 **UR** Star quad Transmission pair white/brown; green/ yellow	PUR violet	6.1	6.5	3.7
104303	(2×2×AWG22/7)StC Cat5 **UL** Star quad; ProfiNet Transmission pair white/blue; yellow/ orange	PUR green	6.5	6.1	3.1
104326	(4×2×AWG26/19) Cat5e whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown	PUR green	6.3	5.2	3.0
104337	(4×2×AWG24/19) Cat5e **UR** whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown	PUR green	7.8	6.8	5.5
104347	(4×2×AWG26/19) Cat6 whiteblue/blue, whiteorange/orange, whitegreen/green, whitebrown/brown	PUR green	7.9	6.3	4.2
For Siemens Drive-Cliq® system					
104310	(2×2×AWG26+2×AWG22) pink/blue, yellow/green red, black	PUR green	6.8	7.3	3.4

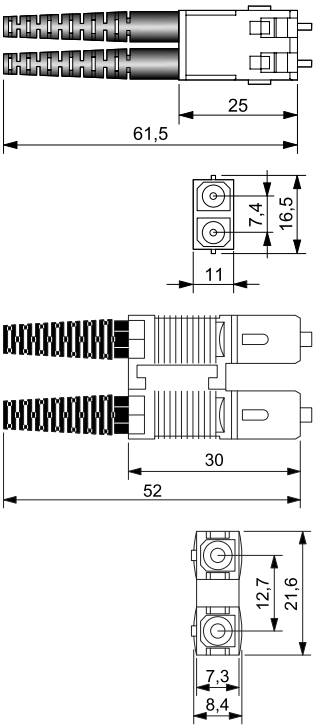
CE These products are in conformity with the EU Low Voltage Directive 2006/95/EC

Patch cable FOC GOF
Ready-made with SCRJ and SC-Duplex connector, IP 20
Multimode optical fibre 50/125 µm

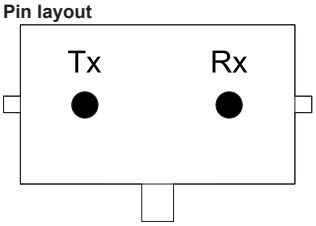
Description		Part-No.	Type	PU
Cable length				
Description	1.0 m	772141.0100	LWL 2×SCRJ/GOF 50/125µm 1,0m	1
	2.0 m	772141.0200	LWL 2×SCRJ/GOF 50/125µm 2,0m	1
	5.0 m	772141.0500	LWL 2×SCRJ/GOF 50/125µm 5,0m	1

Technical data	772141.0100	772141.0200	772141.0500
Fibre type	Tight buffered fibre		
Fibre dimensions	50 / 125 µm		
Bandwidth-distance product	≥ 600 MHz x km with 850Nm, ≥ 1200 MHz x km with 1300nm		
Number of terminations	2		
Cable length	1.0	2.0	5.0
Loss	2.5 dB/km with 850 nm, junction loss: ≤0.5 dB		
Numerical aperture	0.2		
Contact type	SCRJ to EN 50377-6-1, SC-Duplex to IEC 61754-4		
General			
Form	Male / male		
Rated insulation voltage (EN 50178)	–		
Test voltage	–		
Pollution degree	–		
Insulation resistance	–		
Contact resistance	–		
Class of flammability according to UL 94	V0		
Protection class	IP 20		
Housing material	PBT		
Gasket	–		
Contact material	–		
Field installation	–		
Bending radius	≥ 65 mm		
Cable construction	Cladding material single-fibre FRNC red, green		
Cable jacket	LSZH orange		
Cable diameter	Twin cable (2.8 × 5.7 mm)		
Ferrule diameter	2.5 mm		
Operation temperature range	-5 °C – 70 °C		
Storage temperature range	-5 °C – 70 °C		
Mechanical service life	≥ 1000 insertion cycles		
Dimensions (w × h × d)	16.5 × 61.5 × 11 mm / 21.6 × 52 × 8.4 mm		
Weight (kg/piece)	–		
Approvals	–		
Standards	SCRJ to EN 50377-6-1, SC-Duplex to IEC 61754-4		

Dimensions

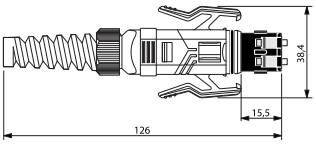


Pin layout

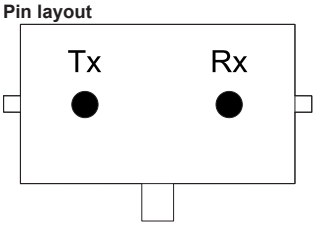


Patch cable FOC POF IP67
Ready-made V6 enclosure with SCRJ connector
Polymer fibre 980/1000 µm

Dimensions



Pin layout

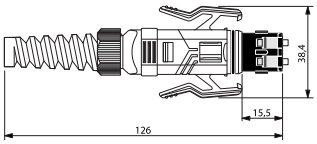


Description	Part-No.	Type	PU
Description	772125.xxxx	LWL 2×SCRJ/V6 POF 980/1000µm	1

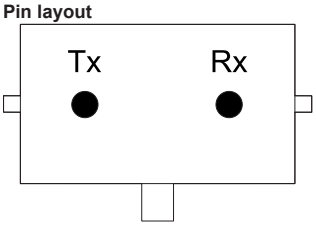
Technical data	772125.xxxx
Fibre type	PMMA
Fibre dimensions	980 / 1000 µm
Bandwidth-distance product	≥10 MHz x 100 m with 650 nm
Number of terminations	2
Cable length	Variable from 1.0 - 100 m
Loss	230 dB/km with 660 nm, junction loss: ≤1.7 dB with 660 nm
Numerical aperture	0.5
Contact type	SCRJ to EN 50377-6-1
General	
Form	V6 to ISO/IEC 61076-3-106
Rated insulation voltage (EN 50178)	–
Test voltage	–
Pollution degree	–
Insulation resistance	–
Contact resistance	–
Class of flammability according to UL 94	–
Protection class	IP 67
Housing material	PBT/PA
Gasket	FPM
Contact material	–
Field installation	–
Bending radius	≥ 65 mm
Cable construction	Cladding material PA fibre black and orange
Cable jacket	PUR red
Cable diameter	8.0 mm ± 0.5 mm
Ferrule diameter	2.5 mm
Operation temperature range	-20 °C – 70 °C
Storage temperature range	-40 °C – 80 °C
Mechanical service life	≥ 1000 insertion cycles
Dimensions (w × h × d)	38.4 × 126.0 × 22.8 mm
Weight (kg/piece)	–
Approvals	–
Standards	SCRJ to EN 50377-6-1 SC-Duplex to IEC 61754-4

Patch cable FOC GOF IP67
Ready-made V6 enclosure with SCRJ connector
Multimode optical fibre 50/125 µm

Dimensions



Pin layout

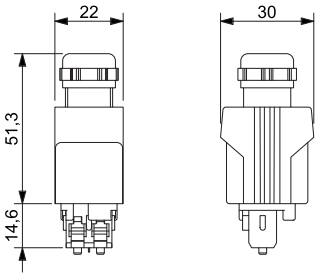


Description	Part-No.	Type	PU
Description	772126.xxxx	LWL 2×SCRJ/V6 GOF 50/125µm	1

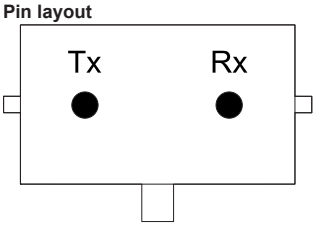
Technical data	**772126.xxxx**
Fibre type	Tight buffered fibre
Fibre dimensions	50 / 125 µm
Bandwidth-distance product	≥600 MHz x km with 850Nm, ≥1200 MHz x km with 1300nm
Number of terminations	2
Cable length	Variable from 1.0 - 100 m
Loss	2.5 dB/km with 850 nm, junction loss: ≤0.5 dB
Numerical aperture	0.2
Contact type	SCRJ to EN 50377-6-1
General	
Form	V6 to ISO/IEC 61076-3-106
Rated insulation voltage (EN 50178)	–
Test voltage	–
Pollution degree	–
Insulation resistance	–
Contact resistance	–
Class of flammability according to UL 94	–
Protection class	IP 67
Housing material	PA
Gasket	FPM
Contact material	–
Field installation	–
Bending radius	≥ 50 mm
Cable construction	Cladding material single-fibre FRNC red, green
Cable jacket	PUR orange
Cable diameter	8.0 mm ± 0.5 mm
Ferrule diameter	2.5 mm
Operation temperature range	-20 °C – 70 °C
Storage temperature range	-40 °C – 80 °C
Mechanical service life	≥ 1000 insertion cycles
Dimensions (w × h × d)	38.4 × 126.0 × 22.8 mm
Weight (kg/piece)	–
Approvals	–
Standards	SCRJ to EN 50377-6-1 SC-Duplex to IEC 61754-4

Patch cable FOC POF IP67
Ready-made V14 enclosure, push-pull with SCRJ connector
Polymer fibre 980/1000 µm

Dimensions



Pin layout



Description		Part-No.	Type	PU
Suitable for fieldbus systems				
Description	Profinet 1.0 m	772136.0100	LWL 2×SCRJ/V14 POF 980/1000µm 1,0m	1
	Profinet 2.0 m	772136.0200	LWL 2×SCRJ/V14 POF 980/1000µm 2,0m	1
	Profinet 5.0 m	772136.0500	LWL 2×SCRJ/V14 POF 980/1000µm 5,0m	1

Technical data	772136.0100	772136.0200	772136.0500
Fibre type		PMMA	
Fibre dimensions		980 / 1000 µm	
Bandwidth-distance product		≥10 MHz x 100 m with 650 nm	
Number of terminations		2	
Cable length	1.0	2.0	5.0
Loss		2.5 dB/km with 850 nm, junction loss: ≤1.7 dB with 660 nm	
Numerical aperture		0.5	
Contact type		SCRJ to EN 50377-6-1	
General			
Form		V14 to IEC 61918, IEC 61784-5-3	
Rated insulation voltage (EN 50178)		–	
Test voltage		–	
Pollution degree		–	
Insulation resistance		–	
Contact resistance		–	
Class of flammability according to UL 94		–	
Protection class		IP 67	
Housing material		PA-GF	
Gasket		NBR	
Contact material		–	
Field installation		Push-pull	
Bending radius		≥ 65 mm	
Cable construction		Cladding material PA fibre black and orange	
Cable jacket		LSFH green RAL 6018	
Cable diameter		7.5 mm	
Ferrule diameter		2.5 mm	
Operation temperature range		-20 °C – 60 °C	
Storage temperature range		-30 °C – 70 °C	
Mechanical service life		≥ 750 insertion cycles	
Dimensions (w × h × d)		22.0 × 65.9 × 30.0 mm	
Weight (kg/piece)	0.172	0.184	0.222
Approvals		–	
Standards		SCRJ to EN 50377-6-1	